

Baseline Study of the NOSTRA project Dover Strait



Source: Nostra website



Source: LUC (2013)

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The views expressed in this report are purely those of the authors and may not necessarily reflect the views or policies of the partners of the NOSTRA network. The methodological approach that was applied during the baseline study is presented in the final report of the study. The analysis that is provided in this report is based on the data collected and reported by the Nostra partners, a complementary literature review conducted by the consultants, and the results provided by the methodological toolkit developed in the framework of the baseline study.

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Limitations of the analysis:

The consultants faced a limited amount of data. In general, on both sides of the strait, involved partners are facing difficulties in collecting socio-economic data.

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The South East England consists of **Kent County**, and also Berkshire, Buckinghamshire, East Sussex, Hampshire, the Isle of Wight, Oxfordshire, Surrey and West Sussex counties – perimeter off scope. The geographical perimeter of the strait in the English side includes terrestrial areas with 15 km buffer and is composed of **Dover District and Shepway District** (Table 1).

Table 1: Geographical data of the English territories

	Dover strait, English side	Kent County	South East England Region
Terrestrial area (km²)	1,066 ³	3,736 ⁴	19,096 ⁴

► **Pas-de-Calais, France**

French side of Dover Strait is located in Pas-de-Calais County, in Nord-Pas-de-Calais Region (Table 2). The geographical perimeter of the strait in the French side includes five territories: territories of Montreuillois, Boulonnais, Calaisis, Audomarois and Flandre-Dunkerque (Nord County). This area includes the Metropolitan Area of the Opale Coast (Pôle Métropolitain de la Côte d’Opale – PMCO). This studied perimeter is illustrated in Figure 3.



Figure 3: Designated areas along the Dover coastline, as part of the Dover Strait, in the French side⁵

² Source: Consultation of Kent County Council, in the context of the baseline study

³ Consultation of Kent County Council, in the context of the baseline study, issued from the toolkit.

⁴ Source: Wikipedia

⁵ Source: Consultation of Kent County Council, in the context of the baseline study

Table 2: Geographical data of the French territories

	Dover strait, French side	Pas-de-Calais County	Nord-Pas-de-Calais Region
Terrestrial area (km²)	3,352 ⁶	6,671 ⁷	12,414 ⁷

The key geographical data of the Dover strait are presented in Table 3.

Table 3: Key geographical data of Dover Strait

Key geographical data	Unit	Dover Strait, United Kingdom	Dover Strait, France
Landscape area	ha	106,673 ⁸	335,200
Seascape area	ha	Not available	697,537 ⁹
Length of coastline	km	100	Around 100 (estimated by the consultants based on a map)
Maximal depth of the strait	m	38	
Width of the strait	km	32	
Urbanized areas	km ²	Not available	13%

1.2 Level of urbanization

1.2.1 Cities

► Kent, UK

Dover is a district and the main town within Kent County. The majority of business related to the strait is done in Dover. In 2011, Dover town had 28,156 inhabitants.

⁶ Source: Consultation of Kent County Council, in the context of the baseline study, issued from the toolkit.

⁷ Source: Wikipedia

⁸ Source: Consultation of Kent County Council, in the context of the baseline study, issued from the toolkit

⁹ Source: Consultation of Pas-de-Calais County, in the context of the baseline study, issued from the toolkit

► Pas-de-Calais, France

Twelve principal cities are located in the seascape area, including Dunkerque (92,005 inhabitants), Calais (73,636 inhabitants), Boulogne-sur-Mer (43,070 inhabitants), Courdekerque-Branche (22,474 inhabitants), Grande Synthe (20,991 inhabitants), and Berk-sur-Mer (15,367 inhabitants).

1.3 Infrastructure

Dover Strait is a major connection point, by linking UK with the continent, and the Atlantic Ocean and the English Channel with the North and the Baltic Sea. For this reason, the busiest ports and the first undersea tunnel in the world constitute the strait's main infrastructures.

1.3.1 Ports

Dover Strait is one of the busiest shipping lanes in the world. The majority of the business related to the strait is done in the industrial and commercial ports of Dunkerque (commerce), Calais (passengers) and Boulogne-sur-Mer (fishing). Ports support both passengers and goods transports.

In terms of passengers transport, the ports of Dover and Calais are Europe's busiest passenger ferry ports¹⁰. In 2011, 12.7 million of passengers and 2.6 million of tourist cars passed through the port of Dover¹¹. In 2011, 10 millions of passengers and 1.8 million of tourist cars were transported through the infrastructure of the port of Calais¹². Moreover, on the French side, the port of Boulogne-sur-Mer, most important fishing port in France and European leader centre for Sea Products, and the marina of Etaples have to be mentioned.

Furthermore, the strait is a pinch point for the traffic of boats coming from or going to major ports in the North Sea and from the Baltic Sea. Its strategic and economic interest for Europe is therefore very high, and will certainly increase as the intensity of international maritime traffic and size of containers is expected to increase. Partly to meet this demand, on the English side, a major new port - London Gateway – will open on the Essex coast in 2013. It will be located on a geographical area outside the scope of the present study, however its activity could have indirect socio-economic and environmental impacts on the strait. Moreover, Dover Port is due to develop terminal 2, to increase capacity. On the French side, the port of Dunkerque is developing a high capacity liquefied natural gas terminal, in order to secure energy supply. Moreover, the project “Calais Port 2015” will allow increased capacity for cargo ships. Consequently, the ports of Dover and Calais expect to build new terminals that will come into service in the next few years¹³.

¹⁰NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

¹¹ Port of Dover: <http://www.doverport.co.uk/>

¹² Port de Calais: <http://www.calais-port.fr/port-de-calais/le-port-en-chiffres/>

¹³ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

Deprivation is a social issue especially important for Dover District. In 2010, Dover was ranked 127th (1 being the most deprived) out of 326 authorities in England. Although Dover is placed in England's most deprived half of authorities, Kent County ranks 102nd out of 152 counties and unitary authorities, placing it within England's least deprived third of authorities (KCC, 2010).

Ageing population is another important social issue in Dover, proved by an increase in people over 65 and a reduction in the proportion of children and people of working age. The forecast shows that the proportion of inhabitants over 60s will continue to rise¹⁵.

► **Pas-de-Calais, France**

Deprivation is as well a social issue in the French side of Dover Strait. Moreover, the median income is lower in the coastal areas than in other areas of Nord-Pas-de-Calais. The migratory loss is high: the departures are more important than the arrivals in the region¹⁶. The unemployment rate is high in the coastal areas, due to the low industrial presence.

In the sixties, the economic crisis began with the decline of the steel industry and the disappearance of the coal mines. The decline accelerates and continues nowadays. This deindustrialisation causes significant social, environmental and urban crisis. The region still has demographic imbalance between its demographic weight and its economic weight. Furthermore, nowadays, brownfield sites located in Nord-Pas-de-Calais are totalling 50% of the national stock (which can nonetheless be an opportunity for development).

1.4.1 Main socio-economic activities

Dover Strait provides many opportunities for economic development in areas such as **goods and passengers transport, fisheries, agriculture and tourism**¹⁷ (see Table 5)

Table 5: Main economic activities

Type of activity	English side	French side
Maritime transport of goods	√	√
Maritime transport of passengers	√	√
Terrestrial transport of goods	√	√
Terrestrial transport of passengers	√	√
Ports (fisheries and trade)	√	√

¹⁵ Dover District Council (2011), Green Infrastructure Strategy.

¹⁶ Système d'Information Géographique et d'Analyse de L'Environnement – Fiches territoires. Available at : <http://sigale.nordpasdecals.fr/ACCUEIL/accueil.asp>

¹⁷ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

Onshore energy production	-	-
Onshore production of renewable energy	-	-
Onshore industry and infrastructure	-	-
Onshore agriculture	√	√
Building and construction	-	-
Tourism	√	√

In terms of maritime transportation, the strait is one of the busiest seaways in the world. It represents about 20% of world traffic, with more than 500 ship movements a day¹⁸. Ferries, Merchant ships and fishing vessels share the seaways (Figure 5). On both sides of the strait, ports are very important: as presented previously, the ports of Dover and Calais are Europe's busiest passenger ferry ports, despite the opening of the Channel Tunnel in 1994. This confirms the importance and the almost continuous growth of the cross-Channel flows. Dover Port is equally important for freight, with the busiest roll on roll off (RORO) in Europe; 90% of UK freight goes through the strait. The ports of Boulogne-sur-mer and Calais are, respectively, the first French port for sea fishing and the fourth for commercial traffic¹⁹. Calais estimates at around 10.1 million the number of passengers crossing the strait per year and around 38.5 million tons of goods carried by cargo per year only through its port²⁰. Pas-de-Calais County Council estimates at around 11.9 million the number of passengers crossing the strait per year and around 612 million the number of tons carried by cargo per year²¹. Kent County Council estimates that around 232 million passengers cross the strait per year²².

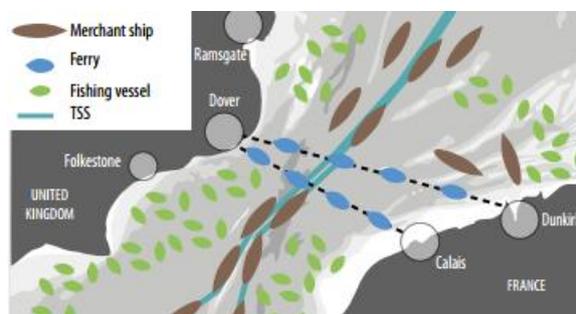


Figure 5: Navigational context

Source: CAMIS (2013)

In terms of terrestrial transportation between both sides, the Channel Tunnel is managed by Eurotunnel Group, which operates in the fields of infrastructure management and transport operations. Two Eurotunnel Group companies are concessionaires until 2086 to operate the cross-Channel Fixed Link. Since 1994, more than 300 million passengers have used the Channel Tunnel.



Figure 6: Eurotunnel freight map

Source: Eurotunnel freight website

¹⁸ LUC (2013), Piloting an approach to Seascape Character Assessment in the Dover Strait

¹⁹ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

²⁰ Consultation of Calais Agglomeration, in the context of the baseline study

²¹ Consultation of Pas-de-Calais County Council, in the context of the baseline study

²² Consultation of Kent County Council, in the context of the baseline study

The rail Shuttle transport system carries 2.5 million cars (Le Shuttle) and 1.5 million trucks every year, making it the world leader in piggyback transport. High-speed passenger trains and rail freight trains also run through the Tunnel. In 2012, Eurotunnel Group generated revenues of almost €1 billion. It employs more than 3,600 staff in both the United Kingdom and France.

In the agricultural sector, in Kent, in 2007 there were 13,000 people employed (2.3% of the total Kent workforce). In 2007, it is estimated that approximately 140,300 people employed in rural areas, accounting for 24.9% of all employees in Kent.²³ Agriculture is the first sector in the Nord-Pas de Calais Region in terms of number of employees. The agricultural production activity represents around 37,000 jobs and the whole agricultural sector around 85,000 jobs. Revenues of the agricultural sector are estimated to a total of 2.6 billion Euros.²⁴

The tourism and fishery sectors are well developed in both sides of the Dover strait. The economic burdens for the region Nord-Pas-de-Calais and South East England are specified in the sections below. The development of those sectors differs depending on the studied areas (in spite of equivalent surface area) and the type of fishing.

In terms of tourism, the South East England (including Berkshire, Buckinghamshire, East Sussex, Hampshire, the Isle of Wight, Kent, Oxfordshire, Surrey and West – perimeter off scope) is active and has an encouraging tourism sector: important number of workers and high GDP, i.e. five times higher compare to the tourism sector in Nord-Pas-de-Calais (Table 6).

Table 6: Economic features of the tourist sector around the Dover strait²⁵

	South East England	Nord-Pas de Calais
GDP (2004) M€ (EUROSTAT)	253,935.30	84,818.90
Tourist sector's GDP (2004) M€ (EUROSTAT)	6,675.10	1,465
Number of workers in tourist sector (2004)	192,568	35,500

Kent is a popular destination for both domestic and overseas visitors. Its 350 miles of coastline offers traditional seaside holiday resorts and many of Kent's best natural and historic attractions. Kent County Council estimated that the tourism and recreational activities in its coastline generated around 243.6 million £ of revenue in 2012, including 414,000 nights spending in all type of accommodations in the coastal area. In the tourism sector, it was counted 45,200 employees in Kent County and around 3,000 employees in the area of Dover Strait (less than 10% of the employment)²⁶. About 70% of Kent's tourism industry is made on the coastal towns and the

²³ Website Why Farming matters in Kent ? <http://wfminkent.co.uk/farming-in-kent/kent-statistics/>

²⁴ Website of the Chambre d'agriculture Région Nord-Pas de Calais

²⁵ FEEM/NTUA (2007), New Energy Externalities Developments for Sustainability. Available at: http://www.needs-project.org/RS1c/RS1c_T1.5.pdf

²⁶ Consultation of Kent County Council, in the context of the baseline study

Kent County Council website

majority of overnight stays in Kent are made in coastal districts²⁷. The ambition of the Kent County Council is to promote the culture as a key driver for the local and regional tourism economy. The “Cultural Strategy for Kent 2010 – 2015” settles a partnership framework produced by Kent County Council on behalf of government agencies, key cultural organisations and cultural leaders.²⁸

Nord-Pas de Calais is the 7th touristic region in France. However, **the region is a travelling area more than a holiday destination**. In 2012, the number of arrivals in the region is estimated at around 3.7 million (+1.9%, compare with 2011), while the number of nights spent at tourist accommodation establishments is estimated at 5.6 million, with around 2.2 million nights spent in Pas-de-Calais²⁹. Furthermore, stays in Nord-Pas-de-Calais are globally short. Furthermore, its **tourist attractiveness is a priori limited** : the tourist activities **focus on the metropolitan cities** such as Lille and Valenciennes, and on the **area of Berck-Montreuil** due to its seaside resorts (Le Touquet) and its sea front (heliotropism) (Figure 7). The attractiveness of an area plays an important part in local economy and also employment rate. **Lille and coastline account for nearly two-thirds of tourism employment**³⁰. The biggest challenge the region is willing to tackle now is to retain tourists.

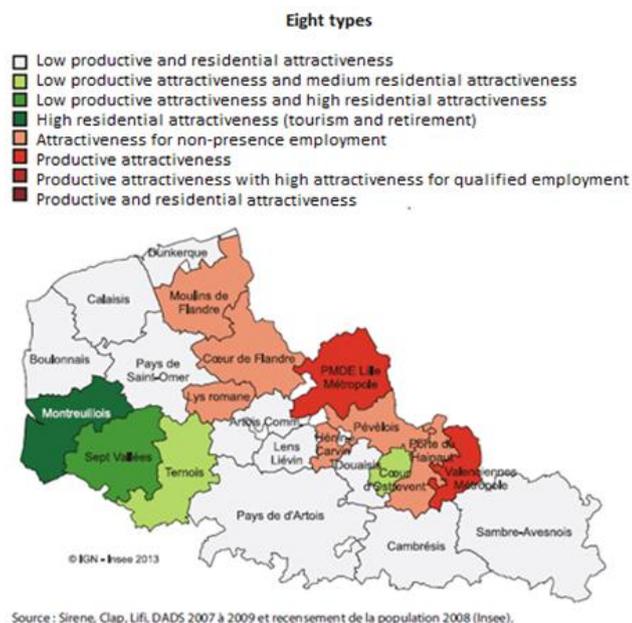


Figure 7: Productive and residential attractiveness in the Nord-Pas-de-Calais³⁰

²⁷ Kent Coastal Network (2002), Kent’s tourism industry and its coastal attractions. Available at: <http://www.coastalkent.net/data/fact/document/Tourism.pdf>

²⁸ Unlocking Kent’s Cultural Potential –A Cultural Strategy for Kent 2010–2015. Available at: <https://shareweb.kent.gov.uk/Documents/leisure-and-culture/arts-development/Cultural%20Strategy/KCC%20Cultural%20Strategy.pdf>

²⁹ INSEE (2013), Tourisme – Nord-Pas de Calais : une année dans la moyenne. Available at : http://www.insee.fr/fr/themes/document.asp?reg_id=19&ref_id=19706

³⁰ INSEE (2013), Profil : L’attractivité des territoires du Nord-Pas de Calais , une complémentarité croissante entre espaces productifs et espaces résidentiels. Available at: http://www.insee.fr/fr/themes/document.asp?reg_id=19&ref_id=19612

Several initiatives contribute to attract visitors and internal tourism is significant for the economy (in the region, internal tourism consumption reached 1,398 million Euros in 2005³¹). Created in 1991, Naausicaa, Centre National de la Mer, allows discovering the sea and educating visitors on sustainable development. Recently, the opening of the Louvre in the city of Lens has contributed to an evolution of the type of tourism in the area.

In the case of the fishery sector, the activity is higher in Nord-Pas de Calais than in South East England, in particular in terms of GDP (Table 7). The differences are sometimes stark between both sides of the strait, and while there are more French than British sailors, this is mainly due to the type of fishing traditionally practiced being different.

