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Fisheries

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Advisory Council for Agriculture and Fisheries
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Citation:

Polet, H., Torreele, E., Pirlet, H., 2013. Fisheries. In: Lescrauwaet, A.K., Pirlet, H., Verleye, T., Mees, J., Herman, R. (Eds.), Compendium for Coast and Sea 2013: integrating knowledge on the socio-economic, environmental and institutional aspects of the Coast and Sea in Flanders and Belgium. Oostende, Belgium, p. 153-166.

In 2011, 90.4 million tons of fish were caught worldwide, of which 78.9 million tons were sea fish (*State of World Fisheries and Aquaculture, FAO 2012*²¹⁶⁸⁸⁶). The fleet of the European Union (EU) is responsible for 6% of the global fish capture, about half of which is caught by Denmark, the United Kingdom, France and Spain. Belgian fisheries constitute a small share of these European figures. In 2009, the total of Belgian fisheries equalled 0.43% of the European total (*Facts and figures on the Common Fisheries Policy, 2012*²²⁵³⁵⁷). In 2011, the Belgian fisheries fleet accounted for 0.1% of the total European fleet with a tonnage and engine capacity which are 0.9 and 0.8% of the European total (*Facts and figures on the Common Fisheries Policy, 2012*²²⁵³⁵⁷).

6.1 Policy context

The European fisheries efforts are mainly regulated by the *Common Fisheries Policy* (CFP) (*Regulation 2371/2002*) proposed by the Directorate-General for Maritime Affairs and Fisheries (*DG MARE*) of the European Commission (EC) (more information: *handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸, *overview European legislation concerning the CFP*) to the Council of Ministers and to the European Parliament. The CFP has been developed within a sustainable development context as stated by the EU strategy for Sustainable Development (*COM (2001) 264*) and in the *World Summit on Sustainable Development in Johannesburg (2002)*²¹⁴⁷⁶³ (see *Sustainable use*). An important institutional development within the CFP concerns the establishment of regional advisory councils (RACs); two thirds of its representatives are stakeholders from the fisheries sector and one third are other stakeholders (see *Council Decision 2004/585/EC*) (*website DG MARE, manual to the CFP, 2009*¹⁴⁰⁵⁰⁸). In preparation of the reform of the CFP (Green Paper CFP reform (*COM (2009) 163*)), a consultation on the reform was organised (*SEC (2010) 428, COM (2011) 417*), which influenced the reform proposals presented to the Council of Ministers and the European Parliament. When developing the European policy, a number of national services and international authorities have been consulted, such as the Scientific, Technical and Economic Committee for Fisheries (STECF) of the EC and the International Council for the Exploration of the Sea (*ICES*) (*Adriansens 2009*²⁰²⁰⁰⁹, *handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸) (see *Sustainable use*).

The regional Flemish Government has the exclusive authority with regard to sea fisheries. The regulation for recreational fishing is stipulated by the *Royal Decree of 14 August 1989* and the *Ministerial Decree of 21 December 2012*. The policy for commercial fishing is developed by the Flemish Ministry of Agriculture and Fisheries (*Beleidsnota landbouw, visserij en plattelandsbeleid 2009-2014*²¹⁴⁷⁷⁸). The *Agriculture and Fisheries Department* is responsible for the preparation of the policy on the Flemish and European level. Within this department, the *Agriculture and Fisheries Policy Division* is responsible for the implementation of the European policy, the formulation of policy proposals, the development of regulations, as well as for the implementation of the fisheries policy. This concerns the implementation of the European (European Fisheries Fund, EFF) and Flemish (*Financieringsinstrument voor de Vlaamse Visserij- en aquacultuursector, FIVA*) policy for investments and actions in support of fisheries. In this regard a management authority has been established in the context of the *Operational programme in implementation of the National Strategic Plan for the Belgian fisheries sector 2007-2013*¹⁹⁶¹³⁶. The implementation of the policy also implies: policing activities, data collection and the reporting of the data in yearly reports. The *Sea fisheries service* is part of the latter section and guarantees the coordination, implementation and enforcement of the fisheries policy.

The policy is also supported by the Institute for Agricultural and Fisheries Research (*ILVO*) and the Flanders' Agricultural Marketing Board (*VLAM*). The Strategic Advisory Council of Agriculture and Fisheries (*SALV*) council advises the Flemish government and the Flemish parliament concerning the policy and the development regulations on the economic, ecological, social and societal aspects of the (agriculture and) fisheries policy. This advice is prepared by the *Technische Werkcommissie Visserij* committee of SALV. The *Milieu- en Natuurraad van Vlaanderen (Minaraad)* provides advice in a number of fisheries-related cases as well. *Rederscentrale* is recognised as the organisation of producers of fisheries products and as the professional association representing the employers. The Foundation for Sustainable Fishery Development (*SDVO*) aims to represent the interests of the Belgian sea fisheries cluster and to support them in all domains that contribute to sustainable fisheries. *Rederscentrale* as well as SDVO are represented in the RACs that are relevant for Belgian fisheries. The Belgian fisheries policy is discussed in more detail in *Vanderperren & Polet (2009)*²⁰³²³⁴ (CLIMAR project *phase 1* and *phase 2* BELSPO), the *National Strategic Plan for the Belgian fisheries sector 2007-2013*¹⁹⁶¹³⁵, the *Operational Programme in implementation of the National Strategic Plan for the Belgian fisheries sector 2007-2013*¹⁹⁶¹³⁶ and *Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷. An extensive overview of the legislation concerning fisheries is given in the coastal codex, theme *fisheries*.

6.2 Spatial use

The CFP is valid in the Belgian fisheries zone (*law of 10 October 1978*), the borders of which correspond to the exclusive economic zone (EEZ, *law of 22 April 1999*). In this zone, the performance of fisheries activities is subject to Belgian jurisdiction (although fisheries is a Flemish competence, see above); however, the rights of foreign vessels in the context of the CFP and the relevant international regulations are taken into account (*Maes et al. 2004*⁷⁰⁹³⁶ (*MARE-DASM project BELSPO*)). Hence, the Belgian fisheries zone gives unlimited access to all EU Member States, except for Spain, Portugal and Finland, which may only catch unrestricted fish species and species without quota (*Douvere & Maes 2005*⁷⁸²⁹⁶, *GAUFRE project BELSPO*).

