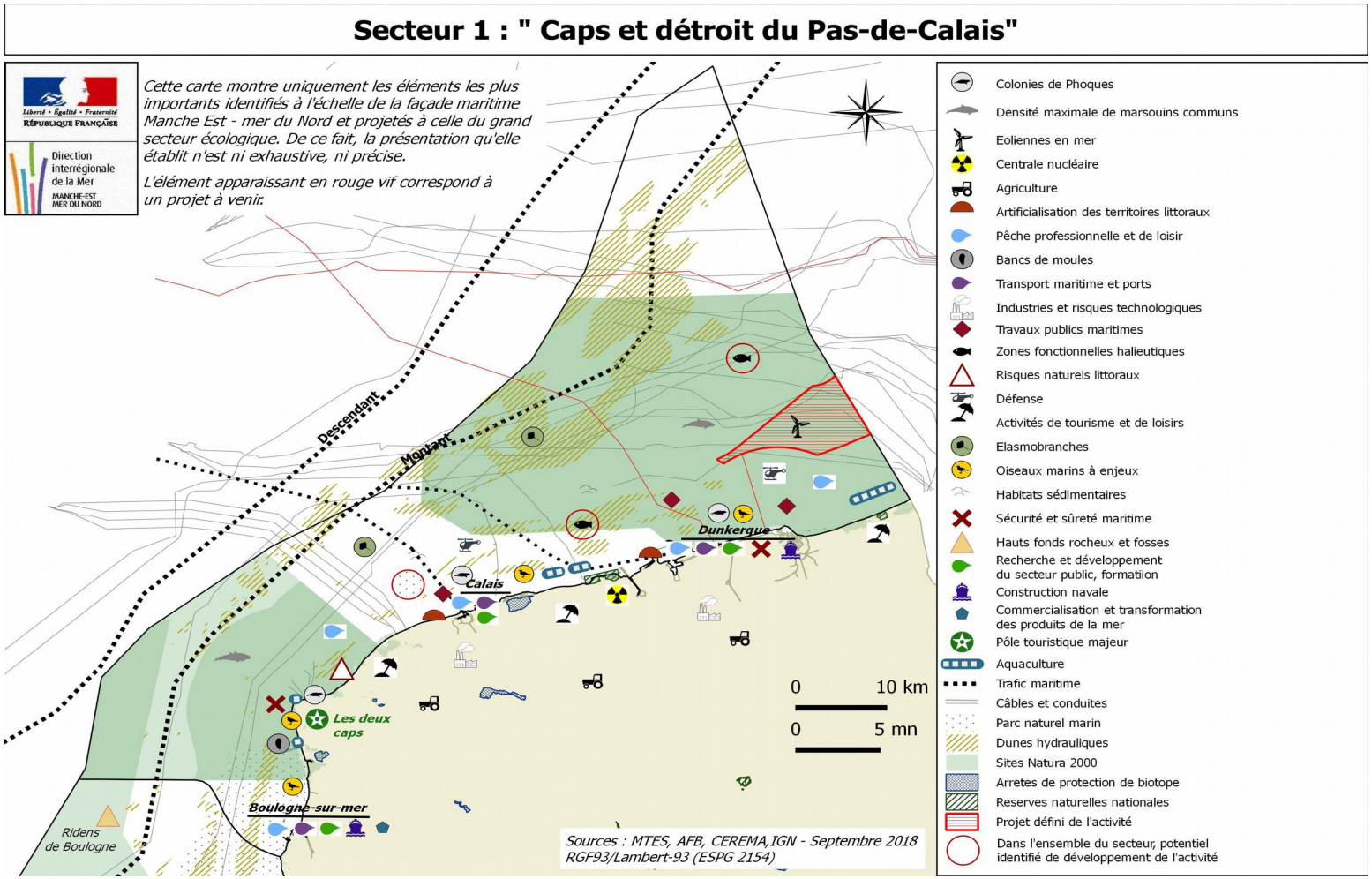
AREA no. 1

Pas-de-Calais Capes and Strait of Dover

Vocation: Prevalence of maritime shipping, challenges with maritime security and port infrastructure and marine renewable energy. The need to sustain marine fishing activity, the zone's aquaculture potential, as well as marine aggregates, while at the same time allowing growing tourism activity. Safeguarding migration corridors and key habitats.

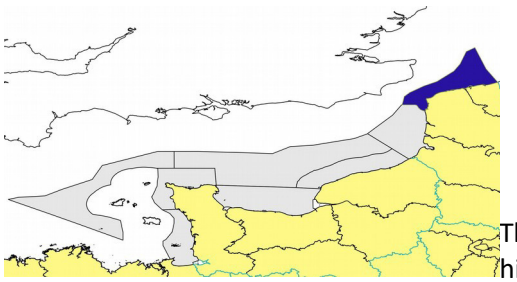
Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological area: Sector 1: Southern North Sea and Strait of Dover
Area 2: Picardy Estuaries and the Opal Sea

Associated water mass: FRAC01 BELGIAN BORDER TO THE MALO BREAKWATERS
FRAC02 MALO BREAKWATERS TO THE EAST OF GRIS NEZ CAPE
FRAC03 GRIS NEZ CAPE TO SLACK
FRAT02 PORT OF BOULOGNE
FRAT03 PORT OF CALAIS
FRAT04 PORT OF DUNKIRK AND INTERTIDAL ZONE TO THE BREAKWATER



Broadly, in terms of identified ecological challenges, the Strait of Dover is a bottleneck where the North Sea and the English Channel meet. This ecological unit has particular hydrographic conditions; there are many sandbanks in the area, including subaqueous dunes formed by swells and currents.

The poorly sorted sands on the coastal fringe are characterised by high densities of invertebrates, including molluscs and bivalves. As an area of high plankton production, this productive environment provides an abundant and diversified food supply for epifauna and forage species. As well as being an important feeding area for top predators, the strait also has a high concentration of cod, is a nursery area for whiting, plaice and sole and a spawning area for herring.

Porpoises concentrate in the area during winter due to the abundance of prey species and the sandbanks are popular resting places for grey seals (the largest colony in France). On the main seabird migration route, the area is a wintering ground of national or international interest for seabirds, including alcids and gulls. Generally, it is a key stopover habitat for migrating species. There are also substantial breeding colonies of black-legged kittiwakes (the largest colony in France), common terns, little terns and northern fulmars.

The Picard Estuaries and Opal Sea marine natural park, created on 11 December 2012, is the first marine natural park in the East Channel-North Sea basin. The perimeter is mainly within area 2, but it extends into this zone. It encompasses a maritime surface of 2300 km² and runs along 118 km of coastline. The park's main objectives are to improve understanding of and protect the marine environment, while supporting the sustainable development of maritime activities that depend on it.

The area is characterised by extremely dense maritime traffic, with significant recreational boating, and the Maritime Port of Dunkirk. Located near to one of the most heavily used maritime routes in the world (around 200 commercial ships a day (Gris-Nez CROSS), plus fishing and recreational vessels), the port of Dunkirk offers excellent accessibility to shipping and facilities that can handle the largest ships and all kinds of cargoes. The port extends along 17km and has two entrances for shipping: the older Eastern Port and the more recent Western Port. The high level sea traffic in the zone is also due to ferries between Calais, Ostend and Dover.

The industrial landscape is very dense and still expanding in Dunkirk and Calais, where there is also a waste treatment sector. Socio-economic challenges are also concentrated around Boulogne-sur-Mer, the site of France's largest fishing port in terms of tonnage (offshore fishing effort is particularly high). The industrial

zone of Capécure is located within the port area (an economic and industrial district and Europe's leading centre for the processing, marketing and distribution of seafood).

Gravelines nuclear power station is the largest in Western Europe, both in terms of production capacity and the number of nuclear reactors: the six reactors at Gravelines are cooled by sea water.

In addition, numerous electricity and telecommunication cables pass through the area, linking France, Belgium and England. A gas pipeline connects France and Norway. Two projects are also underway:

- Grid Link, a new high-voltage electricity interconnector between France and Great Britain;
- Nemo Link, an interconnector between Belgium and the United Kingdom, which will enable electricity to flow in both directions between the two countries.

The planned wind farm off the coast of Dunkirk is another structuring project for the zone.

Finally, the role of natural heritage in territorial development is an important consideration. Due to its geographical location, the typologies of sites and developments, the area has a rich and diverse wealth of natural spaces (pelagic spaces, dunes and inland areas such as parks), where 22 different activities are enjoyed on land, in the air, in the water or on a boat. Today, outdoor sporting and leisure activities are a driver for sustainable development in the territory.
There is a project underway to list the Dunes of Flanders, which lie between Dunkirk and the Belgian border, as a "Grand Site de France".

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- Territorial Coherence Plan (SCOT)
SCoT Flanders Dunkirk
SCoT Pale of Calais
SCoT Terre des Deux Caps
SCoT Boulonnais

- SRADDET Hauts-de-France region
- Strategy on integrated coastline management strategy

PPRL / PPRI

- Water Planning and Management Scheme (SAGE)
SAGE01007 The Aa Delta
SAGE01001 Boulonnais coastal basin
SDAGE Artois-Picardy basin
- Objective documents for the Natura 2000 sites listed below
- Regional marine aquaculture development plans (SRDAM)
- Management plan of the Picardy Estuary and Opal Sea marine nature park
- Shore council (CELRL)
Port councils
Coastal Risk Prevention Plan (PPRL)
Flood Risk Prevention Plan (PPRi)
SDAGEArtois-Picardy basin
- Hauts-de-France Regional Biodiversity Committee

* **List of marine protected areas and other natural spaces**

- SAC FR3100478 CRAN AUX OEUFS AND CAP GRIS-NEZ CLIFFS, CHÂTELET DUNES, TARDINGHEN MARSHES AND WISSANT DUNES: Decree of 12 August 2015 regarding the designation of the Natura 2000 site Falaises du Cran aux Oeufs et du Cap Gris-Nez, Dunes du Châtelet, Marais de Tardinghen et Dunes de Wissant (special area of conservation)
- SAC FR3102004 RIDENS AND SUB-AQUEOUS DUNES IN THE STRAIT OF DOVER: Decree of 10 February 2016 regarding the designation of the Natura 2000 site Ridens et dunes hydauliques du détroit du Pas-de-Calais (special area of conservation)
- SAC FR3102003 GRIS-NEZ - BLANC-NEZ REEFS: Decree of 29 May 2015 regarding the designation of the Natura 2000 site Récifs Gris-Nez Blanc-Nez (special area of conservation)
- SPA FR3110085 CAP GRIS-NEZ: Decree of 29 May 2015 regarding the designation of the Natura 2000 site Récifs Gris-Nez Blanc-Nez (special protection area)
- SPA FR3110039 PLATIER D'OYE: Decree of 6 January 2005 regarding the designation of the Natura 2000 site Platier d'Oye (special protection area)
- SAC FR3100474 DUNES OF THE FLEMISH MARITIME PLAIN: Decree of 13 April 2007 regarding the designation of the Natura 2000 site Dunes de la plaine maritime flamande (special area of conservation)
- SAC FR3102002 FLANDERS BANKS: Decree of 10 May 2016 regarding the designation of the Natura 2000 site Bancs des Flandres (special area of conservation)
- SPA FR3112006 FLANDERS BANKS: Decree of 7 January 2010 regarding the designation of the Natura 2000 site Platier d'Oye (special protection area)
- NNR Platier d'Oye (DESIGNATION 09/07/1987)
- NNR Dune Marchand (DESIGNATION 11/12/1974)
- CC site Dune Fossile
- CC site Dune Marchand
- CC site Dune Dewulf
- CC site Salines De Fort Mardyck
- CC site Platier D'Oye
- CC site Fort Vert
- CC site: Dunes du Fort Mahon
- CC site: Cap Blanc Nez
- CC site: Baie de Wissant
- CC site: Cap Gris-Nez
- CC site: Baie de Slack
- CC site Pointe de la Crèche

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	**Distinctive hydrological structures**	Strait of Dover front and turbulence				
	Primary and secondary producers, forage species	Forage species: Dragonets Planktonic communities disturbed by *Phaeocystis globosa blooms*				
Benthic habitats and geomorphological structures	**Sub-aqueous dunes on the shelf and upper continental slope**	Main area for subaqueous dunes				
	Biogenic habitats	Intertidal mussel beds				
		Kelp				
	Sedimentary habitats	Subtidal medium sands				
		Subtidal mixed sediments				
Functional fishing areas	**Spawning grounds**	Herring, cod, red mullet				
	Nurseries	Whiting, plaice, sole, flounder, turbot, pout, scad, Atlantic horse mackerel and red mullet				
	Diadromous species	Lamprey				
		Salmon				
	Elasmobranchs	Thornback skate, spotted ray and undulated ray				
Functional avifauna zones	**Waders nesting and feeding grounds**	Ringed plover				
	Seabird colonies and feeding grounds	Black-legged kittiwake				
		Common tern				
		Northern fulmar, sandwich tern, little tern				
	Areas with maximum density and functional areas – seabirds in the breeding season	Densities all species				
Cross-sectional issues	**Harbour porpoise maximal density areas**	Harbour porpoise				
	Seal colonies and feeding grounds	Grey seal				
		Harbour seal				
	Other cetaceans	Migration function (bottleneck)				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Maritime and coastal activities		Qualification			
		Description	Change	Major	High	Average	Low
Swimming and beach use	Yes	In general, there is a decline in bathing water quality to the east of Dunkirk and around Boulogne-sur-Mer, as well as physical degradation of the foreshore and sand formations.	-				
Offshore oil, gas and related activities	No						
Agriculture	Yes	Agricultural activity in the sector mainly involves conventional irrigated and drained farming practices (in particular potato and beetroot crops). Fresh water management is mainly carried out by mechanical release into the marine environment (Gravelines and Dunkirk channel). There is also horticulture in the area. Grassland areas are decreasing, the consequence of a decline in livestock farming, which also has an impact on water quality.	-				
Aquaculture and quality of shellfish waters	Yes	Potential aquaculture zones have been identified on the coast between Dunkirk and Audresselles. There is a deterioration of shellfish waters east of Dunkirk. A fish farm (sea bass and sea bream) is an open circuit system and uses the open sea water to keep the physico-chemical characteristics of the cages constant.	+				
Artificialisation of coastal areas	Yes	Artificialisation of the coast is more pronounced around ports (Boulogne-sur-Mer, Gravelines and Calais) and in particular around the Maritime Port of Dunkirk. Protective measures are in place to address the dynamics of coastal erosion.	+				
Connection of MRE and other underwater cables	Yes	Underwater cables that cross the Strait of Dover are mainly telephone cables, as well as the HDVC Cross Channel electricity interconnector. Projects such as the development of two additional high-voltage electricity interconnectorsbetween France and England (Grid Linkand Nemo Link), and the project for another electricity connector via the Channel tunnel are underway. EMR connection cables will also be laid in the area.	+				
Seafoodprocessing and marketing	Yes	Boulogne-sur-Mer fish market is thelargest in the sea basin (1st in terms of volume and 3rd in terms of value at the national level). Nevertheless, there is a downward trend (-40% between 2005 and 2014). There is also a fish market in Dunkirk, where the main species sold (quantity and value) are sole, plaice and turbot.	-				

		There are also many seafood processing plants in the sector, especially in the Capécure zone (largest European fish processing centre). In addition, the sector has a frozen salmon processing factory, located in Dunkirk, and other processing workshops and factories.					
Shipbuilding	Yes	Boulogne-sur-Mer, home of the SOCARENAM shipyard, is one of the main centres for shipbuilding and recreational boat construction in the East Channel-North Sea and "*Damen Shiprepair Dunkerque*" is a member of the worldwide network of ship repair yards.	+				
Defence	Yes	Maritime security is one of the key defence activities of the Dunkirk and Boulogne-sur-Mer semaphore towers, which continuously monitor the maritime approaches. A number of military vessels, including the coastal boat "Scarpe" (maritime gendarmerie) based in Boulogne-sur-Mer, monitor the maritime spaces.	=				
Extracting marine materials	No	The discharge of aggregates in the ports of Dunkirk, Calais and Boulogne should be mentioned.	=				
Industries and technological risks	Yes	The industrial landscape is very dense and expanding in Dunkirk and Calais (e.g. a new plant making chemical products for water treatment). Seveso risks are associated with these activities. There is also a waste treatment sector. The six reactors at the Gravelines nuclear power station are cooled by sea water.	+				
		Metalworking industries are located in the area (primarily steel and aluminium) The logistics chain of maritime traffic can result in technological risks.					
		A project for a telecommunications relay vessel is planned for the Sandettié Bank.					
Recreational boating and water sports	Yes	There are leisure activities in the area (coastal boating and marinas). Kitesurfing is another activity enjoyed in the area.	=				
Professional fishing, recreational fishing	Yes	North of Dunkirk, 10 vessels fish with passive gear, mainly with sole nets. Gillnetters engage in coastal fishing (in the 12 mile zone) There is heavy trawling activity, including by foreign vessels.	+				
		Local commercial fishing in Dunkirk is in decline.	-				
		Several hundred recreational fishers are active in the area.	+				
Electricity production	Yes	Gravelines nuclear power station is the largest in Western Europe, both in terms of production capacity and the number of nuclear reactors.	+				
		A wind power project off the coast of Dunkirk is currently being launched.					
Research and development in the public sector; Training	Yes	A university campus for training and research on issues related to the seaand coastline is based in Boulogne-sur-Mer, as is Ifremer. The Opal Coast University (ULCO) is situated in Dunkirk and an agricultural secondary school (lycée agricole) in Coulogne, near Calais, offers training in marine aquaculture. There is also the maritime vocational secondary school in Boulogne/Le Portel, the Wimereux marine station (involving the CNRS and the Oceanology and Geosciences Laboratory (LOG) - UMR 8187) and Nausicaá (the National Sea Centre).	=				

		Numerous private marine industry and biology research and development projects are underway in the area.					
Coastal tourism, sites, landscapes and cultural heritage	Yes	The coastal path crosses the whole area and has many shore access points between Grand-Fort-Philippe and the areas's southern boundary. The Deux Caps sites are extremely important for tourism, as are the listed sites.	+				
		The Dunes of Flanders site is in the process of becoming a "Grand Site" and nature reserves have special tourist trails. A number of events are organised in the maritime public domain (carrying capacity of the environment reached).					
		The area also has 3 sand yachting sites. Facilities for water activities and boating are located throughout the zone.					
Maritime transport and ports	Yes	Traffic is very dense in the area, including large numbers of cargo vessels and tankers and significant passenger traffic (Calais is the leading French port). The area has four ports: the Port of Dunkirk (with significant expansion in container traffic with the "Cap 2020" project which includes the extension of the Atlantic Quay), the Port of Boulogne-sur-Mer (project to expand the marina), the Port of Calais and the Port of Gravelines, geared more to recreational and fishing vessels.	+				
		In general, there is a reduction in air pollution generated by port operations. There is a waiting area in the "Dyck zone".					
Maritime public works	Yes	The area has 7 areas for sediment disposal at sea: one near Calais, another near Boulogne-sur-Mer, but most are around Dunkirk (90% of dredged sediments are disposed at sea). An initiative to introduce a circular economy for these sediments is currently being developed. In the Aa delta land is reclaimed from the sea (polder). The Port of Dunkirk is under development, with major ongoing projects.	+				
Natural coast hazards	Yes	There is significant coastal erosion in the area, which is particularly at risk of coastal flooding. A coastal flooding risk response strategy is organised under the coastal technical support unit of the Opal Coast Pôle Métropolitain (Metropolitan Cluster).	+				
Local planning initiatives or integrated sea and coastal management	Yes	There are several local planning documents: SCoT Dunkirk, PLUi currently under revision and will take into account coastal factors, Dunkirk PPRI, SRADDET, Coastal Conservatory management strategies, PNM EPMO,etc.	+				
Environmental protection	Yes	There are several marine protected areas and other environmental protection initiatives* in the area: Natura 2000 sites (DOCOB in preparation), Atmosphere Protection Plan, Coastal Conservatory sites, PNM EPMO, etc.	+				
Government Action at Sea	Yes	Monitoring maritime traffic is still a key task for Gris-Nez	=				

		CROSS. The emergency tow vessel Languedoc, based at Boulogne-sur-Mer, has the capacity to respond and tow. Several naval vessels participate in State action at sea, including the coastal maritime surveillance vessel “Scarpe” (maritime gendarmerie), the coastguard patrol vessel “Jacques Oudart Fourmentin” (customs) and the regional surveillance vessel “Armoise” (Maritime Affairs) based at Boulogne-sur-Mer. The Polmar Plan is launched in the event of accidental marine pollution. There is a system to recover pollutants using trawlers in the Port of Calais and a port of refuge in Dunkirk. There are many shipwrecks in the area. Unauthorised persons and activities on the coast give rise to public order issues.					

III. Overlapping of strategic objectives related to the area

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation givento these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1]to environmental objectives when it is not possible to implement them.

1These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issueor any specific event were to force the good ecological status to be affected, an exemption should be put in place.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis and response of environmental objectives (EO) in light of the overlapping of issues	
	Activities	Development trend	Code SEO	Wording (summary)		Headings	EO codes
Functional fishing areas	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction due to generation of **physical pressures** on seabeds *(BRGM, 2017)*, input of **ecotoxic substances** ***(Ifremer, 2018)*,** as well as the introduction of **ENI** *(MNHN, 2018)* in the environment. The interaction is particularly high around ports (footprint, port works, maintenance dredging and sediment disposal, waiting area in the Dyck zone), because the nursery grounds are in the coastal strip and potential habitats for cod eggs extend north to the Maritime Port of Dunkirk *(AFB, 2018)*.	- "Maximise the survival of elasmobranch species captured accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Reduce all pressures that affect the scope and condition of functional fishing areas identified as important (i.e. spawning grounds, nurseries, migration paths), which are fundamental for the life cycle of fish, cephalopods and crustaceans of value to fisheries". - "Reduce physical disturbance to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the risk of introduction of non-native species linked to the import of flora and fauna" - "Limit the transfer of non-native species from seriously affected areas" - "Limit the introduction and dissemination of non native species caused by water and ballast sediments from ships" - "Limit the risk of dissemination of non-native species during the introduction and transfer of aquaculture species - "In accordance with the CFP, adapt fishing mortality to achieve the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for the fish stocks concerned, totally or partially using a national or sub-national assessment managed locally" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid significant residual impacts of turbidity in habitats and the main important functional fishing areas that are most sensitive to this pressure, as a result of maritime works, extraction of materials, dredging, disposal of dredged sediments, land-based discharge and development" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports. - "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels"	- D01-PC-OE01 - D01-PC-OE05 - D01-HB-OE07 - D02-OE01 - D02-OE02 - D02-OE03 - D02-OE05 - D03-OE01 - D03-OE02 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 D06-OE01 - D06-OE02 - D07-OE01 - D08-OE01 - D08-OE02 - D08-OE03 - D08-OE04 - D08-OE05
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			7H	Alternative ship fuels			
			7I	Reduction of atmospheric pollutants			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Maritime works and artificialisation of the coastline	+	4B	New aquaculture zones	There is an interaction due to the generation of **physical pressures** on the seabed linked in particular to land reclamation from the sea (polder) in the Aa delta and *sea defence works (BRGM, 2017)*. This interaction is high in the 3 mile coastal waters where the nurseries are located *(AFB, 2018).*		
			5A	New wind power zones			
			5D	MRE trials			
			6B	Aggregates research permit			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Commercial fishing	+	3A	Fishing gear renewal	There is an interaction due to the generation of **physical pressures** on the seabed (fishing with bottom trawls causes significant interaction in terms of surface area) *(BRGM, 2017)*, the introduction of**ENI** *(MNHN, 2018)*, and**demands** on resources ***(Ifremer, 2018)***. This interaction is high in the 3 nautical mile coastal zone where the nurseries are located and also in the spawning grounds in the north *(AFB, 2018).*		
			3C	Product quality and resource sustainable management			
	Marine aquaculture	+	4B	New aquaculture zones	There is an interaction due to the generation of **physical pressures** on seabeds *(BRGM, 2017)* and the introduction of **ENI** *(MNHN, 2018)*. This interaction is relatively weak (in terms of area), since the activity is not developed right along the coast *(CEREMA, 2018).*		
			4C	Sustainable aquaculture models			
			4D	Aquaculture health risk			
			4E	Product quality and resource sustainable management			
	Agriculture	-			There is an interaction due to the input of **nutrients** ***(Ifremer, 2017)*** and **ecotoxic substances** to the marine environment ***(Ifremer, 2018)***. This interaction is high in the 3 mile coastal waters where there are nursery issues *(AFB, 2018).*		
	Industry	+			There is an interaction due to input of **ecotoxic substances** into the marine environment ***(Ifremer, 2018), in particular*** in the 3 nautical mile coastal zone where the nurseries are located *(AFB, 2018).*		

	Electricity production	+	5A	New wind power zones	There is an interaction between functional fishing areas and wind power projects, due to the generation of **physical pressures** which degrade species habitats. Nevertheless the effects are limited as they are confined to the Dunkirk wind power project and mainly during the construction phase *(MNHN, 2017)*.	- "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc*.)" - "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds, related to dredging operations and disposal at sea. - "Limit direct input, transfers and remobilisation of contaminants into the sea which are related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	- D08-OE05 bis - D08-OE06 - D08-OE07
			5D	MRE trials			
Harbour porpoise	Commercial fishing	+	3A	Fishing gear renewal	Interaction primarily results in **accidental capture** and injury of porpoises, mainly due to collisions and fishing bycatch *(Spitz J., Peltier H., Authier M., 2018).* Porpoises are present throughout the area *(AFB, 2018).*	- "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators"	- D01-MT-OE02 - D01-MT-OE03 - D04-OE01
	Maritime transport and ports	+	7B	Port logistics digitalisation			
			7C	Modal shift and high-volume flows			
			10A	Bathymetric knowledge / monitoring			
			11C	Cruise operators			
			12D	Research support			
Seals	Maritime transport and ports	+	7B	Port logistics digitalisation	Interaction is high with grey seal colonies and their feeding areas due to the generation of **physical pressure** on seabeds *(BRGM, 2017*), in particular in the 12 mile zone in the south of the area (Pas-de-Calais department) *(AFB, 2018).* For aquaculture, this interaction is relatively weak (area density), since the activity is not developed along the entire coastline (CEREMA, 2018).	- "Reduce physical disturbance to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the anthropogenic disturbance of marine mammals" - "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbance and physical loss of generic and special habitats linked to maritime activities and use"- "Reduce accidental catches of seabirds (offshore and near colonies), and in particular reduce accidental catches of the most vulnerable species such as balearic shearwaters, yelkouan shearwaters and cory's shearwaters, by longlines, static nets and small pelagic seine nets. - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats" - "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce the input and presence of waste in the sea resulting from maritime activity, use and development"	- D01-HB-OE07 - D01-MT-OE01 - D04-OE01 D06-OE01 -D06-OE02
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Maritime works and artificialisation of the coastline	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			6B	Aggregates research permit			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Commercial fishing	+	3A	Fishing gear renewal			
	Marine aquaculture	+	4B	New aquaculture zones			
	Electricity production	+	5A	New wind power zones	There is an interaction, in particular due to the wind power project, through the generation of **physical pressures** on the seabed *(BRGM, 2017). However, this interaction is weak since the wind power project isnear Dunkirk, while the major challenge related to grey seals is in the south of the area (AFB, 2018).*		
			5D	MRE trials			
Functional avifauna zones	Maritime transport and ports	+	7B	Port logistics digitalisation	Interaction is high with the functional bird areas due to the introduction of **waste** into the marine environment (and less certainly, catches linked to accidental bycatch during fishing activities) and especially in the 3 mile zone *(MNHN, 2018)*.	- "Reduce accidental captures of seabirds (close to breeding colonies), and decrease the capture of the most vulnerable species including the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-liners, static nets and seines with pelagic trawls" - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats"	-D01-OM-OE01 -D01-OM-OE03 -D01-OM-OE06 -D01-OM-OE07
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11A	Clean ports			
			11C	Cruise operators			
	Commercial fishing	+	3A	Fishing gear renewal			

