

8

Marine aquaculture



Authors

Peter Bossier ¹
Daan Delbare ²
Margriet Drouillon ¹
Nancy Nevejan ¹
Mathieu Wille ¹
Thomas Verleye ³

Reviewers

Karel Vanhulle ⁴
Benny Pycke ⁵
Fien De Raedemaecker ³

¹ Ghent University (UGent)

² Research institute for Agriculture, Fisheries and Food (ILVO)

³ Flanders Marine Institute (VLIZ)

⁴ Department of Agriculture and Fisheries

⁵ Sioen Industries

Bossier, P., Delbare, D., Drouillon, M., Nevejan, N., Wille, M., Verleye, T. (2018). Marine aquaculture. In: Devriese, L., Dauwe, S., Verleye, T., Pirlot, H., Mees, J. (Eds.) Knowledge Guide Coast and Sea 2018 - Compendium for Coast and Sea. p. 131-141.

In 2017, the worldwide production of fishery products (including aquatic plants) amounted to 205.6 million tonnes. Aquaculture accounted for 54.5% (112 million tonnes) of the total production (figure 1), while in 1990 and 2000 it only accounted for 13.4% and 25.7% of the total production, respectively. As a result, aquaculture is globally the fastest growing food production sector with an average annual increase of 7.1% since 1990 (figure 1) (*FAO Fisheries and Aquaculture Information and Statistics Service 2020*).

In the following, the term aquaculture includes the cultivation of aquatic organisms (in fresh, salt or brackish water). Mariculture or marine aquaculture is a specialised branch of aquaculture and includes the cultivation of marine species at sea and on land.

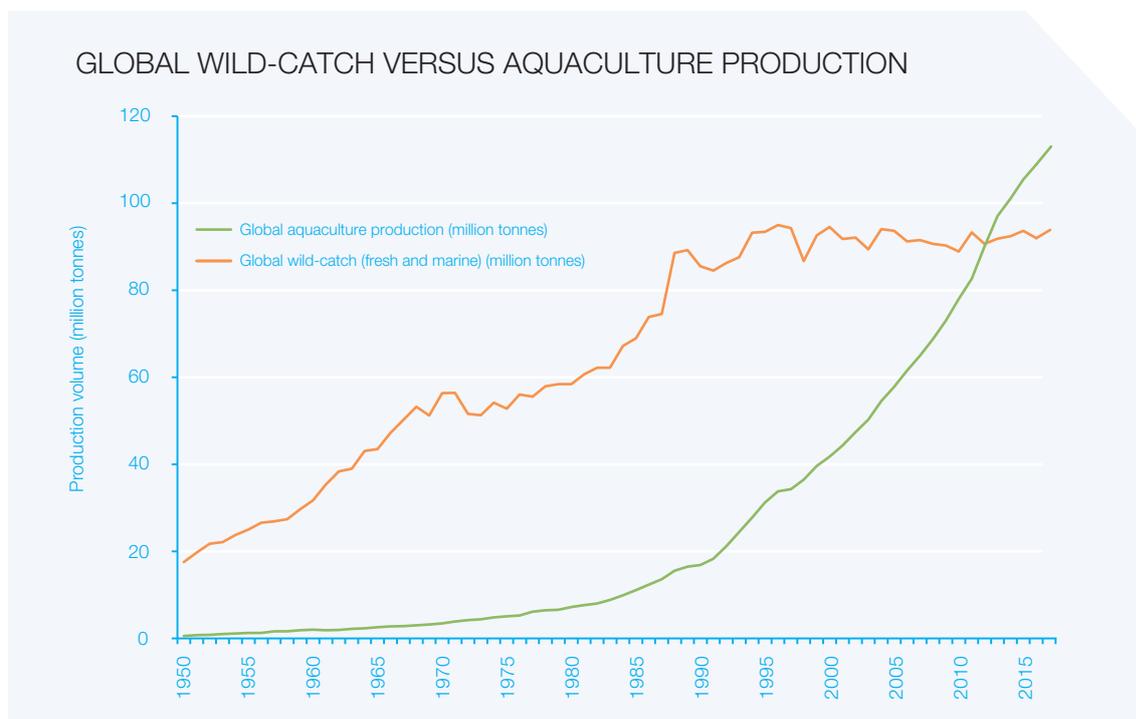


Figure 1. Aquatic production (global wild-catch and aquaculture production) between 1950 and 2017 (fresh, brackish and marine) (Source: *FAO Fisheries and Aquaculture Information and Statistics Service 2020*).

Global mariculture production amounted to 53.4 million tonnes in 2017, representing a total production value of 76.3 billion US dollars. The European Union (EU) accounted for 0.98 million tonnes (1.9%), while Europe produced a total of 2.42 million tonnes (4.5%). The main European mariculture producer is Norway (mainly salmon) with a total volume of 1.3 million tonnes, representing 54% of the European total. Noteworthy is the stagnation of marine aquaculture production within the EU over the last two decades (figure 2), while Norway shows a tripling of its marine production over the same period. In 2017, Belgium had no commercial mariculture activities cf. the FAO statistics. The importance of freshwater aquaculture was also limited to a production volume of only 75 tonnes (see also figure 4) (*FAO Fisheries and Aquaculture Information and Statistics Service 2020*).