THE DEMARCATION OF THE FISHERIES ZONES AND THE LOCATIONS WHERE FISHERIES ACTIVITIES ARE PROHIBITED, WITHIN THE BNS

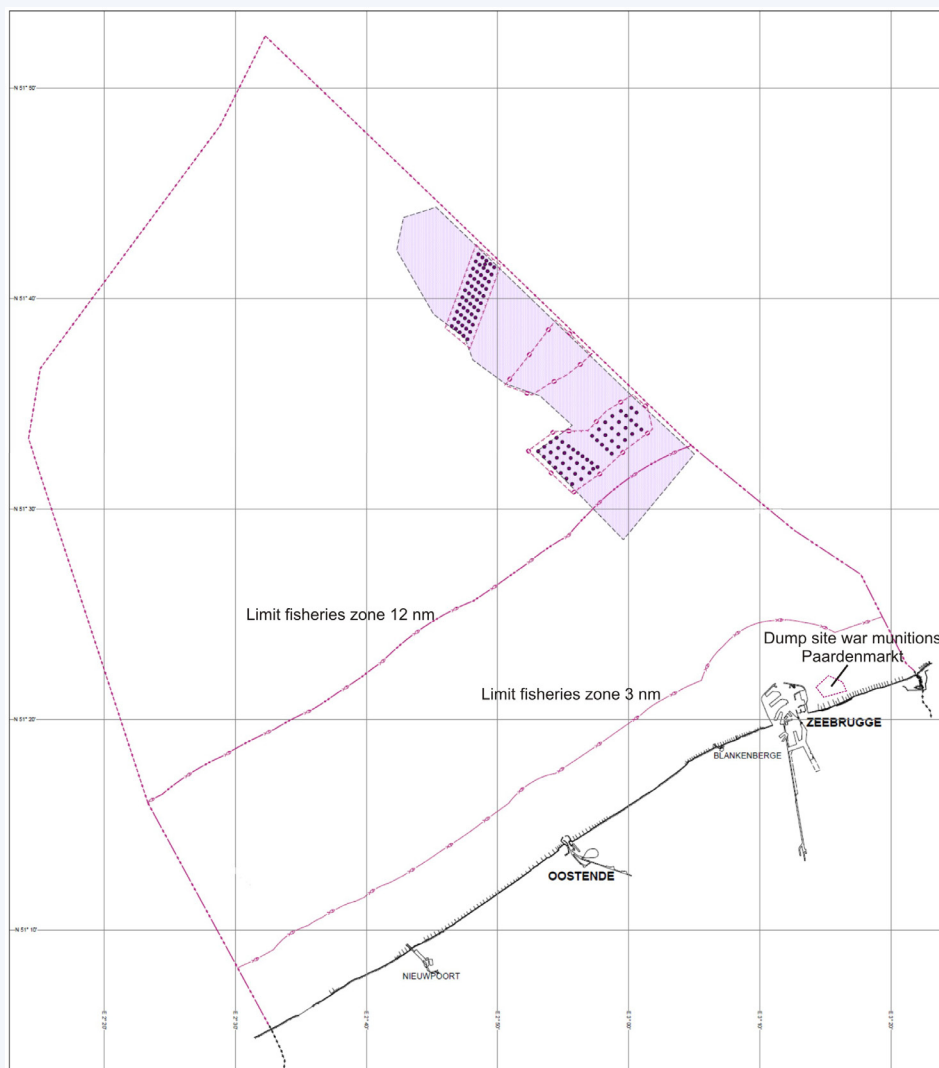


Figure 1. The demarcation of the fisheries zones and the locations where fisheries activities are prohibited, within the BNS (Source: *Continental Plat & Vlaamse Hydrografie 2013*²²⁷⁵²¹).

In the territorial waters (the zone from the baseline to 12 nautical miles (nm)¹ offshore), fisheries are regulated by the national legislation (*law of 19 August 1891*). This legislation defines that fishing ships, fishing between 0 and 12 nm, cannot have engines with a power over 221 kW and, when fishing between 0 and 3 nm, ships need to remain below 70 GT (with a possible extension of this zone to 4.5 nm in the context of the marine spatial plan, see below). In the territorial waters, fisheries are exclusively reserved for Belgian fishermen, even though under certain conditions, French and Dutch fishermen are allowed as well as a result of multilateral conventions (*Douvere & Maes 2005*⁷⁸²⁹⁶, *GAUFRE project BELSPO*):

- The Treaty establishing the Benelux Economic Union (1958) attributes unlimited rights to Dutch fishermen for fishing in the Belgian territorial zone;
- The Belgian-French convention on 'ijle haring' fisheries (herring suitable for marinades, caught between December and April) and European sprat in the French and Belgian territorial waters (1975) allows French fishing boats to catch sprat and herring in the zone between 3 and 12 nm from the baseline, under certain conditions.

Fishing is forbidden at the Paardenmarkt site, where war ammunition is stored (*Maes et al. 2000*¹⁸⁶¹⁹). Furthermore, the *Royal Decree of 11 April 2012* forbids shipping (and therefore also fisheries) in a safety zone of 500 m around wind farms. The compatibility of wind farms at sea and passive fisheries and mariculture has been investigated in the context of the MARIPAS-project (*Verhaeghe et al. 2011*²⁰⁶¹⁸⁶).

In the draft of the Marine Spatial Plan (*Ontwerp van koninklijk besluit tot vaststelling van het marien ruimtelijk plan*²²⁷⁵²⁷), as proposed by the Minister competent for the North Sea, measures have been proposed in 4 zones in the Habitats Directive Area 'Vlaamse Banken' (Flemish Banks) to stimulate alternative, sustainable fisheries (see also theme **Nature and environment**). Furthermore, fishing is prohibited for vessels with a gross tonnage of over 70 GT within the zone of 4.5 nautical miles from the coastline (see **Belgian fishing fleet**).

Belgian fishermen are also active outside the BNS in the Southern and Central North Sea as well as in the Western waters. In the context of the CFP and through multilateral conventions, Belgian fishing boats have acquired access to the coastal waters of a few other European Member States (*Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷). Furthermore, Belgian fishermen have access to limited quota in Norwegian waters and in a few ICES-areas. A detailed list of the sea areas is given in *Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷. A map with the historical fishing grounds (1929-1999) can be consulted on the website '*A century of sea fisheries in Belgium*' of the Flanders Marine Institute (VLIZ).

6.3 Societal interest

6.3.1 Employment

Employment in the fisheries sector has declined due to the crisis that has affected the fisheries sector (see **Sustainable use**). In 2012, the fisheries sector in Belgium consisted of 439 authorised sea fishermen. In addition, approximately 1,040 people worked in the fish-processing industry and 5,000 people in related sectors (*Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷). The promotion of the attractiveness of the sector, especially towards the younger end of the workforce, remains one of the most important challenges. Efforts are made to improve the inflow of young persons into the sector, for example by means of the *Fund for young shippers* (*SALV advice 23 March 2012*²²⁶⁵⁴² and *advice of 20 March 2013*²²⁶⁵⁴¹).