			3D	Fishing waste sector		- "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce the input and presence of waste in the sea resulting from maritime activity, use and development"	- D10-OE01 - D10-OE02
	Marine aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
	Industry	+					
	Tourism and leisure activities[2]	+	8C	Boat sharing			
			11A	Clean ports			
			11B	Recreational boater awareness			
			11C	Cruise operators			
			13C	Large events			
	Electricity production	+	5A	New wind power zones	There is an interaction between functional bird areas and wind power projects, due to the risk of**potential collisions** with wind power field infrastructures at sea*(MNHN, 2018)*	- "Prevent collisions between seabirds and infrastructure at sea, especially with wind farms (application of the avoid, reduce, compensate approach)"	- D01-OM-OE02
			5D	MRE trials			
Sedimentary habitats	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction between the habitats of coarse subtidal sediments due to the generation of **physical pressures** on these sedimentary habitats *(BRGM, 2017)*, in particular in the northern half of the area *(AFB, 2018)*.	- "Reduce physical disturbances from human presence on rocky intertidal habitats, particularly from seafood gathering" - "Reduce physical disturbance to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid all new anthropogenic modifications of hydrographic conditions that have a significant residual impact on the current pattern and sedimentology of the areas of concern, and as a priority macrotidal bays, maximum current zones and areas of sub-aqueous dunes" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons"	- D01-HB-OE03 - D01-HB-OE07 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 D06-OE01 -D06-OE02 - D07-OE03 - D07-OE04
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Maritime works and artificialisation of the coastline	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			6B	Aggregates research permit			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Commercial fishing	+	3A	Fishing gear renewal			
	Marine aquaculture	+	4B	New aquaculture zones			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			
	Agriculture	-			This is an interaction due to **nutrient input *(Ifremer, 2017).***		
Biogenic habitats	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction with intertidal mussel beds, due to the generation of **physical pressures** on these biogenic habitats *(BRGM, 2017)*, in particular on the coast south of Deux Caps *(AFB, 2018)*.		
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Maritime works and artificialisation of the coastline	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			6B	Aggregates research permit			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			

2 Tourism and leisure activities, including seaside and beach activities, recreational boating and water sports

			15A	Coastline management strategy			
	Commercial fishing	+	3A	Fishing gear renewal			
	Marine aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
			4E	Product quality and resource sustainable management			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			
	Agriculture	-			This is an interaction due to **nutrient input** ***(Ifremer, 2017).***		
Primary and secondary producers, forage species	Agriculture	-			This is an interaction due to **nutrient input** ***(Ifremer, 2017).***	- "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication	- D05-OE01 - D05-OE02 - D05-OE03
	Commercial fishing	+	3C	Product quality and resource sustainable management	The interaction primarily results in**accidental catches** of forage species (*Spitz J., Peltier H., Authier M., 2018)*.	- "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators"	- D04-OE01
Sub-aqueous dunes	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction due to the generation of **physical pressures** on sub-aqueous dunes.	- "Limit extraction pressure on sub-aqueous dunes and shell sands and avoid extraction pressure on dunes on the upper continental slope" - "Avoid all new anthropogenic modifications of hydrographic conditions that have a significant residual impact on the current pattern and sedimentology of the areas of concern, and as a priority macrotidal bays, maximum current zones and areas of sub-aqueous dunes"	- D01-HB-OE12 - D07-OE03
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7F	Port real estate			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			

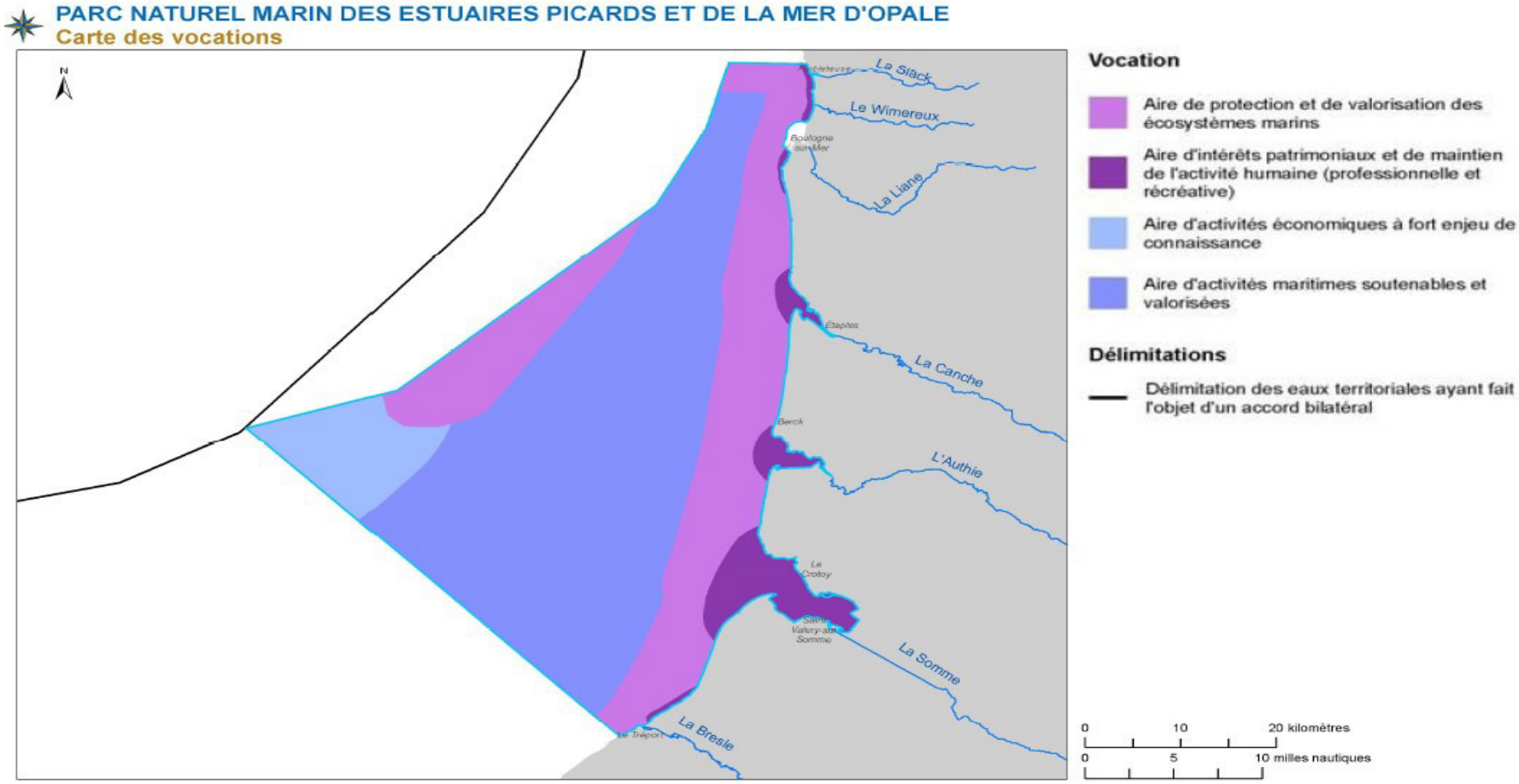
Other specific objectives present in the sector but not concerned by the overlap:

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4F 5B – 5C 7A – 7E 8A – 8B – 8D – 8E 10B 11D 12A – 12B – 12C – 12E – 12F – 12G 13A – 13B – 13D 15B	D01-HB-OE01-02-11; D01-OM-OE04-08; D01-PC-OE03 D03-OE03 D07-OE05 D09-OE01-02-03 D11-OE01-03

IV. Requirements or recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner:
– carries out an appropriate study based on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis section).
It is recommended that the complementary knowledge acquired is capitalised on and made available to the public, governance bodies and stakeholders, including researchers.
Compliance with existing maritime planning.

Marine nature park vocation map

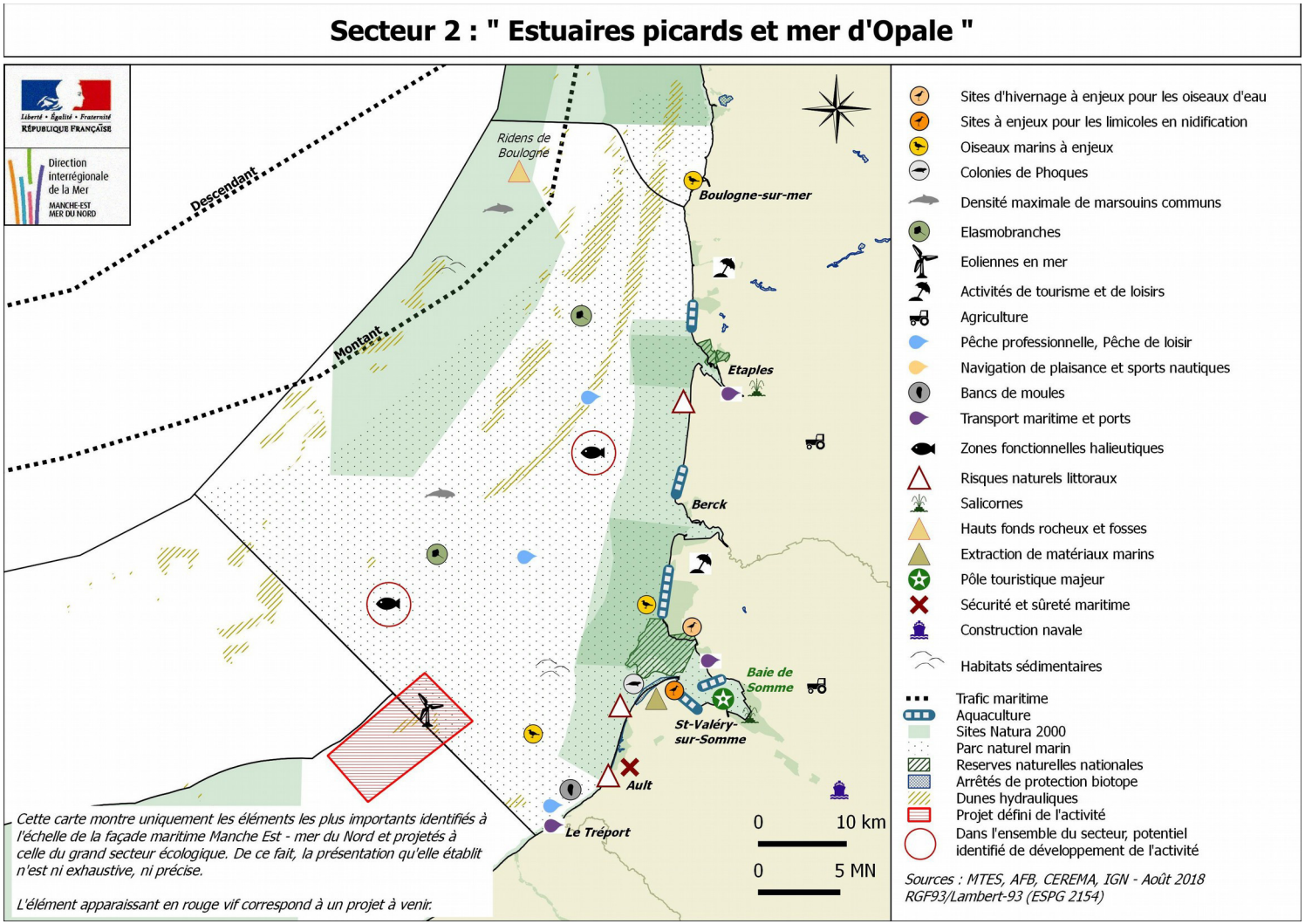


AREA no. 2

Picardy Estuaries and the Opal Sea

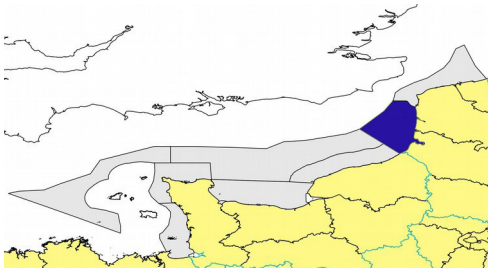
Scope: The aim of the area is to improve knowledge of marine heritage, protection and sustainable development of the marine environment (sustainable fishing and aquaculture and associated port operations, coastal tourism, conservation of functional fishing zones and marine aggregate extraction).

Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector	Area 2: Picardy Estuaries and the Opal Sea
Associated water mass	FRAC05 LA WARENNE TO AULT FRHC18 NORTHERN PAYS DE CAUX FRAT01 SOMME



Broadly speaking, in relation to identified ecological challenges, in the shallow waters of the Eastern English Channel, the flow of water from the Seine estuary forms a “marine coastal river”, resulting in a semi-permanent frontal area which accounts for the high planktonic biomass.

Offshore, the seabed is composed of rocky shoals, such as the isolated Ridens de Boulogne. It provides varied habitats for marine organisms: rocky outcrops, fine and coarser sands composed of broken down mollusc shells, sea urchin skeletons and other invertebrates, along with coralline red algae contributing to maerl beds.

The Picardy Estuaries and Opal Sea marine nature park, created on 11 December 2012, is the only marine nature park in the Eastern Channel - North Sea basin. It encompasses a marine area of 2300 km² and 118 km of coastline. The park’s main objectives are to improve understanding and protect the marine environment, while supporting the sustainable development of maritime activities that depend on it.

The coast is characterised by the estuaries along the Picardy maritime plain (the Somme, Authie and Canche Bays), with their long sandy beaches and estuarine sea areas. Estuaries are saltwater wetland areas at the land-sea interface, intrinsically linked with the functioning of all northern Channel ecosystems and associated food chains. At high tide these extremely productive estuarine habitats are nurseries and spawning grounds for fish and brown shrimp. At low tide the intertidal zone is visited by many seabirds, such as the Eurasian oystercatcher, Eurasian curlew and the common shelduck and other Anatidae. They also provide food and shelter for many bird species, including waders (for example the common ringed plover) and are a resting site for grey and harbour seals. These areas are also vitally important for migratory seabirds in transit, as well as being key wintering and nesting grounds. It is not rare to see porpoises, pilot whales and other migratory marine mammals en route to more northern waters.

In the North and North-West of the area, many commercial vessels use the Pas-de-Calais Traffic Separation Scheme. As one of the world’s busiest shipping routes, it is used by around 200 commercial vessels every day (*CROSS Gris-Nez*), in addition to fishing and recreational vessels.

Cockle gathering is an important activity along the Somme coastline, where there are substantial cockle beds.

There are a variety of different activities inthe area, with multiple tourism and leisure activities developed along the coast, including boating, a wide range of leisure activities in the maritime public domain (running and enduro motorbike races, hiking), as well as sand yachting competitions every weekend. This wide range of activities is undoubtedly a driver of economic development (in particular a source of employment) and promotes social cohesion by bringing people together within associations. Associations play an active role in environmental education and awareness. They provide local leisure activities for the community (both for regular and occasional participants), contributing to health and well-being.

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- Territorial Coherence Plan (SCOT)
SCoT Boulonnais
SCoT Pays Maritime et rural du Montreuillois
SCoT Baie de Somme Trois Vallées
SCoT du Pays Bresle-Yeres

- SDAGE Artois-Picardy basin
- Objective documents for the Natura 2000 sites listed below
- Regional marine aquaculture development plans (SRDAM)
- Management plan of the Picardy Estuary and Opal Sea marine nature park
- Shore council (CELRL)
- Port councils
Coastal Risk Prevention Plan (PPRL)
Flood Risk Prevention Plan (PPRi)
Hauts-de-France Regional Biodiversity Committee

- List of marine protected areas and other natural spaces:

- Picardy Estuaries and the Opal Sea MNP: Decree no. 2012-1389 of 11 December 2012 establishing the Picardy Estuaries and the Opal Sea marine nature park.
- SAC FR3100477 CLIFFS AND GRASSLANDS OF CAP BLANC NEZ, MONT D'HUBERT, NOIRES MOTTES, FOND DE LA FORGE AND MONT DE COUPLES: Decree of 29 May 2015 regarding the designation of the Natura 2000 site Falaises et pelouses du Cap Blanc Nez, du Mont d'Hubert, des Noires Mottes, du Fond de la Forge et du Mont de Couple (special area of conservation)
- SAC FR3100479 CLIFFS AND DUNES OF WIMEREUX, SLACK ESTUARY, GARENNES AND COMMUNAUX D'AMBLETEUSE-AUDRESSELLES: Decree of 17 April 2015 regarding the designation of the Natura 2000 site Falaises et dunes de Wimereux, estuaire de la Slack, Garennes et Communaux d'Ambleteuse-Audresselles (special area of conservation)
- SAC FR3100480 CANCHE ESTUARY, PICARDY DUNES AGAINST THE ANCIENT CLIFF, HARDELOT FOREST, AND EQUIHEN CLIFF: Decree of 29 May 2015 regarding the designation of the Natura 2000 site Estuaire de la Canche, dunes picardes plaquées sur l'ancienne falaise, forêt d'Hardelot et falaise d'Equihen (special area of conservation)
- SAC FR3100482 AUTHIE AND MOLLIERES DE BERCK DUNES: Decree of 12 August 2015 regarding the designation of the Natura 2000 site Dunes de l'Authie et Mollières de Berck (special area of conservation)
- SPA FR3110038 CANCHE ESTUARY: SPA designated by decree of 06/01/2005
- SAC FR3102005 CANCHE BAY AND THREE ESTUARIES CORRIDOR: Decree of 29 May 2015 regarding the designation of the Natura 2000 site Baie de Canche et couloir des trois estuarires (special area of conservation)
- SPA FR2210068 PICARDY ESTUARIES: SOMME AND AUTHIE BAYS: SPA designated by the decree of 06/04/2006
- SAC FR2200346 PICARDY ESTUARIES AND COASTLINE (SOMME AND AUTHIE BAYS) Decree of 21 December 2010 regarding the designation of the Natura 2000 site Estuaires et littoral picard (baies de Somme et d'Authie) (special area of conservation)
- Regional Nature Park Caps et Marais d'Opale
- NNR Baie de Canche (Designated 09/07/1987)

- NNR Baie de Somme (Designated 21/03/1994)
- CC site POINTE DE LA CRECHE
- CC site DUNES D'ECAULT
- CC site MONT SAINT-FRIEUX
- CC site LES GARENNES DE LORNEL
- CC site DUNES DE STELLA MERLIMONT
- CC site BAIE D'AUTHIE RIVE NORD
- CC site DUNES DE L'AUTHIE
- CC site DUNES DU ROYON
- CC site DOMAINE DE REGNIERE ECLUSE
- CC site LE MARQUENTERRE
- CC site BAIE ET BASSE VALLEE DE LA SOMME
- CC site MOYENNE VALLEE DE LA SOMME
- CC site HABLE D'AULT
- CC site FALAISES ET BOIS DU ROMPVAL

It should be noted that the following Natura 2000 sites are located entirely within the boundaries of the Picardy Estuaries and the Opal Sea marine nature park (managed through the MNP management plan):

- Picardy estuaries: Somme and Authie bays (SPA)
- Canche bay and three estuaries corridor (SAC)
- Canche estuaries (SPA)
- Picardy estuaries and coastline (Somme and Authie bays) (SAC)

Some sites are partly located within the boundaries of the MNP (managed through a DOCOB)

- Strait of Dover sandbanks and sub-aqueous dunes (SAC)
  - Gris-Nez Blanc-Nez reefs (SAC)
  - Cap Gris-Nez (SPA)
  - Authie and Mollières De Berck dunes (SAC)
  - Canche estuary, Picardy dunes against the ancient cliff, Hardelot forest and Equihen cliff (SAC)
  - Cliffs and dunes of Wimereux, Slack estuary, Garennes and Communaux d'Ambleteuse-Audresselles (SAC)

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	**Distinctive hydrological structures**	Coastal river "semi-permanent" frontal area and associated high planktonic biomass				
	Land-sea interface and river plumes	Picardy estuaries: macro-tidal zone resulting in high water mixing				
	Primary and secondary producers, forage species	Forage species: Dragonets, sandeels, gobies, shrimps Planktonic communities disturbed by *Phaeocystis globosa blooms*				
Benthic habitats and geomorphological structures	**Sub-aqueous dunes on the shelf and upper continental slope**	Main area for subaqueous dunes				
	Distinctive geomorphological structures	Ridens de Boulogne				
	Biogenic habitats	Intertidal mussel beds				
		Salicornia pioneer saltmarsh vegetation				
		Atlantic salt meadows				
	Sedimentary habitats	Fine and coarser subtidal sands, mud flats				
		Subtidal mixed sediments Intertidal sediments				
		Subtidal coarse sediment				
Functional fishing areas	**Spawning grounds**	Herring, sole, plaice, common dab, whiting, cod, red mullet and cuttlefish				
	Nurseries	Bass, whiting, sole, plaice, herring, thornback ray, common dab, lemon sole, turbot, cod, sprat, cuttlefish, pout, Atlantic horse mackerel, red mullet and shrimp				
	Diadromous species	Shads, lampreys				
		Salmon				
	Benthic invertebrates	Cockle, brown shrimp				
	Elasmobranch species	Thornback skate, spotted ray and undulated ray				
Functional avifauna zones	**Waders nesting and feeding grounds**	Ringed plover				
	Seabird colonies and feeding grounds	Black-legged kittiwake				
	Wintering grounds for waterfowl	Common shelduck, northern pintail, northern pintail, Eurasian oystercatcher				
	Areas with maximum density and functional areas – seabirds in the breeding season	Densities all species				
		Loons wintering at sea				
Cross-sectional issues	**Harbour porpoise maximum density areas**	Harbour porpoise				
	Seal colonies and feeding grounds	Harbour seal				
		Grey seal				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Description of the maritime activity	Change	Qualification			
				Major	High	Average	Low
Swimming and beach use	Yes	Water quality in supervised bathing areas located along the coast is generally good.	=				
Offshore oil, gas and related activities	No						
Agriculture	Yes	The Somme department can be divided into two clearly distinct areas; production in the west is primarily polyculture and mixed livestock, whereas in the east it is mainly cereal and other field crops. There is significant potato and beetroot production in the area, as well as dairy farming. The quality of salt meadow lamb is recognised by the protected designation of origin label (appellation d'origine protégée) "Prés-salés de la baie de Somme" (2007), which covers production around the Somme and Authie bays, in the Pas-de-Calais and Somme departments. Grassland areas are decreasing, the consequence of a decline in livestock farming, which also has an impact on water quality.	=				
Aquaculture and quality of shellfish waters	Yes	Mussels are cultivated on ropes (moules de bouchot) in Berck, Dannes and north of the Somme Bay and harvested from flat beds in Audresselles and Ambleteteuse. Cockle gathering is an important activity along the Somme coastline, where there are substantial cockle beds. Five potential aquaculture zones have been identified in the southern two-thirds of the area and the Dannes area is developing .	+				
Artificialisation of coastal areas	Yes	The coast in this sector remains largely nature, with little artificialisation.	=				
Connection of MRE and other underwater cables	Yes	Four undersea telephone cables cross the sector. There are currently no new undersea cable projects.	=				
Marketing and processing seafood products	Yes	A shellfish farming centre in Crotoy processes considerable volumes of mussels.	=				
Shipbuilding	Yes	In the Somme, there is a shipyard at Saint-Valery-sur-Somme, with six employees. Hybrid electric propulsion is being tested on La Frégate III, a 22.5 metre fishing trawler, conducted by the association France Pêche Durable. There is also a nautical supplies sector based in Abbeville.	=				
Defence	Yes	As part of maritime defence of the territory, the Ault semaphore permanently monitors the maritime approaches. A large number of military vessels, including the VCSM (coastal boat for maritime surveillance) "Yser" (Maritime Gendarmerie), monitor maritime spaces.	=				
Extracting marine materials	Yes	The area has large pebble quarries along the coast, particularly at Crotoy and Cayeux. The company Silmer specialises in processing shingle it collects on the coast of	+				