8.1 Policy context

At the European level, the policy concerning aquaculture (including mariculture) is included in the Common Fisheries Policy (CFP, Regulation (EC) No 1380/2013). Communication COM (2009) 162 includes a strategy for the sustainable development of European aquaculture. The Communication COM (2013) 229 comprises strategic guidelines presenting common priorities and general objectives for the sustainable development of European aquaculture: administrative simplification, coordinated spatial planning, increased competitiveness and the full exploitation of competitive advantages. Furthermore, a sustainable aquaculture is one of the main priorities of the European Maritime and Fisheries Fund (*EMFF*, Regulation (EU) No 508/2014).

On a Belgian level, mariculture, which takes place at sea, is under supervision of the federal Government (secretary of state for the North Sea /*FPS Health, Food Chain Safety and Environment*). Aquaculture or mariculture institutions on Flemish territory, however, are a Flemish competence. In this regard, the *Division Knowledge, Quality and Fishery*

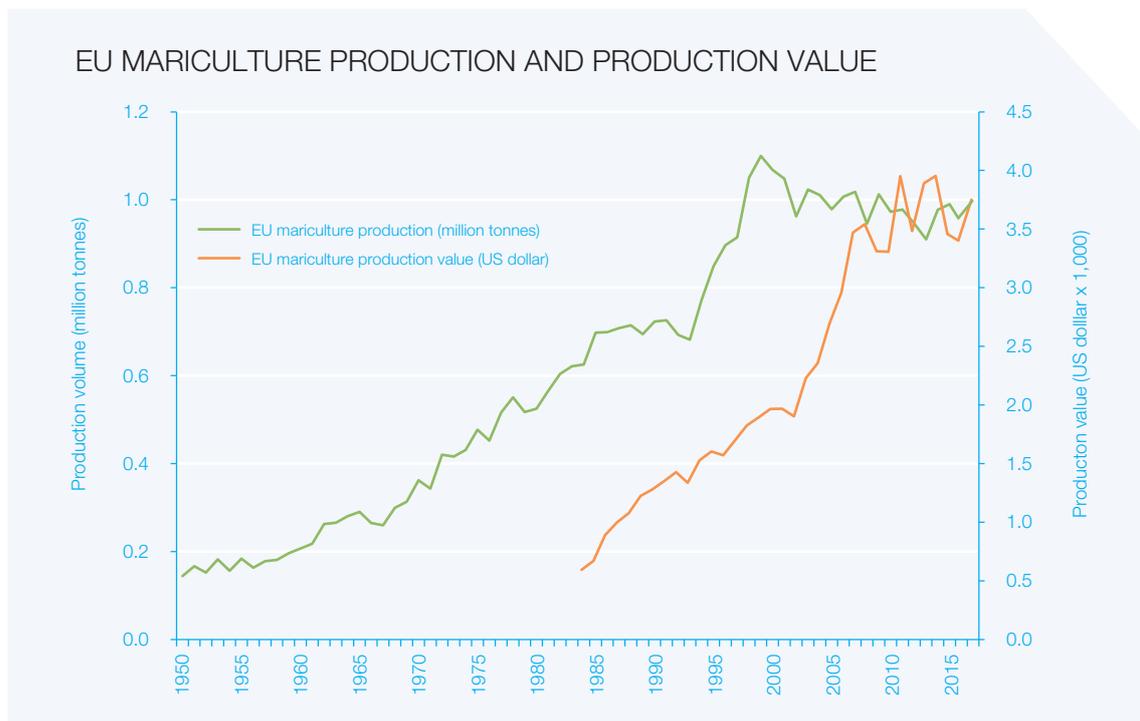


Figure 2. Mariculture production and mariculture production value in the European Union (EU) from 1950 to 2017 (Source: [FAO Fisheries and Aquaculture Information and Statistics Service 2020](#)).

(AKKV) of the [Department Agriculture and Fisheries](#) is the management authority of the [Operational Programme \(EMFF\) 2014-2020](#), which also includes measures to support aquaculture ([summary brochure](#)). These measurements must be in line with the [Belgian National Strategic Plan for Aquaculture \(2014-2020\)](#). In order to better coordinate actions to promote aquaculture, EU Member States are obliged to draw up a multiannual strategic plan on the basis of the EU guidelines presented in the Communication COM (2013) 229. In 2017, during the mid-term review of the plan, a greater emphasis was placed on mariculture. Other regulations and competent authorities for mariculture and aquaculture can be found on the website of the [Flemish Aquaculture Platform](#) and in the publication [Aquaculture in Flanders \(2013\)](#).

8.2 Spatial use

8.2.1 Marine spatial plan and mariculture

The possibility of sustainable mariculture activities (under strict conditions) in the Belwind I and C-Power wind farms has been included in the marine spatial plan (MSP, RD of 20 March 2014, see also [Van de Velde et al. 2014](#)) for the Belgian part of the North Sea (BNS). The wind farm concession holders should agree to these conditions and the mariculture activities must reduce the eutrophication level within the concession zone (figure 3). In the process to the new MSP (2020-2026), new areas for aquaculture activities are drafted. The existing zone for renewable energy is designated as a development area for aquaculture where concessions will be delivered under strict conditions. Within the new renewable energy zones, it is still being examined whether and how aquaculture can be allowed without compromising safety ([MSP 2020-2026, public consultation 2018](#)).