6.3.2 Belgian fishing fleet

In the *Ministerial Decree of 16 December 2005*, the fishing fleet is divided into 3 segments:

- Large Fleet Segment: All fishing vessels with an engine power capacity between 221 kW and 1,200 kW;
- Small Fleet Segment: All fishing vessels with an engine power capacity of 221 kW or less, except for the coastal fleet segment;
- A Coastal Fleet Segment: All fishing vessels with an engine power capacity of 221 kW or less and a tonnage of maximum 70 GT, which take part in sea trips of maximum 48 hours with the start and end situated in a Belgian port. The affiliation to the coastal fleet segment takes place on a voluntary basis.

In 2011, the Belgian sea fishing fleet consisted of 88 ships with a total engine power of 44,025 kW and a gross tonnage of 15,733 GT (*officiële lijst van de Belgische vissersvaartuigen 2013*²²⁵³⁸⁸). The past 50 years, the number of fishing

¹ 1 nautical mile = 1,852 meters

boats has strongly decreased (figure 2). This trend accelerated due to the increase of the oil prices, which affected the profitability of the fishing fleet. In the early fifties, there were more than 450 fishing vessels, followed by a large fleet depletion in the seventies. Since 2009, the number of shipping boats has mainly decreased due to the temporary scrappage measures executed by the Flemish government, following the *EU Regulation 744/2008*, in order to deal with the profitability problems of the Belgian fishing fleet (see *Ministerial Decree of 2 June 2009*, see **Sustainable use**) (see regulation on fleet adaptation in *Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷). The total engine power capacity, however, does not reveal a comparable decrease. This is due to the trend towards larger vessels with aggregations of engine capacities (*Operational Programme in implementation of the National Strategic Plan for the Belgian fisheries sector 2007-2013*¹⁹⁶¹³⁶). The dynamics of the Belgian fishing fleet with changing owners, immatriculation numbers, ports of registration and technological equipment can be consulted in a database on the website '*A century of sea fisheries in Belgium*' of the Flanders Marine Institute (VLIZ) and in a review article (*Lescrauwaet et al. 2013*²¹⁸⁴⁹⁷).

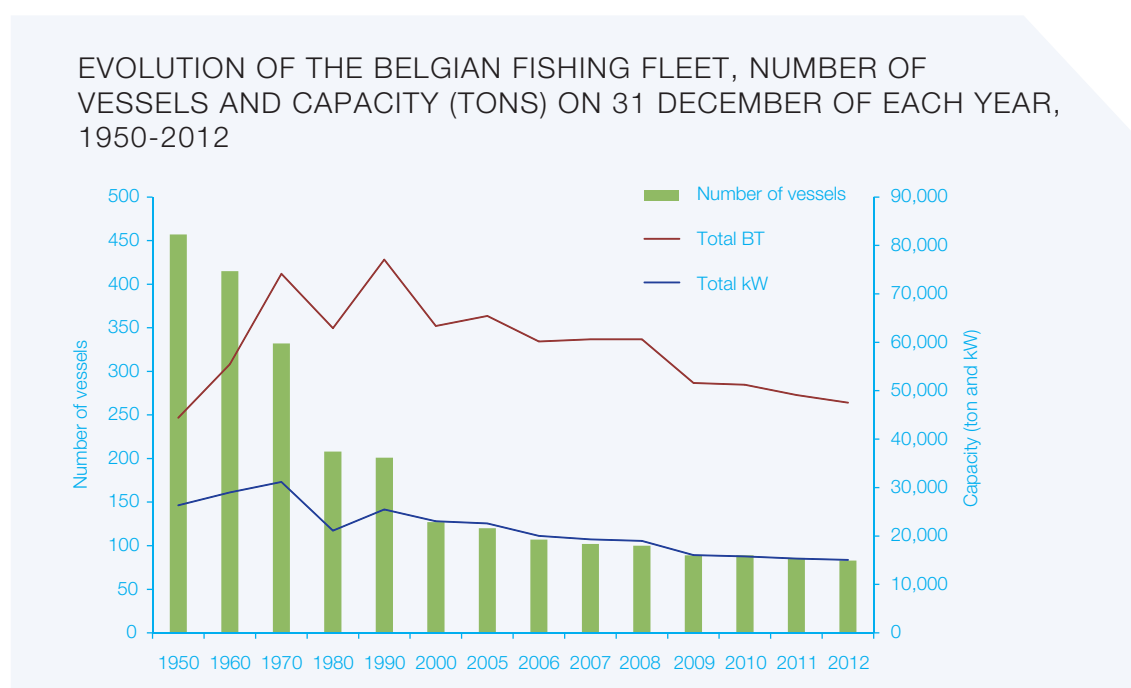


Figure 2. Evolution of the Belgian fishing fleet, number of vessels and capacity (tons) on 31 December of each year, 1950-2012 (*Visserijrapport (VIRA) (2012)*).

Another important challenge with regard to the development of the sector is the age of the Belgian fleet, with an average age which has increased to 24 years (*Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷). This ageing is especially pronounced in the small fleet segment with vessel ages that can amount to 40-50 years. Other figures of each fleet segment can be found in *Tessens & Velghe (2012)*²¹⁷⁷⁵¹. In *Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷ the profitability, labour costs, fuel costs, etc. of the fishing fleet are discussed as well.

6.3.3 Landings and value

The landings of the Belgian sea fisheries vessels between 1929 and 1999 have been collected for each species and for each fishing area on the website '*A century of sea fisheries in Belgium*' of VLIZ (figure 3). Landings peaked after the Second World War, when more than 70,000 tons of fish was landed in the Belgian ports each year. Since then, the supply decreased constantly to about 20,000 tons in the past few years (*Tessens & Velghe 2012*²¹⁷⁷⁵¹). The evolution of the landings can be largely explained by a change in the species composition of the catch (*Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷), but the fuel crisis, declining fish stocks, the declining fishing fleet, limiting quota and the fishing effort limits also contribute to lower landing numbers (see **Sustainable use**). In 2011, the landing amounted to 20,138 tons of which 16,905 tons were landed in Belgian ports and 3,233 tons in foreign ports. In 2011, the port of Zeebrugge covered 66.7% of the landings in Belgian ports, Ostend 31.2% and Nieuwpoort 2.1%. Plaice, sole and ray remain the most important species in 2011 in terms of landing volume (*Tessens & Velghe 2012*²¹⁷⁷⁵¹).