Table 7: Economic features of the fishery activity around the Dover strait²⁵

	South East England	Nord-Pas de Calais
GDP (2004) M€ (EUROSTAT)	253,935	84,818
Fishery sector's GDP (2004) M€ (EUROSTAT)	33.4	185
Number of workers in fishery sector (2004) (EUROSTAT)	1,280	2,100

The low fishery activity in the English side of the strait is explained by the absence of important fishing port. Dover port is mainly a cargo port, while the fishing ports in the area are Whitstable and Hastings ports with less than 1,000 tons of fish landed and less than 1 million Euros of catches sold in 2011³².

Fishing is an important part of the economic activity in Nord-Pas-de-Calais. Thus, five fishing harbours are situated in the region, including Boulogne-sur-Mer which is the largest French fishing harbour (in 2005, 55,970 tons of fish sold and 1,350 seamen, i.e. 6% of the national rate) and the largest European platform for processing and marketing of fresh and frozen sea products (4,000 employments, 182 companies). In 2011, 38,200 tons of fish were sold, which represent 80 million Euros³³.

³¹ Direction régionale de l'environnement (2008), Profil environnemental Nord-Pas de Calais tome 1 : Enjeux régionaux

³² Channel Arc Manche Integrated System – Thematic plates about the Channel area: Fishing, an important sector. Available at: https://camis.arcmanche.eu/stock/files/user4/5_Fishing.pdf

³³ France AgriMer (2013), Les filières pêche et aquaculture en France

2 Significance and sensitivity of biodiversity and natural environment in the strait

2.1 Remarkable landscapes

Dover Strait is a unique seascape which links an integrated landscape of soaring chalk cliffs, the iconic White Cliffs of Dover (Figure 8) and South Foreland and the distinctive Caps of the Opél Coast at Cap Blanc Nez and Cap Gris Nez, with strong cultural and visual links between France and England³⁴. Dover Strait's remarkable landscapes are recognised by the Kent Downs AONB (Area of Outstanding Natural Beauty) and by the Parc Naturel Régional des Caps et Marais d'Opale, along with other designations³⁵.

► Kent, UK

For the UK, the chalk cliffs have significant value in terms of national identity, with cultural associations going back for centuries³⁴. Dover Strait is offering an incredible landscape, by combining the landward area of chalk cliffs, shingle beaches and coast defences, including the main cross channel ports. The chalk bedrock was key to character forming the isthmus which original linked England and the continent, with strong cultural and visual links between France and England. Similar on the seabed the sand banks of Goodwin, Sandiette, Varne and Colbart can be seen to be part of the character of the Dover Strait.



Figure 8: White cliffs of Dover strait

(Source: <http://www.whitecliffscountry.org.uk>)

► Pas-de-Calais, France

On the French part, the 'Site des Deux Caps', has recently won the prestigious designation

³⁴ LUC (2013), Piloting an approach to Seascape Character Assessment in the Dover Strait

³⁵ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

“Grand Site de France”. Within the area of the Grand Site de France, about 15 pre-empting zones (zones that are defined as priority for local authority acquisition) exist, representing 1,200 ha already property of the Conservatoire du littoral or the Pas-de-Calais County Council. Management plans are developed for high heritage value sites, among which “le Bois d’Haringzelle”, les “Dunes de Slack”, “la pointe aux Oies” or “la pointe de la Crèche”. French Marine Protected Areas lie adjacent to the offshore rMCZ’s³⁶.

North of Strait of Dover, within maritime Flanders, in the triangle Calais-Dunkirk-St Omer, the coastal landscape brings up a dune in contrast with the chalky cliffs that are found south of the strait.

This particular area is the area of watergangs. It is the result of the combined action of nature and man. 85,000 hectares of land have a lower altitude than the high seas. The flow of waters into the sea is intermittent and a dense network of drainage and irrigation canals enables evacuation of inland waters. This area is the site of many uses more or less related to the presence of water (agriculture, navigation, fishing...). A network of stakeholders and structures contribute to the functioning of this hydraulic system and significant technical and financial resources have to be mobilized to sustain its functioning.

2.2 Biodiversity and natural environment in the strait

Dover strait’s biodiversity with national and international importance co-exists with maritime transport and shipping. The hundreds of wrecks found on the bed of the channel have a high historical interest. Moreover, they create important spawning sites for marine wildlife³⁷. Thus, there are on average between 10,000 and 70,000 fishes, cephalopods and crustaceans per km² living and breeding each year³⁸.

2.2.1 “Remarkable” ecosystem or habitat types

► Kent, UK

Rich biodiversity areas such as chalk grassland, wetland marshes and coastal habitats including salt marsh and mud flats can be found on the British side of the strait (Dover District Council, 2011).

Dover and Folkestone Cliffs & Downs area includes a series of valleys around Dover, cliffs and cliff-top grassland, intertidal and subtidal



Figure 9: Dover and Folkestone Cliffs & Downs BOA, an opportunity for biodiversity

³⁶ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

³⁷ LUC (2013), Piloting an approach to Seascape Character Assessment in the Dover Strait

³⁸ Channel Arc Manche Integrated System – Thematic plates about the Channel area: Underwater, submarine morphology and halieutic resources. Available at: https://camis.arcmanche.eu/stock/files/user4/1_Underwater.pdf

chalk and the steep scarp slope of the North Downs at Dover (Kent BAP). Figure 9³⁹ represents the biodiversity opportunity area (BOA) which is characterised by:

- Nationally important chalk grassland in dry valleys and on cliff tops;
- Coastal cliffs and slope with important, associated foreshore and marine habitats;
- Sabellaria reefs offshore which provide an important habitat for a wide range of associated species;
- Woodlands on chalk and on ragstone;
- Some vegetated shingle, wet woodland and fen habitats;
- Key species of plants and invertebrates associated with chalk cliff and chalk grassland habitats, including adder, silver-spotted skipper, small blue, Adonis blue, wild cabbage, and ox-tongue broomrape. Brown hare is also an important species. Species associated with inshore waters include short-snouted seahorse (Kent BAP).

► Pas-de-Calais, France

Natural environments in Pas-de-Calais are greatly diversified and are composed by woodlands and forests, cliffs, calcareous hillsides, dunes, estuaries, meadows, polders, moorlands, marshlands and slag heaps⁴⁰.

The coastline consists of very diverse coastal environments and wide sandy foreshore. “The strait effect”, marked by a strong current, contributes to the diversification of remarkable habitats: gravels, fines sand and sandy banks. The strait is an environment very rich in ichthyofauna and the large population of algae constitutes nurseries for fish. Many species of marine mammals are observed regularly on the regional coast, the strait being a migratory corridor for 22 marine mammals.

In general, the coastline presents a major ornithological interest; the strait hosts about 250 bird species and is an important migratory corridor. The wall caps and cliffs of sandstone and limestone offer shelter for many coastal birds, including fulmars and kittiwakes. Inland, the primitive grass (euryhaline) has different species. Several rare botanical species such as orchids, bitter gentian or wild cabbage grow in this area. Dunes are very rich environments (interdunes, embryonic dunes, grey dunes etc.) that cover 9,600 ha of the coastline and host a very diverse flora.

2.2.2 Rare and threatened species

► Kent, UK

³⁹ Kent Biodiversity Action Plan, Dover and Folkestone Cliffs & Downs Biodiversity Opportunity Areas Statement. Available at: <http://www.kentbap.org.uk/kent-boas/>

⁴⁰ Eden 62: <http://www.eden62.org/>

Kent's iconic species that largely come from UK's varied geology and land use history are now nationally rare or declining rapidly. Amongst others: the Leafhopper (*Aphrodes duffieldi*) is not known to occur anywhere else in the world besides Kent; the Lady Orchid (*Orchis purpurea*) and the Man Orchid (*Aceras anthropophorum*); the Nightingale (*Luscinia megarhynchos*) of which Kent holds approximately 25% of UK's breeding population; and the Dormouse (*Muscardinus avellanarius*).⁴¹

Kent hosts 85 threatened species, which are globally threatened or are fast declining in the UK. All of these are recorded in the Kent red data book⁴². The Kent Landscape Information System (KLIS⁴³) developed 28 fact sheets on important species. Information on these 28 species and activities to protect them can also be found on the Kent Biodiversity Action Plan (Kent BAP) website⁴⁴.

A detailed list with the remarkable species present in the area is provided in Annex.

► Pas-de-Calais, France

The species involving an important patrimonial stake are numerous and make up an essential reserve for the biodiversity conservation, at the departmental, regional and national levels.

In Pas-de-Calais, four flora species are subject to a national conservation plan (fen orchid, grass-of-parnassus, bitter gentian, slender marsh bedstraw). Furthermore, 12 protected species nationwide, and 117 protected species region-wide are present on the territory. According to the rarity index, 50 flora species are considered to be 'exceptional' and 106 to be 'rare'.

The Nord-Pas-de-Calais Region hosts around 130 rare or threatened species, including 23 amphibian, 35 mammals and 102 birds. They are recorded in the Nord-Pas-de-Calais red list⁴⁵, which includes the species whose decline, rarity or limited locations require protection measures or restoration.

2.2.3 Protected areas and species

► Kent, UK

Kent is rich in designated sites for biodiversity such as Special Areas of Conservation (SAC's), Special Protection Areas (SPA's) and Ramsar sites. These sites are protected under the EU

⁴¹ Kent County Council website: <http://www.kent.gov.uk/default.aspx>

⁴² Kent red data book: <https://shareweb.kent.gov.uk/documents/environment-and-planning/kent-red-data-book.pdf>

⁴³ Kent Landscape Information System: <http://www.kent.gov.uk/klis/factsheets.asp>

⁴⁴ Kent Biodiversity Action Plan website: <http://www.kentbap.co.uk/>

⁴⁵ Direction régionale de l'environnement, de l'aménagement et du logement Nord-Pas de Calais (2004), Liste rouge de la région Nord-Pas de Calais. Available at: <http://www.Nord-Pas de Calais .developpement-durable.gouv.fr/static/icpe/listes-rouges-faunes-NPdc.pdf>

Habitats and Birds Directives. At low tide, many habitats such as chalk reefs are of recognised importance; under the Marine and Coastal Access Act, there are currently two Marine Conservation Zones designated in the strait and a further two will be put forward for designation in 2015. On 21st November 2013, three new areas around Kent coast were designated as recommended Marine Conservation Zones: Medway Estuary, Thanet Coast and Folkestone Pomerania⁴⁶. As presented in Figure 10, in total nine Marine Conservation Zones at high risk are designated in the area.



Figure 10: Recommended Marine Conservation Zones for Southeast seas⁴⁶

Dover District has also designations like: Site of Significant Scientific Interest (SSSI), National Nature Reserves (NNR), Areas of Outstanding Natural Beauty (AONB), and Heritage Coasts.

■ Dover to Kingsdown Cliffs

- SAC: the area is important for its sea cliffs and cliff top grasslands;
- SSSI: the coastline is of extreme importance geologically and physiographically, and for its varied floral and faunal communities which include many rare species;
- Heritage Coasts: This covers the area of the White Cliffs of Dover. Jackdaws and swallows are abundant, and orchids grow along the cliff-tops. It includes Shakespeare Cliff, named after a scene in King Lear⁴⁷.

■ Sandwich Bay

- SPA: includes a long stretch of rocky shore, adjoining areas of estuary, sand dune, maritime grassland, saltmarsh and grazing marsh. The site holds important numbers of Turnstone and is also used by large numbers of migratory birds;
- SAC: for its sand dunes and their flora ;
- Ramsar: for its wetland invertebrates;

⁴⁶ Kent Wildlife Trust: <http://www.kentwildlifetrust.org.uk/MCZs>

- NNR: for its important number of wading birds, its sand dune system and the rare species⁴⁷.
 - Sandwich Bay to Hacklinge Marshes
 - SSSI: contains the most important sand dune system and sandy coastal grassland in South East England and also includes a wide range of other habitats such as mudflats, saltmarsh, chalk cliffs, freshwater grazing marsh, scrub and woodland⁴⁷;
 - Folkestone Warren
 - SSSI: includes steep chalk cliffs and foreshore exposures. The series of cliff sections at the western end of the site represent the most important single locality for studying Cretaceous age rocks in England;
 - Samphire Hoe (within the Folkestone Warren SSSI), is a 35 hectare park with visitor access⁴⁷.
 - South Foreland
 - Heritage Coasts: includes its lighthouse and stark white cliffs arising directly from the sea⁴⁷.

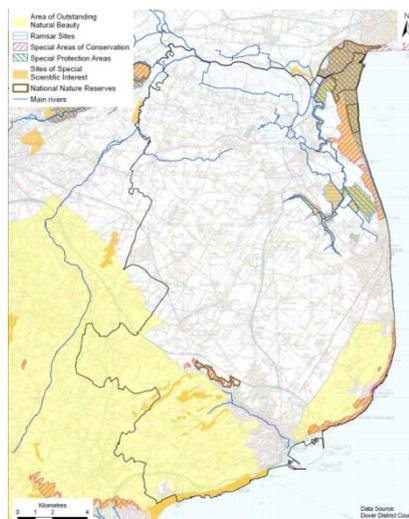


Figure 11: International and national protected areas within Dover District

Source: Dover District Council (2011)

► Pas-de-Calais, France

The French side of the Dover Strait is rich in protected areas (Figure 12)⁴⁸.

⁴⁷ Dover District Council (2011), Green Infrastructure Strategy.

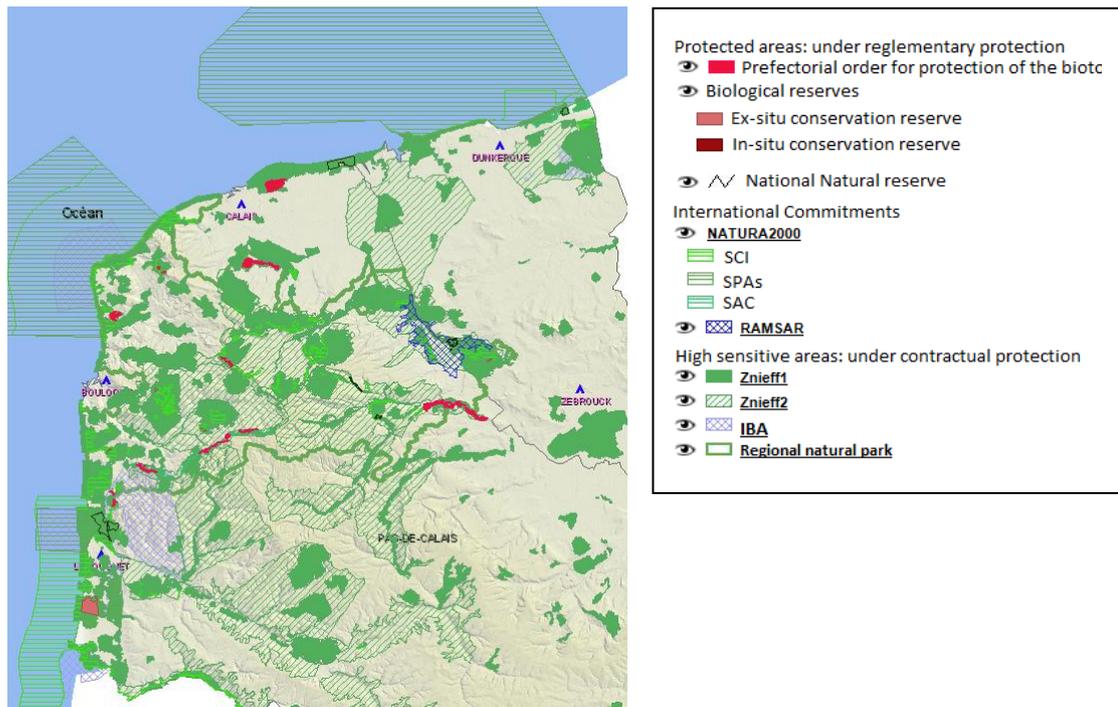


Figure 12: International and national protected areas within Pas-de-Calais and the legend associated⁴⁹

They can be divided into different groups:

- International commitments, including Special Areas of Conservation (SAC – Habitat Directive), Special Protection Areas (SPAs – Bird Directive) and Ramsar sites.
 - Special Protection Areas: Gris-Nez Cape, Shoals of Flanders, Dunes of Merlimont, Canche Estuary, Audomarais Marshland, Marshland of Balançon, Platier d'Oye
 - Special Areas of Conservation: Cliffs and lawns of Cap Blanc Nez, of Mount d'Hubert, of the Noires Mottes, of the Fond de la Forge and Mount Couple, Cliffs of the Cran aux oeufs and Gris-Nez Cape, Dunes of Chatelet, Marsh of Tardinghen and Dunes of Wissant, cliffs and dunes Wimereux, Slack estuary, Warrens and Communals of Ambleteuse-Audresselles, Canche estuary, Picard dunes patched on the old cliff, forest of Hardelot and cliff of Equihen, dunes of Authie and Mollières of Berck, Hill of

⁴⁸ Inventaire National du Patrimoine Naturel – Liste des espaces protégés et gérés dans le département Pas-de-Calais. Available at : <http://inpn.mnhn.fr/colITerr/departement/62/tab/espaces>

Consultation of Pas-de-Calais County Council, in the context of the baseline study

⁴⁹ CARMEN, mapping application developed by the Ministry of Ecology, Sustainable Development and Energy. Available at: http://carmen.developpement-durable.gouv.fr/24/Nature_et_paysages.map#

Dannes and Cammiers, Neutrocalcicol lawns and woods of the Cuesta south of Boulogne, Neutrocalcicol lawns and woods of the Cuestas of Boulogne and of the Country of Licques and Guines forest, grasslands, acid neutrocalcicole woods, North Atlantic moors of Helfaut plateau and alluvial system average Aa Valley, Hill of Aquinas Mountain and lawns of Val de Lumbres, Moors, ponds and acid woods of Plateau de Sorrus Saint Josse, alluvial grasslands and timber peat downstream of Montreuil, Prairies and mires of the low Authie Valley, Prairies and mires of Guines, Prairies, mires, forests and wood of the Audomarois topographic basin and its slopes, forest of Tournehem and lawns of the cuesta of the Country of Licques, forests of Desvres and Boulogne, wet grove grassland of the Lower Boulonnais, Marsh of the Grenouillère, Shoals of Flanders, Reefs of Gris-Nez and Blanc-Nez, Ridens and hydraulic dunes of the Strait of Dover, Bay of Canche and the corridor of the three estuaries.