		Cayeux-sur-Mer. These quarries are economically significant and form large lakes, which offer potential environmental benefits. It should be noted that there is marine aggregate extraction potential in the area, and the marine aggregates are discharged in the port at Le Tréport.					
Industries and technological risks	Yes	The industrial sector is relatively undeveloped in the area.	-				
Recreational boating and water sports	Yes	In the Somme Bay and Authie Bay, there are many sites for launching small boats. The Somme Bay in particular has significant recreational boating activity. A wide range of leisure activities also take place in the marine public domain (DPM).	+				
Commercial fishing, Recreational fishing	Yes	Somme Bay cockles are harvested by both commercial and recreational fishers. A class A production area for group 3 (non-burrowing bivalves), covering both commercial and recreational fishing, is located at Ault and Mers-les-Bains, but especially in the Somme and Authie Bays.	=				
		There is significant commercial fishing activity using active gear (bottom trawls, pelagic trawls and drags) in the area. Fishers also use pots. Off the coast of Boulogne-sur-Mer, bottom trawlers avoid part of the Ridens rocky shoals. Pots and fixed nets are set by recreational fishers.					
Electricity production	Yes	The Dieppe-Le Tréport wind farm project involves the installation of 62 wind turbines, with a total capacity of 496 MW. The company "Tidal Lagoon" has identified a suitable area for a tidal lagoon project at Cayeux-sur-Mer.	+				
Research and development in the public sector; Training	Yes	The University Picardie Jules Verne (UPJV) has an outlying campus at St Valery sur Somme	=				
Coastal tourism, sites, landscapes and cultural heritage	Yes	The coastal path follows the coastline, with most points of interest (such as shore access and listed monuments) concentrated in the northern part of the area. A wide range of leisure activities take place in the maritime public domain (running and enduro motorbike races) and sand yachting competitions are held every weekend. Equestrian tourism is also well established, and the coastal region has its own breed of horse, the "Henson".	+				
		There is hunting activity in Canche Bay, Authie Bay and Somme Bay.					
Maritime transport and ports	Yes	Maritime traffic is particularly heavy in the area, with large numbers of cargo vessels and tankers. Ports are located at Etables, Somme Bay and Le Tréport, where there is also a waiting area.	+				
Maritime public works	Yes	There is a zone for disposal of port sediment in the area, located near Le Tréport. Furthermore, a project is underway for an urban heating network powered bythalasso-energy in the municipality of Berck-sur-Mer.	=				
Natural coast hazards	Yes	The rate of coastal erosion is very high in the Pas-de-Calais. In contrast, there is sedimentation in the Somme Bay. The area is also concerned by the risk of coastal flooding at Cayeux-sur-Mer and severe cliff collapse at Ault. A coastal flooding risk response strategy is organised for part of the area, under the coastal technical support unit	+				

		of the Opal Coast Pôle Métropolitain (Metropolitan Cluster).					
Local planning initiatives or integrated sea and coastal management	Yes	There are several local planning documents: SCOT, PLUi, PPRI, SRADDET, Coastal Conservatory management strategies, Picardy Estuaries and the Opal Sea MNP,etc.	+				
Environmental protection	Yes	There are several MPAs and other environmental protection initiatives* in the area: Natura 2000 sites, sites managed by the Coastal Conservatory, Picardy Estuaries and the Opal Seas MNP, etc.	+				
Government Action at Sea	Yes	Within the remit of Government Action at Sea, the Gris-Nez Regional operational centre for surveillance and rescue monitors maritime traffic and coordinates search and rescue operations at sea and assists ships in distress. The National Sea Rescue Organisation (SNSM) stations at Berck, Quend-Plage, Le Crotoy, Cayeux-sur-Mer, Le Tréport have the capacity to respond and assist at sea. The Ault semaphores constantly monitor the maritime approaches. A number of maritime vessels engaged in Government Action at Sea monitor the maritime spaces, including the VCSM (coastal boat for maritime surveillance) "Yser" (Maritime Gendarmerie), based in Dieppe. The Dauphin helicopter also takes part in Government Action at Sea operations (surveillance, search and rescue, assistance, *etc*.).	+				

III. Overlapping of strategic objectives related to the area

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation givento these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions [1]to environmental objectives when it is not possible to implement them.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis of environmental objectives (EO) and response in light of the cross-cutting nature of issues	
	Activities	Development trends	SEO code	Wording (summary)		Headings	EO codes
Functional avifauna zones	Fishing	=	3A	Fishing equipment renewal	There is an interaction between functional bird areas due to the introduction of **waste** into the marine environment (and less certainly, **catches** related in particular to accidental bycatch in fisheries) *(MNHN, 2018)*. This intervention is high (area density), because the zone with maximum density of seabirds in the breeding season covers almost the entire area, as do the theoretical feeding grounds of the black-legged kittiwake, with an additional major issue along the coastal strip to the south of the area, the wintering grounds for diving birds *(AFB, 2018)*.	- "Reduce accidental captures of seabirds (close to breeding colonies), and decrease the capture of the most vulnerable species including the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-liners, static nets and seines with pelagic trawls" - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats" - "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	- D01-OM-OE01 -D01-OM-OE03 - D01-OM-OE06 - D01-OM-OE07 - D10-OE01 - D10-OE02
			3D	Fishing waste sector			
	Maritime transport and ports	+	7B	Port logistics digitalisation			
			7C	Modal shift and high-volume flows			
			7D	Disposal of dredged sediments			
			7G	Reduction of port pollution			
			11A	Clean ports			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
	Tourism and leisure activities[2]	+	8C	Boat sharing			
			11A	Clean ports			
			11B	Recreational boater awareness			
			13C	Large events			
	Electricity production	+	5D	MRE trials	There is an interaction between functional bird areas and the Dieppe-Le Tréport wind power project, due to the risk of **potential** collisions with wind power field infrastructures at sea *(MNHN, 2018)* However, the park area is more in area 3, the "Côte Albâtre and offshore area".	- "Prevent collisions between seabirds and infrastructure at sea, especially with wind farms (application of the avoid, reduce, compensate approach)"	- D01-OM-OE02
Harbour porpoise	Maritime transport and ports	+	7B	Port logistics digitalisation	Interaction primarily results in **accidental capture** and injury of porpoises, mainly due to collisions and fishing bycatch *(Spitz J., Peltier H., Authier., 2018).* This is particularly prevalent in the north of the area *(AFB, 2018).*	- "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators"	- D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			7C	Modal shift and high-volume flows			
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal			
Seals	Maritime transport and ports	+	7B	Port logistics digitalisation	Interaction is high between maritime transport activity and seal colonies and their feeding areas due to the generation of **physical pressures** on the seabed *(BRGM, 2017)*in the 12 mile zone and especially along the coastline *(AFB, 2018)*.	- "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the anthropogenic disturbance of marine mammals" - "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use"	- D01-HB-OE07 - D01-MT-OE01 - D04-OE01 D06-OE01 -D06-OE02
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal	There is an interaction between fishing activity and seals due to the generation of **physical pressures** on the seabed *(BRGM, 2017)*. This interaction is particularly strong along the coast, the theoretical home range of seals *(AFB, 2018).*		
	Aquaculture	+	4B	New aquaculture zones	There is an interaction with grey seal colonies and their feeding areas due to the generation of **physical pressures** on the seabed *(BRGM 2017).* This interaction is confined to the sites of aquaculture operations.		
			4C	Sustainable aquaculture models			

[1]These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issue or any specific event were to force the good ecological status to be affected, an exemption should be put in place.
[2]Tourism and leisure activities, including seaside and beach activities, recreational boating and water sports

	Electricity production	+	5D	MRE trials	There is an interaction, in particular due to the wind power project, through the generation of **physical pressures** on the seabed *(BRGM, 2017). Nevertheless, this interaction is weak, since the site of Dieppe-Le Tréport wind power project lies* mainly in area 3, "Côte Albâtre and offshore area". Moreover, the theoretical home range of seals is further north *(AFB, 2018).*		
Primary and secondary producers, forage species	Agriculture	=			There is a strong interaction between agriculture and primary and secondary producers and forage species due to **nutrient input, which** may result in eutrophication of the marine environment and disturb planktonic communities. ***(Ifremer, 2017)***	- "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication"	- D05-OE01 - D05-OE02 - D05-OE03
	Fishing	=	3C	Product quality and resource sustainable management	The interaction primarily results in**accidental catches** of forage species (*Spitz J., Peltier H., Authier M., 2018)***.**	- "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators"	- D04-OE01
Functional fishing areas	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction due to generation of **physical pressures** on seabeds *(BRGM, 2017)*, input of **ecotoxic substances *(Ifremer, 2018)*,** as well as the introduction of **ENI** *(MNHN, 2018)* into the environment, in particular along the coastal strip where there are nursery issues *(AFB, 2018)*.	- "Maximise the survival rate of elasmobranch species caught accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Reduce all pressures that affect the scope and condition of functional fishing areas identified as important (i.e. spawning grounds, nurseries, migration paths), which are fundamental for the life cycle of fish, cephalopods and crustaceans of value to fisheries". - "Reduce physical disturbance to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the risk of introduction of non-native species linked to the import of flora and fauna" - "Limit the transfer of non-native species from seriously affected areas" - "Limit the introduction and dissemination of non native species caused by water and ballast sediments from ships" - "Limit the risk of dissemination of non-native species during the introduction and transfer of aquaculture species - "In accordance with the CFP, adapt fishing mortality to reach the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for the fish stocks concerned, totally or partially, using a national or sub-national assessment managed locally" - "Adapt catches by recreational fisheries in order to achieve or maintain healthy stocks based on the best available knowledge" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use"	- D01-PC-OE01 - D01-PC-OE05 - D01-HB-OE07 - D02-OE01 - D02-OE02 - D02-OE03 - D02-OE05 - D03-OE01 - D03-OE02 - D03-OE03 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 - D06-OE01 - D06-OE02 - D07-OE01
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7G	Reduction of port pollution			
			7H	Alternative fuels			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal	There is an interaction due to the generation of **physical pressures** on the seabed (fishing with towed gear causes significant interaction in terms of surface area) *(BRGM, 2017)*, the introduction of**ENI** *(MNHN, 2018)*, and**resource** extraction (target and non-target species) ***(Ifremer, 2018)***. This interaction is high throughout the area, since there are nursery issues in the 3 nautical mile coastal zone and spawning ground issues in the rest of the area *(AFB, 2018).*		
			3C	Product quality and resource sustainable management			
	Aquaculture	+	4B	New aquaculture zones	There is an interaction due to the generation of **physical pressures** on seabeds *(BRGM, 2017)* and the introduction of **ENI** *(MNHN, 2018)*. This interaction is relatively weak (area density), since the activity is not developed along the entire coastlne *(CEREMA, 2018).*		
			4C	Sustainable aquaculture models			
			4D	Aquaculture health risk			
			4E	Product quality and sustainable resource management			
	Agriculture	=			There is an interaction due to the input of **nutrients *(Ifremer, 2017)*** and **ecotoxic substances** to the marine environment ***(Ifremer, 2018)***. This interaction is high in the 3 mile coastal zone where there are nursery issues *(AFB, 2018).*		
	Electricity production	+	5D	MRE trials	There appears to be an interaction due to the generation of **physical pressures** on marine habitats *(BRGM, 2017)* at the Dieppe-Le Tréport wind power project site, where there are spawning ground issues *(AFB, 2018)***.**		

	Extraction of marine materials	+	6B	Aggregates research permit	There is currently no interaction because the operation only involves shingle gathering operations on the coast. However, the potential future exploitation of marine aggregates could give rise to an interaction due to the generation of **physical pressures** on marine habitats *(BRGM, 2017)*. This interaction will nevertheless be limited, both because the surface areas in question are limited and because Ifremer recommends there is no extraction in nursery and spawning areas (environmental windows with no extraction).	- "Avoid significant residual impacts of turbidity in habitats and the main important functional fishing areas that are most sensitive to this pressure, due to the impact of maritime works, extraction of materials, dredging, disposal of dredged sediments, land-based discharge and development" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports. - "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc*.)" - "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds, related to dredging operations and disposal at sea. - "Limit direct input, transfers and remobilisation of contaminants into the sea which are related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	- D08-OE01 - D08-OE02 - D08-OE03 - D08-OE04 - D08-OE05 - D08-OE05 bis - D08-OE06 - D08-OE07
Biogenic habitats	Agriculture	=			There is an interaction due to the input of **nutrients** ***(Ifremer, 2017)*** and **ecotoxic substances** to the marine environment ***(Ifremer, 2018)***. The interaction is particularly strong in the Somme Bay and the southern coast *(AFB, 2018)***.**	- "Adapt grazing pressure and reduce physical disturbance on salt meadows and pioneer salicornia saltmarsh vegetation (recreational and commercial) anthropogenic activities" - "Reduce physical disturbances from human presence on rocky intertidal habitats, particularly from seafood gathering" - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Avoid abrasion and smothering of the most representative areas of offshore habitats (vulnerable marine ecosystems) and reduce abrasion of characteristic geomophological structures" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid all new anthropogenic modifications of hydrographic conditions that have a significant residual impact on the current pattern and sedimentology of the areas of concern, and as a priority macrotidal bays, maximum current zones and areas of sub-aqueous dunes" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons"	- D01-HB-OE01 - D01-HB-OE03 - D01-HB-OE07 - D01-HB-OE11 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 - D06-OE01 - D06-OE02 - D07-OE03 - D07-OE04 - D08-OE01 - D08 – OE02
	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction due to the generation of **physical pressures** on biogenic habitats *(BRGM, 2017)* along the coastal strip to the south of the area and in the Somme Bay *(AFB, 2018)***.**		
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal			
	Aquaculture	+	4B	New aquaculture zones	There is an interaction due to the generation of **physical pressures** on biogenic habitats *(BRGM, 2017)*, particularly in the Somme Bay *(AFB, 2018).*		
Sedimentary habitats	Fishing	=	3A	Fishing equipment renewal	There is an interaction due to the generation of **physical pressures** on these sedimentary habitats *(BRGM, 2017).* These habitats (subtidal fine sands, mud flats, subtidal medium sands) occupy much of the area *(AFB, 2018)*.		
	Aquaculture	+	4B	New aquaculture zones			
	Maritime transport and ports	+	7B	Port logistics digitalisation			
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			12D	Research support			

	Electricity production	+	5D	MRE trials			- D08-OE03 - D08-OE04
	Extracting marine materials	+	6B	Aggregates research permit	If the activity develops according to concession locations, potential future exploitation of marine aggregates could give rise to an interaction due to the generation of **physical pressures** on marine habitats *(BRGM, 2017)*.		- D08-OE05 - D08-OE05 bis
	Agriculture	=			There is an interaction due to the input of **nutrients** ***(Ifremer, 2017)*** **and ecotoxic substances** to the marine environment ***(Ifremer, 2018)***.	- "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports. - "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc*.)" - "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds, related to dredging operations and disposal at sea. - "Limit direct input, transfers and remobilisation of contaminants into the sea which are related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)"	- D08 – OE06 - D08 - OE07
Sub-aqueous dunes	Extracting marine materials	+	6B	Aggregates research permit	There is an interaction due to the generation of **physical pressures** on sub-aqueous dunes. These dunes are distributed in different locations throughout the area *(AFB, 2018).*	- "Limit extraction pressure on sub-aqueous dunes and shell sands and avoid extraction pressure on dunes on the upper continental slope" - "Avoid all new anthropogenic modifications of hydrographic conditions that have a significant residual impact on the current pattern and sedimentology of the areas of concern, and as a priority macrotidal bays, maximum current zones and areas of sub-aqueous dunes"	- D01-HB-OE12 - D07-OE03
	Maritime transport and ports	+	7B	Port logistics digitalisation			
			7C	Modal shift and high-volume flows			
			7D	Dredged sediments disposal			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			12D	Research support			

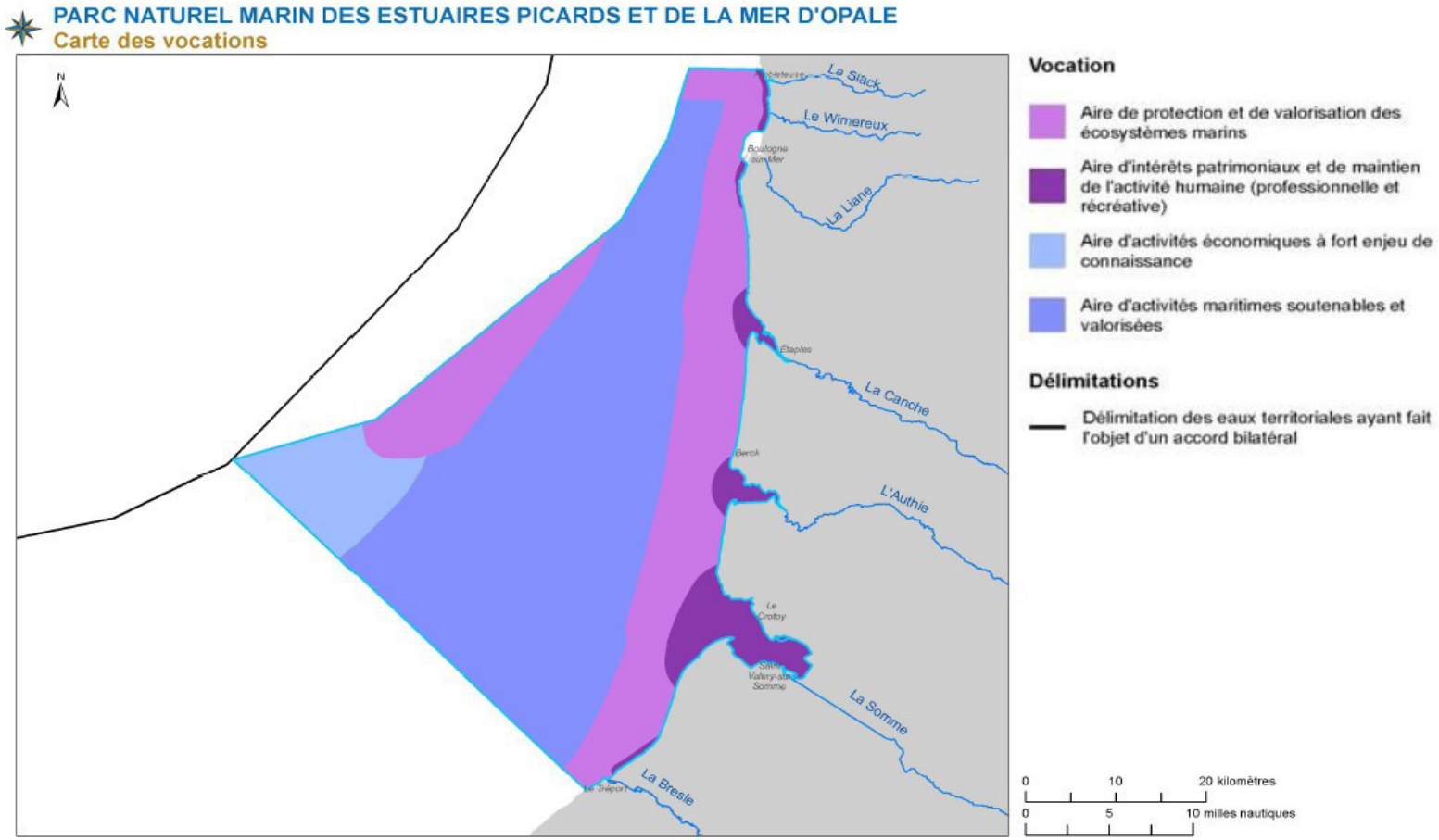
Other specific objectives present in the sector but not concerned by the overlap:

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4F 7A – 7E 8B – 8D – 8E 10B 11D 12A – 12B – 12C – 12E – 12F – 12G 13A – 13B – 13D 15A – 15B	D01-HB-OE02-08; D01-OM-OE04-08; D01-PC-OE05 D07-OE05 D09-OE01-02-03 D11-OE01-03

IV. Requirements or recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner:
– carries out an appropriate study based on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis section).
It is recommended that the complementary skills acquired are capitalised and made available to the public, governance bodies and specialists, including in research.
Compliance with existing maritime planning.

Marine nature park designated uses map

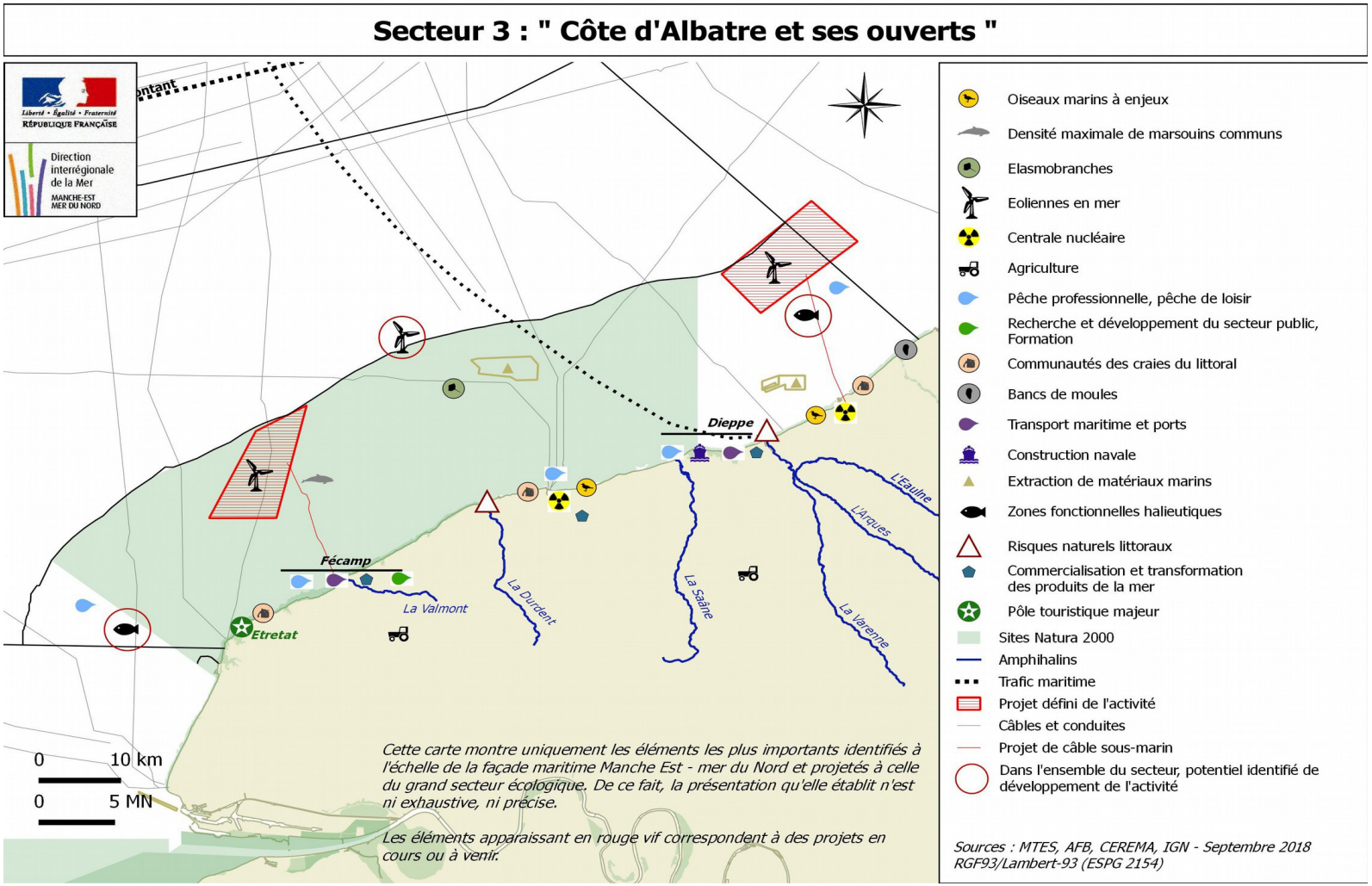


AREA no. 3

The Côte d'Albâtre and associated sea area

Scope: The aim of the area is the development of marine renewable energy and marine aggregates, the conservation of functional fishing areas and the promotion of sustainable fishing.

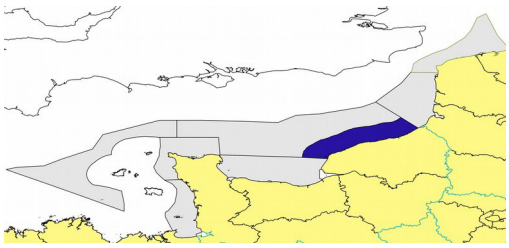
Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector Area 3: Coastal river - seino-marin (Seine-Maritime) coastline

Associated water mass FRAC05 LA WARENNE TO AULT
FRHC18 NORTHERN PAYS DE CAUX
FRHC17 SOUTHERN PAYS DE CAUX



Generally, in terms of the identified ecological issues, the seino-marin (Seine-Maritime) coast to the north of the Seine estuary is characterised by pelagic habitats with a salinity gradient going from the shore to the open sea, arising from freshwater input from the Seine coastal river flowing along the coastline. The hydrodynamic and physico-chemical characteristics result in a semi-permanent frontal area, with particularly high phytoplankton and zooplankton production. It is important to note the presence of algal belts of fucus, kelp and red algae on reef flats, as well as "littoral chalk communities", a special coastal habitat characterised by exposed rock on chalk substratum.

The seino-marin sea cliffs are home to important seabird colonies, due mainly to the accessible feeding areas. This area is also the main known spawning ground in the Channel for Atlantic herring and black seabream, which attract some characteristic marine megafauna, including the harbour porpoise (especially in winter).

The area is characterised by two nuclear power plants: Penly, which has two reactors with an output of 1300 MW per unit and Paluel, which has four reactors with an output of 1300 MW per unit. There are also concessions for marine aggregate extraction, a seafood marketing sector and significant dairy farming.

Two offshore wind power projects are underway: Dieppe - Le Tréport, which involves the installation of 62 turbines with a unit capacity of 8 MW, providing a total power generating capacity of 496 MW, and Fécamp, which involves the installation of 83 turbines with a unit capacity of 6 MW, for a total capacity of 498 MW. The electricity grid is able to handle the power, but it is important to note that the unstable coastal cliffs severely reduce the possibilities for cable landing points, highlighting the need to share linear infrastructure in the area.

A private project for an electricity interconnector between France and the United Kingdom is being planned (AQUIND).

Fishing activity is based out of the ports of Fécamp and Dieppe. There are two fish markets and the main species sold is scallop.