EVOLUTION OF THE LANDINGS (TONS) OF FISH BY THE BELGIAN FISHING VESSELS IN THE BELGIAN AND FOREIGN PORTS BETWEEN 1904 AND 2008

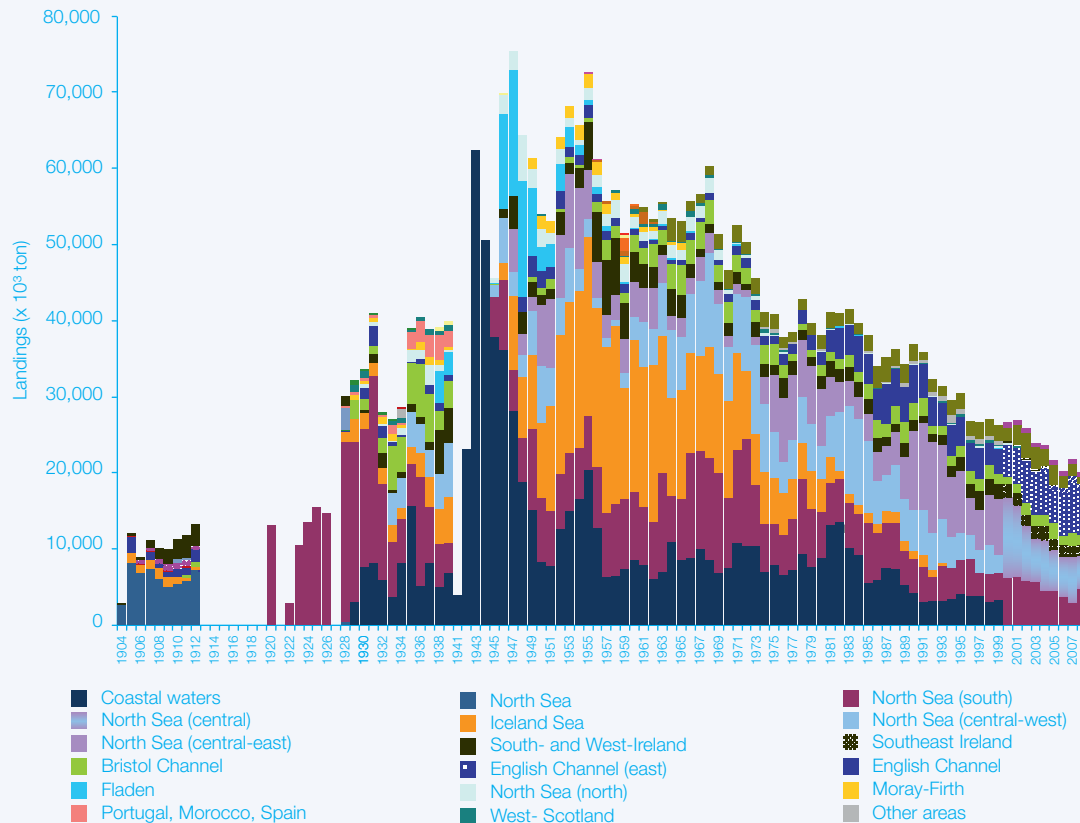


Figure 3. Evolution of the landings (tons) of fish by the Belgian fishing vessels in Belgian and foreign ports between 1904 and 2008, sorted by fishing ground (*A century of sea fisheries in Belgium*, VLIZ).

The value of landings or turnover is the yield of landed fish and fish products sold by public auction (calculated on the total of both traded and non-traded products). The total value of landings of fish by Belgian fisheries vessels increased almost constantly after the Second World War from approximately 80 million euros (indexed value with respect to the reference year 2007) to peaks of approximately 130 million euros at the end of the eighties and in the early nineties (website '*A century of sea fisheries in Belgium*', VLIZ). This was followed by a decrease to 68.367 million euros in 2009, followed by an increase to 79.437 million euros in 2011. Sole remains the most important fish species for Belgian fisheries with 47% of the value of landings in 2011. (*Tessens & Velghe 2012*²¹⁷⁷⁵¹). The value of landings of each species between 1929 and 1999 is kept at the website '*A century of sea fisheries in Belgium*' (VLIZ). The recent value of landings for each species can be found in *Tessens & Velghe (2012)*²¹⁷⁷⁵¹.

6.3.4 Trade and consumption of fish products

In Belgium there are three active fish auctions: Zeebrugge, Ostend and Nieuwpoort; Zeebrugge and Ostend are assigned to the '*Vlaamse Visveiling*' auction. The average prices of fish caught by Belgian fisheries vessels have increased almost constantly with a peak of 4.48 euros per kilo in 2006. After 2006, a decrease occurred to 3.66 euros per kilo in 2009, followed by an increase to 4.09 euros per kilo in 2011 (*Tessens & Velghe 2012*²¹⁷⁷⁵¹).

Figures from the GfK Panel Services Benelux for VLAM reveal that in 2011, Belgians bought on average 10.2 kilos of fish, molluscs and crustaceans per capita, for a total amount of 106.5 euros.

The degree of self-sufficiency for fish, molluscs and crustaceans in Belgium and Luxemburg from fisheries and aquaculture amounted to 14.6% in 2008 (Source: VLAM). In 2011, the value of imported fish products amounted to 1.67 billion euros (45% from outside the EU), while the export value totalled 928 million euros (98% was exported to EU Member States) (*Visserijrapport (VIRA) 2012*²²⁴⁹⁵⁷).

6.3.5 Fisheries communities

The social dimension of the fisheries sector (training, employment, wellbeing, safety, etc.) is discussed in detail in *Visserijrapport (VIRA) (2012)*²²⁴⁹⁵⁷. The impact of the CFP on the social and economic aspects of fisheries communities was investigated in a European study: '*Regional social and economic impacts of change in fisheries-dependent communities 2011*²²⁵⁵⁹⁸' including a case study in Ostend (*Assessment of the status, development and diversification of fisheries-dependent communities. Oostende Case Study Report 2010*²²⁵⁵⁹⁹). The *GiFS project* investigates the socio-economic and cultural importance of inshore fisheries for coastal communities. Within the institute for Agricultural and Fisheries Research (*ILVO*), the *VISEO group*²²⁶⁵⁴⁶ aims to gather knowledge about techniques, ecosystem and society by means of specific and integrated social scientific research, meeting the needs of ILVO-Fisheries, the fisheries sector as well as the policy. The research topics include *inter alia* business economics research, supply chain research, international market research and research on the impact of the policy on the competitiveness of the sector and the environment.