- Ramsar Sites : Audomarois Marshland
- Protected Areas, statutorily, in particular the prefectural decision for protection of biotope, the biological reserves, the regional nature reserves and the national nature reserves.
 - Prefectural decision for protection of biotope (arrêté préfectoral de protection du biotope - APPB): Marsh of Guines, Dunes of Fort Vert, Hill of Dannes-Camiers, limestone hills of Boulonnais, moors of Helfaut plateau, communal meadow of Ambleteuse.
 - Directed Biological Reserve (Réserve Biologique Dirigée – RBD) of Opale Coast, along the Low Forrest, the Low Valley, the Claireau, the Long Chêne
 - Regional nature reserves: Lostebarne and Woohay, Marsh of Condette, Mount of Couple, Bridge of Ardres, communal meadow of Ambleteuse, Hill of Dannes and Camiers, Landes plateau, Marsh of the Grenouillère, the Molinet, Cléty stone-pit, Fortress of Mymoyecques
 - National natural reserves : ponds of the Romelaëre, Bay of Canche, Caves and lawns of Acquin-Westbécourt and hills of Wavrans-sur-l’Aa, Reef of Oye.
- Highly sensitive zones, in particular the Nature zones of ecologic, faunistic and floristic interest (Zones naturelles d'intérêt écologique, faunistique et floristique - ZNIEFF), the important bird conservation zones (Zones Importantes pour la Conservation des Oiseaux - ZICO), the biosphere reserves and the regional nature parks.
 - Nature zones of ecologic, faunistic and floristic interest (ZNIEFF), including Gris-Nez Cape, Pointe of the Crèche, Marly meadow, Dunes of Wimereux, Fond de la Forge, Vivier Saint-Eloi, Hil of Dannes and Camiers
 - Important bird conservation areas (ZICO): Gris-Nez Cape
 - Biosphere reserves : Audomarois Marsh

- Regional nature parks : Opale Capes and Marshlands (Parc Naturel Régional des Caps et Marais d'Opale)
- Protected zones, by land acquisition, in particular the Sensitive Natural Areas (Espaces Naturels Sensibles - ENS) (by acquisition of the Littoral and Lake Areas Conservation Agency - Conservatoire du Littoral et des Espaces Lacustres (CELRL) or of Pas-de-Calais County Council):
 - ENS : The Foraine of Authie, Waroquerie, Clay pit of Nesles, Mount Pelé-Mont Hulin, Pointe of the Crêche, Dunes of Slack, Alprech Cape, Marly meadow, Warrens, Valley of Denacre, Dunes of Ecault, Ravine of Pitendal, Romelaère, Landes plateau, Platier of Oye, Cord between Leeck and Petite Clemingue, Bachelin-Tourniquet, Vivier Sainte-Aldegonde, Aa Valley, Dunes of the Fort Vert, Bay of Canche, Mount Saint-Sylvestre, Wood of Haringzelles, Fond de la Forge, Grand Bagard, Top Schoubroucq, Salperwick Marsh, Marsh of Houlle Moulle, Vivier Saint-Eloi, Grand Marais, Chapelle de Guémy, Marsh of Condette, Dunes of Fort-Mahon, Gris-Nez Cape, Dunes of Berck, Mount Saint-Frieux, Bay of Wissant, Communal of Hardingen, Eperlecques Forest, Lake of Ardres, Authie Bay, Blanc-Nez Cape, Dunes of Mayville, Dunes of Stella-Merlimont, Reedbed of Wimereux, Marsh of Guines
- Sites managed by environmental associations (ex: the Nature Areas Conservation Agency – Conservatoire des Espaces Naturels – CEN):
 - Sites of CEN : Communal of Saint-Josse, Fortress of Mimoyecques, Moors of the Moulinel, Marsh of Tigny, Mount of the Calique, Basins of the pont d'Ardres, Marsh of Warnier, Marsh of Beaumerie-Saint-Martin, Marsh of Montreuil, Battlements of Montreuil, Communal of Sorrus, Marsh of Villiers, Cavity of Etaple, Domain of the Rohart, Wetlands of the former quarry of Dannes, Hills of Dannes-Camiers, Molinet, Coast of Escoeuilles, Meadows of Isques, Coupe de l'Herpont, Meadows of the three firs farm, Farm of the Aigrettes, Marsh of the Commandance, Lostebarne and Woohay, Ferme aux trois sapins, Ferme des aigrettes, Marais de la Commandance, Lostebarne et Woohay, Deposition grounds of VNF (Voies Navigables de France) No. 25 and 26, Cave and lawns of Acquin-Westbécourt, Hills of Wavran-sur-l'Aa, former quarry of Cléty.

Beyond these instruments, there are on the coast a Master Plan for Planning and Waters Management (Schéma Directeur d'Aménagement et de Gestion des Eaux – SDAGE) and several Plans for Planning and Waters Management (Schéma d'Aménagement et de Gestion des Eaux –SAGE) that also deal with the coastal waters. The Littoral Conservation Agency (Conservatoire du Littoral) and the County Council are major stakeholders in the area. The County Council started a land policy and enables the sustainable management of many coastal and maritime areas.

2.2.4 Migratory route for species

Dover Strait's shallow waters are important for the migration of fish and cetaceans as commented previously. Fishes (e.g. the horse mackerel) are the most important water migratory animals using or passing through the Dover Strait although some scientists think that common dolphins, bottlenose dolphins and long-finned pilot whales also migrate using this corridor. This strait is also a migration route of international importance, with over 250 bird species recorded per year, including rare species⁵⁰. In the South of Cap Gris-Nez, Pas-de-Calais, Picardy dunes play a key role for migratory birds. Flemish dunes, including the massive Wissant, Fort Vert and above the dunes of Dunkerque, welcome exceptional species such as *Parnassus* and *Marsh Helleborine*.

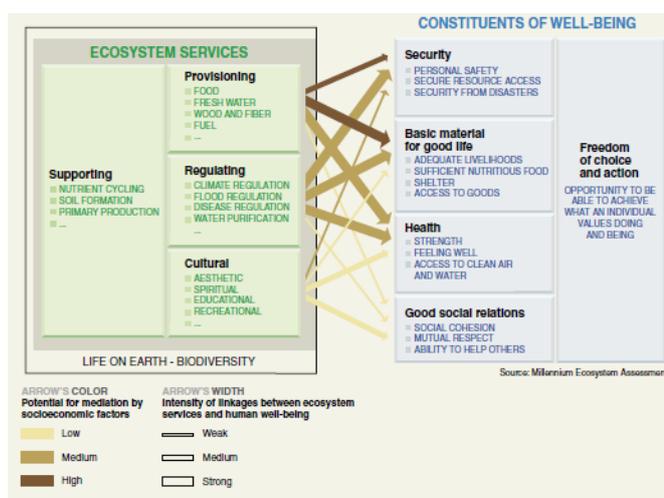
Estuaries of Canche, Slack and Authie are also remarkable environments whose morphology changes with the combination of marine and river dynamics. In the South, sediments transported by the sea are accumulated. These salt marshes shelter rich halophytic species, such as *Salicornia*, *Obiones Portulacoides*, etc. The Northern estuary of Slack formed by coarse elements, hosts harbour seals (*Phoca vitulina*). Canche and Authie are considered important areas for migratory fish populations⁵¹.

⁵⁰ LUC (2013), Piloting an approach to Seascape Character Assessment in the Dover Strait

⁵¹ Direction régionale de l'environnement (2008), Profil environnemental Nord-Pas de Calais , tome 1 : Enjeux régionaux

2.3 Significance of ecosystem services to the local livelihood

An ecosystem is a dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit. Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling .



The figure is taken from the MEA synthesis report, which depicts the strength of linkages between categories of ecosystem services and components of human well-being that are commonly encountered, and includes indications of the extent to which it is possible for socioeconomic factors to mediate the linkage (for example, if it is possible to purchase a substitute for a degraded ecosystem service, then there is a high potential for mediation). The strength of the linkages and the potential for mediation differ in different ecosystems and regions. In addition to the influence of ecosystem services on human well-being depicted here, other factors—including other environmental factors as well as economic, social, technological, and cultural factors—influence human well-being, and ecosystems are in turn affected by changes in human well-being.

The Dover Strait is particularly important for its ecosystem, biodiversity and natural environment (including landscape) value. Several activities that have a significant role in the local economy are based on nature, such as fishery and nature-based tourism. Furthermore, the land/seascape value of the strait comprises a significant resource in terms of identity culture for the inhabitants of Kent and Pas-de-Calais. The seabed features many wreck sites, with examples of boats and shipping going back to the Bronze Age⁵². Complying with the European Landscape Convention (which also covers coast and marine areas) will be important for an area as significant as Dover Strait.

2.3.1 Significance to local economy

► Kent, UK

Nature plays a key role in the economic activity of the area. The preserved nature on the coast determines the attractiveness and the economic opportunities of the area. Thus, some pillars of the economy depend largely on the quality of the ecosystems. The most important regional economic activities are fishery and nature-based tourism. These sectors contribute not only to the local economy, but also to the local employment.

⁵² NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

The recreational boating activity linked with the consistent tourism generates in particular traditional employments. However, biodiversity and natural environment support also specialist industrial and research jobs in innovative activities using cutting-edge technologies and materials development.

► **Pas-de-Calais, France**

The principals ecosystems services, which have perceptible significance to the local economy are provisioning services (fisheries and agriculture) and cultural services (educational, recreational, tourism)⁵³.

Fishing centralizes many jobs in the Boulonnais, where focuses the majority of fishing and processing. However, the future of regional fisheries is uncertain given the depletion of fish stocks, in particular fishing areas frequented by the regional fleet (cod, whiting, hake, sole); the common fisheries policy imposes restrictions to preserve the resource.

The tourism contributes to economic regeneration of the region and its change of perceptions (first industrial region before). The touristic offer is also diverse. It relies few major facilities such as the National Sea Center at Boulogne-sur-Mer (Nausicaa) but also on the reputation of great outdoors such as the site of Caps.

2.3.2 Social significance

► **Kent, UK**

Various ecosystem services provided by the Dover strait have important contribution to the social welfare. For instance, the provisioning services provided support the local livelihood through the provision of fisheries and agricultural products. Finally, the ecosystem also provides important cultural services that contribute to local population's livelihoods in terms of enhancing their spiritual and inspirational well-being, providing recreational opportunities and aesthetic beauty.

► **Pas-de-Calais, France**

Fishery, with its high presence in the area, contributes to increase the average employment rate of Nord-Pas de Calais. The embarked seamen are not numerous, but the fishery industry involves a high number of ashore employment. Concentration around the chain of seafood is very strong particularly in the Boulonnais, where more than 4,000 jobs (more than 3 times, compare to the employment on sea) and 182 companies work on this activity. Turnover amounted to one billion Euros. However, this industry is fragile and has lost many jobs in the past years⁵⁴.

The region has several advantages to continue developing nature-based tourism. Pas-de-Calais has a large diversity of landscapes and natural environments. Dunes, cliffs, estuaries and marshes contribute to beauty of the coastline, highly attractive and so the spiritual and inspirational well-

⁵³ Consultation of Pas-de-Calais County Council, in the context of the baseline study

⁵⁴ Direction régionale de l'environnement, de l'aménagement et du logement Nord-Pas de Calais : <http://www.Nord-Pas de Calais .developpement-durable.gouv.fr/>

being of the tourists and inhabitants. Furthermore, the landscape (forest, coastline, marshes, etc.) is an important place of natural heritage discovery⁵⁵.

2.3.3 Cultural significance

As stated previously, the area has a strong cultural history heritage. Defence and invasion form an important reference in the cultural landscape. Features include the Tudor coastal defences of Henry VIII at Deal and Walmer Castle with their counterpart in Calais, when this part of France was ruled by England. In March 1899, the first international wireless transmission was sent from Wimereux, France and received at South Foreland lighthouse, near Dover: "Greetings from France across the ether"⁵⁶.

The Conseil Général of Pas-de-Calais and Kent County Council are engaged in a process of preservation and enhancement of natural and cultural heritage of the Dover Strait. The project plans to jointly propose the classification of the strait on the Natural World Heritage List of UNESCO. Both sides of the Strait are working on identifying and valuing the key features of the area with the contribution of UICN. The Dover strait could become an outstanding universal value. It also provides important cultural identities to the local residents who live in the region.

► Kent, UK

Ecosystems services provide cultural significance through outdoor activities and recreation, values in education and significance of heritage. The landscape and seascape are nationally designated as Heritage Coasts and Area of Outstanding Natural Beauty (AONB). It provides great value for tourism and recreation. Heritage Coasts in England represent stretches of the most beautiful, undeveloped coastline, which are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors. The area is also a route for religious pilgrimage. Regarding educational value, protected areas are also used for scientific research and amateur nature studies.

► Pas-de-Calais, France

First of all, the stop of mining activity and many industries in the 1980-1990 decades caused a necessary reconversion of territories. This was accompanied by the development of an identity focused on the territory. Local and regional actors wanted to transform these areas into witnesses of culture, history and common values⁵⁷.

Regular major cultural and sportive events based on the natural environment are organised in the region due to its localization and meteorology: international kite meetings in Berk (500,000 visitors), the Enduropole in Le Touquet (motorcycle race in the dunes and on the beach, 300,000 visitors), sand sculptures in Hardelot (80,000 visitors), etc. Major races regularly set off from Dover strait (Calais Round Britain, Tour de France à la voile), and all these events bring the public into contact

⁵⁵ Direction régionale de l'environnement (2008), Profil environnemental Nord-Pas de Calais , tome 1 : Enjeux régionaux

⁵⁶ LUC (2013), Piloting an approach to Seascape Character Assessment in the Dover Strait

⁵⁷ Direction régionale de l'environnement (2008), Profil environnemental Nord-Pas de Calais , tome 1 : Enjeux régionaux

with the world of sailing. The whole Channel reconnects with its historic links with famous navigators⁵⁸.

In addition, the Two Capes Heritage Site (Figure 13) in Pas-de-Calais has been recently labelled “Grand Site de France” as commented previously. This label guarantees, amongst others, a conservation of the ‘spirit’ of the site and a quality of visitors’ experience⁵⁹. Cultural factor is also an important part of the management of the site, where History and Culture permanently reside. Cultural mediation tools are developed by the site manager and numerous cultural stakeholders, within historical interpretation of the Heritage Site. Furthermore, internships and discovery days are organised for schoolchildren, students and environmental associations during the whole year.



Figure 13: Two Capes Heritage Site⁵⁵

⁵⁸ Channel Arc Manche Integrated System – Thematic plates about the Channel area: Recreational yachting. Available at: https://camis.arcmanche.eu/stock/files/user4/6_Recreational_yachting.pdf

⁵⁹ Réseau des grands sites de France; <http://www.grandsitedefrance.com/en/the-label.html>

2.4 Main biodiversity pressures and related impacts

Dover strait may face several pressures on biodiversity due to human activities, but also natural pressure. Major risks come from increased maritime traffic, coastal developments, air pollution, invasive species, and changing weather conditions. As the figure below shows, there were 47 accidents, pollution events and shipwrecks over the past 50 years close to sensitive areas within the Dover strait.