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- Territorial Coherence Plan (SCOT)
SCoT Pays Bresle-Yères
SCot Pays Dieppois Terroir de Caux
SCoT Pays Plateau de Caux Maritime
SCoT Pays des Hautes Falaises

- Water Planning and Management Scheme (SAGE)
SAGE03020 Vallée de la Bresle
SAGE03029 Yères

- SDAGE Seine-Normandy Basin
- Objective documents for the Natura 2000 sites listed below
- Regional marine aquaculture development plans (SRDAM)
- Shore council (CELRL)
- Port councils
Coastal Risk Prevention Plan (PPRL)
Flood Risk Prevention Plan (PPRi)
- Normandy Regional Biodiversity Committee

- List of marine protected areas and other natural spaces:

- SCI FR2300137 L'YÈRES : Decree of 11 October 2016 regarding the designation of the Natura 2000 site Yères (Site of Community Importance)
- SPA FR2310045 LITTORAL SEINO-MARIN SPA designated by the decree of 03/09/2013
- SCI FR2300139 LITTORAL CAUCHOIS: Decree of 02 May 2016 regarding the designation of the Natura 2000 site Littoral Cauchois (Site of Community Importance)
- CC site Basse Vallée de l'Yères
- CC site Val du Prêtre
- CC site Bois de Bernouville - Vallée de la Scie
- CC site Cap d'Ailly
- CC site Vallée de la Saâne
- CC site Vallée du Dun
- CC site Saint-Léger Hameau
- CC site Vallée de la Durdent
- CC site Val Ausson
- CC site Falaise d'Amont

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	**Distinctive hydrological structures**	Coastal river "semi-permanent" frontal area and associated high planktonic biomass				
	Land-sea interface and river plumes	Seine river plume				
	Primary and secondary producers and forage species	Feeding area for top predators				
Benthic habitats and geomorphological structures	**Biogenic habitats**	Intertidal mussel beds				
		Laminaria				
	Rocky habitats	Littoral chalk communities				
		Mediolittoral reefs				
	Sedimentary habitats	Subtidal coarse sediment				
Functional fishing areas	**Spawning grounds**	Herring, Atlantic horse mackerel, black seabream				
	Diadromous species	Shads Lampreys				
		Salmon				
	Elasmobranchs	Thornback skate, spotted ray and undulated ray				
Functional avifauna areas	**Seabird colonies and feeding grounds**	Northern fulmar, European herring gull				
		Black-legged kittiwake				
	Wintering grounds for waterfowl	Grebes wintering at sea				
	Areas with maximum density and functional areas – seabirds in the breeding season	Densities all species				
		Loons wintering at sea				
Crosscutting issues	**Harbour porpoise maximal density areas**	Harbour porpoise in winter				
	Seal colonies and feeding grounds	Harbour seal				
		Grey seal				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Description of the maritime activity	Changes	Qualification			
				Major	High	Average	Low
Swimming and beach use	Yes	There are supervised bathing areas all along the coast. Water quality is generally good.	=				
Offshore oil, gas and related activities	No						
Agriculture	Yes	The area's main economic and technical orientations (OTEX) are polyculture and mixed livestock.	+				
		Dairy farming has a strong presence in the Pays de Bray in Seine-Maritime and flax production is expanding in the department.					
Aquaculture and quality of shellfish waters	Yes	Shellfish production covers an area of 10 hectares on the coast at Veules-les-Roses, where 5 companies have been farming oysters since 2004. Nine potential aquaculture areas have been identified; these are located between Veulette-sur-Mer and the area's northern boundary.	+				
Artificialisation of coastal areas	Yes	Artificialisation of the coastline is mainly concentrated around ports.	=				
Connection of MRE and other underwater cables	Yes	A range of cables and pipelines pass through the area. In addition, there are grid connection projects for the Fécamp and Dieppe - Le Tréport offshore wind farms (at Fécamp and Penly respectively). There is also a project for an electricity interconnector between France and England (AQUIND).	+				
Seafood processing and marketing	Yes	The area has two fish markets: one at Fécamp and the other at Dieppe (scallop is the main species sold). There are also fish processing plants and marketing establishments in the area (including Dagivel and Delpeyrat).	-				
Shipbuilding	Yes	A branch of the shipbuilding and marine services sector has developed in the area (for example, "Cap Fagnet" and "Manche Industrie Marine" shipyards in Dieppe and "Seine et Manche" in Fécamp).	=				
Defence	Yes	As part of maritime defence of the territory, the Dieppe and Fécamp semaphores permanently monitor the maritime approaches. A number of military vessels, including the coastal surveillance vessel "Yser" (Maritime Gendarmerie), based in Dieppe, monitor the maritime areas. The sector is classified as a "high risk" for UXOs by the French Préfecture maritime Channel – North Sea					
Quarrying marine materials	Yes	There are three concessions in the area: "Dieppe marine aggregates", "Gris Nez" and zone A of the "Côte Albâtre". It should be noted that there is marine aggregate extraction potential in the area and that marine aggregates are discharged in the ports of Dieppe and Fécamp.	=				

Industries and technological risks	Yes	There is a nuclear risk in the area, due to the presence of two nuclear power stations: Penly and Paluel.	=				
Recreational boating and water sports	Yes	Facilities for water activities and boating are located along the coast. The area also has marinas, including at Dieppe and Fécamp.	=				
Professional fishing, recreational fishing	Yes	Commercial fishing is mainly carried out by pot-vessels and gillnetters off the coast of Dieppe and Le Tréport, scallop draggers and bottom trawlers.	=				
		Seafood gathering is the most popular type of recreational fishing and the target species are mussels, common prawns, brown shrimps, crabs, lobsters, plaice, bass and mackerel.					
Electricity production	Yes	There are two nuclear power stations in the area: the Penly power station has two reactors with an output of 1300 MW per unit and the Paluel power station which has four reactors with an output of 1300 MW per unit. Two offshore wind power projects are underway: Dieppe - Le Tréport and Fécamp.	+				
Research and development in the public sector; Training	Yes	There are training centres in the area, including a vocational maritime secondary school in Fécamp and a state-approved private centre in Dieppe.	=				
Coastal tourism, sites, landscapes and cultural heritage	Yes	The coastal path in the area has viewpoints and observation posts and Etretat is a major tourist attraction.	=				
Maritime transport and ports	Yes	Traffic is relatively heavy in the area, due to two inter-port connections and many ports.	+				
Maritime public works	Yes	Work is mainly related to port activities and navigation: dredging, piling (3 sites: Dieppe, Saint-Valery-en-Caux and Fécamp).	=				
Natural coast hazards	Yes	There is a high level of coastal erosion in Seine-Maritime (approximately 74%). This results in coastal management measures and especially offshore sea defence works. Ecologically reconnecting rivers to the sea (lower Saâne valley, lower and middle valleys of the Yères), as well as preventing pollution caused by coastal erosion and return of the cliffs to the sea. These are issues in the area.	+				
Local planning initiatives or integrated sea and coastal management	Yes	There are several local planning documents: SCOT, PLUi, PPRI, SRADDET, Coastal Conservatory management strategies, etc.	+				
Environmental protection	Yes	There are several marine protected areas and other environmental protection initiatives*: Natura 2000 sites (the Littoral Seino-Marin SPA, for which the DOCOB is in preparation, and the Littoral Cauchois SCI), SRADDET, sites managed by the Coastal Conservatory, etc.	+				
Government Action at Sea	Yes	Within the remit of Government Action at Sea, the Gris-Nez regional operations centre for surveillance and rescue monitors maritime traffic and coordinates search and rescue operations at sea and assists ships in distress. The National Sea Rescue Organisation (SNSM) stations at Le	+				

		Tréport, Dieppe, Saint-Valéry-en-Caux, Veulettes-sur-Mer, Les Petites Dalles, Fécamp and Yport have the capacity to respond and assist at sea. Several maritime vessels engaged in Government Action at Sea, including the coastal surveillance vessel "Yser" (Maritime Gendarmerie), based in Dieppe, monitor maritime areas. The Dauphin helicopter, based at Le Touquet, also takes part in Government Action at Sea operations (surveillance, search and rescue, assistance, etc.).					

III. Overlapping of strategic objectives related to the zone

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation madeof these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1] to environmental objectives when it is not possible to implement them.

[1]These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issueor any specific event were to force the good ecological status to be affected, an exemption should be put in place.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis of environmental objectives (EO) and response in light of cross-cutting issues	
	Activities	Development trends	SEO code	Wording (Summary)		Headings	EO codes
Functional fishing areas	Fishing	=	3A	Fishing equipment renewal	There is an interaction due to the generation of **physical pressures** on the seabed (fishing with bottom trawls causes significant interaction in terms of surface area) *(BRGM, 2017)*, the introduction of **ENI** *(MNHN, 2018)*, and **demands** on resources *(Ifremer, 2018).*	- "Maximise the survival of elasmobranch species captured accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Adapt the removal of diadromous species downstream of the transversal limit of the sea in order to achieve or maintain healthy stocks and reduce accidental catches of diadromous species where the renewal capability is compromised, particularly in areas where species gather in large numbers, estuaries and estuary plumes identified by PLAGEPOMI (migratory fish management plans)" - "Reduce all pressures that affect the extent and condition of functional fishing areas identified as important (spawning and feeding grounds, migration routes), which are fundamental for the life cycle of fish, cephalopod and crustacean species of interest to fisheries" - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the transfer of non-native species from seriously affected areas" - "Limit the introduction and dissemination of non-native species caused by water and ballast sediments from ships" - "In accordance with the CFP, adapt fishing mortality to achieve the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for fish stocks covered totally or partially by a national or sub-national assessment and subject to local management" - "Reduce nutrient inputs (nitrates and phosphates) from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these inputs" - "Do not increase nutrient inputs in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid significant residual impacts of turbidity in habitats and the main important functional fishing areas that are most sensitive to this pressure, as a result of maritime works, extraction of materials, dredging, disposal of dredged sediments, land-based discharge and development" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports" - "Reduce the direct release into the sea of contaminants, especially hydrocarbons from maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc.*)" - "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds linked to dredging operations and disposal at sea." - "Limit direct input, transfers and remobilisation of contaminants into the sea related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	- D01-PC-OE01 - D01-PC-OE03 - D01-PC-OE05 - D01-HB-OE07 - D02-OE02 - D02-OE03 - D03-OE01 - D03-OE02 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 D06-OE01 - D06-OE02 - D07-OE01 - D07-OE04 - D08-OE01 - D08-OE02 - D08-OE03 - D08-OE04 - D08-OE05 - D08-OE05 bis - D08-OE06 - D08-OE07
			3C	Product quality and sustainable resource management			
	Agriculture	+			There is an interaction due to inputs of **nutrients** *(Ifremer, 2017)* and **ecotoxic substances** to the marine environment *(Ifremer, 2018),* particularly on the shoreline.		
	Maritime transport and ports	+	7B	Digitalisation of port logistics	There is an interaction due to generation of **physical pressures** on seabeds *(BRGM, 2017)*, input of **ecotoxic substances** *(Ifremer, 2018)***,** as well as the introduction of **ENI** *(MNHN, 2018)* in the environment. The interaction is particularly high around ports.		
			7C	Modal shift and high-volume flows			
			7D	Disposal of dreged sediments			
			7G	Reduction of port pollution			
			7H	Alternative ship fuels			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Industry	=			There is an interaction due to the input of **ecotoxic substances** in the marine environment *(Ifremer, 2018)*, particularly on the shoreline.		
	Electricity production	+	5A	New wind power zones	There is an interaction due to the generation of **physical pressures** on the seabed*(BRGM, 2017)*.		
			5D	MRE trials			
	Quarrying marine materials	=	6A	Granulate extraction capacities			
			6B	Granulate research license			

Primary and secondary producers and forage species	Agriculture	+			**There is an interaction due to nutrient input** that may cause an eutrophication phenomenon in the environment *(Ifremer, 2017)*.	- "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these inputs" - "Do not increase nutrient inputs in areas with little or no eutrophication"	- D05-OE01 - D05-OE02 - D05-OE03
	Fishing	=	3A	Fishing equipment renewal	The interaction primarily results in**removal** of forage species (*Spitz J., Peltier H., Authier M., 2018)*.	- "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for large predators"	- D04-OE01
			3C	Product quality and sustainable resource management			
Functional avifauna areas	Industry	=			There is an interaction due to the introduction of **waste** (and less certainly, removal linked in particular to accidental catches in fisheries) *(MNHN, 2018)*. This interaction is high (in terms of area), because the maximum density area for seabirds during the breeding season and seabird colonies and feeding grounds issues (northern fulmar and European herring gull) cover the entire area *(AFB, 2018).*	- "Reduce accidental captures of seabirds (at sea and close to colonies), and in particular decrease accidental captures of the most vulnerable species such as the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-lining, static nets and seines with pelagic trawls" - "Avoid the loss of functional seabird habitats, in particular in marine areas where density is at a maximum" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats" - "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	-D01-OM-OE01 -D01-OM-OE03 -D01-OM-OE06 - D01-OM-OE07 - D10-OE01 - D10-OE02
	Tourism and leisure activities[2]	=	8C	Boat sharing			
			11A	Clean ports			
			11B	Recreational boater awareness			
			11C	Cruise operators			
			13C	Large events			
	Maritime transport and ports	+	7C	Modal shift and high-volume flows			
			7G	Reduction of port pollution			
			11A	Clean ports			
			11C	Cruise operators			
	Fishing	=	3A	Fishing equipment renewal			
			3D	Fishing waste sector			
	Electricity production	+	5A	New wind power zones	There is an interaction between functional bird areas and wind power projects, due to the potential risk of **collisions** with wind farm infrastructures at sea*(MNHN, 2018)*	- "Prevent collisions between seabirds and infrastructure at sea, especially with wind farms (application of the avoid, reduce, compensate approach)"	- D01-OM-OE02
			5D	MRE trials			
Harbour porpoise	Maritime transport and ports	+	7B	Digitalisation of port logistics	The interaction is high between maritime transport and harbour porpoises due to **deaths** and injuries caused by collisions and accidental catches *(Spitz J., Peltier H., Authier M., 2018)*, particularly in winter *(AFB, 2018)*.	- "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions **with** marine turtles **and** marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			7C	Modal shift and high-volume flows			
			10A	Bathymetric knowledge / monitoring			
			11C	Cruise operators			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
Biogenic and rocky habitats	Maritime transport and ports	+	7B	Digitalisation of port logistics	There is an interaction due to the generation of **physical pressures** on habitats *(MNHN, 2017)*. However, this interaction is limited because the littoral chalk communities and intertidal mussel beds are only found on the coast in the area *(AFB, 2018)*.	- "Reduce physical disturbances from human presence on rocky intertidal habitats, particularly from seafood gathering" - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use"	- D01-HB-OE03 - D01-HB-OE07 - D06-OE01 - D06-OE02
			7C	Modal shift and high-volume flows			
			7D	Disposal of dreged sediments			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			

[2] Tourism and leisure activities, including seaside and beach activities, recreational boating and water sports.

Other specific objectives present in the sector but not concerned by the crossover:

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4B – 4C – 4D – 4E – 4F 5B – 5C 7A – 7E 8B – 8D – 8E 10B 11D 12A – 12B – 12C – 12E – 12F – 12G 13A – 13B – 13D 15A – 15B	D01-MT-OE01; D01-OM-OE04-08 D02-OE01-05 D03-OE03 D07-OE03-05 D11-OE01-03

IV. Recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner:
– carries out an appropriate study based on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis section).

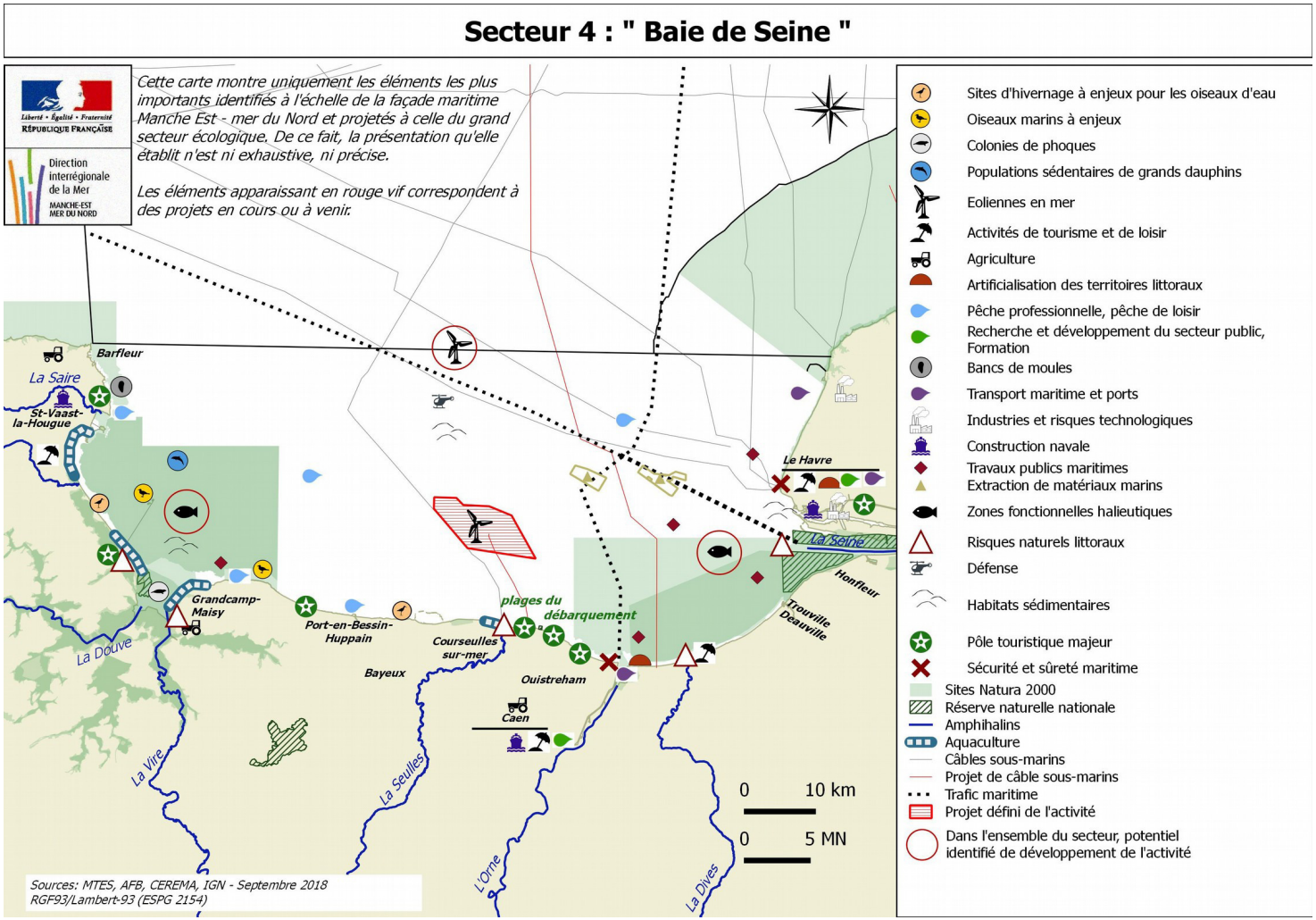
It is recommended that the complementary skills acquired are capitalised and made available to the public, governance bodies and specialists, including in research.
Compliance with existing maritime planning.

AREA no. 4

Seine Bay

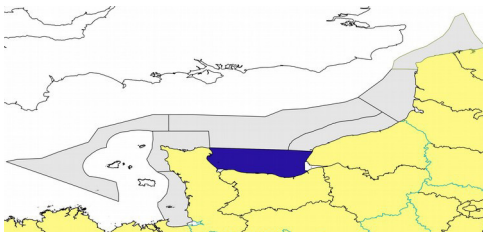
Scope: Strengthen cohabitation between different uses in an area where there are multiple current and future activities (marine aggregates, fisheries resources, shellfish, marine renewable energy, tourism, port infrastructure, large industry and defence) and major ecological issues related to estuaries.

Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector	Area 5: Seine Bay
Associated water mass	FRHC09 SAINT VAAST LA HOUGUE INLET FRHC10 LES VEYS BAY FRHC11 COTE DU BESSIN FRHC12 WESTERN COTE DE NACRE FRHC13 EASTERN COTE DE NACRE FRHC14 CAEN BAY FRHC15 COTE FLEURIE FRHC16 LE HAVRE ANTIFER FRHT01 SEINE ESTUARY UPSTREAM POSES (FRESHWATER) FRHT02 UPPER SEINE ESTUARY (FRESHWATER) FRHT03 SEINE ESTUARY DOWNSTREAM FRHT04 ORNE ESTUARY FRHT06 LES VEYS BAY ESTUARINE BAY HEAD AND ISIGNY AND CARENTAN CHANNELS FRHT07 RISLE MARITIME FRHT08 DIVES FROM THE SAINT SAMSON BARRIER TO THE RIVER MOUTH



Broadly speaking, with regard to identified ecological issues, the Seine Bay, a wide north facing bay opening onto the central Channel, is an area where sediment accumulates, protected from the prevailing westerly winds by the Cotentin Peninsula. The main river, the Seine, is a major source of the nutrients responsible for extremely abundant zooplankton populations generating intense primary production. The high phytoplankton biomass from May to August, often in the form of toxic blooms, is the base of a rich pelagic food web, providing food for pelagic fish, fish-eating birds and marine mammals. Mud flats in the Seine estuary and Les Veys Bay are important habitats for benthic production and support the sea by acting as a key nursery ground for sole, plaice, bass and brown shrimp, as well as feeding grounds and resting areas for many species of waders and the harbour seal. The Seine Bay is also a vital spawning ground for both cuttlefish and black seabream.

The largest subtidal mussel beds in France are located in the western part of the bay and are harvested by a local fishery. The land-sea interface features prominently in the issues: land-based inputs, diadromous species (the Vire is especially important with respect to allis shad and the Seine with respect to river and sea lamprey), shellfish farming. Saltwater intrusion can have an impact on existing market gardening activity on the coast (important market gardening area in the Val de Saire). This activity is expected to grow (for example, commitment to development market gardening in the Vimont marshes). The area is characterised by 2 marine aggregate extraction concessions: known as the “Baie de Seine” and “Granulats Marins Havrais”. These two concessions mainly supply the maritime ports of Le Havre, Rouen and Paris (HAROPA) and the Channel coastal areas. Finally, an electricity interconnector with England (IFA-2) is under construction in the area, as well as a wind farm project at Courseulles-sur-Mer, with plans to install 75 turbines with a unit capacity of 6 MW, providing a total capacity of 450 MW. The wind farm is due to come into service by 2021.

Commercial fishing using towed gear is particularly heavy in the Seine Bay, mainly due to the scallop fishery.

In general, the range of activities that take place across the whole Eastern Channel - North Sea basin can be found in this area.

Port activities are particularly important, with the presence of the HAROPA group of ports which comprises Le Havre, Rouen and Paris. Tourism is also well developed along the Côte Fleurie and the Côte Nacre, in particular because of the D-Day Landing Beaches.

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- Territorial Coherence Plan (SCOT)
SCoT Pays du Cotentin
SCoT Bessin
SCoT Caen Métropole
SCoT Nord Pays d'Auge
SCoT Basse Risle
SCoT Le Havre Pointe de Caux Estuaire

- Water Planning and Management Scheme (SAGE)
SAGE03024 Douve Taute
SAGE03025 Vire
SAGE03031 Aure
SAGE03015 Orne downstream and Seulles
SAGE03017 Risle and Charentonne

- SDAGE Seine-Normandy Basin
- Objective documents for the Natura 2000 sites listed below
- Regional marine aquaculture development plans (SRDAM)
- Shore council (CELRL)
- Port councils
Coastal Risk Prevention Plan (PPRL)
Flood Risk Prevention Plan (PPRi)
- Normandy Regional Biodiversity Committee

- List of marine protected areas and other natural spaces

- SPA FR2310044 ESTUARY AND SALT MARSH OF THE LOWER SEINE: SPA designated by decree of 06/11/2002
- SAC FR2300121 SEINE ESTUARY: SAC designated by the decree of 11/10/2016
- SPA FR2512001 AUGERON COASTLINE: SPA designated by the decree of 06/01/2005
- SAC FR2502021 EASTERN SEINE BAY: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Baie de Seine orientale (Special Area of Conservation)
- SPA FR2510059 ORNE ESTUARY: SPA designated by the decree of 18/01/2005
- SAC FR2500090 BESSIN COASTAL SALT MARSHES: Decree of 18 May 2015 regarding the designation of the Natura 2000 site Marais arrière-littoraux du Bessin (Special Area of Conservation)
- SPA FR2510099 WESTERN BESSIN CLIFF: SPA designated by the decree of 06/01/2005
- SPA FR2510046 COTENTIN AND LES VEYS BAY LOWER VALLEYS: SPA designated by the decree of 08/03/2006
- SAC FR2500088 COTENTIN AND BESSIN - LES VEYS BAY SALT MARSHES SAC designated by the decree of 12/08/2016
- SPA FR2510047 WESTERN SEINE BAY: SPA designated by the decree of 06/01/2005

- SAC FR2502020 WESTERN SEINE BAY: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Baie de Seine occidentale (Special Area of Conservation)
- SAC FR2500086 TATIHOU - SAINT-VAAST-LA-HOUGUE: Decree of 18 May 2015 regarding the designation of the Natura 2000 site Tatihou - Saint-Vaast-la-Hougue (Special Area of Conservation)
- RNP Cotentin and Bessin salt marshes
- NNR Seine Estuary (Designation 30/12/1997)
- NNR Cap Romain Cliffs (Designation 16/07/1984)
- NNR Domaine de Beauguillot (Designation 17/01/1980)
- CC site Valleuse d'Antifer
- CC site Valleuse de Bruneval
- CC site Cap de la Hève
- CC site Estuaire de la Seine
- CC site Marais Vernier
- CC site Risle Maritime
- CC site Rives de Seine sud (27)
- CC site Rive de Seine sud (14)
- CC site Bois du Breuil
- CC site Mont Canisy
- CC site Marais de Villers-Blonville
- CC site Falaises des Vaches noires
- CC site Pointe de Cabourg
- CC site Batteries de Merville
- CC site Estuaire de l'Orne
- CC site Marais de Graye-sur-mer
- CC site Marais de Ver-sur-mer
- CC site Les Fonderies
- CC site Batterie de Longues
- CC site Mont Castel
- CC site Omaha Beach
- CC site Pointe du Hoc
- CC site Les Veys
- CC site Beauguillot
- CC site Utah Beach
- CC site Fort de la Hougue
- CC site Ile de Tatihou