6.4 Impact

Fisheries activities unmistakably have an impact on the marine ecosystem, although the precise impact is still a matter of debate. Besides the extraction of marine organisms, fisheries techniques entail a certain degree of seabed disturbance. The use of energy by fishing vessels and waste production have an impact on the environment as well (*Visserijrapport (VIRA) 2012*²²⁴⁹⁵⁷). An overview of the impact of fisheries activities is discussed in *Polet & Depestele 2010*²⁰⁴⁰⁶⁷ and in the *Strategic Environmental Assessment of the National Operational Plan for the Belgian fisheries sector, 2007 - 2013*¹³¹⁰⁹³. Below, the effects are discussed in more detail.

6.4.1 Overfishing² and illegal, unreported and unregulated fishing

A structural imbalance between the catch capacity and the biological potential of fish stocks has led to overfishing of fish stocks that are important for the Belgian fisheries sector (such as cod) (*Operational Programme in implementation of the National Strategic Plan for the Belgian fisheries sector 2007-2013*¹⁹⁶¹³⁶). This overfishing may result in a reduced reproductive capacity and finally in the collapse of the fish stocks. Hence, fisheries can irreversibly modify the structure of the communities and the food web (*Pauly et al. 1998*³⁸⁹²⁶, *Polet et al. 2008*¹²⁷⁵⁵⁵, *OSPAR QSR 2010*¹⁹⁸⁸¹⁷). The effect on the marine biological communities is amplified by illegal, unreported and unregulated fishing (IUU-fishing) (*handbook on IUU-regulation, 2010*²²²³⁹⁰, *website Dienst Zeevisserij*, *website DG MARE*) as well as by illegal practices such as 'high-grading', i.e. the discarding of non-target species (so-called by-catch) or economically less interesting species in order to maximise the value of the catch (more information: *Vandendriessche et al. 2008*¹²⁶⁷³², *handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸).

In 2010, *ICES* introduced the principle of maximum sustainable yield (MSY) in order to test the condition of the fish stock. A healthy MSY condition means that the biomass of the concerned fish stocks is sufficiently high to guarantee a maximum sustainable yield (*Visserijrapport (VIRA) 2012*²²⁴⁹⁵⁷). According to *Moreau (2012)*²²¹⁵²⁹, there is a positive evolution in the number of commercial fish stocks in the North Sea reaching a good MSY, although this is not the case for important species such as sole and cod. In other areas (e.g. Bristol Channel, Celtic Sea, ICES areas VII and g) the sole and cod population show signs of recovery (*ICES advices*).

6.4.2 Impact of fishing gear

The impact of fisheries activities on the ecosystem and the biological communities strongly depends on the fishing gear used, although factors such as the mesh size of the nets, the time and place of fishing and the knowledge of the fisherman also play an important role. The recent European project *BENTHIS* investigates the impact of fisheries

2 *Goethel et al. (2012)*²²⁶¹³³ gives a historical overview of the term overfishing.

Table 1. An overview of the impact of the most common fishing gear in Belgian fisheries.

FISHING GEAR	IMPACT ON THE ECOSYSTEM	LITERATURE
Beam trawling (targeting fish and/or shrimp)	Seabed disturbance and associated effect on benthos and habitat	<i>Lindeboom & De Groot 1998 (Impact II)</i> ⁶⁴¹² , <i>Operationeel Programma in uitvoering van het Nationaal Strategisch Plan voor de Belgische visserijsector 2007-2013</i> ¹⁹⁶¹³⁶ , <i>Houziaux et al. 2008</i> ¹⁴⁰⁷⁵⁶ (<i>Project BELSPO</i>), <i>Polet et al. 2008</i> ¹²⁷⁵⁵⁵ , <i>Rabaut et al. 2008</i> ¹¹⁷⁴⁵² , <i>Depestele et al. 2008</i> ¹²²⁶⁸⁷ , <i>Polet et al. 2010</i> ²⁰⁰⁴⁴⁴ , <i>Polet & Depestele 2010</i> ²⁰⁴⁰⁶⁷ , <i>Depestele et al. 2012</i> ²¹⁴³⁰³ (<i>WAKO-II project BELSPO</i>), <i>Van Lancker et al. 2012</i> ²¹³⁶⁸⁴ (<i>QUEST-4D project BELSPO</i>)
	By-catch and discards	<i>Operationeel Programma in uitvoering van het Nationaal Strategisch Plan voor de Belgische visserijsector 2007-2013</i> ¹⁹⁶¹³⁶ , <i>Polet et al. 2008</i> ¹²⁷⁵⁵⁵ , <i>Depestele et al. 2008</i> ¹²²⁶⁸⁷ , <i>Vandendriessche et al. 2008</i> ¹²⁶⁷³² , <i>Polet et al. 2010</i> ²⁰⁰⁴⁴⁴ , <i>Polet & Depestele 2010</i> ²⁰⁴⁰⁶⁷ , <i>Depestele et al. 2011</i> ²⁰⁴⁰³¹ , <i>Depestele et al. 2012</i> ²¹¹⁴³⁰³ (<i>WAKO-II project BELSPO</i>), <i>Verschueren et al. 2012</i> ²²⁵³⁵⁵
	Shifts in the nutritional habits of seabirds caused by discards of by-catch	<i>Depestele et al. 2012</i> ²¹⁴³⁰³ (<i>WAKO-II project BELSPO</i>), <i>Sotillo et al. 2012</i> ²¹³²⁹³
	Use of fuels and resources	<i>Depestele et al. 2007</i> ¹²²⁷¹² , <i>Operationeel Programma in uitvoering van het Nationaal Strategisch Plan voor de Belgische visserijsector 2007-2013</i> ¹⁹⁶¹³⁶ , <i>Polet et al. 2008</i> ¹²⁷⁵⁵⁵ , <i>Polet et al. 2010</i> ²⁰⁰⁴⁴⁴ , <i>Polet & Depestele 2010</i> ²⁰⁴⁰⁶⁷
Trammel net (a type of gillnetting)	By-catch of sea birds and marine mammals	<i>Haelters & Kerckhof 2004</i> ⁶⁷⁵⁸⁶ , <i>Depestele et al. 2006</i> ¹⁰⁶⁴³⁰ , <i>Depestele et al. 2008</i> ¹²²⁶⁸⁷ , <i>Haelters & Camphuysen 2009</i> ¹³⁹⁸⁹⁰ , <i>Depestele et al. 2012</i> ²¹⁴³⁰³ (<i>WAKO-II project BELSPO</i>)
	Ghost fishing	<i>Depestele et al. 2006</i> ¹⁰⁶⁴³⁰ , <i>Depestele et al. 2008</i> ¹²²⁶⁸⁷ , <i>Depestele et al. 2012</i> ²¹⁴³⁰³ (<i>WAKO-II project BELSPO</i>)
	By-catch and discards	<i>Depestele et al. 2012</i> ²¹⁴³⁰³ (<i>WAKO-II project BELSPO</i>)

on benthic ecosystems in detail. One case study of the project focuses on the North Sea. Table 1 gives an overview of the impact of the most commonly used fishing gear in Belgian fisheries. It should be mentioned that over the past few years, otter trawling has become more common. However, the current Belgian research on the impact of this technique is limited.