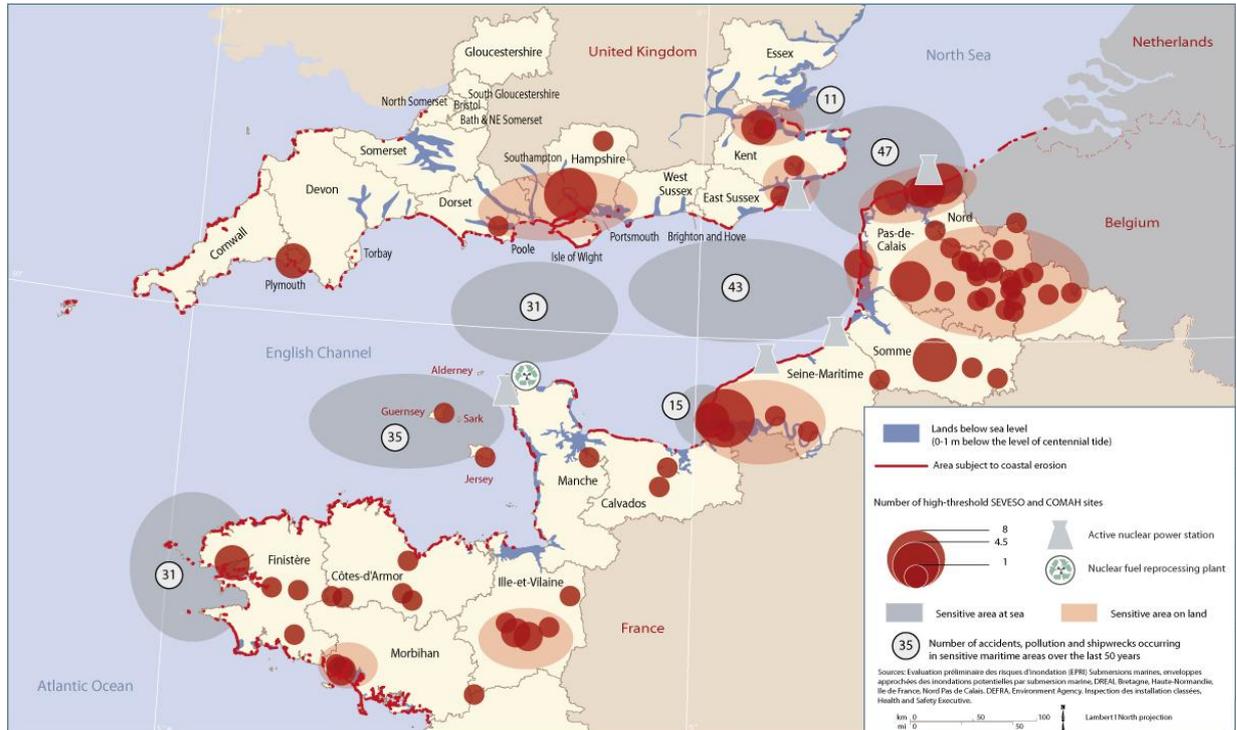


Figure 14: Natural hazards and industrial risks in the English Channel

Source: Cross Channel Atlas website

2.4.1 Human activities

About 25% of world maritime traffic are transiting in the Dover strait jointly with the first passenger line in Europe and with a high fishing activity. Consequently, human activities do exert pressures on biodiversity and natural environment.

The Dover Strait is the busiest shipping lane in the world having many ships with hundreds of thousands of tons of hazardous materials passing through. Much of the crossing traffic is also made up of high-speed ferries carrying as many as 2,400 passengers⁶⁰. These cargoes, if accidentally released into the sea, could have disastrous effects on the environment, marine life and the coastlines of England, France and the North Sea States. The passage of ships through the

⁶⁰ Maritime & Coastguard Agency website: http://www.dft.gov.uk/mca/mcgao7-home/emergencyresponse/mcga-searchandrescue/mcga-theroleofhmcoastguard/mcga-hm_coastguard-the_dover_strait.htm

Dover Strait is further complicated by its narrowness and the presence of strong tides, sandbanks, shoals and a great deal of concentrated cross-channel traffic. Even without any shipping accident, the intensity of up, down and cross-Channel traffic puts pressure on marine ecosystems⁶¹. Air quality is also a significant environmental challenge of maritime transport. Air pollution from shipping emissions is an area of concern in Dover town with vehicle emissions from traffic congestion adding to this problem⁶². Visibility can be reduced because of air pollution, increasing the risk of collision and decreasing the welfare of the inhabitants.

Furthermore, coastal developments, as dykes or dock, alter marine currents⁶³. These also have an impact on marine ecosystems and on coastal erosion and therefore, on the risk of maritime submersion in the context of sea level rise and multiplying climate hazards.

On the British side of the strait, the environmental state faces pressures due to high visitor numbers and tourism and recreational activities carried out in the areas along the coast, which are Natura 2000 sites⁶⁴. In case urban developments close to these sites expand, recreational pressures on these areas might intensify. Increased recreation may create trampling and species disturbance, which could affect grasslands and coastal wetlands. Sites close to main roads and urban areas may face air pollution issues due to road traffic and urbanisation effects due to fly tipping, vandalism, etc. The Pas-de-Calais region faces the same pressures. Tourism and leisure activities in the areas along the coast may represent pressures on biodiversity and disturb natural balance due to high visitor numbers (around 1 million every year only for “Two Capes Heritage Site”). Visitors in “Two Capes Heritage Site” may destroy also ground vegetation by trampling and disturb some species. For instance, some breeding birds such as *Fulmarus glacialis*, *Rissa tridactyl* and *Falco peregrinus* leave their natural habitats due to the touristic presence on the edge of the cliffs⁶⁵. Furthermore, tourism and

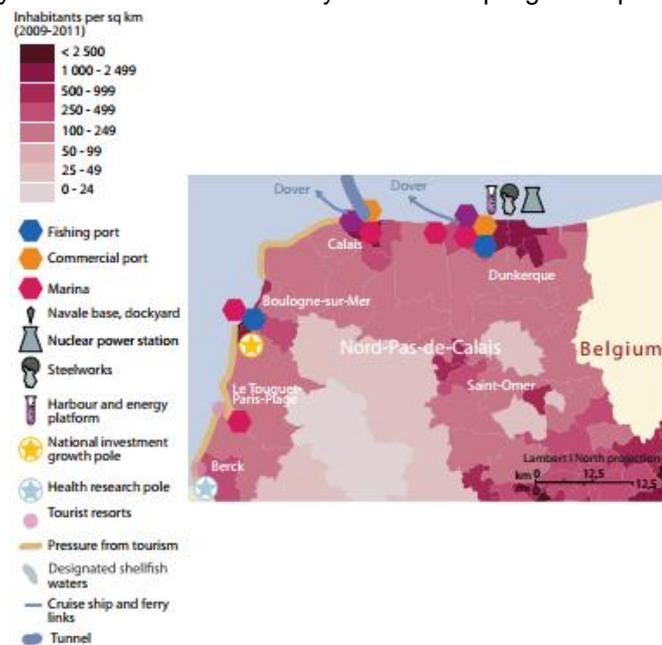


Figure 15: Infrastructures and main human pressures in the French side of the Dover strait¹

⁶¹ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

⁶² NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

⁶³ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

⁶⁴ Dover District Council (2011) Green Infrastructure Strategy

⁶⁵ Eden 62 (2010), Bilan d’activité 2010 – Site des deux Caps

leisure activities might cause a growing urbanisation and thus a standardisation of the landscapes. Waste generation and GHG emission due to the transport increase with the visitor numbers.

As presented in Figure 15, human pressures are located mainly in the coast cities in the French side, where are concentrated population and tourism, and above all, industries and infrastructures. The industrial sector is, historically, very important in the region Nord-Pas de Calais. Originally focused on coal and textile production, the industrial sector is led, nowadays by the automobile industry. Hundred and fifty years of heavy industrialization have left traces on the environment: polluted sites and soils that compromise the reallocation of certain land, subsoil disorders related to mining, toxic sediments and poor water quality. The industrialisation of the region and the results associated, including in a more recent period (growing urbanisation - from 250 to 2,500 inhabitants per km² in Dunkerque, Boulogne-sur-Mer and Calais between 2009 and 2011, road traffic, construction of high-risk infrastructures (SEVESO) such as the Gravelines nuclear power plant – which is doubled on the English side with Dungeness power plant, etc.) represent an important driver of pressure on biodiversity under normal condition. This might be enhanced during pollution or accident events. Industrial discharges bring also chemicals (pesticides, HAP, PCB, heavy metal) into water, sediment and living organism⁶⁶.

2.4.2 Natural pressures

Due to several factors, Dover's environmental state is at risk. Dover Strait's weather conditions are liable to rapid change. Even in comparatively light winds, the strong tides can give rise to rough seas with steep breaking waves. Visibility is often poor because of dense fog, even in strong or gale-force winds, and causes difficulties for navigation⁶⁷. These weather conditions may affect maritime transportation and increase the risk of collision and accidents. Moreover, the high density of maritime traffic focuses and enhances the poor weather conditions as discussed.

Earthquakes occurred several times in the history of Dover Strait: 1580, 1776, and 1950⁶⁸, with a magnitude of around 4. In 2007, an earthquake occurred in Kent and the most affected city was Folkestone. It affected also Deal, Dover and Ashford and it was felt even on the other side of the Dover Strait in Calais. The earthquake in 2007 was at that time the largest in Britain⁶⁹. Registered 4.3 on the Richter scale, the 2007 Kent earthquake caused mainly structural damage (474 damaged properties, power cut for several hours)⁷⁰. The cost of cleaning up the earthquake was estimated to be more than £20million⁷¹.

⁶⁷ Maritime & Coastguard Agency website: http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-searchandrescue/mcga-theroleofhmcoasguard/mcga_-_hm_coastguard_-_the_dover_strait.htm

⁶⁸ Wikipedia: http://en.wikipedia.org/wiki/Dover_Straits_earthquake_of_1580

⁶⁹ The Guardian: <http://www.theguardian.com/uk/2007/apr/28/theobserver.uknews>

⁷⁰ BBC News: http://news.bbc.co.uk/2/hi/uk_news/england/6602677.stm

⁷¹ Kentnews.co.uk: http://www.kentnews.co.uk/news/earthquake_clean_up_costs_could_hit_16320million_1_1031489

Invasive species are a major threat to local ecosystems and biodiversity in general in the Dover Strait. Ports and maritime transportation activity are a gateway for many invasive animal species, which then benefit from transmission land and river. Channels, for example, artificially connect different watersheds promoting the transfer of many invasive species. Some species carry potentially dangerous pathogens for humans or endemic species. Non-native marine life, in particular, the species that are released in ballast water, represents difficulty for native wildlife and is a biodiversity challenge for the strait⁷². Species such as the highly invasive carpet sea squirt is a good example.

- **Several marine non-native species are present around Kent.** Some of them are well established, while some are relatively new arrivals. Some species, such as Wireweed, *Sargassum muticum*, Slipper limpets, *Crepidula fornicata* have occurred in Kent for many years and, have possibly **reached an equilibrium position**. However, they can frequently represent a significant component of shore communities, sometimes **dominating in the place of similar native species**, such as the sword razor, the European sting winkle, *Ocenebra erinacea*. For example, a highly invasive colonial seasquirt, *Didemnum vexillum*, was recorded in Kent. This was found on the shore, whereas all previous UK records were restricted to harbours, marinas and other fabricated structures. The species can quickly form gelatinous sheets, which **smother native species** with resultant impact on biodiversity⁷³.
- **In Nord-Pas de Calais, 55 invasive flora species** were recorded in 2005. The floating primrose-willow (*Ludwigia peploides*) is particularly intrusive in the marshes and streams of Flanders. In 2011, **44 invasive fauna species** were recorded, with 51.5% living in an aquatic environment, 28% in a wet environment and 20.5% in a terrestrial environment. In coastal areas, invasive species have become inevitable. They **cause interspecific competition for food or habitat**. For example, the introduction of two Asian decapod crustaceans (*Hemigrapsus sanguineus* and *Hemigrapsus takanoi*) on the French coast represents a threat to biodiversity and the functioning of coastal ecosystems (the decapod green crab (*Carcinus maenas*), for example). These two species are located in Berck and Dunkerque, and are overabundant in the North side of Boulogne-sur-Mer. They colonize all rocky coasts and port areas. The arrival of *Ensis directus* in 1991 has also radically changed marine ecosystems⁷⁴.

⁷² NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

⁷³ Kent Biodiversity Partnership (2011), The state of Kent's Wildlife. Available at: <http://www.kentwildlifetrust.org.uk/sites/default/files/Kent's%20Wildlife%20Book.pdf>

⁷⁴SRADT Nord-Pas de Calais (2012), La stratégie régionale pour la diversité, rattachée à la Trame Verte et Bleue. Available at : http://www.nordpasdecals.fr/upload/docs/application/pdf/2013-01/volet_biodiversitetrame_verte_et_bleue_du_sraddt.pdf

Climate change has also an impact on the biodiversity of the region. The *Observatoire Climat* studied in 2012 how the climate change influences the biodiversity and showed the following results: a decrease number of breeding birds, the development of meridional flora species (*Limodorum arbotivum*), and an early development of some flora species⁷⁵.

The sea level rise indicates vulnerable areas to flooding (marine submersion) such as Sandwich and Pegwell Bay and to the north of Deal⁷⁶. Coastal erosion causes coastal squeeze, and may be intensified by visitors. In the French side, the lands that are susceptible to marine submersion are located all along the coast. When strong tides and heavy rainfall occur at the same time, some areas such as Calais and Côte d'Opale may experience severe floods. Changes in the coastline are spatially variable: they depend on the geological nature of the coastline, some weather

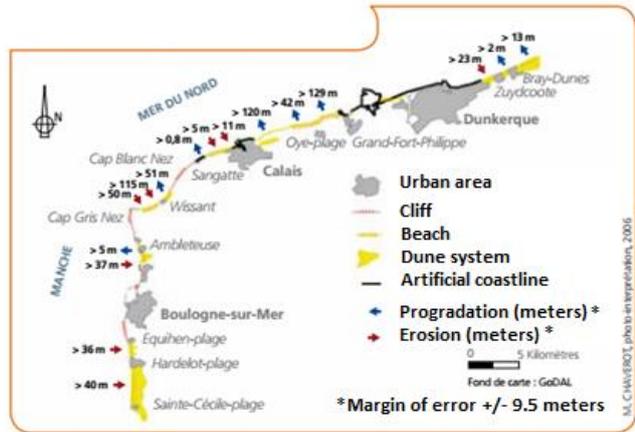


Figure 16 : Evolution of Nord-Pas de Calais' coastline¹

events and current sea level rise. Coastal erosion is the main natural pressure on biodiversity. It is an inherent issue due to the maritime current: the sea-floor rises steeply from the depths of the Atlantic, producing strong currents, which combined with high tidal ranges, have long eroded the adjacent coasts. Some parts of the coast may be subject to erosion of more than 115 m. On the contrary, some others parts are subject to a progradation (growth of the coast into the sea), with a coast advancing over 129 m.

⁷⁵ Observatoire Climat Nord-Pas de Calais - <http://www.observatoire-climat-npdc.org>

Observatoire Climat Nord-Pas de Calais (2012), Chiffre et donnée de l'Observatoire Climat Nord-Pas de Calais : Premières données de l'observatoire Climat.

⁷⁶ Dover District Council (2011), Green Infrastructure Strategy

3 Responses for an integrated management of biodiversity and natural environment

This chapter describes the responses that have been implemented in the Dover Strait, aiming at and/or contributing to an integrated management of biodiversity and natural environment. Responses that have been implemented in the Dover Strait to address human and natural pressures exerted on biodiversity and natural environment are policies and other initiatives and actions supported by public and/or private entities. They contribute partly to or aim directly at an increased integration of biodiversity and natural environment in the socio-economic development of the territory. Only few of them are designed in a cross-border framework. These responses are described below.

3.1 Policies

European policies

As presented previously, the Habitats and Birds directives are widely implemented in the area of the strait. Aside from them, other key EU legislations the strait has to comply with include Marine Strategy Framework Directive⁷⁷.

Regarding to fishery policy, both UK and France adopt the Common Fisheries Policy (PCP). Due to decreasing fish stocks (especially cod, whiting, plaice and sole in the English Channel), a Common Fisheries Policy has been implemented in 2003. It allows reconciling the principle of sustainable management of fisheries resources and the socio-economic and territorial imperatives of fishing activities: quota reduction, modification of fishing gear, etc. The financial support is made by the European Fisheries Fund (EFF).

National policies

Regarding maritime traffic policies, in both France and the UK, the National Laws require compliance with the International Regulations for Preventing Collisions at Sea⁷⁸.

⁷⁷ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

⁷⁸ Maritime & Coastguard Agency website: http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-searchandrescue/mcga-theroleofhmcoasguard/mcga - hm_coastguard - _the_dover_strait.htm

3.2 Initiatives and actions

3.2.1 Cross-border initiatives and actions

Integrated management of biodiversity and natural environment

▶ **CHARM project (2008 – 2012)**⁷⁹

The CHARM (CHannel integrated Approach for marine Resource Management) programme is a Franco-British collaboration funded by Interreg III A. Its multidisciplinary integrated approach offers decision makers a status report of the English Channel ecosystem and a range of tools based on scientific knowledge for the sustainable management of living marine resources.

The obtained results were:

- Online tools generating maps from the data collected;
- Multi-decisional management tools for the use of decision-making organisations;
- Fisheries atlas with factsheets about fishing activity in the Channel;
- Public conference and a short film introducing the project actions.

▶ **CAMIS (Channel Arc Manche Integrated Strategy) (2008 – 2013)**

The Franco-British co-operation project CAMIS is co-funded by the Interreg IV A France (Channel) – England European programme. Its aim is to develop and promote the implementation of an integrated maritime strategy in the Channel area. This strategy sets the first step towards the regional implementation of the European Union Integrated Maritime Policy. Amongst its objectives, CAMIS also aims to develop concrete co-operation actions in fields such as workforce development, innovation and maritime clusters, transport and maritime safety.