A coordinated spatial plan on EU level is considered necessary to ensure the sustainable development and growth in aquaculture by reducing uncertainties, facilitating investments and tackling the lack of space (COM (2013) 229). The compatibility of mariculture and passive gear fisheries in the wind farms has already been investigated in the context of the MARIPAS project ([Verhaeghe et al. 2011](#)) and [Alver et al. \(2015\)](#). Within the [AquaValue project](#), a roadmap for integrated aquaculture at sea was developed in 2015. Four pilot projects were put forward that can provide a strong stimulus for the development of a sustainable integrated aquaculture sector in Flanders. These formed the basis for a number of concrete follow-up projects that are being implemented at sea (see [8.5 Sustainable use](#)).

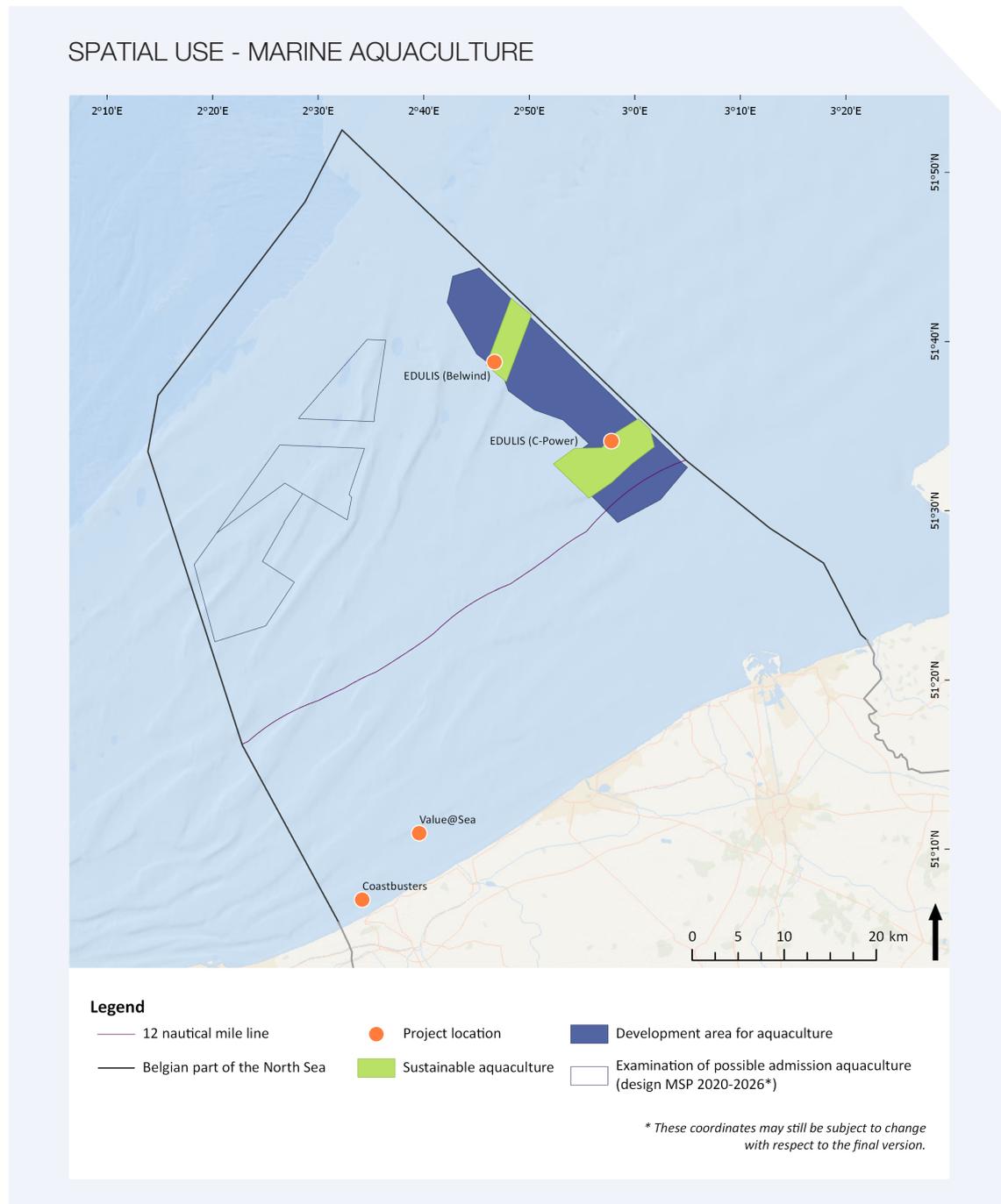


Figure 3. The locations reserved for aquaculture in the BNS (Source: RBINS, marineatlas.be (based on the RD of 20 March 2014, [MSP 2020-2026](#), [public consultation 2018](#), Flemish Hydrography 2013).