6.4.3 The impact on other users

The spatial impact of the fisheries activities on other users of the marine environment is discussed in the *GAUFRE project BELSPO*. A problem analysis of the professional fisheries was conducted in *Maes et al. (2004)*⁷⁰⁹³⁶ (*MARE-DASM project BELSPO*). The compatibility with other users in the BNS is discussed in the draft of the Marine Spatial Plan (*Ontwerp van koninklijk besluit tot vaststelling van het marien ruimtelijk plan*²²⁷⁵²⁷), as proposed by the Minister competent for the North Sea.

6.4.4 Recreational fisheries

In the BNS, recreational fisheries mainly consist of sea anglers (about 2,000 recreational fishermen are registered with the association *Vlaamse Vereniging van Hengelsportverbonden*) and shrimp and flatfish fisheries with small trawl nets. On a smaller scale, passive beach fishing occurs with fixed nets and through angling on the beach, on the piers and on the breakwaters (*Visserijrapport (VIRA) 2012*²²⁴⁹⁵⁷). Except for passive fisheries with fixed nets, recreational fisheries in the BNS do not require any authorisation. Hence, little is known about the scale of these fisheries (*Goffin et al. 2007*¹¹⁴²²⁵). Moreover, the impact of these fisheries has not been investigated in a detailed way. According to an estimation in a pilot study (*pilootstudie in opdracht van de Dienst Zeevisserij (ILVO, 2007)*¹⁹⁰⁶⁶⁵), catches of cod by recreational fishermen are at least of the same magnitude as catches by professional fisheries. The impact of the fleet of recreational fishermen using beam trawls (<3 m wide) as fishing gear in order to catch shrimps and flatfish remains to be elucidated.

In Oostduinkerke there are 12 active horseback shrimp fishermen and 2 guilds of shrimp fishermen ("kruwersverenigingen") who manually trawl along the coastline; they have an important folkloric value (see www.paardevissers.be and *Province of West Flanders 2008*¹²⁶¹⁵⁰, see theme **Maritime and coastal heritage**).

6.5 Sustainable use

6.5.1 The Common Fisheries Policy (CFP)

The most important goal of the *Common Fisheries Policy* (CFP) (*Regulation 2371/2002*) is sustainable fisheries with a balance between the ecological, economic and social aspects in order to conserve fish stocks for future generations. To achieve this goal, the EU introduced a number of conservation measures, which can be divided into 4 groups (*Adriansens 2009*²⁰²⁰⁰⁹, *website DG MARE, handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸):

- Europe defines the Total Allowable Catch (TAC) of specific fish stocks within a certain period. These TACs are divided among the Member States by means of quotas. The Flemish quotas are available on the following website: *website Dienst Zeevisserij* (see also *Wintein & Brouckaert 2011*²²⁵³⁹², drafted by the quota commission of *Rederscentrale*). The quotas can be swapped among the Member States. During the *World summit on sustainable development in Johannesburg (2002)*²¹⁴⁷⁶³, the international community committed itself to adopting a new management system for fish stocks based upon the MSY concept, at the latest by 2015 (*Adriansens 2009*²⁰²⁰⁰⁹, *handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸). At this moment, the MSY for certain species such as ray cannot be determined. *ICES* gives quantitative advice to Europe based upon all available information for all fish stocks without a management plan or MSY-value. Therefore, *ICES* classifies all available scientific information in 6 categories in order to apply advisory rules to them (source: www.ices.dk).
The current Belgian fleet mainly focuses on mixed fisheries, catching species from sustainable fish stocks as well as non-targeted species. In order to face this challenge, fisheries management is evolving towards 'multi-species management'. This issue is discussed in *the ICES Working Group on Mixed Fisheries Advice for the North Sea (WGMIXFISH)*. On the other hand, attention is paid to the effects of excessive selective fishing and balanced harvesting of fish stock is advocated, corresponding to their natural occurrence (*Garcia et al. 2012*²¹³⁶¹²).
- Technical measures have been introduced, such as a minimal mesh size, selective fishing gear, closed areas, minimal sizes for the landings of fish and a gradual introduction of a ban on discards.
- The fishing effort is limited by restricting the number of days when fishing boats can fish at sea. In addition, the fishing effort is reoriented by closing certain zones (temporarily) for fishing activities. In this regard, the Irish Sea was temporarily closed for the Belgian fishing fleet in January 2013, in line with the advice of the quota commission (*Ministerial Decree of 21 December 2012*).
- Fleet measures have been set, defining the number and the type of vessels that are allowed to fish as well as the reference levels. However, the efficiency of the EU measures dealing with the overcapacity of the fishing fleet is questioned in the following study: *studie van de Europese Rekenkamer (2011)*²²⁵³⁸⁶.

The EC aims for long-term management, in which specific multi-annual plans are drawn up for important commercial fish species. Europe is also tackling the problem of discards (*handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸). An overview of European legislation concerning the CFP is provided on the *Eurlex website*. The ecological, economic, social and governance impacts of the CFP were investigated in the following study: *European studie (2010)*²²⁵⁵⁹⁶.

In order to help finance these measures, Europe founded the European Fisheries Fund (EFF) for the 2007-2013 period (*Regulation 1198/2006*) (*handleiding voor het GVB, 2009*¹⁴⁰⁵⁰⁸). The fund is financed by European money and funds

from Member States (in this case Flanders, the Walloon region and local administrations). An overview of the interim national evaluation report of the EFF is given in '[Interim evaluation of the European Fisheries Fund \(2007-2013\)](#)'²²⁵³⁸⁵.

Since 1 January 2010, the control of compliance with the CFP is settled by *Regulation 1224/2009* which relates to *Regulation 1005/2008* to prevent, deter and eliminate IUU-fisheries. The fishing activities of all fishing vessels except for small traditional vessels (<12 m) can be monitored by means of a satellite tracking system (the so-called 'Vessel Monitoring System'). All ships also have to be equipped with an electronic logbook, in which fishermen need to report the date, place and size of the catch, per species ([Visserijrapport \(VIRA\) 2012](#)²²⁴⁹⁵⁷, [website DG MARE](#)). The European Fisheries Control Agency (EFCA) was founded in Vigo in 2006 to organise the collaboration and coordination between the Member States on the control and inspection of fisheries ([handleiding voor het GVB, 2009](#)¹⁴⁰⁵⁰⁸).