▶ **CRESH (Cephalopods Recruitment from English Channel Spawning Habitats) (2009 – 2013)**

The project CRESH (Cephalopods Recruitment from English Channel Spawning Habitat) is part of the programme INTERREG IVA France (Channel) - England. Research focuses on the resources used in the English Channel (cuttlefish and squid) and habitat of stages preceding recruitment (eggs and juveniles) in these species. Thus exploited both by French and English fleets, cephalopods represent a growing income for fishermen. The project proposes to combine different statistics and to update the estimates of stock and recruitment (degree of restocking by juvenile / eggs). From the data collected, the project will also provide recommendations to fishermen and their partners for a sustainable management of cephalopods⁸⁰.

⁷⁹ CHARM: <http://www.charm-project.org/en/>

⁸⁰ Cephalopods Recruitment from English Channel Spawning Habitats: <http://www.unicaen.fr/ufr/ibfa/cresh/>

► **PANACHE (Protected Area Network Across the Channel Ecosystem)⁸¹ (2011 – 2015)**

The project is led by the French Marine Protected Areas Agency and brings together 14 partners with technical, stakeholder engagement and management expertise (including Kent wildlife trust, Marine institute, Ifremer Boulogne and Port de Dunkerque). The aim of PANACHE is to develop a stronger and more coherent approach to the management, monitoring and involvement of stakeholders for Marine Protected Areas (MPAs) in the Channel. There are significant efforts taking place in England and France to use MPAs to meet biodiversity protection obligations. This project will provide also the mechanism to ensure that approaches being taken on either side of the Channel are more coherent and effective. The project also provides for the development of joint strategies for protecting birds in those coastal areas.

Developing knowledge and research

► **Determination of Pertinent Indicators for Environmental Monitoring: a Strategy for Europe (DIESE) (2008 – 2013)**

The Franco-British co-operation project DIESE was led by University of Havre (FR) and has as partners among others University of Littoral – Côte d’Opale and Marine Biological Association. The aims of the project were the risk evaluation of endocrines, mutagens and immunotoxics compounds in marine ecosystems and the development of sustainable aquatic environments.

Two key actions were implemented:

- Biological studies and maps of the Channel area for controlling the impact of contaminating chemicals in marine ecosystems;
- Dissemination of knowledge obtained through the relevant stakeholders.

The main results were:

- An integrated biological index for mapping the level of marine environments contamination;
- An analysis of the chemicals impact on the Channel’s marine environment⁸².

► **MEMO (Mnemiopsis leidyi: Ecology, Modelling and Observation) (2011 – 2014)**

The MEMO project is a cross-border initiative led by Instituut voor landbouw en visserijonderzoek (Institute for agricultural and fisheries research in Belgium), which involved partners from Belgium, The Netherlands, England (CEFAS) and France (University of Littoral - Côte d’Opale). The aim is to have a better understanding of the presence, behaviour and impact of comb jelly in North Sea and to develop models to assess the ecological and environmental impact of Mnemiopsis Leidyi.

⁸¹ Agence des aires marines protégées – Projet PANACHE: <http://www.aires-marines.fr/Partager/Relations-europeennes/PANACHE>

⁸² Université du Havre, projet DIESE: <http://www.univ-lehavre.fr/recherche/diese/diese-background.php>

Three key actions were implemented:

- Development of standards procedures for identification, monitoring potential habitat and dynamic population of invasive species;
- Study of the physiology and potential predators of the species through mathematical models;
- Evaluation of the potential environmental and socio-economic costs of the impact of these invasive species⁸³.

Sustainable infrastructure and transport

► Connect2Compete (C2C) (2007 – 2011)

The C2C project was a cross-border initiative led by SEEDA (UK), which involved partners from Belgium, England (Dover Harbour Board, Portsmouth International port) and France (Regional Council of Nord-Pas-de-Calais, Chamber of Commerce and Industry Côte d'Opale). The aim was to **enhance the competitiveness and accessibility of the Channel and North Sea ports through the development of a more efficient and sustainable transport network.**

Two key actions were implemented:

- Cross-border studies on current and future logistics trends across North West Europe and on the potential for developing rail freight and diversify the business while reducing its carbon footprint;
- Funding of rail infrastructure construction or modernisation work in partner ports.

The main results were:

- Strategic and cross-border framework on the port infrastructure for the period 2010 – 2015;
- Improved rail connections;
- Project for the construction of a rail motorway between the port of Calais and Northern Europe⁸⁴.

⁸³ Instituut voor landbouw en visserijonderzoek – MEMO Project: <http://www.ilvo.vlaanderen.be/memo>

⁸⁴ [E.U Interreg IV A France \(Manche\) Angleterre \(2013\), Projets maritimes – cap sur les résultats. Available at: http://interreg4a-manche.eu/index.php?option=com_content&view=article&id=233%3Acatalogue-des-projets-maritimes&catid=111%3Acatalogues&Itemid=77&lang=fr](http://interreg4a-manche.eu/index.php?option=com_content&view=article&id=233%3Acatalogue-des-projets-maritimes&catid=111%3Acatalogues&Itemid=77&lang=fr)

► FLIP (Fostering Long-term Initiatives for Ports)

General Council of Seine Maritime, based in Rouen, France, is the lead partner of an Interreg IVa Channel program project called FLIP. Nine partners from the UK and France contribute to the project. **The project aims to promote a sustainable cooperation between small & medium sized ports in the Channel area.** The project seeks to:

- Increase and reinforce **cooperation between the ports**, the wider economy and the link with the town;
- Increase cross border sharing of best practices between small and medium sized ports **to promote innovative, sustainable and diversified port activities**;
- **Improve governance between the ports and their local communities** and making the most optimal use of available resources⁸⁵.

► PATCH (Ports Adapting To Change) (2008 – 2012)

PATCH is part-financed by the European Regional Development Fund (ERDF) under the Interreg IVA 2. Four countries are involved: UK (Port of Ramsgate, port of Portsmouth, port of Newhaven), France (port of Calais), The Netherlands (Zeeland seaports) and Belgium (port of Zeebrugge and port of Oostende). The project aims at promoting the cross-border cooperation between port authorities of small and medium-sized ports. Its objectives are to strength logistic functionality, promote economic activities, develop new markets, and strength port management and cross-border economic cooperation. The ports partners in the project want to develop several actions on cross-border level in order to strengthen the role of the ports in the cross-border logistic gateways, and to become hubs for new economic activities⁸⁶.

The project permitted to obtain among others two main results:

- Strategic recommendation for the future development of port planning;
- Installation of electronic road signs in the port of Calais⁸⁷.

In particular, one of the main enhancement themes is the research of energy efficiency. In this thematic, Calais, important logistic and travel hub of Dover strait, started a study in 2011 about the implementation of future renewable energies in its port. The main objectives are to increase green electricity production and reduce GHG emissions. After a multicriterial screening, six technologies are shortlisted: tidal energy and wave energy, solar energy by using a Stirling engine, production, storage and conversion of electricity from hydrogen fuels, recuperation of exhaust gas by using Advanced Maritime Emissions Control System, Liquefied Natural Gas and Piezo electricity.

⁸⁵ E.U Interreg Channel Programme FLIP Project – Fostering Long Term Initiatives in Ports. Available at: <http://whitstableharbour.org/wp-content/uploads/2010/11/Interreg-Channel-Programme-FLIP-bid-summary1.pdf>

⁸⁶ NOSTRA – Workshop n°4 Coast and Hinterland Economy - PATCH project “Ports Adapting To Change”

⁸⁷ Port Oostende – Patch Project: <http://www.portoostende.be/patch/patch.htm>

The study concludes that if tidal energy supply is the most economically viable method, complex integration systems and the impact on navigation are disadvantages for the port of Calais. The economic feasibility of using hydrogen or Stirling systems is not possible at the development stage of these technologies. However, the port has decided to deepen two methods by launching two further studies. One will focus on the implementation of piezoelectric systems. The other will detail the technical and economic feasibility to implement Liquefied Natural Gas storage and refueling equipment.

Sustainable tourism

► “Sustainable tourism” Program (2007 – 2009)⁸⁸

This action plan is carried out between the Natural Regional Park of Caps and Marais d’Opale and Kents Downs AONB in the framework of a European cooperation project Interreg IIIA. The program has several objectives:

- The emergence of environmental friendly behaviour within the NRP and the AONB;
- The promotion of the tourism development with high environmental quality benefits; and
- The enhancement of the heritage identity in both partner regions.

Various operations were resulted from this program:

- Creation of an bilingual Forum: providing examples of projects, experiences of stakeholders;
- Information and awareness: information and education of municipalities and public through creation of poster and booklet, thematic formation, implementation of a study on eco-tourism potential;
- Caravan hospitality management: information, technical guideline for communities;
- Motorised hiking management: survey on the problem, technical guideline
- Enhancement of heritage through the facilities: short exhibition on the discovery of the sites and local facilities in both languages;
- Valuation of the network of pubs hiking and walking trails: formation and creation of facilities in order to increase the attractiveness of the sites, creation of factsheets;
- Facilitate the reception and accessibility for all natural sites: creation of equipment for people with disabilities;and
- Valorisation of local products and endemic races.

⁸⁸ Espaces Naturels Régionaux Nord-Pas de Calais – Le tourisme durable en Caps et Marais d’Opale: <http://www.enrx.fr/fr/Loisirs-et-nature/Le-tourisme-durable/Le-tourisme-durable-en-Caps-et-Marais-d-Opale>

► **CAST(Coastal Actions for Sustainable Tourism) (2007 – 2013)⁸⁹**

Kent, Pas-de-Calais and West-Flanders experience similar issues in coastal tourism, the partners therefore seek common solutions. Coastal tourism in the partner regions has significant value but is in decline. To develop this important economic activity in a sustainable manner, improvements in product, quality, communication, marketing and research are vital. The CAST project aims to strengthen coastal tourism by identifying new opportunities to attract and retain visitors and improve products and services while guaranteeing the sustainability of tourism.

In order to achieve these objectives the project focus on a joint analysis of the area, common marketing actions, and a pilot study in coastal management. They strive to change perceptions through tools such as jointly branded campaigns, study trips, joint website about coastal activities⁹⁰.

3.2.2 At one-side level

3.2.2.1 UK initiatives and actions

Integrated management of biodiversity and natural environment

► **Kent Biodiversity Action Plan (Kent BAP)**

In 1994, UK launched its Biodiversity Action Plan, which emphasised on the need to integrate biodiversity as a component of sustainable development, while ensuring biodiversity is a positive part of all policies and programmes nation-wide. **In 1997, Kent BAP⁹¹ began to set out what needs to be achieved in order to safeguard a future for biodiversity.**

Many of the projects have received **huge financial support from the Heritage Lottery Fund and European Interreg funding** which has brought millions of pounds to the economy of Kent for the support of biodiversity. The **Environmental Stewardship agri-environment scheme** has provided further funding to farmers and landowners for wildlife initiatives. Other projects have received funding from **smaller grant aiding organisations and charities.**

Achievements for biodiversity can be seen and experienced across the Kent landscape. Until now, Kent BAP has produced **28 Habitat Action Plans⁹²**. Over ten years period in the whole Kent County, it has resulted among others in **3,150 ha of coastal & floodplain grazing marsh created** (increase of 46%), **5,400 ha of woodland being brought into good condition**, **1,800 ha of chalk grassland restored or enhanced**, and **979 ha of land acquired as new nature reserves by Kent Wildlife Trust⁹³**.

⁸⁹ NOSTRA - Workshop n°2 Tourism and cultural heritage - CAST(Coastal Actions for Sustainable Tourism)

⁹⁰ Knowledge and Expertise in European Program - <http://www.territorialcooperation.eu>

⁹¹ Kent Biodiversity Action Plan website: <http://www.kentbap.co.uk/>

⁹² Kent Habitat and Species website: <http://www.kentbap.co.uk/habitats-and-species/>

⁹³ Kent Biodiversity Action Plan (2010), Ten years of biodiversity achievements 2001-2010. Available at: http://www.kentbap.org.uk/images/uploads/KCC_BAP_10_Year_doc.pdf

► Biodiversity Opportunity Areas (BOA)

Natural Economy East Kent (NEEK) establishes functional habitat areas and wildlife networks in Biodiversity Opportunity Areas. BOAs are areas where conservation action could bring the greatest benefit for biodiversity. Existing area of biodiversity interest could become BOAs if they are expected to offer strategic opportunities for biodiversity enhancement⁹⁴. **BOAs are considered the regional priority areas of opportunity for restoration and creation of Biodiversity Action Plan (BAP) habitats.**

The area to the west of Dover Town and Dover and Folkestone Cliffs & Downs are BOA defined. Targets for the Dover and Folkestone Cliffs & Downs BOA include to **extend, reconnect, restore and enhance areas of chalk grassland**⁹⁵.

An approach to Seascape Character Assessment (SCA) in the Dover Strait

In 2012, Kent County Council commissioned LUC (Land Use Consultants) to undertake a pilot Seascape Character Assessment (SCA) to inform marine spatial planning in the Dover Strait. This is part of the NOSTRA programme, which is seeking to share ideas and best practice in marine spatial planning as applied to strait seascapes across Europe. The Dover pilot seeks to demonstrate how an assessment of the seascape covering the marine, intertidal and coastal zones can provide an evidence base to contribute to sound marine planning and management. This study followed the principles of the European Landscape Convention (ELC), which confirms the importance of 'seascape'. The aims of the ELC are to *"promote landscape protection, management and planning, and to organise European co-operation on landscape issues"*.

A SCA such as the one tested in the Dover Strait contributes to the delivery of ELC in the following ways:

- Identification and assessment of landscapes/seascapes;
- Developing objectives for the future of the seascape for Marine Spatial Planning;
- European co-operation: for straits such as Dover which cross national territories;
- Exchange of information;
- Consideration of transnational/transfrontier landscapes: as above for transnational seascapes such as the Dover Strait⁹⁶.

Furthermore, the SCA can be used as a Marine Planning tool. The Marine Strategy Framework Directive (MSFD) aims to achieve Good Environmental Status in Europe's seas by 2020. SCA can contribute towards the following requirements of the Directive:

⁹⁴ Biodiversity planning toolkit website:

<http://www.biodiversityplanningtoolkit.com/stylesheet.asp?file=05032010150608>

⁹⁵ Dover District Council (2011), Green Infrastructure Strategy

⁹⁶ LUC (2013), Piloting an approach to Seascape Character Assessment in the Dover Strait

- An assessment of the current state of the seas;
- A set of characteristics of Good Environmental Status offshore waters, with associated targets and indicators; and
- Provide a spatial framework for decision-making and monitoring progress.

SCA produces a spatial framework useful to many users and aspects of the marine environment such as fisheries, biodiversity, transport, maritime, historic etc. In seascapes such as straits, an SCA provides an effective method of integration to streamline future decision-making. Undertaking an assessment of sensitivity is a way of understanding how vulnerable or resilient a seascape is to change. The information contained within a SCA can provide a comprehensive evidence base for assessing sensitivity to change⁹⁶.

NB: The SCA will be extended to the entire strait, including the French coast and completed through NOSTRA in 2014.

Integrating biodiversity in planning

► National Planning Policy Framework

The National Planning Policy Framework⁹⁷ deploys Government's economic, environmental and social planning policies for England. Sustainable development should be achieved through the planning system, which means planning for people, places and prosperity. In relation to the natural environment, planning should help to deliver a healthy natural environment. To achieve this objective, the planning system should aim to conserve and enhance the natural and local environment by:

- Protecting high value landscapes including green infrastructure and networks of biodiversity;
- Minimising impacts on biodiversity and providing net gains in biodiversity;
- Mitigating climate change risks in new developments;
- Mitigating maritime and coastal risks.

► Dover's District Green Infrastructure Strategy

In 2011, Dover District Council developed its Green Infrastructure Strategy. This action plan provides a framework for protecting, managing and enhancing the District's Green Infrastructure and for ensuring that the quality of provision is maintained and enhanced. Dover District Council prepared the strategy in partnership with key organisations and other stakeholders including Natural England, the Environment Agency, Kent Wildlife Trust, the Royal Society for Protection of Birds and Kent County Council.

⁹⁷ Department for Communities and Local Government, England (2012), National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

Connectivity affects both people and wildlife. Green infrastructure provides opportunities to improve this connectivity issue. The promotion and development of green infrastructure can bring multiple benefits including biodiversity safeguarding for species and supporting more sustainable travel for people⁹⁸.

Sustainable tourism

► Green tourism initiatives by Visit Kent

Visit Kent has implemented a series of initiatives to support the integration of environmental concerns in tourism businesses. For instance, the Green Tourism Business Scheme involves currently members consisting of tourist attractions, accommodation providers, corporate offices, etc. Businesses that join are assessed by qualified graders on certain criteria, including energy and water efficiency, waste management, and biodiversity.

3.2.2.2 French initiatives and actions

Integrating biodiversity in planning

► Regional scheme of the Green and Blue Belt Network (SRCE – TVB)⁹⁹

The regional council of Nord-Pas-de-Calais is setting up the Green and Blue Belt Network initiative, with a strong structural ambition (despite a limited legal scope): to stop the loss of biodiversity by preserving and restoring networks of natural environments and their evolution, allowing species to interact and circulate. The preservation of biodiversity is also taken into account in planning decisions, particularly in territorial coherence schemes and local urban planning schemes, which need to show an integrated approach on the coastal area (water, urbanism, sea, risks etc.).