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	Land-sea interface and river plumes	Seine Bay and Les Veys Bay Seine river plume and associated high zooplankton populations. Coastal and hinterland wetlands.				
	Primary and secondary producers and forage species	Forage species: Dragonets, sandeels, gobies Plankton communities disturbed by sporadic toxic bloom outbreaks				
Benthic habitats and geomorphological structures	Biogenic habitats	Subtidal mussel beds				
		Dwarf eelgrass beds				
		Atlantic salt meadows				
	Sedimentary habitats	Subtidal mixed sediments				
		Intertidal mud flats				
		Subtidal fine and medium sand, subtidal coarse sediment				
Functional fishing areas	Spawning grounds	Cuttlefish, black seabream				
	Nurseries	Bass, whiting, sole, plaice, sprat, black seabream, thornback skate, lemon sole, cuttlefish, pout, mackerel and herring				
	Diadromous species	Shads and lampreys				
		Salmon				
	Benthic invertebrates	Scallop, brown shrimp and common prawn				
	Elasmobranchs	Thornback skate, spotted ray and undulated ray				
Functional avifauna areas	Waders nesting and feeding grounds	Kentish plover				
	Seabird colonies and feeding grounds	Northern fulmar, great cormorant, black-legged kittiwake				
		European shag, European herring gull, great black-backed gull				
	Wintering grounds for waterfowl	Northern pintail, shoveler, barnacle goose				
	Areas with maximum density and functional areas – seabirds in the breeding season	Densities all species				
Crosscutting issues	Harbour porpoise maximal density areas	Harbour porpoise in summer				
	Seal colonies and feeding grounds	Harbour seal				
	Home range for resident communities of bottlenose dolphins	Bottlenose dolphin (resident community)				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Description of the maritime activity	Changes	Qualification			
				Major	High	Average	Low
Swimming and beach use	Yes	There are supervised bathing areas along the coast. They are an additional attraction for tourists in the area.	=				
Offshore oil, gas and related activities	No						
Agriculture	Yes	There is some ad hoc market gardening activity in the area, in particular north of Caen and in the Val de Saire.	=				
		Livestock farming takes places on the Cotentin and Bessin marshes, with fodder crops.					
		There are equestrian tourism activities for both professionals and amateur enthusiasts in the area (horse thalassotherapy and balneotherapy).					
Aquaculture and quality of shellfish waters	Yes	Shellfish farming in the Seine Bay is mainly oyster farming. Potential aquaculture zones have been identified, in particular in the western part of the area.	+				
		There are also salmon farms in Les Veys Bay and seaweed cultivation trials are taking place on the east coast of the Channel.					
Artificialisation of coastal areas	Yes	Artificialistion of the coast is more prevalent on the Côte de Nacre, Côte Fleurie and Plain in the Manche department.	=				
Connection [of MRE] and other underwater cables	Yes	The "IFA 2" electricity cable is currently being installed, complimenting the existing network (undersea cables) and future additions (connection to future wind farms).	+				
Seafood processing and marketing	Yes	The area has two fish markets: Grandcamp and Port-en-Bessin (selling primarily scallops and whelks) and processing plants and marketing establishments.	-				
Shipbuilding	Yes	Several shipbuilding and marine services companies, mainly based in Caen, operate in the area. There is a fishing vessel maintenance yard at Saint-Vaast, as well as various suppliers of recreational boating equipment.	=				
Defence	Yes	As part of maritime defence of the territory, the La Hève, Villerville, Port-En-Bessin, Saint-Vaast-La-Hougue and Barfleur semaphores permanently monitor the maritime approaches. A large number of military vessels monitor the maritime areas, including the coastal and port surveillance vessels based at Le Havre. The mission of Le Havre Maritime and Port Security Unit is to combat unlawful activity via the sea (drug trafficking, illegal immigration, *etc.*) and to prevent and counter threats to port facilities and vessels in port. In the East of the area is the military vessel firing practice zone.	=				
Quarrying marine materials	Yes	There are two marine aggregate extraction concessions in the area: "Granulats Marins Havrais" (pending) and "Baie de Seine". It should be noted that there is marine aggregate extraction	+				

		potential in the area and that marine aggregates are discharged in the ports of Le Havre, Honfleur, St Jean de Folleville, Vatteville la Rue, Saint Wandrille, Rouen.					
Industries and technological risks	Yes	Le Havre port is the major industrial zone in the area and it has oil refining activity. There is also a ship breaking yard (Gardet). Industrial risks are linked to port activities (transport of dangerous goods, intermediate storage sites, the industrial and port areas of Le Havre, Port-Jerome and Rouen).	+				
		There are significant industrial risks at Antifer, and linked to the transport of dangerous goods.					
Recreational boating and water sports	Yes	There are many recreational boating facilities (including individual boat boarding and landing sites). There are also a number of marinas in the area.	+				
Professional fishing, recreational fishing	Yes	Commercial fishing using towed gear is particularly heavy in the Seine Bay, mainly due to the scallop fishery. Coastal gillnetters and cuttlefish trappers are also present in the area.	+				
		Recreational sea fishing is carried out using a variety of techniques and equipment. In addition, seafood gathering takes place along the entire coastline.					
Electricity production	Yes	The area has a 50km² wind power project at Courseulles-sur-Mer, over 10km off the Bessin coast (75 turbines with a total capacity of 450 MW). The wind farm is due to come into service by 2021.	+				
Research and development in the public sector; Training	Yes	In the area there are training centres with marine environment related teaching: for example, universities at Le Havre and Caen, recreational boating training centres and the ENSM at Le Havre.	=				
		Laboratories are involved in data collection as part of research programmes (for example, ECODIV at Rouen, GEOPHEN at Caen, IFREMER).					
Coastal tourism, sites, landscapes and cultural heritage	Yes	Tourism is particularly developed in the area with: - The Battle of Normandy Coastal Area, defined within the destination contract “Remembrance Tourism in Normandy”. This area is a fundamental part of remembrance tourism as it is a focus for the majority of visitors (from Utah Beach-Ste Marie du Mont to Sword Beach-Merville-Franceville).	+				

		- The coastal path and bike trails (EuroVélo 4) which follow the coastline and pass the many associated landmarks (listed and registered monuments). - The classified tourist towns (Blonville-sur-Mer, Cabourg, Courseulles-sur-Mer, Deauville, Honfleur, Houlgate, Luc-sur-Mer, Merville-Franceville, Ouistreham, Saint Aubin-sur- mer and Villers-sur-Mer). UNESCO World Heritage Site: the area has one of the twelve sites of the Fortifications of Vauban (the Tatihou and La Houghe watchtowers), the network of fortifications listed by UNESCO.					
		The area also has sand yachting and sea hiking sites. Two renowned beaches have been awarded the Blue Flag: Colleville-Montgomery and Courseulles-sur-Mer. This part of the coast has protected natural areas (Vaches Noires, Cap Romain cliffs, *etc.*) There is also hunting, which is carried out from a gabion (15).					
Maritime transport and ports	Yes	The area has many ports including the Maritime Ports of Rouen and Le Havre-Antifer. There are nine anchorage/waiting areas. 5 ports have been awarded the Blue Flag: Saint-Vaast-la Hougue, Carentin, Ouistreham, Courseulles-sur-Mer and Dives-sur-Mer.	+				
		Traffic is relatively heavy in the area, particularly in the approaches to the ports of Le Havre and Rouen, as well as around passenger ferry ports, such as the Ouistreham terminal.					
Maritime public works	Yes	Work is mainly related to port activities and navigation (dredging, piling sites).	+				
Natural coast hazards	Yes	The rate of coastal erosion is relatively high (40% in Calvados). The Seine estuary and Calvados coast between the Dive and Orne estuaries, as well as Les Veys Bay, are zones particularly vulnerable to the risk of coastal flooding. Safeguarding or recreating a shore where the natural mobility of the coastline can be preserved or rehabilitated (in today's context where the coastline has extensive sea defences) and the management of coastal and hinterland wetlands where the ecological functions can be maintained or transferred.	+				
Local planning initiatives or integrated sea and coastal management	Yes	There are several local planning documents: SCOT, PLUi, PPRI, SRADDET, Territorial Development Directive (DTA) for the Seine estuary, Coastal Conservatory management strategies, etc.	+				
Environmental protection	Yes	There are several MPAs and other environmental protection initiatives* in the area: Natura 2000 sites, Seine Estuary NNR, sites managed by the Coastal Conservatory, Beauguillot National Nature Reserve, etc.	=				

Government Action at Sea	Yes	Within the remit of Government Action At Sea, the Jobourg Regional operational centre for surveillance and rescue monitors maritime traffic and coordinates search and rescue operations at sea and assists ships in distress. The SNSM stations at Le Havre, Honfleur, Trouville-sur-Mer, Dives-sur-Mer, Ouistreham, Courseulles-sur-Mer, Port-en-Bessin, Grandcamp-Maisy, Isigny-sur-Mer, Saint-Vaast-La-Hougue and Barfleur have the capacity to respond and assist at sea. The semaphores at La Hève, Villerville, Port-En-Bessin, Saint-Vaast-La-Hougue and Barfleur also constantly monitor the maritime approaches. A number of maritime vessels are engaged in Government Action at Sea and they monitor maritime areas and police activities at sea (fisheries policing, combatting illegal activities, *etc*.) There are a high number of wrecks and old machinery and devices in the area (D-Day Landing Beaches). If an old explosive device is discovered, specialist bomb disposal divers based in Cherbourg intervene to carry out explosive ordnance disposal operations.					

III. Overlapping of strategic objectives related to the zone

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation madeof these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1]to environmental objectives when it is not possible to implement them.

[1]These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issueor any specific event were to force the good ecological status to be affected, an exemption should be put in place.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis of environmental objectives (EO) and response in light of cross-cutting issues	
	Activities	Development trends	SEO code	Wording (synthetic)		Headings	EO code
Functional fishing areas	Maritime transport and ports	+	7B	Digitalisation of port logistics	There is an interaction due to the **introduction of ENI** *(MNHN, 2018),* inputs of **ecotoxic substances** and **nutrients** (for spawning and nursery grounds in particular) *(Ifremer, 2018)* and due to the generation of **physical pressures** on seabeds *(BRGM, 2017)*. This interaction is high, especially in the anchorage/waiting areas (nine in the area) and around the Maritime Port (GPM) of Le Havre (port footprint, port works, maintenance dredging and sediment disposal) and the port of Antifer; and due to the relative density of traffic in the area, in particular at the entrance of Le Havre port where there are important nursery areas(AFB*, 2018).*	- "Maximise the survival rate of elasmobranchs captured accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Adapt the removal of diadromous species downstream of the transversal limit of the sea in order to achieve or maintain healthy stocks and reduce accidental catches of diadromous species where the renewal capability is compromised, particularly in areas where species gather in large numbers, estuaries and estuary plumes identified by PLAGEPOMI (Migratory fish management plans)" - "Reduce all pressures that affect the scope and condition of functional fishing areas identified as important (i.e. spawning grounds, nurseries, migration paths), which are fundamental for the life cycle of fish, cephalopods and crustaceans of value to fisheries". - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the risk of introduction of non-native species linked to the import of flora and fauna" - "Limit the transfer of non-native species from seriously affected areas" - "Limit the introduction and dissemination of non-native species caused by water and ballast sediments from ships" - "Limit the risk of dissemination of non-native species during the introduction and transfer of aquaculture species" Need to regulate fishing effort in some areas with major issues and where fishing effort is high (maximum pressure) and therefore: - "In accordance with the CFP, adapt fishing mortality to achieve the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for fish stocks covered totally or partially by a national or sub-national assessment and subject to local management" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these inputs" - "Do not increase nutrient inputs in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid significant residual impacts of turbidity in habitats and the main important functional fishing areas that are most sensitive to this pressure, as a result of maritime works, extraction of materials, dredging, disposal of dredged sediments, land-based discharge and development" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports" - "Reduce the direct release into the sea of contaminants, especially hydrocarbons from maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc*.)"	- D01-PC-OE01 - D01-PC-OE03 - D01-PC-OE05 - D01-HB-OE07 - D02-OE01 - D02-OE02 - D02-OE03 - D02-OE05 - D03-OE01 - D03-OE02 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 - D06-OE01 - D06-OE02 - D07-OE01 - D07-OE04 - D08-OE01 - D08-OE02 - D08-OE03 - D08-OE04 - D08-OE05 - D08-OE05 bis - D08-OE06 - D08-OE07
			7C	Modal shift and high-volume flows			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			7H	Alternative ship fuels			
			7I	Reduction of atmospheric pollutants			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			12D	Research support			
	Agriculture	=					
	Industry	+					
	Fishing	+	3A	Fishing equipment renewal	There is an interaction due to **species** removal *(Ifremer, 2018)*, in particular in the scallop fishery around Grandcamp and Port-en-Bessin, to the introduction **of ENI** *(MNHN, 2018)* and to **physical pressures** on seabeds especially affecting spawning and nursery areas, as well as benthic invertebrates *(BRGM, 2017)*. The interaction is particularly high in the 3 mile coastal zone and at the mouth of estuaries where there are nursery issues *(AFB, 2018).*		
			3C	Product quality and sustainable resource management			
	Extraction of marine materials	+	6A	Granulateextraction capacities			
			6B	Granulate research license			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			
	Maritime works and artificialisation of the coast	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			6A	Granulate extraction capacities			
			6B	Granulate research license			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Aquaculture	+	4B	New aquaculture zones	There is an interaction due to the introduction **of ENI** *(MNHN, 2108)* and the generation of **physical pressures** on the seabed linked to infrastructure *(BRGM, 2017)*, mainly oyster farm structures, located on the eastern Contentin coast and in particular in Les Veys bay *(AFB, 2018)*. Potential aquaculture zones have also been identified in the west of the area.		
			4C	Sustainable aquaculture models			
			4D	Aquaculture health risk			
			4E	Product quality and sustainable resource management			

						- "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds linked to dredging operations and disposal at sea." - "Limit direct input, transfers and remobilisation of contaminants into the sea related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	
Resident communities of bottlenose dolphins	Maritime transport and ports	+	7B	Digitalisation of port logistics	The interaction primarily results in **capture** and injury to porpoises, in particular caused by accidental catches and collisions *(Spitz J., Peltier H., Authier M., 2018).* Bottlenose dolphin issues are mainly concentrated in the west of the area *(AFB, 2018).*	- "Limit anthropogenic disturbance of marine mammals" - "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D01-MT-OE01 - D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			7C	Modal shift and high-volume flows			
			10A	Bathymetric knowledge / monitoring			
			11C	Cruise operators			
			12D	Research support			
	Fishing	+	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
Seal colonies	Maritime transport and ports	+	7B	Digitalisation of port logistics	The interaction with seal colonies is high due to the generation off **physical pressures** on the seabed *(BRGM, 2017)*, in particular in Les Veys bay where there is a colony, as well as off the coast of Ouistreham, Le Havre and d'Antifer *(AFB, 2018)*.	- "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit anthropogenic disturbance of marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use"	- D01-HB-OE07 - D01-MT-OE01 - D04-OE01 - D06-OE01 - D06-OE02
			7C	Modal shift and high-volume flows			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11C	Cruise operators			
			12D	Research support			
	Maritime works and artificialisation of the coast	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			6A	Granulate extraction capacities			
			6B	Granulate research license			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			
	Extraction of marine materials	+	6A	Granulate extraction capacities			
			6B	Granulate research license			
	Fishing	+	3A	Fishing equipment renewal			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
Sedimentary habitats	Maritime transport and ports	+	7B	Digitalisation of port logistics	The interactions are high between sedimentary habitats (intertidal mud flats and subtidal mixed sediments) and port activities, maritime transport and works, electricity production, marine aggregate extraction, fishing and aquaculture, due to **physical pressures** (habitat loss, physical disturbance to the seabed) *(BRGM, 2017)* and the input of **ecotoxic substances** *(Ifremer, 2018)* to the environment. These habitats occur in almost all the area *(AFB, 2018)*.	- "Reduce physical disturbances from human presence on rocky intertidal habitats, particularly from seafood gathering" - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these inputs" - "Do not increase nutrient inputs in areas with little or no eutrophication" - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid all new anthropogenic modifications of hydrographic conditions that	- D01-HB-OE03 - D01-HB-OE07 - D05-OE01 - D05-OE02 - D05-OE03 - D05-OE04 D06-OE01 - D06-OE02 - D07-OE03
			7C	Modal shift and high-volume flows			
			7D	Disposal of dredged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			7H	Alternative ship fuels			
			7I	Reduction of atmospheric pollutants			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
	Maritime works and artificialisation of the coastline	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			

	Fishing	+	3A	Fishing equipment renewal		have a significant residual impact on the current pattern and sedimentology of the areas of concern, and as a priority in macrotidal bays, maximum current zones and areas of sub-aqueous dunes" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports" - "Reduce the direct release into the sea of contaminants, especially hydrocarbons from maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc*.)" - "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds linked to dredging operations and disposal at sea." - "Limit direct input, transfers and remobilisation of contaminants into the sea related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	- D07-OE04 - D08-OE01 - D08 – OE02 - D08-OE03 - D08-OE04 - D08-OE05 - D08-OE05 bis - D08 – OE06 - D08 - OE07
			3D	Fishing waste sector			
	Extraction of marine materials	+	6A	Granulate extraction capacities			
			6B	Granulate research license			
	Aquaculture	+	4B	New aquaculture zones			
			4D	Aquaculture health risk			
			4E	Product quality and sustainable resource management			
	Agriculture	=					
	Industry	+					
Subtidal mussel beds	Maritime transport and ports	+	7B	Digitalisation of port logistics	Interactions with subtidal mussel beds are high due to the generation of **physical pressures** on the habitats *(BRGM, 2017)* and the input of **ecotoxic substances** *(Ifremer, 2018)* into the environment. However, these habitats are only found near the coast in the west of the area, and they cover a small area *(AFB, 2018)*.		
			7C	Modal shift and high-volume flows			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			7H	Alternative ship fuels			
			7I	Reduction of atmospheric pollutants			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Maritime works and artificialisation of the coast	+	4B	New aquaculture zones			
			5A	New wind power zones			
			5D	MRE trials			
			6A	Granulate extraction capacities			
			6B	Granulate research license			
			7D	Disposal of dreged sediments			

			7F	Port real estate			
			7G	Reduction of port pollution			
			11C	Cruise operators			
			15A	Coastline management strategy			
	Electricity production	+	5A	New wind power zones			
			5D	MRE trials			
	Fishing	+	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
	Extraction of marine materials	+	6A	Granulate extraction capacities			
			6B	Granulate research license			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
			4D	Aquaculture health risk			
			4E	Product quality and sustainable resource management			
	Agriculture	=					
	Industry	+					
Primary and secondary producers, forage species	Agriculture	=			Agriculture has a high interaction with forage species due to nutrient **input** *(Ifremer, 2018)* disturbing plankton communities *(Ifremer, 2018),* in particular on the coast and at the mouth of estuaries *(AFB, 2018)*.	- "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these inputs" - "Do not increase nutrient inputs in areas with little or no eutrophication"	- D05-OE01 - D05-OE02 - D05-OE03
	Fishing	+	3A	Fishing equipment renewal	The interaction between commercial fishing and forage species (dragonets, sandeels, gobies) is due to its **removal** *(Spitz J., Peltier H., Authier M., 2018)*. This is an important ecological issue on the coast and around the mouths of estuaries *(AFB, 2018)*.	- "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D04-OE01
			3C	Product quality and sustainable resource management			
Functional avifauna areas	Maritime transport and ports	+	7B	Digitalisation of port logistics	Interaction is high with functional bird areas due to the introduction of **waste** into the marine environment (and less certainly, **removal** linked in particular to accidental catches in fisheries and collisions with MRE infrastructure) (MNHN, 2018), particularly in the west of the area where the Maritime Port of Le Havre and industry at Antifer are located *(AFB, 2018)*.	- "Reduce accidental captures of seabirds (at sea and close to colonies), and in particular reduce accidental captures of the most vulnerable species such as the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-lining, static nets and seines with pelagic trawls" - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Reduce the pressure of certain introduced and domestic species on seabird breeding grounds" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats" - "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	-D01-OM-OE01 -D01-OM-OE03 -D01-OM-OE04 -D01-OM-OE06 -D01-OM-OE07 - D10-OE01 - D10-OE02
			7C	Modal shift and high-volume flows			
			7D	Disposal of dreged sediments			
			7F	Port real estate			
			7G	Reduction of port pollution			
			11A	Clean ports			
			11C	Cruise operators			
	Fishing	+	3A	Equipment renewal			
			3C	Product quality and sustainable resource management			
			3D	Fishing waste sector			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
	Industry	+					
	Tourism and leisure activities[2]	+	8C	Boat sharing			
			11A	Clean ports			
			11B	Recreational boater awareness			
			11C	Cruise operators			
			13C	Large events			
	Electricity production	+	5A	New wind power zones	There is an interaction between functional bird areas and wind power projects, due to the risk of **potential collisions** with wind farm infrastructure at sea *(MNHN, 2018)*	- "Prevent collisions between seabirds and infrastructure at sea, especially with wind farms (application of the avoid, reduce, compensate approach)"	- D01-OM-OE02
			5D	MRE trials			

[2] Tourism and leisure activities, including seaside and beach activities, recreational boating and water sports.

Other specific objectives present in the sector but not concerned by the crossover:

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4F 5B – 5C 7A – 7E 8A – 8B – 8D – 8E 10B 11D 12A – 12B – 12C – 12E – 12F – 12G 13A – 13B – 13D 15B	D01-HB-OE01-02-05 ; D01-OM-OE08 D03-OE03 D07-OE05 D09-OE01-02-03 D11-OE01-03

IV. Recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner :
– carries out an appropriate study based on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis chapter).

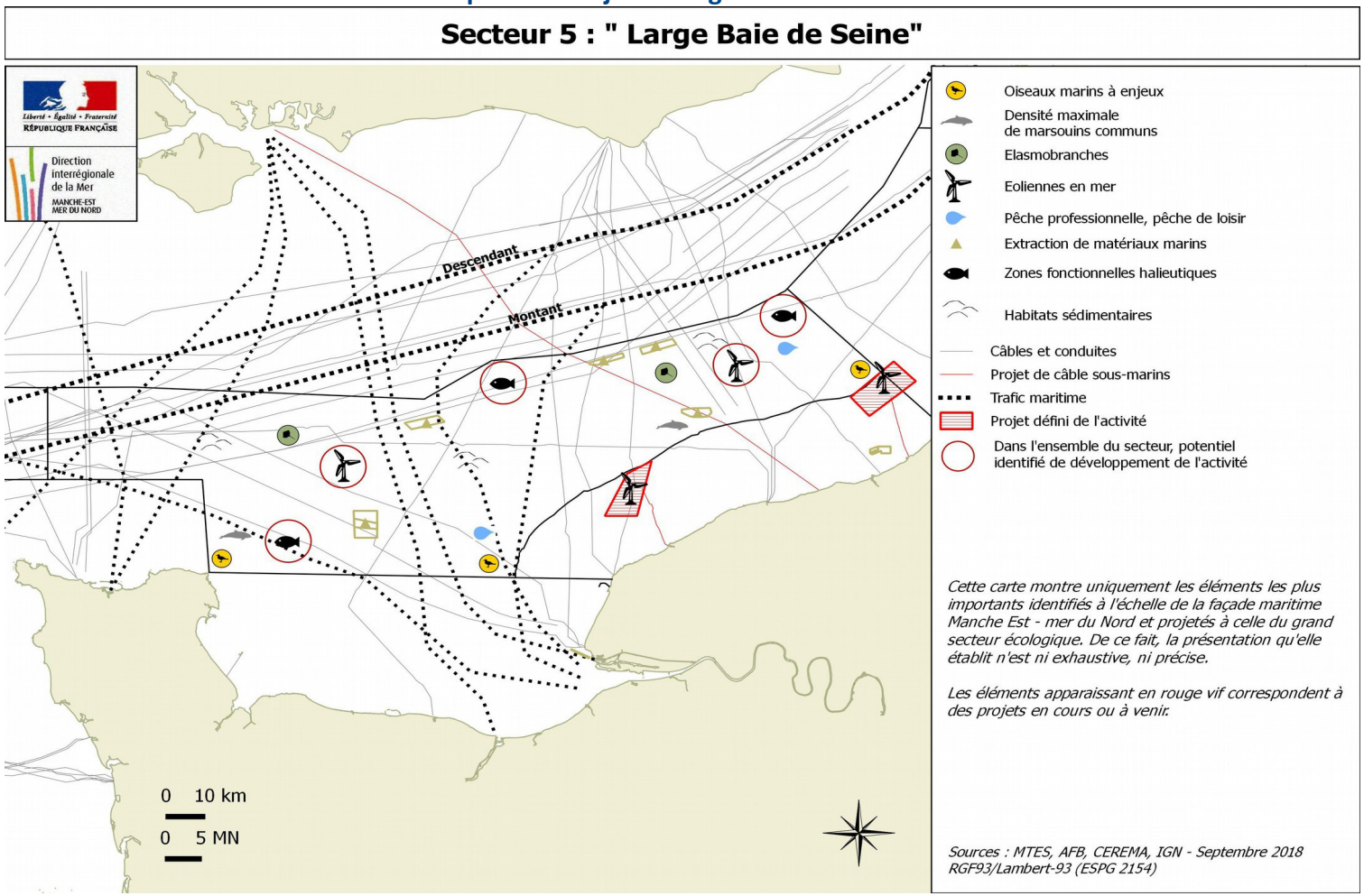
It is recommended that the complementary skills acquired are capitalised and made available to the public, governance bodies and specialists, including in research.
Compliance with existing maritime planning.

AREA no.5

Off the coast of Baie de Seine

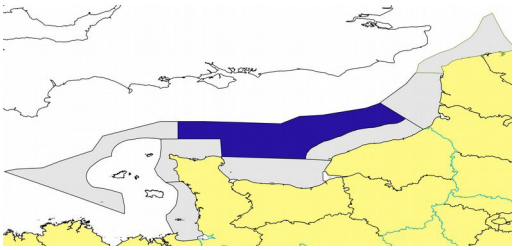
Vocation: Predominance of maritime navigation and maritime security issues Zone with a renewable energy and marine aggregate development vocation, side by side with existing maritime activities, including the protection, and more specifically, the need for protection of marine mammals.

Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector	Area 4 : Eastern Channel
Associated water mass	FRHC08 BARFLEUR



Synthetically, in view of the identified ecological issues, the central part of the English Channel is the place where Atlantic waters are transferred to the North Sea. The seabeds offshore are mostly composed of coarse sediments; major spawning areas for a number of species. Forage fish are commonly found living on the seabed and the presence of hard sediments encourages a demersal fish community typical of the centre of the English Channel. In winter and spring, the sector is full of small cetaceans and sea birds. The tip of the Cherbourg peninsula is a bottleneck for migrating marine mammals and a milestone reached by the many birds following the coasts or coming from the British Isles. This transition area between the eastern and western Channel is also frequently visited by bottlenose dolphins, which may have come from the sedentary groups in the Normano-Breton Gulf.

The sector is characterised by the presence of three marine aggregate extraction concessions: “Saint-Nicolas”, “Eastern Channel” and the B zone of the “Côte d’Albâtre” concession. There is also a major issue for electricity production (wind park projects) and a number of underwater cables (e.g. telephone and electricity). Fishing is also well developed, except in the offshore area in the north Cotentin peninsula due to the very strong current conditions and the deeper bathymetry. Furthermore, in the south of this sector, there is a military exercise area for military vessels.

This is a heavy maritime transit area, situated between the Casquets traffic separation scheme in the west and the Pas-de-Calais traffic separation scheme in the east. This navigation zone is also a very busy shipping route for maritime connections between France and England. Off the coast of Antifer there is a regulated navigation area with an approach channel and obligatory access for ships transporting hydrocarbons and dangerous cargo. A mooring area can be found off the coast of the Antifer Cape, beyond the territorial sea, and the maritime and fluvialregulation zones are located near the port of Antifer in the territorial sea (decree no. 79-2013 of 11 December 2013 by the Channel and North Sea maritime prefect of the and the Seine maritime prefect setting the limits for the maritime and fluvial regulation zone of the Grand Port Maritime du Havre).