6.5.2 The CFP reform

The EC has developed reform proposals that need to generate a radical switch in the fisheries policy after 2013 (see Green Paper reform CFP (COM (2009) 163) prior to the reform proposals, consultation CFP reform (SEC (2010) 428, COM (2011) 417)). Some of the elements included in the reform proposals, concern a landing obligation (ban on discards), achieving a MSY of the fish stocks by 2015, the implementation of transferable fishing concessions (choice of implementation by the Member States), and the focus on regional management ([Visserijrapport \(VIRA\) 2012](#)²²⁴⁹⁵⁷, [website DG MARE](#)). The anticipated ecological, economic, social and governance impacts of this reform were investigated in the following study: [Europese studie \(2010\)](#)²²⁵⁵⁹⁷.

6.5.3 The Marine Strategy Framework Directive - MSFD

In addition to the CFP, the MSFD (2008/56/EC) offers a framework to reduce or avoid the impact of fisheries on the marine environment. A number of descriptors have been developed in order to define a good environmental status (GES), which relate directly or indirectly to fisheries:

- Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock (more information: [Piet et al. 2010](#)²⁰²⁴⁸²).
- All elements of the marine food webs, to the extent that they are known, occur at normal abundance, diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity (more information: [Rogers et al. 2010](#)²⁰²⁴⁸⁸).
- Sea-floor integrity is at a level that ensures the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected (more information: [Rice et al. 2010](#)²⁰²⁴⁹⁰).
- Contaminants in fish and other seafood for human consumption do not exceed levels established by community legislation or other relevant standards (more information: [Swartenbroux et al. 2010](#)¹⁹⁹⁵⁵³).

The physical damage to the seabed due to fisheries activities and the selective extraction of species, including incidental non-target catches, has also been included in the indicative list of pressures and impacts. Furthermore, the need for a monitoring program for the chemical pollution of commercial fish species has been highlighted.

The MSFD has been implemented in Belgian legislation by the *Royal Decree of 23 June 2010*. The elaboration of the environmental goals and indicators for each descriptor for the BNS is given in the following publication: [de Omschrijving van de Goede Milieutoestand & vaststelling van Milieudoelen voor de Belgische mariene wateren \(2012\)](#)²²⁰²³². In this regard, a monitoring program will be implemented (2014), allowing to monitor the evolution of the condition of the environment, and to evaluate this in the context of a 6-yearly report (see theme **Nature and environment**).

6.5.4 Data collection in Europe and Belgium

In-depth research and scientific information is needed to underpin the CFP. On the European level, the fisheries research is regulated by detailed directives ([Data Collection Framework, DCF](#)) stipulating which information Member States should gather. The current regulation is valid until the end of 2013. In 2014, the DCF will be replaced by the Data Collection Multi-Annual Programme (DCMAP), complementing the new CFP. The DCMAP is a 7-yearly program, combining several activities carried out in the Member States, such as control, data collection and studies. The funding of the new DCMAP is covered by the European Maritime and Fisheries Fund (EMFF). This new fund will

replace the current European Fisheries Fund (EFF) and a few other tools. Advice regarding the CFP on the basis of scientific information is provided by several organisations (more information: [handleiding voor het GVB, 2009](#) ¹⁴⁰⁵⁰⁸):

- The International Council for Exploration of the Sea ([ICES](#)) gives biological advice for proper management of fisheries in Europe, by means of international collaboration with fisheries biologists. The conclusions of the ICES working groups dealing with fish stock evaluations are processed in the deliberations of the Advisory Committee (ACOM).
- The [Scientific, Technical and Economic Committee for Fisheries](#) (STECF) is the regular advisory body of the EC with regard to fisheries. This committee was founded in 1993 (93/619/EC) and renewed in 2005 (2005/629/EC) and consists of a group of independent scientists, established in order to advise the EC on all aspects of the fisheries policy.

In Belgium the research group fisheries biology of the [ILVO](#) gives advice on the condition and management of Belgian and European fisheries. This research group also conducts research on fisheries biology, stock assessment methods, marine ecosystem dynamics and the potential consequences of fisheries management on the fish stocks and fisheries *in se*. In order to realise these general objectives, the research activities mainly focus on data collection concerning the size of fish stocks and the exploitation pattern of the commercially important species. This results in scientific advice supporting the implementation and execution of the CFP.

A number of important challenges include: the evolution from a 'single species' towards a 'multi species' approach within the context of the ecosystem approach, the development and implementation of a *métier* oriented programme and the promotion of collaboration between the fisheries sector and scientists by means of Fisheries-Science Partnerships.

6.5.5 A sustainable fisheries sector

Fisheries have gone through various years of crisis. The government has tried to respond to this crisis with specific measures. The Flemish fisheries sector has been striving for a more sustainable approach, *inter alia* by means of investments in higher profitability, energy-saving techniques in a broad sense (engine, auxiliary engine, fishing gear, equipment, etc.), alternative, environmentally friendly or more selective fishing techniques, scrapping programmes to balance the catch capacity of the fleet and quotas, emphasis on other target species, changes in landing volumes, improvement of the quality of fish products, improved working conditions and safety of the crew and the development of a sustainable aquaculture sector in Flanders ([Visserijrapport \(VIRA\) 2012](#) ²²⁴⁹⁵⁷).

A number of initiatives to achieve a (more) sustainable fisheries sector are listed below:

Within the context of the EFF (*Regulation 1198/2006*), every Member State needs to develop a national strategic plan for the fisheries sector ([National Strategic Plan for the Belgian fisheries sector 2007-2013](#) ¹⁹⁶¹³⁵, [Strategic Environmental Assessment of the National Operational Plan for the Belgian fisheries sector, 2007 - 2013](#) ¹³¹⁰⁹³ – *Royal Decree of 18 May 2008*, the [Operational Programme in implementation of the National Strategic Plan for the Belgian fisheries sector 2007-2013](#) ¹⁹⁶¹³⁶). For the Belgian fisheries sector, 5 priorities have been defined:

- Axis 1 – Measures for the adaptation of the fisheries fleet;
- Axis 2 – Aquaculture, inland fisheries, processing and marketing of fisheries and aquaculture products;
- Axis 3 – Measures of common interest;
- Axis 4 – Sustainable development of fisheries areas;
- Axis 5 – Technical assistance.