8.2.2 Mussel farming in the North Sea

Over the past two decades, a number of initiatives took place to cultivate mussels (*Mytilus edulis*) in the BNS *inter alia* the 5b project ‘*Vlaamse Mosselkwekerij*’ (1998) and the PESCA project ‘*Vlaamse Mosselkweek*’ (2002). From 2002 until 2006, the offshore mussel cultivation experiments were continued by private funding (José Reynaert) and were scientifically supported by CLO-DVZ (now ILVO). Independently of this private initiative, a FIOV project (*Financieringsinstrument voor de Oriëntatie van de Visserij*) ‘Study on the commercialisation of Belgian offshore suspended mussel culture’ was carried out between 2005 and 2008 by the Foundation for Sustainable Fishery Development (SDVO). In this project, the production of mussels by means of suspended cultivation in cages on five different areas, was evaluated ([Milieu-effectenbeoordeling Mosselcultuur 2005](#), [Delbare 2005](#), [Van Nieuwenhove](#)

2008, [ICES WGMASC Report 2011](#)). The permit for these areas was granted by the MD of 7 October 2005 following the [environmental impact assessment](#) (EIA) (cf. the law of 20 January 1999 and the RDs of 7 and 9 September 2003). The MD of 8 July 2005 stipulated a simplified procedure and a model form for the determination of the EIA. SDVO marketed the cultivated mussels under the name 'Flanders Queen Mussels', but supply volumes remained very limited (8 tonnes in 2008). This activity ended in 2010. In 2006, Reynaert and Versluys started commercial production of mussels under the name 'Belgica mussels' with a maximum landing of 300 tonnes (2010-2011), but the production ceased in 2011. In both projects, the mussel cages used were technically not resistant to the harsh weather conditions. As several studies demonstrate the potential for shellfish and seaweed farming in the Belgian part of the North Sea, the project 'North Sea Aquaculture' was recently initiated with private, FIVA (Financial Instrument for the Flemish Fisheries and Aquaculture Sector) and EMFF funding (see [8.5 Sustainable use](#) for more information).

8.2.3 Aquaculture in the coastal zone

In the Belgian coastal zone, aquaculture can be found in the Sluice Dock of Ostend (*Spuikom*) where the European flat oyster (*Ostrea edulis*) and the Pacific oyster (*Magallana gigas*) are farmed (e.g. [Curé et al. 2000](#)). The current aquaculture activities are distributed over two zones of 4 and 5 ha, respectively (website [Oostendse Spuikom](#)). The permits for aquaculture are granted by the [Coastal Division](#) of the Agency for Maritime Services and Coast (MD&K). The [consultation platform Spuikom](#) aims for an optimal coordination of the different users based on a consensus and provides advice to the actual administrator/owner, i.e. the Coastal Division. In 2016, the [Coastbusters project](#) (2016-2019) was launched to investigate the possibilities of using marine organisms for nature-based coastal protection (see also [8.5 Sustainable use](#), and theme [Safety against flooding](#)).

8.3 Societal interest

In 2016, 10,438 companies within the EU Member States were reported under the Data Collection Framework (DCF) and the EU Multi-annual Programme (EU-MAP) with a total employment of 55,017 persons, corresponding with 29,743 FTE. In total, the EU aquaculture sector produced 1.4 million tonnes with a sales value of 4.9 billion euro. The marine sector generated the largest turnover of 2,665 million euro, followed by the shellfish sector with 1,107 million euro and the freshwater sector with 1,003 million euro. In relative terms of production volumes, the EU shellfish production accounted for 47%, while marine and freshwater fish production accounted for 31% and 22%, respectively ([STECF 18-19 Economic Report of EU aquaculture sector](#)).

In Belgium, the importance of aquaculture for human consumption is limited, and in 2016 only 44 tonnes of freshwater species with a value of around 0.5 million euro were produced (figure 4) ([FAO Fisheries and Aquaculture Information and Statistics Service 2018](#)). [The Belgian National Aquaculture Strategy Plan \(2014-2020\)](#) aims to achieve a production volume of 1,032 tonnes in 2023, with a production value of 11.45 million euro. Employment in the primary Belgian aquaculture sector was estimated at 60 fulltime equivalents (FTEs) in 2014, while the supply sector accounted for 78 additional FTEs ([VIRA 2014](#)).

The main activities within the aquaculture sector in Belgium take place in Wallonia, where trout farming is the main activity, but will not be discussed further in this text. The [Flemish Aquaculture Platform](#) reports about 36 Flemish companies, not only producers. This list includes specialised feed companies, aquaculture product distributors and consultancy firms. The most important cultivated species are sturgeon (caviar), zander (pike-perch), prawns and jade perch (*Omegabaars*) (e.g. [VIRA 2018](#)). Marine aquaculture in the Belgian coastal area is virtually non-existent, with the exception of oyster farming in the Spuikom (Ostend), but the initiative is of limited economic importance ([Verlé et al. 2016](#)).