The region accompanies territories in their feasibility studies and the implementation of their projects. It also decided in 2010 to initiate and support series of restoration plans (species and groups of species). The Region has also supported the development of differentiated management and urban ecology, as well as the creation process of care centers for terrestrial wildlife and marine wildlife. It mobilised research partnership with the Foundation for Research on Biodiversity (FRB).

► Sensitive Natural Areas (Espaces Naturels Sensibles - ENS) policy

The ENS policy, responsibility of County Councils inscribed in the Town Planning Code, was created at the end of the 1970s. It enables County Councils to lead a land policy with a double objective of natural areas conservation and opening to the public. It is led in partnership with the Littoral and Lake Areas Conservation Agency (Conservatoire de l'Espace Littoral et des Rivages Lacustres),

⁹⁸ Dover District Council (2011), Green Infrastructure Strategy

⁹⁹ La Trame Verte & Bleue, SRCE – TVB Nord-Pas de Calais - <http://www.Nord-Pas de Calais.developpement-durable.gouv.fr/?-SRCE-TVB->

which substitutes the County Council as a property operator, in the coastal areas and wetlands of Audomarois. 4 396ha are concerned by the ENS policy on the studied area ; they are managed by the mixed association EDEN 62 on behalf this policy. Interventions (acquisition, planing, management, animation...) are funded by the Planing Tax (Taxe d'Aménagement).

Sustainable tourism

► **Regional Scheme in Sustainable Development of Tourism and Leisure 2005-2020**

This scheme is a reference framework with a tourism charter, which involve all the Nord-Pas-de-Calais's stakeholders. It invites each district to identify, according to its specificities, the subjects to develop locally, by organising a dynamic and sustainable development with all the stakeholders. In this framework, the educative and cultural role of a number of stakeholders has to be underlined: Mareis, Nausicaa, the port museum of Dunkirk etc.

Eighteen tourism sectors have been identified in Nord-Pas-de-Calais:

- Five sectors "**regional identity**", based on collective shared values carried by the majority of people who "make the region": cultural destinations, remembrance tourism, industrial tourism, maritime heritage, mining heritage.
- Five sectors to strengthen: business stays, river tourism, recreational and sporting activities, wellness and fitness, golf.
- Eight other sectors: boating, nature tourism and eco-tourism, gastronomy and regional products, parks and gardens, shopping, equestrian tourism, hiking, biking, horseback riding.

► **Creation of a new tourism destination in Pas-de-Calais: an area of outstanding natural beauty with human values**

Pas-de-Calais wanted to create a new sustainable tourism based on the human, natural and man-made environments respects. This kind of tourism is based on the values of the people who live here. Pas-de-Calais regional tourism committee is also setting up an initiative named "The Greeters made in Pas-de-Calais", which is an original concept from New York City. For tourists, it consists of meeting a resident, who will show them and told them about 'his' city. It does not replace in any case professional guides and the resident guide does not receive any income¹⁰⁰. It is for the visitor a rich opportunity to meet a "friend" and discover the region differently.

In addition, various sustainable tourism development kit were edited such as video, advertisement, website with presentation of the concept and advices, contact list¹⁰¹.

► **Departmental plan for walking and hiking routes (Plan départemental d'itinéraires de promenades et de randonnées - PDIPR)**

The PDIPR, County Council responsibility, was created by law in 1983. It concerns 1,047 km of hiking and equestrian trails in the studied area and 2,170 km in totality in the Pas-de-Calais County.

¹⁰⁰ Les Greeters Made in Pas-de-Calais - <http://www.greeters62.com/>

¹⁰¹ NOSTRA – Workshop n°2 Tourism and cultural heritage – Creating a new tourism destination

The main objectives are to maintain the network of rural paths and to ensure continuity of hiking trails. The plan represents an effective tool to manage and improve the paths network in compliance with the natural environment. It is also an opportunity to better organise the practice of hiking and develop territories. A trail inscribed into the PDIPR is protected. Communes are the main partners because their deliberation is required to register a trail to the PDIPR. This policy in favour of hiking is financed by the Planning Tax (Taxe d'Aménagement).

► **European Sustainable Tourism Charter**

The European Charter for Sustainable Tourism commits signatories to **implement a local strategy for sustainable tourism in Protected areas** such as Regional Natural Parks. Any form of development or tourism must: respect and preserve long-term natural, cultural and social resources, contribute positively to economic development and contribute to the development of individuals who live, work or stay in protected areas.

This Charter was developed by representatives of European protected, tourism sector and their partners. It promotes the practical application of the concept of sustainable development. **This charter is already implemented in Nord-Pas-de-Calais** in the Regional Natural Park of Scarpe – Escaut. The Regional Natural Park of Caps and Marais d'Opale is ongoing accession¹⁰².

Sustainable transport

► **Strategy for sustainable mobility in Pas-de-Calais (“Schéma Directeur Départemental de la Mobilité”)¹⁰³¹⁰⁴**

Mobility is a central and cross-cutting issue. It represents a real challenge for planning and sustainable development of the territories. Pas-de-Calais is now committed to a proactive approach in the framework of its own competencies. The strategy for mobility is a document that presents consistent policy guidelines both strategic and operational in order to meet local, regional and European issues in 2020. Strategic Guidelines for sustainable transport and mobility were involved in four main points:

- Promote mobility for all, promoting conditions of equal access to sustainable mobility;
- Develop intermodal and efficient transport systems to facilitate the transition from one mode of transport to another limiting downtime;
- Propose alternatives to car use wherever possible, such as carpooling, “transportation on demand”, and soft modes of transport (walking and cycling);
- Put mobility as an asset of the territorial excellence of Pas-de-Calais at the European, regional and national levels.

¹⁰² Europarc, section française: <http://www.europarc-fr.org>

¹⁰³ NOSTRA – Workshop n°4 Coast and Hinterland Economy - PATCH project “Ports Adapting To Change”

¹⁰⁴ NOSTRA – Workshop n°3 Green Traffic - A strategy for sustainable mobility

The implementation of the scheme in the territory is made through 69 actions (Territorial Contracts with local level governments, assistance in engineering, etc.). Various results of the scheme are obtained: 1€ pricing for bus transport, implementation of carpool areas, development of bicycle facilities, maintain mobility in rural areas and accessibility to public services, continue the implementation of regional and European cycle routes, ecological management and rational exploitation of the road for maintaining the development of flora along the road, etc.

Sustainable agriculture

► Project for a General Convention for maintaining agriculture in wetlands in the Artois-Picardie Basin

Under the National Action Plan for Wetlands, the Permanent Assembly of Chambers of Agriculture (APCA) and the Department of Ecology signed an agreement in 2011 for the development of agriculture in wetlands. This agreement aims to develop projects that respond to local issues and aim to develop economically viable and suitable wetland agriculture. The environmental ambitions are the conservation of grassland by an improved use of grazing on breeding farms, the farmers practices adaptation, extension and awareness of the ordinary biodiversity conservation problem.

This project of general-convention is currently under process. The objective of the action plan for maintaining agriculture in wetlands in the Artois-Picardie Basin is to propose and experiment solutions allowing a balance between maintaining and development of a viable agriculture and economically integrated in the territories and the conservation of wetlands and their functions.

The steering committee is formed by: the Water Agency Artois-Picardie, the Chamber of Agriculture of Nord – Pas-de-Calais Region, the Chamber of Agriculture of the Somme, the State, the Somme County Council, the Pas-de-Calais County Council, the North County Council and the Regional Council of Picardie.

► Protection and development of agricultural and natural semi-urban areas (Périmètre de Protection et de mise en valeur des Espaces Agricoles et Naturels Périurbains - PPEANP)

Agricultural and natural areas close to cities, that are threatened by the future urban development and related human pressures are concerned by this scheme. PPEANP policy complements other urbanism tools such as protected agricultural areas (*Zones Agricoles Protégées – ZAP*) and local planning schemes (*Plan Local de l'Urbanisme – PLU*). Departments can use PPEANP to deepen the policies they have already put in place, either in land or in the field of agricultural and suburban forest policies. Thus, this protection under a strong political decision can help preserving agricultural areas, reservoirs of biodiversity and ecological corridors that are present on the perimeter.

Networking for disseminating knowledge and promoting cooperation

► Actors Network of Naturalistic Nord-Pas-de-Calais Information (RAIN)

Created in 2008, the project RAIN gathers the Nord-Pas-de-Calais, the Regional Directorate of Environment (DREAL), associations and organisations working in naturalistic areas, but also local authorities, consultants, etc. All these network members, gathered around a common charter, are organised into thematic working groups.

The objectives of the project are to:

- Implement a comprehensive policy for inventory and identification of needs;
- Improve the quality and control of data;
- Facilitate access and exchange of information between actors;
- Establish rules for the dissemination and improve access to information on protected species and habitats;
- Enhance the naturalistic information by putting it at the service of preserving biodiversity¹⁰⁵.

3.2.2.3 Initiatives from private actors and business sectors

▶ Eurotunnel acting for preserving biodiversity

Eurotunnel is a cross-Channel operator which presents a set of environmental advantages: a fully underground link that prevents any interaction with the marine environment; electric locomotives that generate a low level of atmospheric pollution and only marginal greenhouse gas emissions. In particular, Eurotunnel applied a good practice in biodiversity protection after the Channel Tunnel's construction ended. This included the ecological monitoring of the surrounding environment (fauna and flora) on its two Terminals and the management of its various green areas. The Samphire Hoe is located at the foot of the Dover cliffs in Kent, which covers 30 hectares of land belonging to the Eurotunnel Group, and is managed in partnership with the White Cliffs Countryside¹⁰⁶. It was declared a nature reserve. It welcomes more than 100,000 visitors each year¹⁰⁷. This site received for the 9th time UK's "Green Flag" award for excellent ecological quality.

▶ Sustainable development of freight by John Shirley International Freight Forwarders Ltd¹⁰⁸

John Shirley International Freight Forwarders Ltd aims to lead by example in terms of their environmental record and carbon footprint. Based in Dover, the company base has deployed many environmental innovations and the company also promotes "green transport" though encouraging a switch from trucks to containers and by promoting transport routes with a lower carbon footprint. Their own staffs also take low carbon routes for travel and business. These good practices have been enhanced through involvement with Low Carbon Kent Business Network and EU projects such as FUSION.

To ensure the successful execution of the practice, advices have been taken on developing green initiatives (wood burners, green roofs, solar panels, etc.). Transport methods and routes have been analysed in order that the most environmentally sound freight solutions can be offered to customers. The observed results are a lower carbon footprint than many competitors, while

¹⁰⁵ Conseil régional du Nord-Pas de Calais : <http://www.nordpasdecals.fr/>

¹⁰⁶ Eurotunnel Group website: <http://www.eurotunnelgroup.com>

¹⁰⁷ Eurotunnel Group website: <http://www.eurotunnelgroup.com>

¹⁰⁸ NOSTRA – Workshop n°4 Coast and Hinterland Economy - John Shirley International Freight Forwarders Ltd

maintaining successful business. Furthermore, the company has been recognised with environmental awards.

► **Integrated management of biodiversity and natural environment promoted by Ports**

Ports in both English and French sides of the Strait are involved for a better integrated management of biodiversity and natural environment. Dover port has implemented an environmental management. Calais port has implemented an environmental policy and releases each year its annual report presenting the progress of its actions in the field of waste management, carbon footprint reduction, etc. It is the only French port to have the Ecoports certification demonstrating the integration of environment issues in business management. The Grand Port Maritime de Dunkerque also promotes an integrated management of natural environment in its activities.

► **Promoting sustainable tourism in the yachting sector**

The Green Blue initiative, launched in 2005, is an innovative environmental awareness programme set up by the British Marine Federation and the Royal Yachting Association. Its mission is to promote the sustainable use of coastal and inland waters by boating and watersports participants, as well as the sustainable operation and development of the recreational boating industry.¹⁰⁹

3.3 How responses have addressed key pressures on biodiversity and natural environment

The responses that have been implemented in the Strait are mapped on the following tables.

¹⁰⁹ Source: http://www.thegreenblue.org.uk/about_us.aspx

Table 8: Responses to address risks and pressures exerted on biodiversity and natural environment – Dover Strait (1/2)

Activities taking place in the Strait	Adding value to the local livelihood			Exerting pressures and impacting biodiversity and natural environment	Existing responses to address risks and pressures exerted on biodiversity and natural environment		
	Creating jobs	Creating revenues	Supporting identity and culture		English side	French side	Cross-border
Maritime transportation	✓	✓		Risk of boat collision and related risk of release of hazardous substances transported by boats	• Legislation compliant with the International Regulations for Preventing Collision at Sea	• Legislation compliant with the International Regulations for Preventing Collision at Sea	• Traffic Separation Scheme(TSS) / The Channel Navigation Information Service
				Invasive species			• Research project MEMO
				Air pollution			
				<i>Other pollution and pressures</i>	• Sustainable development of freight by John Shirley International Freight Forwarders Ltd • Integrated management of biodiversity and natural environment promoted by Ports	• Integrated management of biodiversity and natural environment promoted by Ports	
Terrestrial transportation	✓	✓		<i>All pressures / transversal</i>			• Connect2Compete • Eurotunnel
Ports services	✓	✓	✓	<i>All pressures / transversal</i>			• FLIP • PATCH • Connect2Compete
Fisheries	✓	✓	✓	Fish stock depletion	• Common Fisheries Policy	• Common Fisheries Policy	• Research project CRESH
Agriculture	✓	✓	✓	Biodiversity decline Decline of agricultural areas		• Convention for maintaining agriculture in wetlands in the Artois-Picardie Basin • Protection and development of agricultural and natural semi-natural areas	
Terrestrial / Coastal tourism	✓	✓	✓	Urban development, artificialisation of land, disturbance of natural balance, destruction of ground vegetation		• European Charter for Sustainable Tourism • Departmental plan for walking and hiking routes rremental	• “Sustainable tourism” program • CAST (Coastal Actions for Sustainable Tourism)
Maritime tourism			✓	Disturbance of natural balance Invasive species Pollution	• Green Blue initiative (Yachting sector)		

Table 9: Responses to address risks and pressures exerted on biodiversity and natural environment – Dover Strait (2/2)

	Creating risks and pressures, and impacting biodiversity and natural environment	Existing responses to address risks and pressures exerted on biodiversity and natural environment		
		English side	French side	Cross-border
Urban planning / territorial planning	Artificialisation of land Coastal development, coastal erosion, impact on marine ecosystems	<ul style="list-style-type: none"> National Planning Policy Framework Dover's District Green Infrastructure Strategy 	<ul style="list-style-type: none"> Regional scheme of the Green and Blue Belt Network Land planning tax 	
Marine planning		<ul style="list-style-type: none"> Seascape Character Assessment 		
Improving governance between actors and joint strategies			<ul style="list-style-type: none"> Actors Network of Naturalistic Nord-Pas-de-Calais Information 	<ul style="list-style-type: none"> FLIP (ports and local communities) PATCH (ports) CAST (Coastal Actions for Sustainable Tourism) Other cross-border projects

4 Governance

4.1 Analysing governance

Many public French and UK actors are involved in biodiversity and natural environment-related decisions or actions in the Dover Strait (Table 10). The scope of responsibilities of these actors are at national, regional and local levels. Nonetheless, we note a lack of a common and unique structure in charge of cross-border issues in relation with biodiversity and natural environment.

Ports are key actors who integrate environmental management in their activities. They contribute to support the development of sustainable transport. Eurotunnel is a key economic player in the area.

Table 10: Actors involved in biodiversity and natural environment decisions and actions

Designation
UK side
Kent County Council
Environment Agency
Kent Biodiversity Partnership
Natural England
Natural Economy East Kent (NEEK)
Joint Nature Conservation Committee
Kent Wildlife Trust
Kent and Essex IFCA
Marine Management Organisation
Dover Maritime Rescue Co-ordination Centre (MRCC)
British Maritime and Coastguard Agency
National Trust

Kent Wildlife Trust
RSPB
British Marine Federation / Royal Yachting Association
Ports (e.g. Dover Port)
Universities
French side (non-exhaustive list)
Conseil Général du Pas-de-Calais, Direction Europe et International
Conseil Régional Nord-Pas-de-Calais
Conservatoire du littoral
Agence des Aires marines protégées
Office National de l'Eau et des milieux Aquatiques (ONEMA)
Chambre d'agriculture Région Nord-Pas deCalais
Direction Régionale de l'Environnement, de l'Aménagement et du Logement Nord-Pas-de-Calais (DREAL)
Institution Interdépartementale de l'Authie pour le SAGE de l'Authie
SmageAa (Syndicat Mixte pour l'aménagement et la Gestion des Eaux de l'Aa) pour le SAGE Audomarois
SMCO (Syndicat Mixte de la Côte d'Opale) pour le SAGE Delta de l'Aa
SYMSAGEB (Syndicat mixte pour le schéma d'aménagement et de gestion des eaux du Boulonnais) pour le SAGE du Boulonnais
SYMCEA (Syndicat Mixte pour le Schéma d'Aménagement et de Gestion des Eaux) pour le SAGE de la Canche
Fondation pour la recherche sur la biodiversité
Centre régional opérationnel de surveillance et de sauvetage (CROSS)
Comité de gestion des poissons migrateurs (COGEPOMI)
Nausicaa, Centre national de la mer
Pôle métropolitain Côte d'Opale

Ports (e.g. Calais Port, Dunkerque Port)
Parc Naturel Marin
Institution des Wateringues
Universities
...