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

None

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Benthic habitats and geomorphological structures	**Sedimentary habitats**	Coarse subtidal sediment				
Functional fishing areas	**Spawning grounds**	Sole, plaice, scad, flounder, sprat, red gurnard, sardine, pout, mullet and gadoids				
	Nurseries	Atlantic horse mackerel, red gurnard and red mullet				
	Elasmobranch species	Thornback ray, spotted ray, undulated rays and stingrays				
Functional avifauna zones	**Areas with maximum density and functional areas – seabirds in the breeding season**	Densities all species				
Cross-sectional issues	**Harbour porpoise maximal density areas**	Harbour porpoise in summer				

Socio-economic issues and their prospect of further evolution

Category of maritime activities	Presence	Description of the maritime activity	Change	Qualification			
				Major	High	Average	Low
Norms for swimming and beach use	No						
Offshore oil, gas and related activities	No						
Agriculture	No						
Aquaculture and quality of shellfish waters	No						
Artificialisation of coastal areas	No						
Connection of MRE and other underwater cables	Yes	A number of cables cross the sector.	+				
		An interconnection project (project IFA2) between Englandand France is currentlyunder construction. Another project of this type (Aquind project) is currently being considered.					
Marketing and processing seafood products	No						
Shipbuilding	No						
Defence	Yes	As part of the defence of the maritime territory, a number of military buildings and aircraft monitor maritime spaces. The sector is classified as a "high risk" for UXOs by the French Préfecture maritime Channel – North Sea	=				
Extracting marine materials	Yes	The sector includes three marine granulate concessions: the "Côte d'Albâtre" (B zone only), "Saint Nicolas" and "Eastern Channel". There is also potential for marine granulate extraction in this sector.	+				
Industries and technological risks	No						
Recreational boating and water sports	Yes	Recreational boating is not very popular in the sector and there are only a few yachts in the areas closest to the coasts.	=				
Professional fishing, recreational fishing	Yes	Scallops are fished by professional fishermen. The offshore area in the north Cotentin peninsula is largely deserted due to the very strong current conditions and the deeper bathymetry.	=				
Electricity production	Yes	The influence of the Dieppe-le Tréport wind power project seems to affect a portion of the sector, but not significantly. The Fécamp wind power project is also on the sector boundary. Potential sites for the development of wind power farms have been identified in the sector.	+				
Research and development in the public sector; Training	No						
Coastal tourism, sites, landscapes and cultural heritage	No						

Maritime transport and ports	Yes	The density of maritime traffic is high, notably due to inter-port connections between France and England, which link the port of Cherbourg, Ouistreham, le Havre and Saint-Malo to the port of Portsmouth; the port of Cherbourg to the port of Poole and the port of Dieppe to the port of Newhaven, approaches to the great maritime ports of Rouen and Le Havre but also the Inter Traffic Separation Scheme (Traffic Separation Scheme of the Casquets and the entrance of the Gris-Nez Traffic Separation Scheme).	+				
Maritime public works	No						
Natural coast hazards	No						
Local integrated planning or management of the sea and coastal area initiatives	No						
Protection of the environment	Yes		+				
Government Action at Sea	Yes	Within the remit of Government Action At Sea, the Jobourg Regional centre for surveillance operations and for rescue monitors maritime traffic and coordinates search and rescue operations at sea and assists ships in distress. The Abeille Liberté is an emergency salvage and tow vessel based in Cherbourg-en-Cotentin. The French Society of Sea Rescuers (SNSM) in the Manche, Calvados and Seine-maritime departments can provide intervention and assistance at sea. Several rescue units engaged in Government Action at Sea (national navy, maritime gendarmerie, departmental gendarmerie, border control, maritime affairs) monitor maritime spaces. The NH90 helicopters (national navy) based in Maupertus, EC135 (border control) based in Le Havre and EC145 (civil security) also take part in Government Action at Sea missions (surveillance, research and rescue, assistance, etc.). If historical explosive devices are discovered, French bomb disposal divers based in Cherbourg intervene in the maritime spaces.	=				

III. Overlapping of strategic objectives related to the area

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation givento these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1]to environmental objectives when it is not possible to implement them.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis and response to environmental objectives in light of the overlapping of issues	
	Activities	Development trends	SEO code	Wording (summary)		Headings	EO Codes
Functional fishing areas	Electricity production	+	5A	New wind power zones	There is an interaction between functional fishing areas and wind power projects, due to the generation of**physical pressure** on seabeds *(BRGM, 2017)*. However, this interaction still remains confined to wind power projects and marine aggregates extraction.	- "Maximise the survival of elasmobranch species captured accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Reduce all pressure affecting the scope of the functional fishing areas identified (i.e. spawning grounds, nurseries, migration paths), an essential factor in the fish full life cycle, cephalopods and crustaceans of fishery value." - "Limit the transfer of non-native species from severely impacted areas" - "Limit the introduction and dissemination of non native species linked to waters and ballast sediments from ships" - "In accordance with the CFP, adapt fishing mortality to reach the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations"	- D01-PC-OE01 - D01-PC-OE05 - D02-OE02 - D02-OE03 - D03-OE01 - D03-OE02
			5D	MRE experimentations			
	Extracting marine materials	+	6A	Granulate extraction capacities			
			6B	Granulate research license			
	Fishing	=	3A	Fishing equipment renewal	There is interaction due to the generation of **physical pressure** on the seabeds (fishing with bottom trawls causes significant interaction in terms of surface area) *(BRGM, 2017)*, the introduction of **ENI** *(MNHN, 2018)*, and **demands** on resources ***(Ifremer, 2018)***. This interaction is lower in the offshore area in the north Cotentin peninsula which, due to the very strong current conditions and the deeper bathymetry, is deserted by fishermen ***(CEREMA, 2017).***		
			3C	Product quality and resource sustainable management			

[1]These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issueor any specific event were to force the good ecological status to be affected, an exemption should be put in place.

	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction due to generation of **physical pressure** on seabeds *(BRGM, 2017)*, input of **ecotoxic substances *(Ifremer, 2018)*,** as well as the introduction of **ENI** *(MNHN, 2018)* in the environment. This interaction is lower offshore of the north Cotentin coast where there are no nursery issues *(AFB, 2018)*.	- "Adapt fishing mortality to ensure sustainable management of local stocks for the fish stocks concerned, totally or partially, using a national or sub-national assessment managed locally" - "Do not increase nutrient supplies in areas with little or no eutrophication - "Reduce the atmospheric nitrogen inputs (Nox) on a national level" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and usages" - "Avoid significant residual impacts of turbidity in habitats and in the main functional fishing areas of importance which are the most sensitive to this pressure, under the influence of maritime structures, extraction of materials, dredging, the immersion of dredging materials, water development and terrestrial discharges"	- D05-OE03 - D05-OE04 - D06-OE02 - D07-OE01 - D08-OE02 - D08-OE03 - D08-OE05 bis - D08-OE07

			7H	Alternative fuels ships			
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			
Functional avifauna zones	Fishing	=	3A	Fishing equipment renewal	There is an interaction between professional fishing and seabirds due to the introduction of **waste** into the marine environment (and less certainly, **collections** related to accidental catches in fishing activities in particular). However, this interaction is limited in space (located in the southern limits of the sector) and in time (mainly in the breeding season) *(MNHN, 2018 and AFB, 2018)*.	- "Reduce accidental captures of seabirds (close to breeding colonies), and decrease the capture of the most vulnerable species such as Balearic shearwaters, Yelkouan shearwaters and Cory's shearwaters, by long-lining, static nets and seines with pelagic trawls" - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Reduce the inputs and presence of waste at sea from maritime activities, usage and developments"	- D01-OM-OE01 -D01-OM-OE03 - D10-OE02
			3C	Product quality and resource sustainable management			
			3D	Fishing waste sector			
	Maritime transport and ports	+	10A	Bathymetric knowledge / monitoring			
			12D	Research support			
	Electricity production	+	5A	New wind power zones	There is an interaction between functional bird areas and wind power projects, due to the risk of**potential collisions** with wind power field infrastructures at sea*(MNHN, 2018)*	- "Prevent collisions with seabirds and infrastructures at sea, and with wind farms in particular (application of the sequence avoid, reduce, compensate)"	- D01-OM-OE02
			5D	MRE experimentations			
Sedimentary habitats	Extracting marine materials	+	6A	Granulate extraction capacities	There is an interaction between the coarse subtidal sediments, due to the generation of **physical pressures** on these sedimentary habitats and the**extraction** of marine materials *(BRGM, 2017).* However, this interaction is only significant during marine aggregate extraction.	- "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and usages"	- D06-OE02
			6B	Granulate research license			
	Fishing	=	3A	Fishing equipment renewal	There is an interaction between the habitats of coarse subtidal sediments, due to the generation of **physical pressures** on these sedimentary habitats *(BRGM, 2017).* This interaction is lower in the offshore area in the north Cotentin peninsula, deserted due to the very strong current conditions and the deeper bathymetry***(CEREMA, 2017)***.		

	Electricity production	+	5A	New wind power zones	There is an interaction between the habitats of coarse subtidal sediments, due to the generation of **physical pressures** on these sedimentary habitats *(BRGM, 2017).* This habitat covers the entire sector*(AFB, 2018)*.		
			5D	MRE experimentations			
	Maritime transport and ports	+	7B	Port logistics digitalisation	There is an interaction between the habitats of coarse subtidal sediments, due to the generation of **physical pressures** on these sedimentary habitats *(BRGM, 2017).* This habitat covers the entire sector *(AFB, 2018)*.		
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			
Harbour porpoise	Fishing	=	3A	Fishing equipment renewal	The interaction essentially results in **capturing**and injury of porpoises, in particular, accidental catches and collisions *(Spitz J., Peltier H., Authier M., 2018).* Porpoises are present throughout the sector, but in variable numbers: the porpoise issue is lower in the north Cotentin peninsula than off the Seino-Marin coast, for instance *(AFB, 2018)*.	- "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of fodder species in order to encourage the preservation of trophic resources necessary for large predators"	- D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			3C	Product quality and resource sustainable management			
	Maritime transport and ports	+	10A	Bathymetric knowledge / monitoring			
			12D	Research support			

Other specific objectives present in the sector but not concerned by the overlap:

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4D – 4E – 4F 5B – 5C 10B 12A – 12B – 12C – 12E – 12F 13A – 13B – 13C	D01-HB-OE07 ; D01-MT-OE01 D02-OE01 D03-OE03 D07-OE03 D08-OE04-05 D09-OE01 D11-OE01-03

IV. Requirements or recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner:
– carries out an appropriate study depending on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis section).

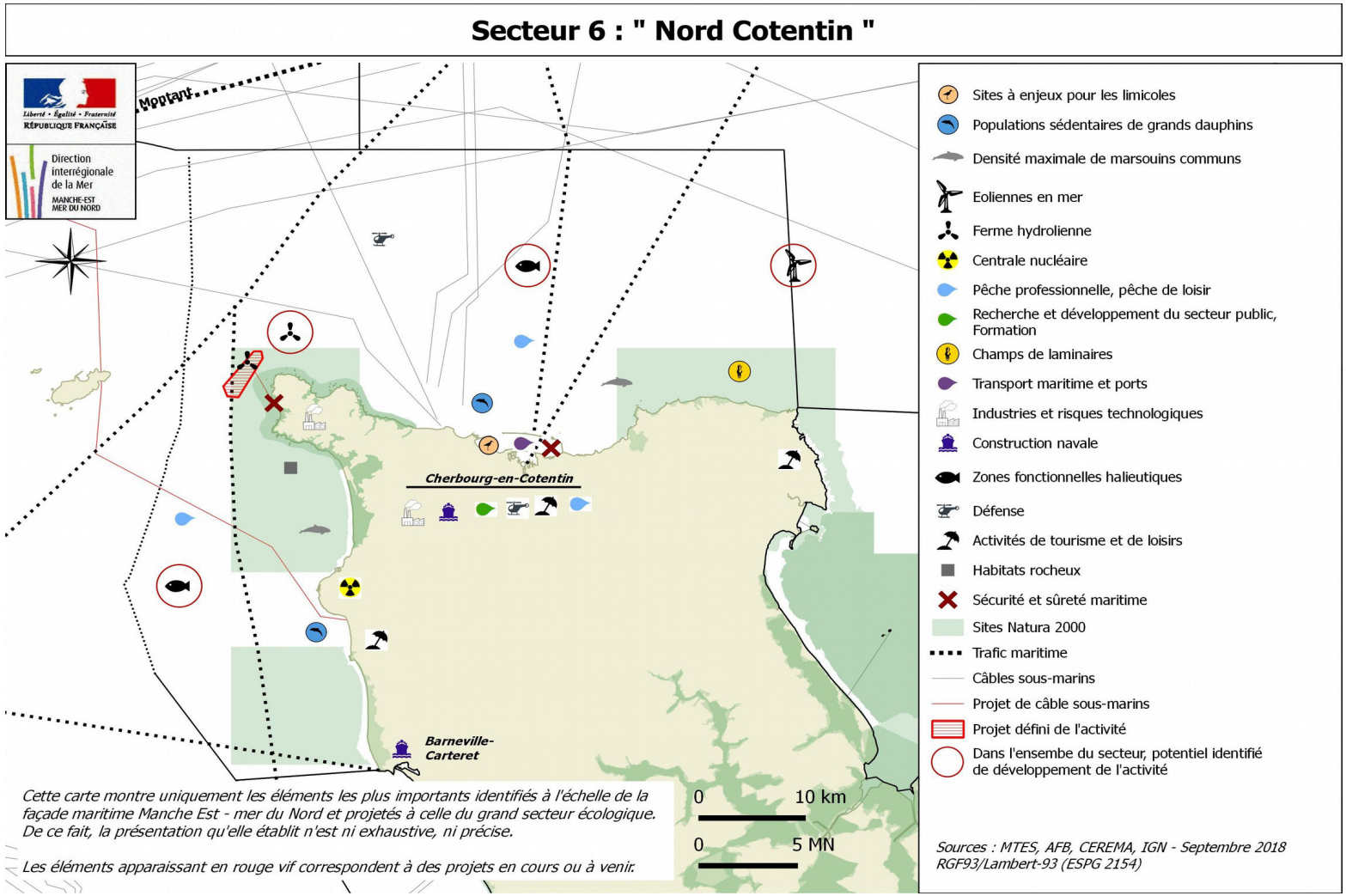
It is recommended that the complementary skills acquired are capitalised and made available to the public, governance bodies and specialists, including in research.
Compliance with existing maritime planning.

AREA no. 6

Northern Cotentin

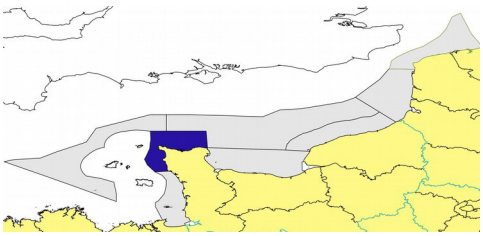
Scope: Area with strong potential for the sustainable development of current and emerging maritime activities (sustainable sea fishing and aquaculture, tidal power, shipbuilding, military activities, coastal tourism, *etc.*).

Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector	Area 8: Northern Cotentin
Associated water mass	FRHC04 CAP DE CARTERET - CAP DA LA HAGUE FRHC05 NORTHERN CAP DE LA HAGUE FRHC07 CAP LEVY GATTEVILLE FRHC08 BARFLEUR FRHC60 CHERBOURG HARBOUR FRHC61 CHERBOURG OUTER HARBOUR



Broadly speaking, in terms of identified ecological issues, the Eastern Channel is characterised by the strongest tidal currents in the Channel. These tidal currents are violent, particularly in the Raz Blanchard and surrounding area, where they can reach flooding speeds of 10 knots and ebbing speeds of 7 knots.

This generates high water exchange and eddies, which in turn stimulates macrobial activity, increases nutrient availability and makes the water oxygen rich. Near the coast, coarse sediments alternate with rocky bottoms, on which kelp grows at shallow depths, creating extremely rich environments which provide spawning and nursery areas for many fish species (wrasse, pollock, conger) and a preferred habitat for species such as crustaceans, bass and abalone. Of all the kelp communities in the Eastern Channel, Northern Cotentin kelp is the only one with very good conservation status. Subtidal honeycomb worm reefs are also present.

The tip of the Cherbourg peninsula is a bottleneck for migrating and hunting marine mammals and a milestone reached by the many birds following the coasts or coming from the British Isles. It is also an important stopover point for some species (Mediterranean gulls, loons, grebes). Two species of plover breed on the Northern Cotentin foreshore and the ringed plover is a major issue in the sea basin. This corridor between the Eastern Channel and Western Channel is also often used by bottlenose dolphins, possibly from the resident communities in the Normano-Breton Gulf.

Recreational boating is highly developed along the coast with, notably, the port of Cherbourg-en-Cotentin. Works have been carried out in this port to create a new reception area for production facilities related to marine renewable energy (MRE), particularly offshore wind and tidal power. Various activities are developing around the town: civilian and military shipbuidling, fish farming, including a salmon farm in the Cherbourg-en-Cotentin harbour area.

Furthermore, electricity production is an important issue, with the presence of Flamanville nuclear power plant (with the world's most powerful EPR (*European Pressurised Reactor*)) and a pilot project to install seven tidal power turbines in Raz Blanchard (Normandie Hydro). New zones open to calls for tender for the development of tidal power could potentially be created in the area, which has the fastest tidal currents in Europe.

The "France - Alderney - Britain (FAB)" project aims to build an undersea and underground direct current electricity interconnector between France and Great Britain via the island of Alderney, a length of almost 220 km between the electrical substations at Menuel in the Cotentin and Exeter, in Devon, England.

The western part of the area is shared with the Bailiwick of Guernsey.

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- Territorial Coherence Plan (SCOT)
SCoT Pays du Cotentin

- Water Planning and Management Scheme (SAGE)
SAGE03024 Douve Taute
SAGE03032 Sienne, Soulles, côtiers ouest du Cotentin

- SDAGE Seine-Normandy Basin
- Objective documents for the Natura 2000 sites listed below
- Regional marine aquaculture development plans (SRDAM)
- Shore council (CELRL)
- Port councils
Coastal Risk Prevention Plan (PPRL)
Flood Risk Prevention Plan (PPRi)
- Normandy Regional Biodiversity Committee

- List of marine protected areas and other natural spaces

- SAC FR2500085 REEFS AND COASTAL SALT MARSHES FROM CAP LEVI TO POINTE DE SAIRE: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire (Special Area of Conservation)
- SAC FR2500084 LA HAGUE REEFS AND MOORS: Decree of 18 March 2015 regarding the designation of the Natura 2000 site Récifs et landes de la Hague (Special Area of Conservation)
- SPA FR2512002 LA HAGUE MOORS AND DUNES: SPA designated by the decree of 08/03/2006
- SAC FR2500083 SAND DUNES FROM HEAUVILLE TO VAUVILLE: Decree of 18 March 2015 regarding the designation of the Natura 2000 site Massif dunaire de Héauville à Vauville (Special Area of Conservation)
- SAC FR2502019 VAUVILLE COVE: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Anse de Vauville (Special Area of Conservation)
- SAC FR2502018 SURTAINVILLE BANK AND REEFS: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Banc et récifs de Surtainville (Special Area of Conservation)
- SAC FR2500082 WESTERN COASTLINE OF COTENTIN FROM SAINT-GERMAIN-SUR-AY TO ROZEL: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Littoral ouest du Cotentin from Saint-Germain-sur-Ay to Rozel (Special Area of Conservation)
- NNR Mare de Vauville (Designation 06/05/1976)
- CC site Etang de Gattemare
- CC site Marais de Réthoville
- CC site Pointe de la Loge
- CC site Pointe du Brick

- CC site Parc de la Roche Fauconniere
- CC site Falaise du Mur blanc
- CC site Pointe de Jardeheu - Anse Saint-Martin
- CC site Pointe de la Hague
- CC site Nez de Jobourg
- CC site Dunes de Vauville
- CC site Dunes de Biville
- CC site Les Vertes Fosses - Cap du Rozel
- CC site Dunes d'Hatainville
- CC site Dunes de Lindbergh - Havre de Portbail
- CC site Havre de Surville
- CC site Havre de Lessay
- Biotope protection orders: Prefectorial order of 20 August 1984 on the protection of specific sea-kale biotopes and Prefectorial order of 6 January 1995 on the protection of the Jobourg cliffs ornithological site

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	**Special hydrological conditions**	Transition zone between the Western and Eastern Channel (connectivity). Maximum tidal currents. Barfleur eddy				
Benthic habitats and geomorphological structures	**Biogenic habitats**	Laminaria				
	Rocky habitats	Infralittoral reefs				
Functional fishing areas	**Nurseries**	Crab				
	Benthic invertebrates	European lobster, abalone				
Functional avifauna areas	**Charadriiformes nesting and feeding grounds**	Ringed plover				
		Kentish plover				
	Seabird colonies and feeding grounds	European herring gull				
	Areas with maximum density and functional areas – seabirds in the breeding season	Densities all species				
Crosscutting issues	**Harbour porpoise maximal density areas**	Harbour porpoise				
	Seal colonies and feeding grounds	Harbour seal				
		Grey seal				
	Home range for resident communities of bottlenose dolphins	Bottlenose dolphin (resident community)				
	Other cetaceans	Migration function (bottleneck)				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Description of the maritime activity	Changes	Qualification			
				Major	High	Average	Low
Swimming and beach use	Yes	The quality of bathing waters is generally excellent.	=				
Offshore oil, gas and related activities	No						
Agriculture	Yes	In most of the area, cattle farming is the main type of agriculture.	=				
Aquaculture and quality of shellfish waters	Yes	There is shellfish farming on the northern coast of the Manche department (primarily oysters and deep sea farming at Fermanville and Omonville La Rogue). There is also a salmon farm in the Cherboug-en-Cotentin outer harbour area. Potential aquaculture zones have been identified along the area's coast.	+				
Artificialisation of coastal areas	Yes	Artificialisation of the coastline consists mainly of port facilities.	=				
Connection of MRE and other underwater cables	Yes	Undersea cables (mainly electricity and telephone) pass through the area. The France - Alderney - Britain (FAB) undersea interconnector project, which was initially scheduled to enter into service in 2022, has been suspended due to Brexit. A project for a connection with Guernsey is being considered. The connection project for the pilot tidal energy farm (Normandie Hydro) is underway. Physical obstacles (cliffs), along with the levels of environmental protection and landscaping, severely restrict possibilities for cable landing points. There would be clear advantages in sharing for future commercial parks, particularly in the case of tidal power (areas for potential development restricted to a small area).	+				
Seafood processing and marketing	Yes	There is a fish market at Cherbourg-en-Cotentin.	-				
Shipbuilding	Yes	Shipbuiding and nautical industry is concentrated around the largest port (Cherbourg-en-Cotentin).	=				
Defence	Yes	The command of the zone and the maritime region of the English Channel and North Sea are based at Cherbourg-en-Cotentin Responsible for the area from the Normano-Breton Gulf to the Belgian border, the Maritime Zone Commander is also responsible for maritime defence of the territory and operational control of military resources. The semaphores at Barfleur, Homet, La Hague and Carteret also monitor the area's maritime approaches. Several military units based at Cherbourg-en-Cotentin are engaged in maritime defence of the territory activity and monitor maritime areas.					
Quarrying marine materials	No						
Industries and technological risks	Yes	The region faces nuclear risks due to the presence of the Flamanville nuclear power station, the dockyard specialising in	+				

		the building and dismantling of nuclear submarines at Cherbourg-en Cotentin, the nuclear fuel reprocessing plant at La Hague and the Manche radioactive waste disposal facility at Digulleville, which closed in 1994. The presence of radionuclides on land and in the sea is being monitored.					
		Other technological risks are generally related to the transport of nuclear materials for treatment.					
Recreational boating and water sports	Yes	Cherbourg-en-Cotentin is the largest port in France for recreational boats, which mainly travel along the coast. Facilities for water activities and boating are located on the coast with zones for sailing, sand yachting, kitesurfing and canoeing.	+				
Professional fishing, recreational fishing	Yes	The offshore area has little fishing activity due to the very strong currents and shallow water bathymetry. There is just one crustacean fishery in the Raz Blanchard.	=				
Electricity production	Yes	The Flamanville nuclear power station is of great economic importance in the Normandy region. With two reactors, in 2017 it generated 13.83 billion KWh of electricity, 3.6% of France's nuclear output. The EPR (*European Pressurised Reactor*) will be the third reactor, and, with higher output, it will be the world's most powerful reactor. A pilot project to install 7 tidal power turbines in Raz Blanchard is underway (Normandie Hydro). Commercial development of the sector is currently being assessed. The second pilot project by ENGIE/GE has been abandoned. The government is aware of potential candidates to take over the project. It should be noted that a commercial 300 MW 150 turbine wind farm near Alderney is also planned by ARE and OpenHydro.	+				
Research and development in the public sector; Training	Yes	There is a maritime and aquaculture secondary school in Cherbourg-en-Cotentin. The National Institute of Marine Science and Technologies (Intechmer) is a scientific, cultural and professional institution, part of the CNAM (Conservatoire national des arts et métiers). CNAM-Intechmer offers theoretical and practical higher education in the fields of science and the sea.	=				
Coastal tourism, sites, landscapes and cultural heritage	Yes	There are tourism facilities in the area for the coastal path and the municipality of La Hague has developed a project for its surrounding area to become a UNESCO site. The Rozel archaeological siteis emblematic of the Middle Paleolithic period.	=				
Maritime transport and ports	Yes	Maritime traffic is heavy in the area, particularly due the traffic separation scheme, 3 transport connections between ports and the ports, including Cherbourg-en-Cotentin. During the summer months there is also limited passenger traffic between the ports of Diélette and Barneville-Carteret to the Channel Islands. In the port of Cherbourg-en-Cotentin a new reception area has been built, making it ready for production facilities associated with MRE, in particular for offshore wind and tidal power. Additionally, "cruise" activity in the port of Cherbourg-en-Cotentin is growing rapidly and has a significant impact on the economy and the environment.	=				

Maritime public works	Yes	The area has three zones for piling of dredged sediment.	+				
Natural coast hazards	Yes	Coastal erosion is very uneven in the area (cliffs and wave-cut platforms on the northern coast and sandy beaches on the western coast). There is little erosion on the rocky coast and varied erosion on the sandy coast. Risk prevention and the preservation of a shore where the natural evolution of the coastline is respected, in conjunction with the management of coastal and inland wetlands, is an issue for the area.	+				
Local planning initiatives or integrated sea and coastal management	Yes	There are several local planning documents: SCOT, PLUi, PPRI, SRADDET, Coastal Conservatory management plans, *etc*.	+				
Environmental protection	Yes	There are a number of protected sites* in the area, the diversity of habitats justifies the many environmental protection measures: "several Natura 2000 sites, listed sites and landscapes, a national nature reserve (Vauville), sites owned and/or managed by the Coastal Conservatory, two biotope protection orders, etc."	+				
Government Action at Sea	Yes	The Maritime Prefecture of the English Channel and North Sea is based at Cherbourg-en-Cotentin. With jurisdiction for the area from the Normano-Breton Gulf to the Belgian border, the Maritime Prefect is responsible for the general coordination of State resources at sea in the maritime area. Within the remit of Government Action at Sea, the Jobourg regional operations centre for surveillance and rescue monitors maritime traffic and coordinates search and rescue operations at sea an assists ships in distress. The Abeille Liberté is an emergency salvage and tow vessel based in Cherbourg-en-Cotentin. The SNSM stations at Barfleur, Fermanville, Urville-Nacqueville, La Hague, Dielette-Flamanville, Carteret respond and assist at sea. The semaphores at Barfleur, Homet, La Hague and Carteret also permanently monitor the maritime approaches. A number of maritime vessels are engaged in Government Action at Sea and monitor maritime areas and police activities at sea (fisheries policing, combatting illegal activities, etc.) The NH90 helicopter (national navy) based in Maupertus and EC145 helicopter (civil security) based in Granville also take part in Government Action at Sea missions (surveillance, search and rescue, assistance, etc.). There are wrecks and historical devices in the north of the Manche department, in particular around Cherbourg-en-Cotentin. If historical explosive devices are discovered, specialist bomb disposal divers based in Cherbourg-en-Cotentin intervene and carry out explosive ordnance disposal operations.					