From a historical point of view, the cultivation of flat oysters on our coast has been of considerable commercial importance ([Pirlet 2012](#)). The 'Ostend Oyster' (*l'Ostendaise* or *Royal Ostendaise*) in particular enjoyed worldwide fame. Shortly before the First World War, oyster farming reached its peak with 26 oyster parks along the Belgian coast. Every year, 30-35 million oysters were imported from England and further cultivated in Belgian oyster farms ([Halewyck and Hostyn 1978, Polk 2002](#)). The two world wars and the increasing pollution of sea water caused a sharp drop in the number of oyster farms and ultimately resulted in the disappearance of domestic oyster farming today. An overview of these activities can be consulted on the website about the [history of Belgian oyster farming](#).

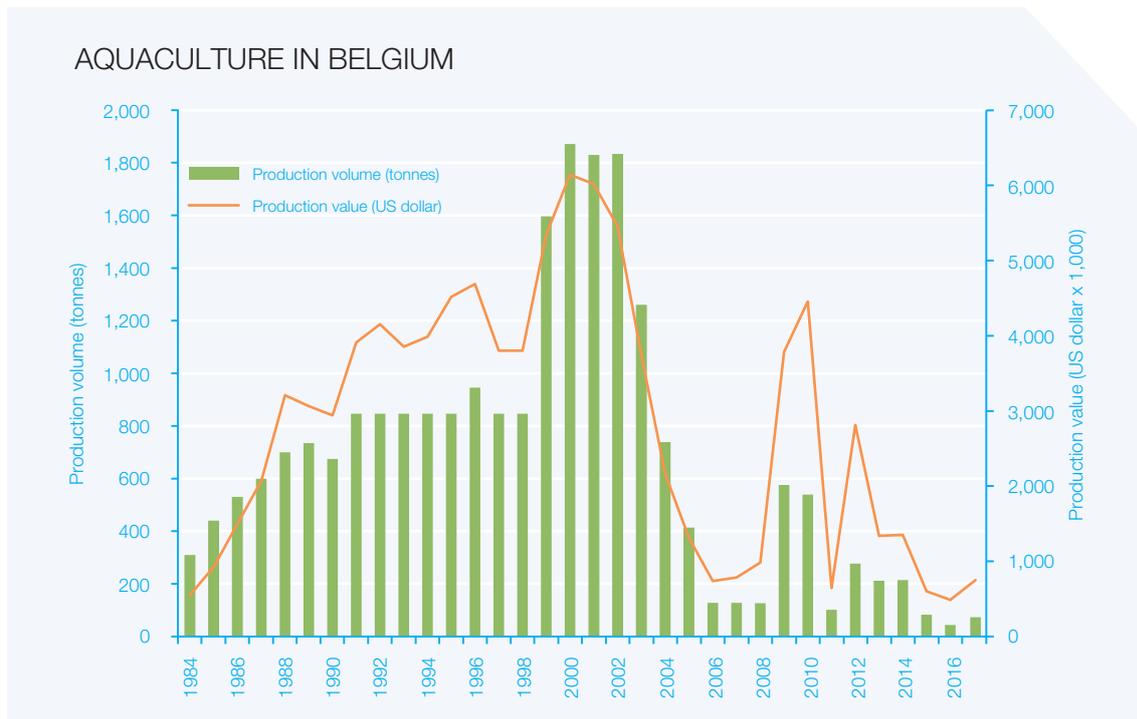


Figure 4. Annual aquaculture production and production value in Belgium (Source: *FAO Fisheries and Aquaculture Information and Statistics Service 2020*).

8.4 Impact

Mariculture has a number of positive effects on the environment and the users of the sea (e.g. *The State of World Fisheries and Aquaculture (FAO 2018)*, *Sustainable Fisheries and Aquaculture for Food Security and Nutrition (HLPE 2014)*). In addition to its contribution to global food security, aquaculture offers benefits for the common welfare, the economy and the environment such as:

- Sustainable and locally produced food;
- Healthy food;
- Infrastructure and employment (including fish processing companies) (*WorldFish 2015, Slater 2017*);
- Mariculture provides a remedial potential for the trophic higher level species. Bivalves are filter feeders and help maintain or improve water quality by reducing the turbidity, increasing the light penetration, reducing algal blooms, nitrogen removal (*Carmichael et al. 2012*), protecting the coastline, stabilising sediments, accelerating the nutrient cycle, sequestering nutrients and acting as habitats for other organisms. Seaweeds (or macroalgae) absorb nitrogen, phosphate and carbon from the water they use for growth, protein production and the production of energy reserve products (especially carbohydrates);
- Seaweed can be a bioresource of high quality components for human consumption;
- Seaweed can be used as raw material for the production of non-food: bio-based materials, bio-active components for cosmetics or pharmaceuticals, feed for farmed fish or cattle, and biofuels (*Buck et al. 2017*).