4.2 Cross-border governance

Governance in charge of cross-border cooperation in the Dover strait is historic on Maritime safety issues. More recently, a joint agreement implemented common works on other fields, such as tourism, sports, arts and culture. Nonetheless, there is no existing cross-border structure in charge of biodiversity and natural environment-related challenges.

Traffic Separation Scheme (TSS)

In the early 1970s, the Dover Strait became **the first Traffic Separation Scheme in the world approved by the International Maritime Organisation (IMO)**. Two lanes similar to motorways run through the Strait for inward and outward-bound traffic. **The Channel Navigation Information Service (CNIS)**, introduced in 1972, provides a 24-hour radio and radar safety service for all shipping in the Dover Strait. The UK, Dover Maritime Rescue Co-ordination Centre (MRCC) and the French Administration, CROSS Gris Nez jointly operate the CNIS. The Dover Strait is a mandatory reporting area, meaning that vessels over 300 gross tonnes are required to report to either Dover MRCC (South West Lane) or CROSS Gris Nez (North East Lane) before proceeding through the service area¹¹⁰.

Kent – Pas-de-Calais Agreement

A Kent – Pas-de-Calais Agreement was signed in 2005: this centred on **joint activities including tourism, sports, arts and culture**. Since 2009, this agreement had also envisaged a joint bid for UNESCO World Heritage status for the strait. This work in progress provides the opportunity to evaluate the feasibility for a strait to receive this international status.

Furthermore, Kent County Council (KCC) and Pas-de-Calais County Council launched the European Straits Initiative whose Memorandum of Understanding was signed in November 2010 with 13 EU partners. This initiative has identified the need to strengthen cooperation projects – including NOSTRA¹¹¹.

European Grouping of Territorial Cooperation

¹¹⁰ Maritime & Coastguard Agency website: http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-searchandrescue/mcga-theroleofhmcoasguard/mcga_hm_coastguard_the_dover_strait.htm

¹¹¹ NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

Created in 2009, the European Grouping of Territorial Cooperation West-Vlaanderen/Flandre-Dunkerque-Côte d'Opale gathers partners only on the continental side.

Other cross-border cooperation

On an operational level, the French CROSS (Centre regional opérationnel de surveillance et de sauvetage) and the British Maritime and Coastguard Agency, are in constant contact. The Maritime and Coastguard Agency also has a wider collaborative approach with France, Belgium, Southern Ireland and the Channel Islands.

Dover Port shares a joint development plan for this with Calais Port. Dover Port is also involved in a European transport network, a good example of joint working.

Some local authorities are involved in joint working across the strait. For instance, Shepway District Council shares an officer with Boulogne in an organisation called BOSCO¹¹².

¹¹² NOSTRA website: <http://www.nostraproject.eu/Partnership/Dover-Strait>

5 Conclusions of the analysis

5.1 Analysis of the situation at the strait level

The Dover Strait is a geographical area which mixes cities, large infrastructures (mainly ports and the Channel Tunnel), and remarkable natural areas.

Socio-economic background of the Strait

Local revenues and jobs are mainly created in the sector of agriculture, tourism (mainly nature-based tourism) and fisheries; all economic sectors rely on the maintenance of good quality ecosystem services and biodiversity. Maritime and terrestrial transports are important activities in terms of volumes of goods and passengers transported and flows. Nonetheless, these activities do not highly contribute to local value. Deindustrialisation, mainly in Pas-de-Calais, causes significant social, environmental and urban crisis. The Strait is characterised by a deprivation phenomenon and by an issue of ageing population (mostly in Kent).

Significance of biodiversity and natural environment in the Strait

The Strait counts valuable and significant biodiversity and natural environment. It is a migratory route for birds, fish and marine mammals and provides spawning sites and nesting areas for marine wildlife. The identification of rare and threatened species is completed (The Kent red data book and the Nord-Pas de Calais red list). There is already a dense network of protected areas, which are protected under European, national and/or regional designations. Furthermore, initiatives are taken in both English and French sides to increase the number and extent of protected areas. For instance, in the English side, The Kent Biodiversity Action Plan contributed to produce around 30 Habitat Action Plans and to increase the number of protected hectares. The definition of additional areas as Biodiversity Opportunity Areas contributes to the aim of restoring and conserving biodiversity. In France, a legal tool, the ENS policy, enables the County Council, in collaboration with the Littoral Conservation Agency (Conservatoire de l'Espace Littoral et des Rivages Lacustres) to buy lands in defined areas in order to strictly protect threatened natural areas. Finally, it is worth highlighting that the landscape and seascape contribute to the cultural identity of the inhabitants of Kent and Pas-de-Calais.

More and more initiatives are taken to develop knowledge and to monitor biodiversity in the area, in particular cross-border research programmes (e.g. CHARM, CRESH, PANACHE).

Human and natural pressures exerted on biodiversity and natural environment

The main pressures exerted on biodiversity and natural environment are coming from maritime transport, industries, fisheries and tourism. Also, the densification/artificialisation of the soil due to the expansion of urban areas and economic activities contribute to pressures. Pressures are expected to increase due to the certain intense development of traffic and trade flows in the Dover

Strait in the future. Related impacts are air pollution, fish stock depletion, and the introduction of invasive species. There is also a high risk of boat collision, and of a release of hazardous substances that are transported by the cargos travelling through the Strait. To address this risk, national legislations in England and in France require the compliance with the International Regulations for Preventing Collisions at Sea. Nature pressures are climate change, sea level rise, coastal erosion, and invasive species. Some research projects have been carried out to assess specifically the impacts of human and natural pressures on biodiversity and ecosystems in the Strait (e.g. MEMO, DIESE).

Policies, actions and initiatives contributing to an integrated management of biodiversity

Several policies, actions and initiatives are specifically tackling directly the issue of integrating biodiversity in the development project of the territory and in the development of economic activities in the region. Responses are mainly addressing the fields of: maritime and terrestrial transport, fisheries and tourism, but also address urban planning and agriculture.

Integrating biodiversity and natural environment in planning decisions

In addition, public frameworks have been initiated to contribute to the preservation of biodiversity, such as the Regional Scheme of the Green and Blue Belt Network in France. In the framework of this scheme, the preservation of biodiversity is considered in **planning decisions**. In UK, the National Planning Policy framework aims to preserve biodiversity and natural and local environment. Actions in the field of developing and restoring green infrastructures participate in the integration of biodiversity in planning decisions (e.g. Dover's District Green Infrastructure Strategy, Regional scheme of the Green and Blue Belt Network). The objective of the Seascape Character Assessment is to inform marine spatial planning in the Dover Strait.

Integrating biodiversity and natural environment in the fishery sector and for the management of living marine resources

The Common Fisheries Policy was implemented in 2003 in both English and French sides to promote a sustainable management of fisheries resources while respecting the imperatives of fishing activities. The research project CRESH analysed the fish stocks in the Channel and provide recommendations to fishermen and their partners for a sustainable management of cephalopods. The CHARM project aimed at developing and disseminating knowledge to stakeholders for the sustainable management of living marine resources.

► Integrating biodiversity and natural environment in the agriculture sector

The study did not find specific actions in the agricultural sector aimed at integrating biodiversity in Kent. Two main initiatives have been implemented on the French side: Convention for maintaining agriculture in wetlands in the Artois-Picardie Basin and the Protection and development of agricultural and natural semi-natural areas.

► Integrating biodiversity and natural environment in the tourism sector

Several initiatives have been developed on one side or the other to develop sustainable tourism in sensitive or protected areas (e.g. The European Sustainable Tourism Charter is applied in French Regional Natural Park, Initiative to preserve and value rural roads creating walking and hiking routes). On the English side, Kent supports the development of sustainable activities in businesses and the Green Blue initiative tends to integrate environmental challenges in the Yatching sector.

It is relevant to note that many cross-border initiatives have been implemented in the recent years to act for sustainable tourism: the CAST project, focusing on coastal areas, and the Sustainable Tourism Program which aimed at building bridges between the Natural Regional Park of Caps and Marais d'Opale and Kent Downs AONB.

► **Integrating biodiversity and natural environment in the transport sector**

Ports and transport companies are developing initiatives that tend towards sustainable management of the transportation activities. Cross-border research projects have been carried out to promote cooperation between actors (ports authorities) to promote railway connection and in general a more efficient and sustainable transport network (i.e. Connect2Compete project, FLIP project, PATCH project).

► **Promoting cross-border cooperation and governance on biodiversity and natural environment-related issues**

Many actors contribute to improve the integration of biodiversity in the territorial development projects. Responsibilities are split between the actors. We note that there is no unique body, neither on the French side nor on the English side that coordinate actions in this field.

Among the initiatives that tend to strengthen cross-border cooperation, research projects funded by European funds allow **a cross-border cooperation to develop knowledge on marine life** and on the evolution of its state in terms of quality and quantity due to human and natural pressures (i.e. CRESH project, DIESE project, CHARM project, MEMO project). The PANACHE project is currently working on building a stronger and more coherent approach to the management, through monitoring and involving stakeholders for Marine Protected Areas across the Channel.

Some research projects are willing to promote a sustainable and cross-border cooperation and governance between ports (between small and medium-sized ports) located in the Channel area (i.e. PATCH project, Connect2Compete project) and local communities (i.e. FLIP project).

6 Recommendations for future actions

GOVERNANCE

- Implement a unique structure that could represent the Dover Strait at European and national levels.
- Clarify governance in charge of taking decisions on biodiversity-related issues and implementing actions, in order to define scope of responsibilities and activities and avoid overlaps
- Develop a network of actors gathering public institutions, private sectors, and researchers in each key sector: E.g. develop a network similar to the Actors Network of Naturalistic Nord-Pas-de-Calais Information (RAIN) in the Kent

KNOWLEDGE

- Develop, update and share a common and cross-border knowledge on:
 - Biodiversity and natural environment (e.g. complete on-going inventories)
 - The impacts of human and natural pressures on biodiversity and natural environment:
- Addressing pressures exerted on biodiversity and natural environment and related impacts that have not been addressed yet in initiatives and actions.

ACTION

- Share experience and best practices between cross-border partners when there is a lack of action in one specific sector in one side of the strait.
- Implement actions and initiatives to tackle the common challenge of air pollution due to traffic
- As a priority, the issue of air pollution due to congestion and intense maritime traffic has to be addressed by a cross-border action.
- In Kent, addressing the integration of biodiversity challenges in the agricultural sector.
- Creating job opportunities through the development of cross-border business opportunities (common products and common offer) in order to address the economic deprivation
- Implement a common strategy to assess and reduce the impact of transport infrastructure in the strait.

6.1 Towards the implementation of good practices developed by other NOSTRA partners

During the workshop that took place in Reggio Calabria in February 2014, the partners of the NOSTRA network were asked to identify the best practices developed by other partners of the Network they would like to implement in order to achieve their ideal Strait. The relevancy of transferring such best practices in the Dover Strait is analysed below, taking into account the outcomes of the baseline study.

Towards “FehmarnBelt days”

The Fehmarn Belt days aim to create connections between the two sides of the Strait. During a limited time (3 days in 2014), they provide a platform for stakeholders from the strait to exchange ideas and experiences, to discuss on cross-border collaboration and to identify new opportunities to support the emergence of the Strait area.

Such event seems feasible and relevant to be transferred in the Dover Strait. The already close collaboration between Kent and Pas-de-Calais will be a key factor for success to allow implementing such initiative. Furthermore, such event could help the emergence of new cross-border opportunities and solutions in the field of tourism, economic deprivation and labour market, and transports and logistics.

In the Fehmarn Belt, the Fehmarnbelt Business Council is the coordinator of such event. It represents about 400,000 companies working on cross border activities. In the case of the Dover Strait, such business organisation does not exist. The first step to go towards such event would be to identify the best contact points for government and administration that could coordinate the event and raise awareness among business actors, researchers, experts, public makers to work together on cross border issues and contribute to the emergence of innovative solutions towards a dynamic and more integrated Dover Strait.

Towards “EGTC-PIMBB”

In 2005, a joint agreement was adopted between Kent and Pas-de-Calais. It allows implementing common works on several fields, such as tourism, sports, arts and culture. Nonetheless, there is no existing cross-border structure in charge of biodiversity and natural environment-related challenges. Going towards the creation of an EGTC for the Dover Strait is recommended since this instrument would ensure the definition of an unique structure in charge of governing the territory at the level of the territory, with precise responsibilities and duties, rules of functioning and governance, decision-taken process, communication process. It could ensure a better coordination in the work between the two sides, in the case of defining strategy and action plans, and in the case of implementing actions.

Towards “Gulf of Finland year”

Gulf of Finland Year 2014 is a common project of Estonian, Russian and Finnish experts, which created the first opportunity to analyse in detail the ecological status of the Gulf of Finland.

The baseline study has shown that multiple actors are involved in research and knowledge development in order to develop the knowledge of the ecological and environmental status of the Dover Strait in a context of increasing human and natural pressures. However, identifying the good contact to collect information may be difficult. Furthermore, there is no available global picture of the ecological status at the level of the Dover Strait. In this context, the implementation of an initiative such as the Gulf of Finland year in the Dover Strait would be highly valuable to fill the

existing knowledge gap. Creating a network of experts that have worked on research projects (national or cross-border projects) would be a first step.

Towards “UNESCO World heritage by storytelling”

Based on the outcomes of the baseline study, implementing an initiative similar to the UNESCO World heritage by storytelling in the Dover Strait seems relevant. The main reasons are:

- The area has a **strong cultural history heritage**. There is a high cultural identity in the Dover Strait. In particular, the common cultural heritage Defence and invasion form an important reference in the cultural landscape.
- The Conseil Général of Pas-de-Calais and Kent County Council are already engaged in a process of preservation and enhancement of natural and cultural heritage of the Dover Strait. The project plans to jointly propose the classification of the strait on the Natural World Heritage List of UNESCO.
- Such initiative will support the work in progress in identifying and valuing the key features of the area.
- Such initiative would support the objective of creating new common business opportunities in the tourism sector at local and cross-border levels.

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Interviews

Consultation of Calais Agglomeration

Consultation of Kent County Council

Consultation of Pas-de-Calais County Council

8 Annexe

Source: Consultation of Kent County Council, in the context of the baseline study, issued from the toolkit

Species	Name of the species	Localisation
Flora - Angiospermae	yellow horned poppy <i>Glaucium flavum</i>	Thanet SSSI
	vipers bugloss <i>Echium vulgare</i>	Thanet SSSI
	sea kale <i>Crambe maritima</i>	Thanet SSSI
	sea pea <i>Lathyrus japonica</i>	Thanet SSSI
	hogs fennel <i>Peucedanum officinale</i>	Thanet SSSI
	sea purslane <i>Halimione portulacoides</i>	Thanet SSSI
	sea aster <i>Aster tripolium</i>	Thanet SSSI
	sea worm <i>Artemisia maritima</i>	Thanet SSSI
	spiral tassel-weed <i>Ruppia cirrhosa</i>	Thanet SSSI
	exposed cliffs	Thanet SSSI
	hoary stock <i>Matthiola incana</i>	Thanet SSSI
	sea stock <i>Matthiola sinuate</i>	Thanet SSSI
	wild cabbage <i>Brassica oleracea</i>	Thanet SSSI
	sea heath <i>Frankenia laevis</i>	Sandwich bay and Hacklinge marshes sssi
	crown garlic <i>Allium vineale</i>	sandwich bay and hacklinge marshes sssi
	vipers bugloss <i>Echium vulgare</i>	sandwich bay and hacklinge marshes sssi
	seaholly <i>Eryngium maritimum</i>	sandwich bay and hacklinge marshes sssi
	restharrow <i>Ononis repens</i>	sandwich bay and hacklinge marshes sssi
	lizard orchid <i>Himantoglossum hircinum</i>	sandwich bay and hacklinge marshes sssi
	bedstraw broomrape <i>Orobanche caryophyllacea</i>	sandwich bay and hacklinge marshes

Species	Name of the species	Localisation
		sssi
	Apistonema carterae	sandwich bay and hacklinge marshes sssi
	Enteromorpha spp	sandwich bay and hacklinge marshes sssi
	Arthrophyrenia halodites	sandwich bay and hacklinge marshes sssi
	Puccinellia maritime	sandwich bay and hacklinge marshes sssi
	Spartina anglica	sandwich bay and hacklinge marshes sssi
	sea purslane Halimione portulacoides,	sandwich bay and hacklinge marshes sssi
	sea aster Aster tripolium	sandwich bay and hacklinge marshes sssi
	sea lavender Limonium vulgare	sandwich bay and hacklinge marshes sssi
	golden samphire Inula crithmoides	sandwich bay and hacklinge marshes sssi
	long-bracted sedge Carex extensa	sandwich bay and hacklinge marshes sssi
	sharp rush Juncus acutus	sandwich bay and hacklinge marshes sssi
	common reed Phragmites australis	sandwich bay and hacklinge marshes sssi
	meadow barley Hordeum secalinum,	sandwich bay and hacklinge marshes sssi
	meadow foxtail Alopecurus pratensis	sandwich bay and hacklinge marshes sssi
	crested dogs tail Cynosurus cristatus	sandwich bay and hacklinge marshes sssi
	narrow leave birds-foot trefoil Lotus tenuis,	sandwich bay and hacklinge marshes sssi
	adders tongue Ophioglossum vulgatum,	sandwich bay and hacklinge marshes sssi
	strawberry clover Trifolium fragiferum	sandwich bay and hacklinge marshes sssi
	divided sedge Carex divisa	sandwich bay and hacklinge marshes sssi
	ragged robin Lychnis flos-cuculi,	sandwich bay and hacklinge marshes sssi
	bog pimpernel Anagallis tenella	sandwich bay and hacklinge marshes sssi