III. Overlapping of strategic objectives related to the zone

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation madeof these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1]to environmental objectives when it is not possible to implement them.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis of environmental objectives (EO) and response in light of the cross-cutting issues	
	Activities	Development trends	SEO code	Wording (Summary)		Headings	EO codes
Functional fishing areas	Maritime transport and ports	=	7C	Modal shift and high-volume flows	There is an interaction due to generation of **physical pressures** on seabeds *(BRGM, 2017)*, input of **ecotoxic substances** ***(Ifremer, 2018)***, as well as the introduction of **ENI** *(MNHN, 2018)* in the environment.	- "Reduce all pressures that affect the scope and condition of functional fishing areas identified as important (i.e. spawning grounds, nurseries, migration paths), which are fundamental for the life cycle of fish, cephalopods and crustaceans of value to fisheries". - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the risk of introduction of non-native species linked to the import of flora and fauna" - "Limit the transfer of non-native species from seriously affected areas" - "Limit the introduction and dissemination of non-native species caused by water and ballast sediments from ships" - "Limit the risk of dissemination of non-native species during the introduction and transfer of aquaculture species" - "In accordance with the CFP, adapt fishing mortality to reach the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for the fish stocks concerned, totally or partially, using a national or sub-national assessment managed locally" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid significant residual impacts of turbidity in habitats and the main important functional fishing areas that are most sensitive to this pressure, as a result of maritime works, extraction of materials, dredging, disposal of dredged sediments,land-based discharge and development" - "Reduce contaminant input from rainwater runoff from municipalities, coastal	- D01-PC-OE05 - D01-HB-OE07 - D02-OE01 - D02-OE02 - D02-OE03 - D02-OE05 - D03-OE01 - D03-OE02 - D06-OE01 - D06-OE02 - D07-OE01 - D08-OE01 - D08-OE02
			7D	Disposal of dreged sediments			
			7G	Reduction of port pollution			
			7H	Alternative ship fuels			
			7I	Reduction of atmospheric pollutants			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Aquaculture	+	4B	New aquaculture zones	There is an interaction due to the generation of **physical pressures** on seabeds *(BRGM, 2017)* and the introduction of **ENI** *(MNHN, 2018)*. This interaction is relatively weak (area density), since the activity is not developed along the entire coastline *(CEREMA, 2018).*		
			4C	Sustainable aquaculture models			
			4D	Aquaculture health risk			
			4E	Product quality and sustainable resource management			
	Industry	+			There is an interaction due to the input of **ecotoxic substances** in the marine environment ***(Ifremer, 2018)***.		
	Fishing	=	3A	Fishing equipment renewal	There is an interaction due to the generation of **physical pressures** on the seabed (fishing with bottom trawls causes significant interaction in terms of surface area) *(BRGM, 2017)*, the introduction of**ENI** *(MNHN, 2018)*, and**demands** on resources ***(Ifremer, 2018)***.		
			3C	Product quality and sustainable resource management			

1These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issue or any specific event were to force the good ecological status to be affected, an exemption should be put in place.

	Electricity production	+	5A	New wind power zones	There is an interaction between functional fishing areas and tidal power projects, due to the generation of **physical pressures** which degrade species habitats. However, the effects are limited as they are confined to the site of tidal power projects *(BRGM, 2017)*.	urban areas and ports. - "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc.*)"	- D08-OE03 - D08-OE04 - D08-OE05 - D08-OE05 bis - D08-OE06 - D08-OE07
			5D	MRE trials			
Functional avifauna areas	Maritime transport and ports	=	7C	Modal shift and high-volume flows	Interaction is high with the functional bird areas due to the introduction of **waste** into the marine environment (and less certainly, **catches** linked to accidental bycatch during fishing activities) and especially in the 3 mile zone *(MNHN, 2018)*.	- "Reduce accidental captures of seabirds (close to breeding colonies), and decrease the capture of the most vulnerable species including the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-liners, static nets and seines with pelagic trawls" - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats" - "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	- D01-OM-OE01 -D01-OM-OE03 - D01-OM-OE06 - D01-OM-OE07 - D10-OE01 - D10-OE02
			7G	Reduction of port pollution			
			11C	Cruise operators			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
	Fishing	=	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
			3D	Fishing waste sector			
	Industry	+					
	Tourism and leisure activities[2]	+	8C	Boat sharing			
			11A	Clean ports			
			11B	Recreational boater awareness			
			11C	Cruise operators			
			13C	Large events			
Harbour porpoise	Maritime transport and ports	=	7C	Modal shift and high-volume flows	Interaction primarily results in **accidental capture** and injury of porpoises, mainly due to collisions and fishing bycatch *(Spitz J., Peltier H., Authier M., 2018).* Porpoises are present throughout almost the entire area, except off the coast of Jobourg (where tidal power potential has been identified) *(AFB, 2018)*.	- "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			11C	Cruise operators			
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
Bottlenose dolphins	Maritime transport and ports	=	7C	Modal shift and high-volume flows	The interaction primarily results in porpoise**capture** and injury, in particular caused by accidental catches and collisions *(Spitz J., Peltier H., Authier M., 2018).* Offshore in the northern part of the area is the only zone that falls outside the theoretical home range of the Normano-Breton resident community of bottlenose dolphins *(AFB, 2018)*.	- "Limit the anthropogenic disturbance of marine mammals" - "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D01-MT-OE01 - D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			11C	Cruise operators			
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			
	Fishing	=	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
Biogenic habitats and rocky habitats	Maritime transport and ports	=	7C	Modal shift and high-volume flows	There is an interaction with medium subtidal sand habitats, due to the generation of **physical pressures** on these sedimentary habitats *(BRGM, 2017)*, in particular in the 3 mile coastal zone *(AFB, 2018*).	- "Reduce physical disturbances from human presence on rocky intertidal habitats, particularly from seafood gathering" - "Avoid physical disturbance of eelgrass beds (by mooring, bottom-fishing gears and shellfish gathering)" - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit physical habitat loss from artificialisation of coastal areas, from the high	- D01-HB-OE03 - D01-HB-OE05 - D01-HB-OE07 D06-OE01
			7D	Disposal of dreged sediments			
			7G	Reduction of port pollution			
			10A	Bathymetric knowledge / monitoring			
			11A	Clean ports			
			11C	Cruise operators			
			12D	Research support			
	Aquaculture	+	4B	New aquaculture zones			
	Fishing	=	3A	Fishing equipment renewal			

2 Tourism and leisure activities, including seaside and beach activities, recreational boating and water sports

	Electricity production	+	5A	New wind power zones		water mark to 20 metres depth”	-D06-OE02
			5D	MRE trials		- “Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use”	- D07-OE04

Other specific objectives present in the sector but not concerned by the crossover:

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4F 5B – 5C 7A – 7E 8A – 8B – 8D – 8E 10B 11D 12A – 12B – 12C – 12E – 12F – 12G 13A – 13B – 13D 15A - 15B	D01-HB-OE01-02-12; D01-OM-OE02-04-08; D01-PC-OE01-03 D03-OE03 D05-OE01-02-03-04 D07-OE03-05 D09-OE01-02-03 D11-OE01-03

IV. Recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner:
– carries out an appropriate study based on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis section).

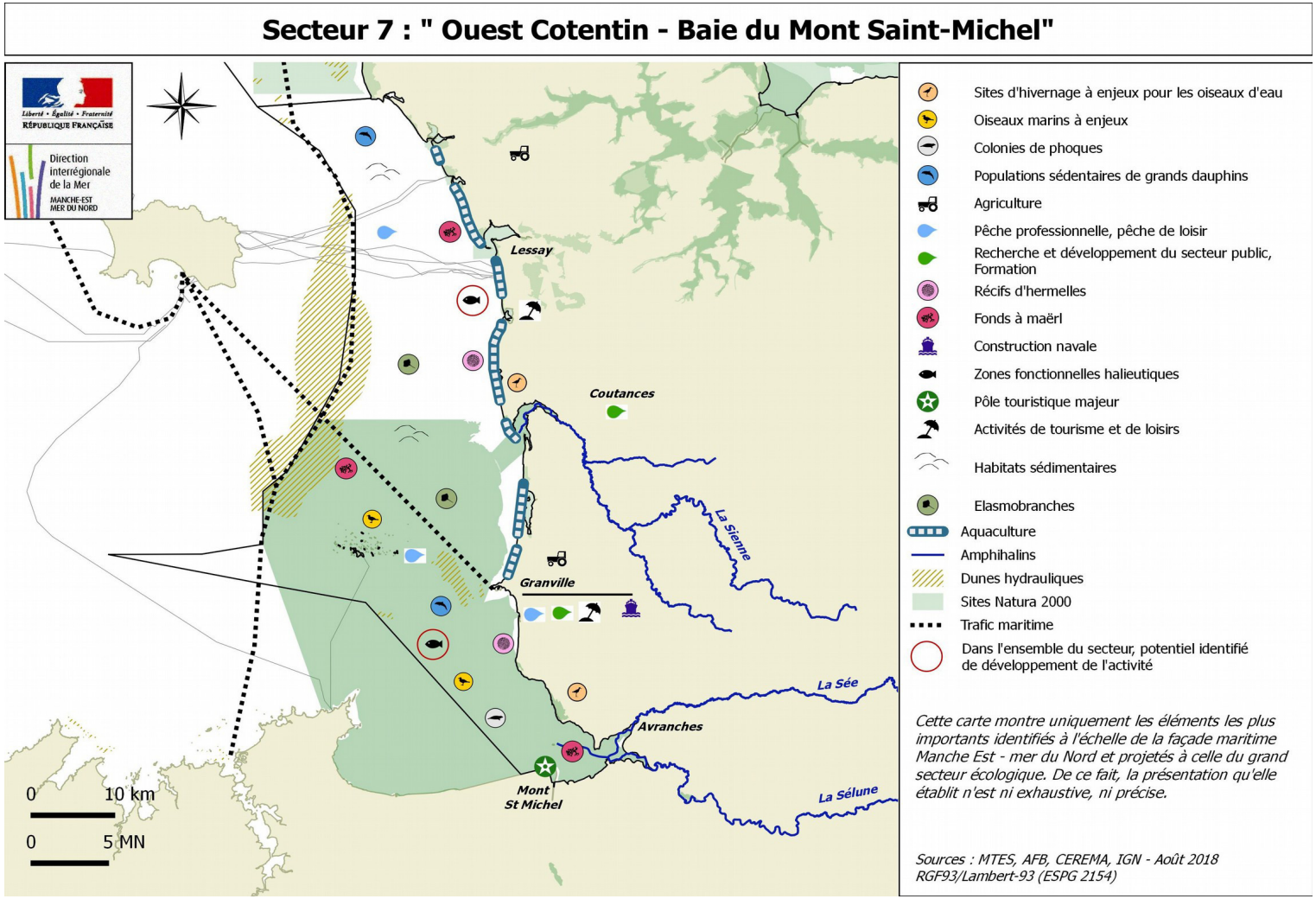
It is recommended that the complementary skills acquired are capitalised and made available to the public, governance bodies and specialists, including in research.
Compliance with existing maritime planning.

AREA no. 7

Western Cotentin - Bay of Mont Saint-Michel

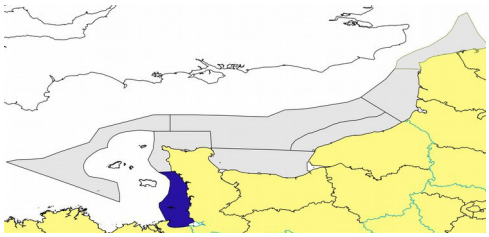
Scope: Zone with a shellfish farming and fishing vocation, along with balancing tourism with the rich natural heritage.

Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector	Area 6: Normano-Breton Gulf (West Cotentin)
Associated water mass	FRHC01CHAUSEY ARCHIPELAGO FRHC02 BAY OF MONT SAINT MICHEL CENTRAL BAY FRC03 WESTERN COTENTIN FRHT05 BAY OF MONT SAINT MICHEL - ESTUARINE BAY HEAD



Broadly speaking, in terms of identified ecological issues, the waters of the Normano-Breton Gulf are constantly exchanged by powerful currents. Subject to a unique tidal regime, the currents structure a mosaic of coastal and underwater landscapes alternating large sandy bays, rocky seabeds, sub-aqueous dunes and subtidal and intertidal reefs. The “natural harbour” function of this coastline is distinctive and unique in Europe and creates very rich land-sea interfaces.

Species living on the seabed are organised according to the size of the sediments and their ability to adapt to the seabed mobility. Mixed subtidal sediments are dominant and are favourable habitats for bivalve molluscs and gastropods, as well as for some elasmobranch species, such as the undulate ray, which is well represented in the area. The rocky sea floors and reef zones are habitats that support crustaceans. Fishing is therefore important in the area.

The sedimentary foreshores host specific habitats such as honeycomb worm (Sabellaria alveolata) reefs and marine and dwarf eelgrass communities. The finest sediments, from muddy to sandy-muddy, are confined to the head of bays It is in these estuaries and the Bay of Mont Saint Michel that vegetated estuarine flats are found, among the most developed in mainland France. Agricultural activity takes place in these flats, including cattle farming and salt meadow lamb production. These environments are closely linked to coastal river outlets, an essential interface zone for diadromous fish such as the salmon. There are also important coastal nurseries for bass, plaice and sole, a sole spawning area, and along the coast, the main cuttlefish spawing areas, which equally attract top predators, including a significant population of resident bottlenose dolphins. These same foreshores and bays host a particularly rich and diversified avifauna and are sites of international importance for at least 5 wader species, particularly during winter, and provide essential areas for some vital phases (fallback area, summering area, moulting site). The isolated islets and archipelagoes (Chausey in particular) host significant numbers of seabirds (European shags, great black-backed gulls, Eurasian oystercatcher, red-breasted merganser), whereas the Bay of Mont Saint Michel, the largest bay in the area, hosts all year round a colony of harbour seals at the limit of their distribution range.

The Normano-Breton Gulf is an area shared with the Bailiwicks of Jersey and Guernsey. The maritime environment is used for a myriad of activities, including boating and sports, and water activities are increasing alongside beach tourism. In addition, shellfish farming and fishing are particularly developed in this area and water quality on the Western coast of the Manche department is a major issue.

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- Territorial Coherence Plan (SCOT)
SCoT Pays du Cotentin
SCoT Pays de Coutances
SCoT Pays du Mont-Saint-Michel

- Water Planning and Management Scheme (SAGE)
SAGE03032 Sienne, Soulles, côtiers ouest du Cotentin
SAGE03026 Sée et Côtiers Granvillais
SAGE03005 Sélune
SAGE04032 Couesnon

- SDAGE Seine-Normandy Basin
- Objective documents for the Natura 2000 sites listed below
- Regional marine aquaculture development plans (SRDAM)
- Management plan of the Picardy Estuary and Opal Sea marine nature park
- Shore council (CELRL)
- Port councils
Coastal Risk Prevention Plan (PPRL)
Flood Risk Prevention Plan (PPRi)
- Normandy Regional Biodiversity Committee
- International fisheries agreements: "Bay of Granville agreements"

- List of marine protected areas and other natural spaces

- SAC FR2500081 HARBOUR OF SAINT-GERMAIN-SUR-AY AND LANDES DE LESSAY: SAC by decree. Decree of 1 October 2014 regarding the designation of the Natura 2000 site Havre de Saint-Germain-sur-Ay and Landes de Lessay (Special Area of Conservation)
- SPA FR2512003 SIENNE HARBOUR: SPA designated by the decree of 05/01/2006
- SAC FR2500080 WESTERN COASTLINE OF COTENTIN FROM BREHAL TO PIROU; SAC by decree. Decree of 18 March 2015 regarding the designation of the Natura 2000 site Littoral ouest du Cotentin de Bréhal à Pirou (Special Area of Conservation)
- SPA FR2510037 CHAUSEY: SPA designated by the decree of 06/01/2005
- SAC FR2500079 CHAUSEY: Decree of 1 October 2014 regarding the designation of the Natura 2000 site Chausey (Special Areal of Conservation)
- SPA FR2510048 BAY OF MONT SAINT-MICHEL: SPA designated by the decree of 05/01/2006
- SAC FR2500077 BAY OF MONT SAINT-MICHEL: Decree of 29 July 2016 regarding the designation of the Natura 2000 site Baie de Mont Saint-Michel (Special Area of Conservation)
- CC site Tourbière de Mathon
- CC site Landes de Lessay
- CC site Havre de Geffosses
- CC site Pointe d'Agon
- CC site Dunes et Marias d'Annoville
- CC site Havre de la Vanlée

- CC site Dunes de Bréville
- CC site Iles Chausey
- CC site Mare de Bouillon
- CC site Pointe de Champeaux
- CC site Dunes de Dragey
- CC site Ilot de Tombelaine
- CC site Pointe du Grouin du Sud
- CCC site Prés de L'Hôpital
- CC site Pointe de la Roche Torin
- CC site Polder Foucault
- CC site Marais d'Auey-Boucey
- Reseach and fact-finding for the Normano-Breton Gulf marine nature park

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	Land-sea interface and river plumes	Macro-tidal zone causing intense water exchange and eddy structures around the islands and archipelagoes				
	Primary and secondary producers and forage species	Forage species: Sandeels				
Benthic habitats and geomorphological structures	Sub-aqueous dunes on the shelf and upper continental slope	Sub-aqueous dunes and shell sands				
	Biogenic habitats	Hermelles *S. alveolata*				
		Maerl banks, sand mason (Lanice conchilega) reefs, dwarf eelgrass beds, flat oysters, Atlantic salt meadows, pioneer salicornia vegetation				
		Laminaria				
	Sedimentary habitats	Subtidal coarse sediments Intertidal sediments				
		Subtidal mixed sediments				
	Rocky habitats	Mediolittoral reefs				
Functional fishing areas	Spawning grounds	Sole, brill, black sea bream, cuttlefish squid and spider crab				
	Nurseries	Bass, plaice, sole, Atlantic pollock, ling, whiting, pout, black seabream, brown shrimp, spider crab, lobster, thornback ray and cuttlefish				
	Diadromous species	Salmon				
		Shads, lampreys				
	Benthic invertebrates	European lobster, whelk, warty venus, dog cockle				
	Elasmobranchs	Undulate ray, blond skate				
Functional avifauna areas	Charadriiformes nesting and feeding grounds	Eurasian oystercatcher				
		Kentish plover				
	Seabird colonies and feeding grounds	European shag, Great black-backed gull, roseate tern				
	Wintering grounds for waterfowl	Black-tailed godwit, dunlin, grey plover, common shelduck and brent goose, light-bellied brent goose, Eurasian oystercatcher				
	Areas with maximum density and functional areas – seabirds in the breeding season	Balearic shearwater Common scoter wintering and moulting ground				
		Densities all species				
Crosscutting issues	Seal colonies and feeding grounds	Harbour seal				
	Home range for resident communities of bottlenose dolphins	Bottlenose dolphin (resident community)				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Description of the maritime activity	Changes	Qualification			
				Major	High	Average	Low
Swimming and beach use	Yes	Bathing water quality is very varied in the area. Sites are downgraded, mainly because of rural diffuse pollution and water treatment problems.	+				
Offshore oil, gas and related activities	No						
Agriculture	Yes	There are a number of grasslands in the area, which makes grazing activity statutorily possible. The economic and technical orientation (OTEX) for most of the area is predominantly cattle farming. Near Créances there is also a zone where market gardening is the principal activity. The quality of salt meadow lamb is recognised by the protected designation of origin label (appellation d'origine protégée) "Prés-salés baie du Mont Saint-Michel". The commercial brand "Grevin" is registered with the National Institute of Industrial Property (INPI) and promotes salt meadow lamb.	=				
Aquaculture and quality of shellfish waters	Yes	The coastal strip is the main production area for oysters and rope mussels. Water quality in the area is very varied.	+				
		Potential aquaculture zones have been identified in the area.					
Artificialisation of coastal areas	Yes	Artificialisation of the coast has mainly occurred in the south of the area and around ports.	=				
Connection of MRE and other underwater cables	Yes	Cables are mainly located around Saint-Rémy-des-Landes and Pirou and connect the islands to the mainland.	+				
Seafood processing and marketing	Yes	There is a fish market at Granville (main species sold are whelks and scallops).	-				
Shipbuilding	Yes	Shipbuilding and repair yards and marine equipment suppliers can be found in Granville and Barneville - Carteret.	=				
Defence	Yes	One of the main responsibilities of the Commander of the area and the Maritime zone of the English Channel and North Sea is maritime defence of the territory and operational control of military resources.	=				
Quarrying marine materials	Yes	Ooccasional extraction of the marine sediment known as "tangue"					
Industries and technological risks	Yes	Technological risks in the area are primarily related to the transport of dangerous goods.	=				
Recreational boating and water sports	Yes	Many recreational boats travel along the coast and cross the Channel to the Channel Islands.	+				
Professional fishing, recreational fishing	Yes	Commercial fishing is mainly carried out by pot-vessels targeting whelks, crustaceans and cuttlefish and draggers fishing for scallops and other bivalve molluscs. The area has several fishing ports and landing sites, including at Granville. Samphire gathering also takes place. Seafood gathering is important in the area, especially at times of high tides.	=				

Electricity production	Yes	There are two dams on the river Sélune, which supply the hydroelectric power plant. A suitable site for the development of a tidal lagoon in the Normano-Breton Gulf has been identified by the company Tidal Lagoon Power.	-				
Research and development in the public sector; Training	Yes	The Julliot de la Morandière secondary school in Granville provides training programmes in the nautical field (vocational baccalaureate in boat maintenance, nautical technical-commercial BTS diploma). In addition, the Centre for Vocational Training and Promotion of Agriculture (CFPPA) in Coutances is a public adult education establishment with courses on shellfish farming.	=				
Coastal tourism, sites, landscapes and cultural heritage	Yes	There are facilities for water and boating activities along the coast, with a large sailing and canoeing zone. Mont Saint Michel and the bay (UNESCO World Heritage Site) are located in the area. There is also hunting, which is carried out from gabions (35).	+				
Maritime transport and ports	Yes	Ports and beaching sites are located along the coast, mainly in natural harbours. There are inter-port boat transport links to the Channel Islands.	=				
Maritime public works	Yes	There are two sites for the disposal of dredged sediments at sea around Granville. Recent port developments (for example at Portbail) should be noted, and there are also port expansion projects (Barneville, Granville).	+				
Natural coast hazards	Yes	There is sediment accumulation in the harbours of Western Cotentin (mouths of the coastal rivers). The other coastal territories can be divided into stable areas (such as Carolles) and eroded areas (for example, the Western Cotentin dunes which are exposed to the westerly wind and marine currents), posing a threat to avifauna. The State is promoting a strategic retreat and is actively working to guide local stakeholders towards this approach. This is based on the recommendations in the National Strategy for Integrated Coastline Management 2017-2019. Therefore, the main issues for risk prevention are, adapting under the constraint of high coastal erosion, maintaining extensive foreshores and salt meadow habitats that are characteristic of the area, transferring or restoring ecological functions (in particualr for avifauna) destroyed by erosion and preventing pollution caused by coastal erosion and the return of sandy coasts into the sea.	+				
Local planning initiatives or integrated sea and coastal management	Yes	There are several local planning documents: SCoT (Centre-Manche-Ouest and SCoT du pays de la baie du Mont-Saint-Michel), PLUi, coastline management (EPCI), SRADDET, Coastal Conservatory management strategies, etc. The current management body for the maritime public domain of the Chausey Archipelago is (in 2018) the Coastal Conservatory, delegated by the Ministry responsible for the Environment.	+				
Environmental protection	Yes	There are a number of protected sites* in the area: Natura 2000 sites, sites managed by the Coastal Conservatory, etc..	+				

Government Action at Sea	Yes	Within the remit of Government Action at Sea, the Jobourg regional operations centre for surveillance and rescue monitors maritime traffic and coordinates search and rescue operations at sea and assists ships in distress. SNSM stations are located at points along the coast and the semaphores at Granville and Carteret permanently monitor the maritime approaches. A number of maritime vessels are engaged in Government Action at Sea and monitor the maritime areas and police activities at sea (fisheries policing, combatting illegal activities, *etc*.), including the coastal regional surveillance vessel Pleville Le Pelley (Customs) and Tombelaine (Departmental Gendarmerie) based in Granville. The NH90 helicopter (national navy) based in Maupertus and EC145 helicopter (civil security) based in Granville also take part in Government Action at Sea missions (surveillance, research and rescue, assistance, etc.).	=				

III. Overlapping of strategic objectives related to the zone

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation madeof these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1]to environmental objectives when it is not possible to implement them.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis of environmental objectives (EO) and response in light of the cross-cutting issues	
	Activities	Development trends	SEO code	Wording (synthetic)		Headings	EO codes
Functional fishing areas	Fishing	=	3A	Fishing equipment renewal	There is an interaction due to the generation of **physical pressures** on the seabed (fishing with towed gear causes significant interaction in terms of surface area) *(BRGM, 2017)*, the introduction of**ENI** *(MNHN, 2018)*, and**resource** extraction***(Ifremer, 2018).*** This interaction is high in the 3 mile coastal zone where the nurseries are located *(AFB, 2018).*	- "Maximise the survival of elasmobranch species captured accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Adapt the removal of diadromous species downstream of the transversal limit of the sea in order to achieve or maintain healthy stocks and reduce incidental catches of diadromous species where the renewal capability is compromised, particularly in areas where species gather in large numbers, estuaries and estuary plumes identified by PLAGEPOMI (Migratory fish management plans)" - "Reduce all pressures that affect the scope and condition of functional fishing areas identified as important (i.e. spawning grounds, nurseries, migration paths), which are fundamental for the life cycle of fish, cephalopods and crustaceans of value to fisheries". - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the risk of introduction of non-native species linked to the import of flora and fauna" - "Limit the transfer of non-native species from severely impacted areas" - "Limit the introduction and dissemination of non-native species caused by water and ballast sediments from ships" - "Limit the risk of dissemination of non-native species during the introduction and transfer of aquaculture species - "In accordance with the CFP, adapt fishing mortality to reach the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for the fish stocks concerned, totally or partially, using a national or sub-national assessment managed locally" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports.	- D01-PC-OE01 - D01-PC-OE03 - D01-PC-OE05 - D01-HB-OE07 - D02-OE01 - D02-OE02 - D02-OE03 - D02-OE05 - D03-OE01 - D03-OE02 - D05-OE01 - D05-OE02 - D05-OE03 D06-OE01 - D06-OE02 - D07-OE04 - D08-OE01 - D08-OE02 - D08-OE03 - D08-OE05 bis - D08-OE06 - D08-OE07
			3C	Product quality and sustainable resource management			
	Aquaculture	+	4B	New aquaculture zones	There is an interaction due to the generation of **physical pressures** on the seabed *(BRGM, 2017)* and the introduction of **ENI** *(MNHM, 2018)* along the whole coastal strip, the main area for oyster and rope mussel production. Moreover, many potential aquaculture sites have been identified on the coast and around the Chausey islands *(CEREMA, 2018).*		
			4C	Sustainable aquaculture models			
			4D	Aquaculture health risks			
			4E	Product quality and sustainable resource management			
	Agriculture	=			There is an interaction due to the input of **nutrients** ***(Ifremer, 2017)*** and **ecotoxic substances** to the marine environment ***(Ifremer, 2018)***. This interaction is high in the 3 mile coastal zone where there are nursery issues *(AFB, 2018).*		

[1]These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issue or any specific event were to counter the achievement of good ecological status, an derogation should be put in place.