Mariculture at sea can also have a number of undesirable effects on the environment and on the users of the sea, depending on the technique and the cultivated organisms. The possible negative effects of mariculture (fish and shellfish) are extensively discussed in international publications such as *OSPAR QSR (2010)*, *Report of the Global Conference on Aquaculture 2010 (FAO 2012)*, *Guidance on Aquaculture and Natura 2000 (2012)*, *Brenner et al. (2014)* and *The State of World Fisheries and Aquaculture (FAO 2018)*. At national level, this aspect is addressed in the *Milieu-effectenbeoordeling Mosselcultuur (2005)*, *De Wachter and Volckaert (2005) (GAUFRE project BELSPO)*, *Goffin et al. (2007)* and the *Strategische Milieubeoordeling van het Nationaal Operationeel Plan voor de Belgische Visserijsector 2014 - 2020*). A number of negative effects are:

- Modifications of the natural nutrient flux by, *inter alia*, excretion of organic nitrogen compounds;
- Organic enrichment of the underlying soil;
- Introduction of non-native species;
- Spread of diseases and parasites in farmed and wild stock;
- Genetic contamination of wild populations.

8.5 Sustainable use

8.5.1 International and European developments

Several FAO publications point to the need to shift from land-based and nearshore aquaculture production to sustainable offshore production systems in order to meet the growing demand for food and the competition for space and clean water (Lovatelli et al. 2013, Kapetsky et al. 2013). In these documents, the importance of integrated multitrophic mariculture (e.g. Bollengier 2016) as a mitigation approach against the excess generation of nutrients and organic matter caused by intensive mariculture activities (e.g. Soto 2009, Report of the Global Conference on Aquaculture 2010 (FAO 2012), Sorgeloos 2013, Buck et al. 2017) is also highlighted. By cultivating species of lower trophic levels and optimising food and nutrition strategies, the impact on the ecosystem is minimised and long-term sustainability is pursued. Recommendations regarding offshore aquaculture, fish feed and aquaculture technologies were formulated in the 2012 (Part I, Part II) and 2013 (Part I, Part II) Bremerhaven Declarations.

The scientific advisory report (EC) *Food from the Oceans (2017)* provides a framework on how more food (biomass) can be extracted from the ocean in a sustainable way, and also formulates a number of policy recommendations for this purpose. The report is in line with the aforementioned FAO publications and targets aquaculture with a focus on lower trophic levels. It also identifies mariculture as the sector with the greatest potential to meet the growing food demand. It is recommended to focus on herbivorous filter feeders (e.g. mussels) for direct human consumption or, in combination with cultivated algae, as a more ecologically efficient food source for cultured marine omnivorous or carnivorous organisms (e.g. bony fish, shrimps).

In the Communications COM (2009) 162 and COM (2013) 229, the EC has committed itself to guarantee an environmentally friendly aquaculture. The EC has promised to emphasise the importance of an ecologically sustainable aquaculture development in its policies and measures. Furthermore, Europe has imposed directives for an aquaculture-friendly environment in order to guarantee the health of the aquatic animals and the safety and quality of the aquaculture products. The European legislation that is relevant in this context is listed in table 1 (not exhaustive).

Table 1. The main European legislation on sustainable aquaculture.

European legislation	Subject
Directive 91/676/EEC	Nitrates Directive – The protection of water against contamination caused by nitrates from agricultural sources.
Directive 92/43/EEC	Habitats Directive – The conservation of natural habitats and of wild fauna and flora.
Directive 2000/60/EC	Water Framework Directive – Establishing a framework for Community action in the field of water policy.
Directive 2006/88/EC	Animal health requirements for aquaculture animals and products thereof, and the prevention and control of certain diseases in aquatic animals.
Regulation (EC) No 708/2007	The use of alien and locally absent species in aquaculture.
Regulation (EC) No 762/2008	The submission by Member States of statistics on aquaculture.
Directive 2008/56/EC	Marine Strategy Framework Directive – A framework for community action in the field of marine environmental policy.
Directive 2009/147/EC	Birds Directive – The conservation of wild birds.
Directive 2010/75/EU	Integrated pollution prevention and control.

Furthermore, Europe has published guidelines dealing with the relation between aquaculture and Natura 2000 areas: *Guidance on Aquaculture and Natura 2000 (2012)*. These guidelines aim to (1) give a clear view on the conservation objectives, (2) promote good practices and (3) indicate how sustainable aquaculture and nature protection are compatible.

The sustainable development and deployment of aquaculture facilities at sea and in the coastal zone are also addressed in the framework of the Integrated Maritime Policy (COM (2007) 575). In order to unlock the potential of EU aquaculture and counteract stagnation, the COM (2013) 229 identifies four priority areas for action:

- Simplify administrative procedures;
- Coordinated spatial planning to reduce uncertainties and facilitate investments;
- Enhancing the competitiveness of the EU aquaculture sector;
- Ensure a level playing field for EU market operators by fully exploiting their competitive advantages (e.g. strict environmental regulation, food safety, consumer protection standards).

Strengthening competitiveness in the EU should be achieved through better market organisation and the full use of the EMFF (see also theme **Fisheries**) for production and marketing plans and for strengthening the links between Research and Development (R&D) on the one hand and the aquaculture sector on the other. Within the EMFF, 'Union Priority 2' aims to promote ecologically sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture.