Species	Name of the species	Localisation
	greater spearwort <i>Ranunculus lingua</i>	sandwich bay and hacklinge marshes sssi
	water-milfoil <i>Myriophyllum verticillatum</i>	sandwich bay and hacklinge marshes sssi
	fen pondweed <i>Potamogeton coloratus</i>	sandwich bay and hacklinge marshes sssi
	river water-dropwort <i>Oenanthe fluviatilis</i>	sandwich bay and hacklinge marshes sssi
	least bur-reed <i>Sparganium minimum</i>	sandwich bay and hacklinge marshes sssi
	great fen-sedge <i>Cladium mariscus</i>	sandwich bay and hacklinge marshes sssi
	tor-grass <i>Brachypodium pinnatum</i>	dover to kingsdown cliffs sssi
	upright-brome <i>Bromus erectus</i>	dover to kingsdown cliffs sssi
	sheeps fescue <i>Festuca ovina</i>	dover to kingsdown cliffs sssi
	salad burnet <i>Sanguisorba minor</i>	dover to kingsdown cliffs sssi
	wild thyme <i>Thymus praecox</i>	dover to kingsdown cliffs sssi
	horseshoe vetch <i>Hippocrepis comosa</i>	dover to kingsdown cliffs sssi
	gorse <i>Ulex europaeus</i>	dover to kingsdown cliffs sssi
	wild privet <i>Ligustrum vulgare</i>	dover to kingsdown cliffs sssi
	hawthorn <i>Crataegus monogyna</i>	dover to kingsdown cliffs sssi
	bramble <i>Rubus fruticosus</i>	dover to kingsdown cliffs sssi
	wild cabbage <i>Brassica oleracea</i>	dover to kingsdown cliffs sssi
	hoary stock <i>Matthiola incana</i>	dover to kingsdown cliffs sssi
	Nottingham catchfly <i>Silene nutans</i>	dover to kingsdown cliffs sssi
	Wild madder <i>Rubia peregrine</i>	dover to kingsdown cliffs sssi
	sea sandwort <i>Honkenya peploides</i>	dover to kingsdown cliffs sssi
	sea pea <i>Lathyrus japonicas</i>	dover to kingsdown cliffs sssi
	adonis blue butterfly <i>Lysandra bellargus</i>	dover to kingsdown cliffs sssi
	scarlet tiger moth <i>Callimorpha dominula</i>	dover to kingsdown cliffs sssi
	ground-beetle <i>Bradycellus distinctus</i>	dover to kingsdown cliffs sssi
	sea-heath <i>Frankenia laevis</i>	folkestone warren sssi
	golden samphire <i>Inula crithmoides</i>	folkestone warren sssi
	wild cabbage <i>Brassica oleracea</i>	folkestone warren sssi

Species	Name of the species	Localisation
	Nottingham catchfly <i>Silene nutans</i> var. <i>nutans</i>	folkestone warren sssi
	stinking iris <i>Iris foetidissima</i>	folkestone warren sssi
	wood spurge <i>Euphorbia amygdaloides</i>	folkestone warren sssi
	clove-scented broomrape <i>Orobanche caryophyllacea</i>	folkestone warren sssi
	sheep's-fescue <i>Festuca ovina</i>	folkestone warren sssi
	tor-grass <i>Brachiopodium pinnatum</i>	folkestone warren sssi
	upright brome <i>Bromus erectus</i>	folkestone warren sssi
	early spider-orchid <i>Ophrys sphegodes</i>	folkestone warren sssi
	horseshoe vetch <i>Hippocrepis comosa</i>	folkestone warren sssi
	sand couch <i>Elytrigia juncea</i>	dungeness, romney marsh and rye bay sssi
	marram <i>Ammophila arenaria</i>	dungeness, romney marsh and rye bay sssi
	fescue <i>Festuca rubra</i>	dungeness, romney marsh and rye bay sssi
	sea buckthorn <i>Hippophae rhamnoides</i>	dungeness, romney marsh and rye bay sssi
	sea couch <i>Elytrigia atherica</i>	dungeness, romney marsh and rye bay sssi
	prostrate broom <i>Cytisus scoparius</i> ssp. <i>maritimus</i>	dungeness, romney marsh and rye bay sssi
	sweet vernal-grass <i>Anthoxanthum odoratum</i> ,	dungeness, romney marsh and rye bay sssi
	wood sage <i>Teucrium scorodonia</i>	dungeness, romney marsh and rye bay sssi
	common sorrel <i>Rumex acetosa</i> ,	dungeness, romney marsh and rye bay sssi
	blackthorn <i>Prunus</i>	dungeness, romney marsh and rye bay sssi
	<i>spinosa</i>	dungeness, romney marsh and rye bay sssi
	<i>Evernia prunastri</i>	dungeness, romney marsh and rye bay sssi
	<i>Hypogymnia physodes</i>	dungeness, romney marsh and rye bay sssi
	grey willow <i>Salix cinerea</i> carr	dungeness, romney marsh and rye bay sssi
	marsh cinquefoil <i>Potentilla palustris</i>	dungeness, romney marsh and rye bay sssi

Species	Name of the species	Localisation
	scarce marsh fern <i>Thelypteris palustris</i>	dungeness, romney marsh and rye bay sssi
	common cottongrass <i>Eriophorum angustifolium</i>	dungeness, romney marsh and rye bay sssi
	bottle sedge <i>Carex rostrata</i>	dungeness, romney marsh and rye bay sssi
	blunt-leaved bog-moss <i>Sphagnum palustre</i>	dungeness, romney marsh and rye bay sssi
	spiky bog-moss <i>S. squarrosum</i>	dungeness, romney marsh and rye bay sssi
	great fen-sedge <i>Cladium mariscus</i>	dungeness, romney marsh and rye bay sssi
	sharp-leaved pondweed <i>Potamogeton acutifolius</i>	dungeness, romney marsh and rye bay sssi
	greater water-parsnip <i>Sium latifolium</i>	dungeness, romney marsh and rye bay sssi
	marsh-mallow <i>Althaea officinalis</i>	dungeness, romney marsh and rye bay sssi
	soft hornwort <i>Ceratophyllum submersum</i>	dungeness, romney marsh and rye bay sssi
	spikedwater-milfoil <i>Myriophyllum spicatum</i>	dungeness, romney marsh and rye bay sssi
	fennel pondweed <i>Potamogeton pectinatus</i>	dungeness, romney marsh and rye bay sssi
	brackish watercrowfoot	dungeness, romney marsh and rye bay sssi
	<i>Ranunculus baudotii</i> , thread-leaved water-crowfoot	dungeness, romney marsh and rye bay sssi
	<i>R. trichophyllus</i> and horned	dungeness, romney marsh and rye bay sssi
	pondweed <i>Zannichellia palustris</i>	dungeness, romney marsh and rye bay sssi
	sea club-rush <i>Bolboschoenus maritimus</i> ,	dungeness, romney marsh and rye bay sssi
	common reed and lesser bulrush <i>Typha angustifolia</i>	dungeness, romney marsh and rye bay sssi
	saltmarsh rush <i>Juncus gerardii</i> ,	dungeness, romney marsh and rye bay sssi
	sea-milkwort <i>Glaux maritima</i>	dungeness, romney marsh and rye bay sssi
	sea arrowgrass <i>Triglochin maritimum</i>	dungeness, romney marsh and rye bay sssi
	broad-leaved pondweed <i>Potamogeton natans</i>	dungeness, romney marsh and rye bay sssi

Species	Name of the species	Localisation
	hairlike pondweed <i>P. trichoides</i>	dungeness, romney marsh and rye bay sssi
	greater pond-sedge <i>Carex riparia</i> ,	dungeness, romney marsh and rye bay sssi
	water dock <i>Rumex hydrolapathum</i>	dungeness, romney marsh and rye bay sssi
	Jersey cudweed <i>Gnaphalium luteoalbum</i>	dungeness, romney marsh and rye bay sssi
	early spider-orchid <i>Ophrys sphegodes</i>	dungeness, romney marsh and rye bay sssi
	lizard orchids <i>Himantoglossum hircinum</i>	dungeness, romney marsh and rye bay sssi
	red hemp-nettle <i>Galeopsis angustifolia</i>	dungeness, romney marsh and rye bay sssi
	Nottingham catch-fly <i>Silene nutans</i>	dungeness, romney marsh and rye bay sssi
	yellowvetch <i>Vicia lutea</i> .	dungeness, romney marsh and rye bay sssi
	sea barley <i>Hordeum marinum</i>	dungeness, romney marsh and rye bay sssi
	Borrer's saltmarsh-grass <i>Puccinellia fasciculata</i>	dungeness, romney marsh and rye bay sssi
	divided sedge <i>Carex divisa</i>	dungeness, romney marsh and rye bay sssi
	rootless duckweed <i>Wolffia arrhiza</i>	dungeness, romney marsh and rye bay sssi
	Warne's thread-moss <i>Bryum warneum</i>	dungeness, romney marsh and rye bay sssi
	viper's bugloss <i>Echium vulgare</i>	dungeness, romney marsh and rye bay sssi
	dodder <i>Cuscuta epithimum</i>	dungeness, romney marsh and rye bay sssi
	<i>Smicronyx coecus</i>	dungeness, romney marsh and rye bay sssi
	<i>Smicronyx jungermanniae</i>	dungeness, romney marsh and rye bay sssi
	bulrush <i>Typha latifolia</i>	dungeness, romney marsh and rye bay sssi
Algae	<i>Chondria dasyphylla</i>	Folkestone warren SSSI
	<i>Hecatonema maculans</i>	Thanet SSSI
	<i>Griffordia secunda</i>	Thanet SSSI
	<i>Chrysonema C. littorale</i>	Thanet SSSI

Species	Name of the species	Localisation
	<i>Chrysotila lamellosa</i>	sandwich bay and hacklinge marshes sssi new spp to science
	<i>Chrysotila stipitata</i>	sandwich bay and hacklinge marshes sssi new spp to science
	<i>Chrysonema litorale</i>	sandwich bay and hacklinge marshes sssi new spp to science
	<i>Thallochrysis littoralis</i>	sandwich bay and hacklinge marshes sssi
	<i>Pilinia rimosa</i>	sandwich bay and hacklinge marshes sssi
	<i>Pseudendoclonium submarinum</i>	sandwich bay and hacklinge marshes sssi
	<i>Scinaia forcellata</i>	sandwich bay and hacklinge marshes sssi
	<i>Sphacellana</i> spp	Folkestone warren SSSI
	<i>Derbesia tenuissima</i>	Folkestone warren SSSI
	<i>Chorda filum</i>	Folkestone warren SSSI
	<i>Pelvetia canaliculata</i>	Folkestone warren SSSI
	<i>Ascophyllum nodosum</i>	Folkestone warren SSSI
	<i>Laminaria nyperborea</i>	Folkestone warren SSSI
Birds	Turnstone <i>Arenaria interpres</i>	Key species for Thanet Coast and Sandwich Bay SPA and Thanet Ramsar
	Common Tern <i>Sterna hirundo</i>	Dungeness to Pett Level SPA qualifying annex 1 species the site qualifies under annex 4.1 for these species
	Little Tern <i>Sterna albifrons</i>	Dungeness to Pett Level SPA
	Mediterranean Gull <i>Larus melanocephalus</i>	Dungeness to Pett Level SPA
	Aquatic Warbler <i>Acrocephalus paludicola</i>	Dungeness to Pett Level SPA
	Bewick's Swan <i>Cygnus columbianus bewickii</i> ,	Dungeness to Pett Level SPA
	Shoveler <i>Anas clypeata</i>	Dungeness to Pett Level SPA
	Turnstones <i>Arenaria interpres</i>	Thanet SSSI SANDWICH BAY AND HACKLINGE MARSHES SSSI
	sanderlings <i>Calidris alba</i>	Thanet SSSI SANDWICH BAY AND HACKLINGE MARSHES SSSI
	ringed plovers <i>Charadrius hiaticula</i>	Thanet SSSI SANDWICH BAY AND HACKLINGE MARSHES SSSI
	grey plovers <i>Pluvialis squatarola</i>	Thanet SSSI SANDWICH BAY AND HACKLINGE MARSHES SSSI
	little terns <i>Sterna albifrons</i>	Thanet SSSI SANDWICH BAY AND HACKLINGE MARSHES SSSI

Species	Name of the species	Localisation
	kittiwakes <i>Rissa tridactyla</i>	DOVER TO KINGSDOWN CLIFFS SSSI
	black redstart <i>Phoenicurus ochruros</i>	DOVER TO KINGSDOWN CLIFFS SSSI
	Purple Sandpiper <i>Calidris maritima</i>	Folkestone warren SSSI
	gadwall <i>Anas strepera</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	garganey <i>Anas querquedula</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	shoveler <i>Anas clypeata</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	pochard <i>Aythya farina</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	tufted duck <i>Aythya fuligula</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	little grebe <i>Tachybaptus ruficollis</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	water rail <i>Rallus aquaticus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	avocet <i>Recurvirostra avosetta</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	black-headed gull <i>Larus ridibundus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	sandwich tern <i>Sterna sandvicensis</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	common tern <i>Sterna hirundo</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	little tern <i>Sterna albifrons</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	Cetti's warbler <i>Cettia cetti</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	bearded tit <i>Panurus biarmicus</i> .	Dungeness, Romney Marsh and Rye Bay SSSI
	cormorant <i>Phalacrocorax carbo</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	Mediterranean gull <i>Larus melanocephalus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
Mammals	water voles <i>Arvicola terrestris</i>	Dungeness, Romney Marsh and Rye Bay SSSI
Molluscs	carthusian snail <i>Monacha cartusiana</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	mud-snail <i>Ventrosia ventrosa</i>	Dungeness, Romney Marsh and Rye Bay SSSI

Species	Name of the species	Localisation
Invertebrates	Sand-Mason worm <i>Lanice conchilega</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	<i>Abra tenuis</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	polychaete worm <i>Capitella capitata</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	<i>Ventrosia ventrosa</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	ragworms <i>Nereis diversicolor</i>	Dungeness, Romney Marsh and Rye Bay SSSI
Arthropods	grey bush cricket <i>Platycleis albopunctata</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	<i>Aplasta ononaria</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	pygmy footman <i>Eilema</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	pygmaeola <i>pygmaeola</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	brightwave <i>Idaea ochrata</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI
	<i>Stigmella zelleriella</i>	SANDWICH BAY AND HACKLINGE MARSHES SSSI only British colony of this moth
	harvestman <i>Trogulus tricarinatus</i>	Folkestone warren SSSI
	millipede <i>Polydesmus testaceus</i>	Folkestone warren SSSI
	fiery clearwing moth <i>Bembecia chrysidiformis</i>	Folkestone warren SSSI
	sub-angled wave moth <i>Scopula nigropunctata</i>	Folkestone warren SSSI
	jumping spider spp <i>Pellenes tripunctatus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	jumping spider spp <i>Euophrys browningi</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	case-moth <i>Coleophora galbulipenella</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	white-spot moth <i>Hadena albimacula</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	<i>Apostenus fuscus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	flea beetle <i>Dibolia cynoglossi</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	leafhopper <i>Aphrodes duffieldi</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	pale grass egg moth <i>Lasiocampa trifolii flava</i>	Dungeness, Romney Marsh and Rye Bay SSSI

Species	Name of the species	Localisation
	Sussex emerald moth <i>Thalera fimbrialis</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	bee <i>Dasygaster alterator</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	bee-fly <i>Bombylius discolor</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	tiny bee-fly <i>Phthiria pulicaria</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	ground beetle <i>Omophron limbatum</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	ground beetle <i>Dyschirius obscurus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	<i>Tachydromia terricola</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	<i>Chersodromia alata</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	great silver diving beetle <i>Hydrophilus piceus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	marsh mallow moth <i>Hydraecia osseola hucherardi</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	medicinal leeches <i>Hirudo medicinalis</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	weevil <i>Ceutorrhynchus verrucatus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	micro-moth <i>Ethmia terminella</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	<i>Ethmia bipunctella</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	<i>Cynaeda dentalis</i>	Dungeness, Romney Marsh and Rye Bay SSSI
	spectacular weevil <i>Ceutorrhynchus geographicus</i>	Dungeness, Romney Marsh and Rye Bay SSSI
Fishes	Stalked jellyfish (<i>Lucernariopsis cruxmelitensis</i>)	Thanet MCZ feature
	Stalked jellyfish (<i>Halicystus auricula</i>)	Thanet MCZ feature
Other (such as corals)	<u>Great crested newt <i>Triturus cristatus</i></u>	
	<i>Halicystus auricula</i>	
	<i>Lucernariopsis cruxmelitensis</i>	