Within [Axis 4 \(sustainable development of fisheries areas\)](#) of the national operational programme, the EFF provides funds in order to strengthen Belgian sea fisheries on a local level. Specific attention is paid to sustainable fishing methods, quality-oriented fish and fish chain management, a more sustainable market, more diversification, expansion and innovation, attention for e.g. equal opportunities, economic viability and sustainable management of the coast and the marine environment ([ontwikkelingsstrategie EVF as 4 Belgisch Kustgebied, 2011](#) ²¹⁴⁷⁶⁵). The allocation of the funds is decided on and managed by the Local Group, a partnership encompassing a broad range of socio-economic actors from the fisheries sector, NGOs and administrations.

To be able to face the profitability problems of the fisheries fleet, the Flemish government has developed a [global action and restructuring plan \(Task Force Fisheries 2006\)](#) ¹⁰⁶⁵²⁷, aiming towards sustainable Flemish fisheries by means of structural changes. This plan is part of the Belgian implementation procedure of the *European Regulation 744/2008*,

which allowed temporary support for a scrapping programme and a modernisation scheme. These measures were financed by Flemish public resources from the *FIVA* (Decree of 13 May 1997).

- In 2005, the maximum engine capacity was raised to 1,200 kW and three fleet segments were defined. The scrapping of vessels was temporarily supported by governmental intervention (*Ministerial Decree of 2 June 2009* – see **Societal interest: the Belgian fleet**);
- The adapted Flemish quota policy (in force since 1 February 2006) should contribute to an optimal and efficient quota use (more information: *Adriansens 2009*²⁰²⁰⁰⁹);
- Research on alternative fishing techniques is carried out in order to transform the remaining vessels into a sustainable fleet.

The *ILVO* conducts research on sustainable fishing techniques. In this context, the design of the beam trawl was modified to reduce seabed disturbance, towing resistance and thus fuel use (*Depestele et al. 2007*¹²²⁷¹², *Stouten et al. 2007*¹²²⁷⁰⁹). Experimental modifications of fishing gear have also been tested to decrease discards of undersized fish and non-commercial organisms. It is expected that research with regard to a better species and length selection will remain necessary due to the proposed discard ban (e.g. *Depestele et al. 2011*²¹⁴⁶⁸⁹). In addition, research is carried out on alternative fishing techniques such as handline fishing, gillnets, Scottish seining and the ‘Hovercran’ (*Polet 2004*⁵⁹³⁹⁹, *Van Craeynest 2009*²²⁵³⁹⁰, *Verhaeghe et al. 2011*²⁰⁶¹⁸⁶, *Verschuere et al. 2012*²²⁵³⁵⁵, *Depestele et al. 2012*²¹⁴³⁰³ (*WAKO-II project BELSPO*)).

Within the fisheries sector, a *societal covenant for sustainable fisheries (2011)*²¹⁴⁷⁷⁷ was developed. This covenant is based on three main principles: profitability, environmental care and the social aspect of fisheries. The Flemish Government has developed an Action Plan on selective fishing in order to react pro-actively to the reform of the Fisheries policy. In this action plan, 10 priorities are proposed, leading to more sustainable fisheries. In the publication *activiteitenverslag van de rederscentrale 2010 (Wintein & Brouckaert 2011)*²²⁵³⁸⁴, reference is made to a few initiatives aiming at sustainability.

Legislation reference list

Table with European legislation. The consolidated version of this legislation is available on [Eurlex](#).

EUROPEAN LEGISLATION			
Abbreviations (if available)	Title	Year	Number
Directives			
Habitats Directive	Directive concerning the conservation of natural habitats and of wild fauna and flora	1992	43
Marine Strategy Framework Directive	Directive establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)	2008	56
Regulations			
Common Fisheries Policy	Regulation on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy	2002	2371
	Regulation on the European Fisheries Fund	2006	1198
	Regulation instituting a temporary specific action aiming to promote the restructuring of the European Community fishing fleets affected by the economic crisis	2008	744
	Regulation establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing	2008	1005
	Regulation establishing a Community control system for ensuring compliance with the rules of the common fisheries policy	2009	1224
Other (Decisions, Communications, White Papers, etc.)			
	Commission Decision relating to the institution of a Scientific, Technical and Economic Committee for Fisheries	1993	619
	Communication from the Commission (COM): A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development	2001	264
	Communication from the Commission (COM): A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development	2002	179
	Council Decision establishing Regional Advisory Councils under the Common Fisheries Policy	2004	585
	Commission Decision establishing a Scientific, Technical and Economic Committee for Fisheries	2005	629
	Green Paper (COM): Reform of the Common Fisheries Policy	2009	163
	Commission Staff Working Document (SEC) Synthesis of the Consultation on the Reform of the Common Fisheries Policy	2010	428
	Communication from the Commission (COM): Reform of the Common Fisheries Policy	2011	417

Table with Belgian and Flemish legislation. The consolidated version of this legislation is available on [Belgisch staatsblad](#) and the [Justel-databases](#).

BELGIAN AND FLEMISH LEGISLATION	
Date	Title
Laws	
Wet van 19 augustus 1891	Wet betreffende de zeevisserij in de territoriale zee
Wet van 10 oktober 1978	Wet houdende vaststelling van een Belgische visserijzone
Wet van 22 april 1999	Wet betreffende de exclusieve zone van België in de Noordzee.
Royal Decrees	
KB van 14 augustus 1989	Koninklijk besluit tot vaststelling van aanvullende nationale maatregelen voor de instandhouding en het beheer van de visbestanden en voor controle op de visserijactiviteiten
KB van 18 mei 2008	Koninklijk besluit tot vaststelling van het feit dat een beoordeling van de gevolgen op het milieu vereist is voor het nationaal operationeel programma voor de visserijsector en dat een beoordeling van de gevolgen op het milieu niet vereist is voor het nationaal strategisch plan voor de visserijsector
KB van 23 juni 2010	Koninklijk besluit betreffende de mariene strategie voor de Belgische zeegebieden
Decrees	
Decreet van 13 mei 1997	Decreet houdende oprichting van een Financieringsinstrument voor de Vlaamse visserij- en aquacultuursector
Ministerial Decrees	
MB van 16 december 2005	Ministerieel besluit tot de instelling van een visvergunning en houdende tijdelijke maatregelen voor de uitvoering van de communautaire regeling inzake de instandhouding en de duurzame exploitatie van de visbestanden
MB van 2 juni 2009	Ministerieel besluit tot toekenning van een beëindigingspremie voor de definitieve onttrekking van vissersvaartuigen aan de zeevisserijactiviteit in het kader van een vlootaanpassingsregeling
MB van 21 december 2012	Ministerieel besluit houdende tijdelijke aanvullende maatregelen tot het behoud van de visbestanden in zee