8.5.2 Federal and Flemish developments

At the Belgian level, the mariculture activities have to comply with the law of 22 April 1999 (EEZ law) concerning the exclusive economic zone (EEZ) of Belgium in the North Sea and the law of 20 January 1999 (MMM law) relating to the protection of the marine environment and to the organisation of marine spatial planning in the maritime areas under the jurisdiction of Belgium (see also theme **Nature and environment**). Several implementing decrees related to mariculture have been published under the MMM law, such as the RD of 9 September 2003 on the environmental impact assessment, the RD of 7 September 2003 on the permit and authorisation procedure, the RD of 23 June 2010 on the marine strategy and the RD of 23 June 2010 on achieving good surface water status. The RD of 18 May 2008 stipulates that the National Operational Plan requires an environmental impact assessment with regard to mariculture in the maritime areas under the jurisdiction of Belgium. A simplified procedure is in force for certain activities at sea, such as the production of live bivalve molluscs using suspended cultivation (MD of 8 July 2005). A list of the Belgian/Flemish regulations to minimise the impact of aquaculture and mariculture facilities on the environment is given in *Coppens and Stoop (2003)*, *European and Belgian legal regulations for aquaculture establishments (2008)*, *Aquaculture in Flanders (2013)* and the *Flemish Aquaculture Platform*.

In the *Operational Program 2014-2020* (see also *Department of Agriculture and Fisheries 2016*), Union Priority 2 aims to promote environmental sustainability, resource efficiency, innovation, competitiveness as well as knowledge-based aquaculture. The basis for the realisation of this union priority is the *National Strategic Plan for Aquaculture* (NSPA 2017). The Operational Programme provides for a SWOT analysis and an initiation to policy priorities for the Belgian aquaculture sector. The *strategy* includes the following aspects:

- Stimulating technological development, innovation and knowledge transfer;
- Promote the competitiveness and viability of aquaculture companies, including the improvement of safety and working conditions;
- Protection and restoration of aquatic biodiversity and promotion of aquaculture related ecosystems and promotion of resource-efficient aquaculture;
- Promote aquaculture with a high level of environmental protection, animal welfare and health, public health and safety;
- Development of professional training and skills.

The *Flemish Aquaculture Platform* aims to stimulate and facilitate the development of the Flemish aquaculture sector, to map the aquaculture landscape (trends and developments) in Flanders and to present itself as the main information channel on aquaculture for entrepreneurs and researchers. In 2012, the *Strategic Aquaculture Steering Group* (SSAQ) was established under the umbrella of the Flemish Aquaculture Platform. It brings together all levels of the aquaculture industry to further develop and adjust the strategic choices and provides an aquaculture consultant to guide concrete projects and promote networking. At the Flemish level, a bottleneck analysis and recommendations to facilitate sector development have been published by the Court of Audit (*het Rekenhof*): *Aquaculture in Flanders (2013)*.

Various research and scientific institutes and companies are conducting research into the sustainable development of aquaculture within Flanders and in the BNS (see *Flemish Aquaculture Platform*, *Flemish Seaweed Platform*, etc.). A first example of this is the MARIPAS project, which investigated the integration of mariculture and offshore wind farms (*Verhaeghe et al. 2011*). The *AquaValue project* (2014-2015) developed a roadmap for aquaculture in Flanders. In addition to research on the integration of aquaculture with other offshore activities (see also **8.2 Spatial use**), special attention was paid to a multitrophic approach with additional species along the food chain. The subsequent research project 'North Sea Aquaculture' has a threefold objective: innovation in cultivation techniques for shellfish and seaweed, to organise efficient use of space in the BNS and to develop a market for new regional marine products. The 'North Sea Aquaculture' comprises two separate projects / test sites: (1) the Value@Sea project (2017-2019) near the coast of Nieuwpoort and (2) the *EDULIS project* (2016-2018) in the Belgian wind farms (C-Power and Belwind). The Coastbusters pilot project (2016-2019) off the coast of De Panne also resulted from the AquaValue project, but is not part of 'North Sea Aquaculture'.

Value@Sea aims to test the technical, ecological and economic feasibility of the integrated cultivation of extractive aquaculture species such as the flat oyster, scallop and sugar kelp. The EDULIS project aims to investigate the economic and ecological feasibility of mussel farming in offshore wind farms and also analyses the forces acting

on a mussel longline. In both projects, a life cycle analysis and a business case will be developed to investigate the economic feasibility of offshore mussel farming and coastal shellfish and seaweed cultivation. The economic feasibility of local seaweed farming was studied in the [SeaConomy](#) desktop project (2016-2018), a multidisciplinary consortium of companies, sector organisations and government agencies. There is also [the Blauwe Keten](#) (Interreg Flanders - the Netherlands, 2015-2018), which focuses on the development of a complete supply chain, from cultivation to market product, for the salt water algae *Spirulina*. The Coastbusters pilot project explores the use of innovative biostabilisation methods as a coastal protection mechanism, with the aim of achieving the natural accretion of sand and strengthening the foreshores against coastal erosion (see also theme **Safety against flooding**). Three concepts will be tested, each with the potential to form a natural biogenic reef, namely the use of sand mason worms (*Lanice conchilega*), seaweed and bivalves (mussels).