						- "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit direct input, transfers and remobilisation of contaminants into the sea which are related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	
Functional avifauna areas	Fishing	=	3A	Fishing equipment renewal	There is an interaction between functional bird areas due to the introduction of **waste** into the marine environment (and less certainly, **removal** related in particular to accidental bycatch in fisheries) *(MNHN, 2018)*. The issues concerning seabirds are present throughout almost all the area *(AFB, 2018).*	- "Reduce accidental captures of seabirds (close to breeding colonies), and decrease the capture of the most vulnerable species including the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-liners, static nets and seines with pelagic trawls" - "Avoid the loss of functional habitats for seabirds, in particular in marine areas where density is at a maximum" - "Reduce the pressure of certain introduced and domestic species on seabird breeding grounds" - "Maintain or restore functional seabird habitats in coastal wetlands" - "Limit physical, noise and light disturbance on seabirds in their functional habitats" - "Reduce inputs and presence of land-based waste into the sea and on the coast" - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	-D01-OM-OE01 -D01-OM-OE03 -D01-OM-OE04 -D01-OM-OE06 -D01-OM-OE07 - D10-OE01 - D10-OE02
			3C	Product quality and sustainable resource management			
			3D	Fishing waste sector			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
	Tourism and leisure activities[2]	+	8C	Boat sharing			
			11A	Clean ports			
			11B	Recreational boater awareness			
			13C	Large events			
Home range for resident communities of bottlenose dolphins	Fishing	=	3A	Fishing equipment renewal	There is an interaction due to dolphin **catches** and injury during fishing activity (*Spitz J., Peltier H., Authier M., 2018).* The theoretical home range of the Normano-Breton resident community of bottlenose dolphins covers the totality of the area *(AFB, 2018).*	- "Limit the anthropogenic disturbance of marine mammals" - "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D01-MT-OE01 - D01-MT-OE02 - D01-MT-OE03 - D04-OE01
			3C	Product quality and sustainable resource management			
Seal colonies and feeding grounds	Fishing	=	3A	Fishing equipment renewal	There is an interaction with grey seal colonies and their feeding areas due to the generation of **physical pressures** on the seabed *(BRGM 2017)*, in particular in the Bay of Mont Saint-Michel *(AFB, 2018).*	- "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Limit the anthropogenic disturbance of marine mammals" - "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use"	- D01-HB-OE07 - D01-MT-OE01 - D04-OE01 - D06-OE01 - D06-OE02
			3C	Product quality and sustainable resource management			
	Aquaculture	+	4B	New aquaculture zones			
			4C	Sustainable aquaculture models			
Primary and secondary producers and forage species	Agriculture	=			This is an interaction due to **nutrient input** ***(Ifremer, 2017).***	- "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication"	- D05-OE01 - D05-OE02 - D05-OE03
	Fishing	=	3C	Product quality and sustainable resource management	The interaction primarily results in**accidental catches** of forage species (*Spitz J., Peltier H., Authier M., 2018)***.**	- "Adapt fishing mortality of forage species to help maintain the trophic resources necessary for big predators"	- D04-OE01
Biogenic habitats	Aquaculture	+	4B	New aquaculture zones	There is an interaction with biogenic habitats, due to the generation of **physical pressures** *(BRGM, 2017)*, in particular in those areas of the coastline with communities of *Sabellaria alveolata* (honeycomb worm), a major issue in the area *(AFB, 2018)*.	- "Adapt grazing pressure and reduce physical disturbance to salt marshes and pioneer salicornia vegetation related to (recreational and commercial) anthropogenic activities" - "Restore salt meadow areas situated in zones threatened by the rising sea level" - "Reduce physical disturbances from human presence on rocky intertidal habitats, particularly from seafood gathering"	- D01-HB-OE01 - D01-HB-OE02 - D01-HB-OE03 - D01-HB-OE04
	Fishing	=	3A	Fishing equipment renewal			
	Agriculture	=			There is an interaction with biogenic habitats, due to the introduction of **ecotoxic substances** and **nutrients** into the marine environment ***(Ifremer, 2018).***		

[2] Tourism and leisure activities, including seaside and beach activities, recreational boating and water sports

Sedimentary habitats	Aquaculture	+	4B	New aquaculture zones	There is an interaction between sedimentary habitats (including coarse subtidal sediments and intertidal sediments), due to the generation of **physical pressures***(BRGM, 2017).* These habitats cover the quasi totality of the area (AFB, 2018).	- "Avoid physical disturbances to sabellaria (honeycomb worm) bio-constructions by trampling, recreational sea food gathering and bottom fishing gear" - "Avoid the physical disturbance of eelgrass beds (by mooring, bottom fishing gears and shellfish gathering)" - "Reduce physical disturbances to subtidal and circalittoral sedimentary habitats, especially in the 3 mile zone" - "Reduce nutrient inputs (nitrates and phosphates), in particular from rivers flowing into eutrophicated marine areas" - "Reduce nutrient inputs (nitrates and phosphates), in particular from small coastal rivers flowing into sensitive marine areas, due to these areas being confined or with habitats that are sensitive to these nutrients" - "Do not increase nutrient supplies in areas with little or no eutrophication" - "Limit physical habitat loss from artificialisation of coastal areas, from the high water mark to 20 metres depth" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Avoid all new anthropogenic modifications of hydrographic conditions that have a significant residual impact on the current pattern and sedimentology of the areas of concern, and as a priority macrotidal bays, maximum current zones and areas of sub-aqueous dunes" - "Limit pressures and obstacles to land-sea connectivity in estuaries and coastal lagoons" - "Reduce contaminant input from rainwater runoff from municipalities, coastal urban areas and ports. - "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Limit discharge into the natural environment of contaminants and the dissemination of non-native species during careening operations (recreational and commercial vessels) and underwater installations (buoys, fish farming structures, *etc*.)" - "Limit inputs to the sea of contaminants from sediments above established regulatory thresholds, related to dredging operations and disposal at sea. - "Limit direct input, transfers and remobilisation of contaminants into the sea which are related to activities at sea other than dredging and disposal at sea, and eliminate discharges, emissions and releases of priority hazardous substances set out in appendix 10 of the WFD" - "Limit discharge into the sea of contaminants from land-based sources (excluding dredging and sediment disposal at sea)" - "Reduce the atmospheric inputs of contaminants"	- D01-HB-OE05 - D01-HB-OE07 - D05-OE01 - D05-OE02 - D05-OE03 - D06-OE01 -D06-OE02 - D07-OE03 - D07-OE04 - D08-OE01 - D08 – OE02 - D08-OE03 - D08-OE04 - D08-OE05 - D08-OE05 bis - D08 – OE06 - D08 - OE07
	Fishing	=	3A	Fishing equipment renewal			
	Agriculture	=			There is an interaction with biogenic habitats, due to the introduction of **ecotoxic substances** and **nutrients** into the marine environment ***(Ifremer, 2018).***		

Other specific objectives present in the sector but not concerned by the overlap :

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4F 5D 7D – 7E – 7G – 7H 8B – 8D – 8E 10A – 10B 11D 12A – 12B – 12C – 12D – 12E – 12F – 12G 13A – 13B 15A – 15B	D01-HB-OE12; D01-OM-OE2-08; D01-PC-OE01-03-05 D03-OE03 D05-OE04 D07-OE01-05 D09-OE01-02-03 D11-OE01-03

IV. Recommendations

There is a requirement before the start of a new activity project, subject to authorisation, and/or environmental assessment, that the petitioner:
– carries out an appropriate study based on the classification of the environmental issues presented above.
– studies the compatibility of the project with the national defence activities and, if required, with other activities (see interactions between activities in the situational analysis section).

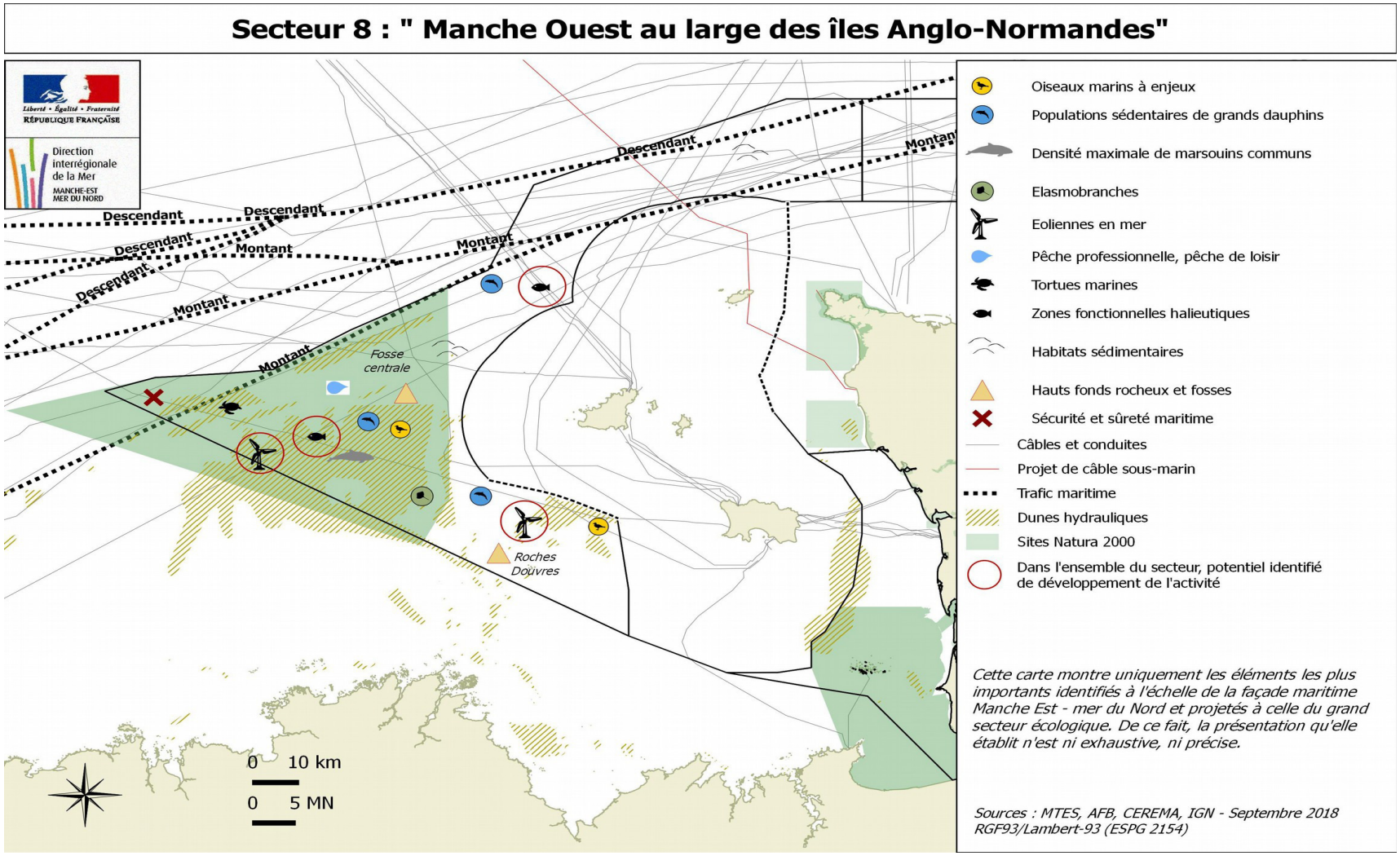
It is recommended that the complementary skills acquired are capitalised and made available to the public, governance bodies and specialists, including in research.
Compliance with existing maritime planning.

AREA no. 8

Western Channel off the Channel Islands

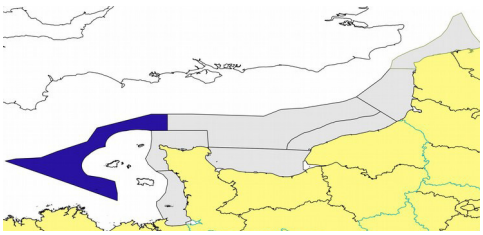
Scope: Prevalence of maritime shipping and issues of maritime security, alongside giving priority to sustainable commercial fishing, and with a vocation to develop marine renewable energy.

Illustrative map of the major ecological and socioeconomic issues



I. Presentation of the zone

Associated ecological sector	Area 7 : Celtic Sea and Western Channel
Associated water mass	None



Broadly speaking, in terms of the identified ecological issues, the pelagic habitats in this area are characterised by a thermal front (Ouessant) which forms from spring to the end of summer, between the cold and mixed waters near the coast and the warmer stratified offshore waters. This area is a zone with has strong primary and secondary production. The stratified waters can also be the driver of primary production at very high levels at the end of the summer. The seabeds are characterised by rather coarse sediments forming large sub-aqueous dunes, while in the north-east, the Hurd's Deep underwater valley and the Roches Douvres shelf are geomorphological particularities.

In connection with these hydrographic and geomorphological conditions, a rich food web is established and the area is a significant summer feeding site for the megafauna: birds, small cetaceans and elasmobranch species including sharks and skates. This area is also an important egg-laying area for several species of fish including the common sole and bass, and concentrations of leatherback sea turtles are observed in the west during the summer period.

The main maritime activities in the area are fishing (particularly trawling) and maritime transport (Ouessant and Casquets Traffic Separation Schemes).

Governance structures(spatial restrictions originating from other processes - Interactions with the hinterland or terrestrial planning):

- International fisheries agreements: "Bay of Granville agreements"
- Objective documents for the Natura 2000 sites listed below

- **List of marine protected areas and other natural spaces:**

- PSCI FR2502022 NORTHERN BRITTANY DH: PSCI since 14 December 2017 (proposed Site of Community Importance in the framework of the extension of the Natura 2000 network beyond territorial waters set out in the government instruction of 15 July 2016)
- SPA FR2512005 NORTHERN BRITTANY DO: Decree of 18 January 2018 regarding the designation of the Natura 2000 site Nord Bretagne DO (Special Area of Conservation in the framework of the extension of the Natura 2000 network beyond territorial waters set out in the government instruction of 15 July 2016)

II. Summary of issues

Ecological issues present in the sector

Ecological issues category	Specific ecological issues in the sector		Qualification			
			Major	High	Average	Low
Hydrographic conditions, pelagic habitats and food webs	**Distinctive hydrological structures**	Ouessant thermal front and late stratification in summer. Associated high planktonic biomass				
Benthic habitats and geomorphological structures	**Sub-aqueous dunes on the shelf and upper continental slope**	Main area for subaqueous dunes				
	Distinctive geomorphological structures	Roches-Douvres. Hurd's Deep				
	Sedimentary habitats	Subtidal mixed sediments				
		Subtidal coarse sediment				
Functional fishing areas	**Spawning grounds**	Bass, horse mackerel, spider crab, European sprat, brill, red gurnard, Atlantic pollock, lemon sole, sardine, pout and sole				
	Nurseries	Atlantic horse mackerel				
	Benthic invertebrates	Crab, queen scallop				
	Elasmobranch species	Blue skate and flapper skate				
Functional avifauna areas	**Seabird colonies and feeding grounds**	Northern gannet				
		European herring gull				
		Lesser black-backed gull, great black-backed gull				
	Areas with maximum density and functional areas – seabirds in the breeding season	Densities all species				
		Wintering grounds for Northern fulmar				
Crosscutting issues	**Harbour porpoise maximal density areas**	Harbour porpoise in summer				
	Delphinidae	Common dolphin (feeding area)				
	Marine turtles	Summer concentration area for leatherback sea turtles				

Socio-economical issues and the outlook for development

Category of maritime activities	Presence	Description of the maritime activity	Changes	Qualification			
				Major	High	Average	Low
Swimming and beach use	No						
Offshore oil, gas and related activities	No						
Agriculture	No						
Aquaculture and quality of shellfish waters	No						
Artificialisation of coastal areas	No						
Undersea cables	Yes	Many cables, mainly for telecommunications, cross the area. There are currently no projects for new undersea cables.	=				
Seafood processing and marketing	No						
Shipbuilding	No						
Defence	Yes	One of the main responsibilities of the Commander of the area and the Maritime zone of the English Channel and North Sea is maritime defence of the territory and operational control of military resources.	=				
Quarrying marine materials	No						
Industries and technological risks	No						
Recreational boating and water sports	Yes						
Commercial fishing Recreational fishing	Yes	A fleet of offshore trawlers carries out bottom trawling operations, notably off the Channel Islands.	=				
Electricity production	Yes	Potential sites for the development of wind power farms have been identified in the area.	+				
Research and development in the public sector; Training	No						
Coastal tourism, sites, landscapes and cultural heritage	No						
Maritime transport and ports	Yes	Maritime traffic is heavy, mainly due to the busy shipping lane which passes close to the area's boundary.	=				
Maritime public works	No						
Natural coast hazards	No						
Local integrated sea and coast planning initiatives	No						
Environmental protection	Yes	There are two offshore Natura 2000 sites in the area, one of which is in the process of being designated*.	+				
Government Action at Sea	Yes	The Maritime Prefect is responsible for the general coordination of State capacity at sea.	=				

		A number of maritime vessels are engaged in Government Action at Sea and monitor maritime areas and police activities at sea (fisheries policing, combatting illegal activities, etc.)					

III. Overlapping of strategic objectives related to the zone

The table of the overlapping major ecological and socio-economic issues presented below is a decision-making tool. Depending on the prioritisation madeof these issues by sector, this table presents and accompanies concerted development with full knowledge of the projects to come with the aim of managing conflicts. It proposes a development strategy for the protection of the environment and associated ecosystems, with an ecological transition in mind for the sea and coastline. This development strategy is oriented towards a sustainable and productive blue economy.
Secondly, this table of overlaps helps identify the needs for potential exemptions[1]to environmental objectives when it is not possible to implement them.

Ecological issues	Socioeconomic issues		Socioeconomic objectives (SEO) associated with issues		Study of existing or future interactions	Analysis of environmental objectives (EO) and response in light of the cross-cutting issues	
	Activities	Development trends	SEO code	Wording (summary)		Headings	EO codes
Functional fishing areas	Electricity production	+	5A	New wind power zones	There is an interaction between functional fishing areas and wind power projects, due to the generation of **physical pressures** which degrade species habitats (in particular sub-aqueous dunes which are rearing, nursery and spawning habitats). However, the impact is limited as it is mainly restricted to the wind farm construction phase *(MNHN, 2017)*.	- "Maximise the survival of elasmobranch species captured accidentally, in particular prohibited species (category A) and species which are a conservation priority (categories B and C) but permitted for fishing" - "Reduce all pressures that affect the scope and condition of functional fishing areas identified as important (i.e. spawning grounds, nurseries, migration paths), which are fundamental for the life cycle of fish, cephalopods and crustaceans of value to fisheries". - "Limit the transfer of non-native species from severely impacted areas" - "Limit the introduction and dissemination of non-native species caused by water and ballast sediments from ships" - "In accordance with the CFP, adapt fishing mortality to achieve the maximum sustainable yield (MSY) for fish stocks covered by international and European recommendations" - "Adapt fishing mortality to ensure sustainable management of local stocks for the fish stocks concerned, totally or partially, using a national or sub-national assessment managed locally" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use" - "Reduce the direct release into the sea of contaminants, especially hydrocarbons linked to maritime transport and navigation" - "Reduce liquid effluent discharge (black and grey water), hydrocarbon residues and dangerous substances from commercial, fishing and recreational vessels" - "Reduce the atmospheric inputs of contaminants"	- D01-PC-OE01 - D01-PC-OE05 - D02-OE02 - D02-OE03 - D03-OE01 - D03-OE02 - D06-OE02 - D08-OE02 - D08-OE03 - D08-OE07
			5D	MRE trials			
	Commercial fishing	=	3A	Fishing equipment renewal	There is an interaction due to generation of **physical pressures** on seabeds *(BRGM, 2017)*, input of **ecotoxic substances** ***(Ifremer, 2018)*****,** as well as the introduction of **ENI** *(MNHN, 2018)* in the environment and **species** removal caused by fishing activity ***(Ifremer, 2018)***.		
			3C	Product quality and sustainable resource management			
	Maritime transport and ports	=	7B	Digitalisation of port logistics			
			7H	Alternative ship fuels			
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			
Marine turtles	Maritime transport and ports	=	10A	Bathymetric knowledge / monitoring	The interaction is high with marine turtles due to the introduction of **waste** into the marine environment **and deaths** from collisions and accidental catches *(MNHN, 2018).*	- "Reduce accidental captures of marine turtles and marine mammals, in particular small cetaceans" - "Reduce collisions with marine turtles and marine mammals" - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	- D01-MT-OE02 - D01-MT-OE03 - D10-OE02
			12D	Research support			
	Commercial fishing	=	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
			3D	Fishing waste sector			
Functional avifauna areas	Electricity production	+	5A	New wind power zones	Interaction is high with the functional bird areas due to the introduction of **waste** into the marine environment (and less certainly, **removal** caused by accidental bycatch during fishing activities and collisions with MRE infrastructure) (MNHN, 2018)**.** These functional avifauna zones cover the quasi totality of the area *(AFB, 2018)*.	- "Reduce accidental captures of seabirds (at sea and close to colonies), and in particular reduce accidental captures of the most vulnerable species such as the Balearic shearwater, Yelkouan shearwater and Cory's shearwater, by long-liners, static nets and seines with pelagic trawls" - "Prevent collisions between seabirds and infrastructure at sea, especially with wind farms (application of the avoid, reduce, compensate approach)" - "Avoid the loss of functional seabird habitats, particularly in marine areas where density is at a maximum". - "Reduce inputs and presence of waste at sea from maritime activity, use and development"	- D01-OM-OE01 - D01-OM-OE02 -D01-OM-OE03 - D10-OE02
			5D	MRE trials			
	Commercial fishing	=	3A	Fishing equipment renewal			
			3C	Product quality and sustainable resource management			
			3D	Fishing waste sector			
	Maritime transport and ports	=	10A	Bathymetric knowledge / monitoring			
			12D	Research support			
Sub-aqueous	Maritime	=	7B	Digitalisation of port logistics	There is an interaction due to the generation of **physical pressures** on sub-	- "Avoid abrasion and smothering of the most representative areas of offshore	- D01-HB-OE11

[1]These objectives and their associated targets were defined with the objective of reaching good ecological status of marine waters, in accordance with DCSMM requirements. If a socio-economical issue or any specific event were to force the good ecological status to be affected, an exemption should be put in place.

dunes on the shelf and upper continental slope	transport and ports		10A	Bathymetric knowledge / monitoring	aqueous dunes. However, the interaction is limited to the southern half of the area where these dunes are present *(AFB, 2018)*.	habitats (vulnerable marine ecosystems) and reduce abrasion of characteristic geomophological structures" - "Limit extraction pressure on sub-aqueous dunes and shell sands and avoid extraction pressure on dunes on the upper continental slope" - "Reduce disturbances and physical losses in generic and specific habitats related to maritime activities and use"	- D01-HB-OE12 - D06-OE02
			12D	Research support			
Sedimentary habitats	Electricity production	+	5A	New wind power zones	There is an interaction due to the generation of **physical pressures** on sedimentary habitats (mixed subtidal sediments and coarse subtidal sediments), with the latter distributed across almost all of the area *(AFB, 2018)*.		
			5D	MRE trials			
	Commercial fishing	=	3A	Fishing equipment renewal			
	Maritime transport and ports	=	7B	Digitalisation of port logistics			
			10A	Bathymetric knowledge / monitoring			
			12D	Research support			

Other specific objectives present in the sector but not concerned by the overlap :

Socioeconomic objectives (SEO)	Environmental objectives (EO)
3B 4A – 4E – 4F 5B – 5C 10B 12A – 12B – 12C – 12E – 12F – 12G 13A – 13B – 13C – 13D	D01-HB-OE07; D01-MT-OE01 D02-OE01 D03-OE03 D04-OE01 D05-OE04 D07-OE01-03 D08-OE04-05-5bis D09-OE01 D11-OE01-03

IV. Recommendations

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