The concept of biogenic reefs for the protection of the coastal area and the possibilities with regard to sea ranching and multi-species hatcheries will also be investigated in the context of the [Blue Cluster](#), a spearhead cluster of the Government of Flanders for sustainable and innovative economic developments at the BNS.

The R&D [Zeebes project](#) (2017-2019) is conducting research into a pilot process for the (re)production of tunicates and into the technology and analyses for obtaining an economically feasible method of processing and drying these organisms for bulk applications in aquaculture feeds. In addition, the presence of interesting bioactive substances for pharmaceutical and nutraceutical applications will also be investigated.

Furthermore, the European Interreg IV project [Aquavlan](#) (2009-2014) aimed to build the foundations for an economically, socially and ecologically sustainable aquaculture sector within the Flemish-Dutch border region. It specifically focused on the sustainable cultivation of shellfish, fish and the harvesting of saline vegetables. The current Interreg V project [Aquavlan2](#) (2016-2019) supports companies in the aquaculture and horticulture sector in the border region with technical innovation.

In 2018, two aquaculture related [EMFF projects](#) with Belgian partners were pre-selected for funding by the European Commission. The AlgaeDemo project aims to demonstrate the sustainable, large-scale industrial cultivation of selected seaweed species at open sea, with automated seeding, harvesting and monitoring; and the AQUA-LIT project will develop a toolbox of innovative ideas and methodologies to prevent marine littering from aquaculture activities and to remove litter from aquaculture facilities.

Legislation reference list

Overview of the relevant legislation at the international, European, federal and Flemish level. For the consolidated European legislation we refer to [Eurlax](#), the national legislation can be consulted in the [Belgisch staatsblad](#) and the [Justel-databanken](#).

European legislation		
Title	Year	Number
Communication from the Commission (COM): An integrated maritime policy for the European Union	2007	575
Communication from the Commission (COM): Building a sustainable future for aquaculture - A new impetus for the Strategy for the Sustainable Development of European Aquaculture	2009	162
Communication from the Commission (COM): Strategic guidelines for the sustainable development of aquaculture in the EU	2013	229
Directive on the protection of waters against pollution caused by nitrates from agricultural sources (Nitrate Directive)	1991	676
Directive on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)	1992	43
Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)	2000	60
Directive on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals	2006	88
Directive establishing a framework for Community action in the field of marine environmental policy (Marine Strategy Framework Directive)	2008	56
Directive on the conservation of wild birds (Birds Directive)	2009	147
Directive on industrial emissions (integrated pollution prevention and control)	2010	75
Regulation concerning use of alien and locally absent species in aquaculture	2007	708
Regulation on the submission by Member States of statistics on aquaculture and repealing Council Regulation (EC) No 788/96	2008	762
Commission Regulation (EC) No 1251/2008 of 12 December 2008 implementing Council Directive 2006/88/EC concerning the conditions and certification requirements for the placing on the market and the import into the Community of aquaculture animals and products thereof and laying down a list of vector species	2008	1251
Regulation (EU) No 1379/2013 of the European Parliament and of the Council of 11 December 2013 on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 1048/2010	2013	1379
Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the common fisheries policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC	2013	1380
Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council	2014	508

Belgian and Flemish legislation		
Abbreviation	Title	File number
MD of 8 July 2005	Ministerieel besluit betreffende de bepaling van een activiteit van publicitaire en commerciële ondernemingen onderworpen aan de vereenvoudigde procedure en de vaststelling van het modelformulier voor de opstelling van het milieueffectenrapport	2005-07-08/31
MD of 7 October 2005	Ministerieel besluit houdende verlening aan de AG haven Oostende van een vergunning voor de productie van tweekleppige weekdieren door middel van hangstructuren in de zones Z1, Z2, Z3 en Z4 in de zeegebieden onder rechtsbevoegdheid van België	
RD of 7 September 2003	Koninklijk besluit houdende de procedure tot vergunning en machtiging van bepaalde activiteiten in de zeegebieden onder de rechtsbevoegdheid van België	2003-09-07/32
RD of 9 September 2003	Koninklijk besluit houdende de regels betreffende de milieu-effectenbeoordeling in toepassing van de wet van 20 januari 1999 ter bescherming van het mariene-milieu in de zeegebieden onder de rechtsbevoegdheid van België	2003-09-09/30

RD of 18 May 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	2008-05-18/32
RD of 23 June 2010	Koninklijk besluit betreffende de vaststelling van een kader voor het bereiken van een goede oppervlaktewatertoestand	2010-06-23/04
RD of 23 June 2010	Koninklijk besluit betreffende de mariene strategie voor de Belgische zeegebieden	2010-06-23/05
RD of 20 March 2014	Koninklijk besluit tot vaststelling van het marien ruimtelijk plan	2014-03-20/03
Law of 20 January 1999	Wet ter bescherming van het mariene milieu en ter organisatie van de mariene ruimtelijke planning in de zeegebieden onder de rechtsbevoegdheid van België	1999-01-20/33
Law of 22 April 1999	Wet betreffende de exclusieve zone van België in de Noordzee	1999-04-22/47

