

## National Profile - The Netherlands

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Author(s)	Xanthe Verschuur, Hans van Oostenbrugge, Marloes Kraan		
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Large Pelagics



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# I. Executive Summary

This national profile of the Netherlands is a first exercise to fulfil the demand for national profiles as context for the ambition of further social data collection of the EU<sup>1</sup>. Following recommendations from the STECF EWG 19-03, an expert report was written by A. Delaney (2020) with templates for such national profiles. “Sector profiles would contribute to a better understanding of the fisheries management context of each individual country and would facilitate proper social analyses in the future” (Delaney 2020).

This report is structured by an introduction summarizing the general description of the society, the main fisheries categories and economic values, the geographic areas (including the fishing communities), the fleet descriptions and related societal / industry descriptions, and the governance of fisheries in the Netherlands. This introduction is then followed by a short section on methods and data and then a detailed description of the production sector, and social (and socioeconomic) aspects of fisheries and ends with a description of trends, issues and developments.

The Netherlands has a 1276 km coastline and borders the North Sea. The biggest fishing ports and IJmuiden and Urk. The Netherlands has a diversified maritime economy and a long maritime history. Fishing in the Netherlands is a traditional practice. Fisheries and trade have always played an important role in Dutch fisheries. The Netherlands was a seafaring nation, and many people living in port towns and coastal villages in the 17<sup>th</sup> century were dependent on the maritime sector for their livelihoods. Fisheries are part of two aspects that are rooted in Dutch identity: life with water and its maritime history. The herring fleet played an important role in bringing the Netherlands the Golden Age. After 1900 the (national) economic importance of fisheries decreased rapidly, but the social-cultural importance of fisheries in the Netherlands is still deeply rooted in the diverse cultural heritage (a.o. ‘vlootschouw’ (fleet review) or ‘vlaggetjesdag’ (flag day) in fishing communities) that remained of its history. Fisheries represent a small part of this, accounting for less than 0.1 % of the national GDP. There are 44 fishing communities in the Netherlands as logged in the vessel register.

There are three main fleets in the Netherlands: pelagic freezer trawlers (6-9 vessels) mainly targeting small pelagics for human consumption mainly in the North-east Atlantic Ocean but also fishing in the South Pacific Ocean and various African waters; a cutter fleet (280-300 vessels) using demersal active gears in the southern and central North Sea catching flatfish and shrimp; and small coastal fisheries (222-232 vessels) comprised of a large variety of mostly small scale fisheries using a wide variety of gears and target a multitude of fish species fishing inland and in the coastal waters. In 2020, the total number of crew members was 2.165, of which at least 1.100 crew members belonged to the cutter fisheries. Of the total fleet 60% is an employee and 37% is owner of the fishing vessel. In the Dutch fishing fleet the largest part consists of family owned enterprises. Most fishers are male, among the estimated 1,700 employees aboard there were only 3 female workers known. Next to paid labour there is unpaid labour, most fishers on pension whom still help out in the companies (roughly 25% of paid labour). Most of the crew are between 40-64 years (40%). Followed by 25-39 (39%) and 15-24 (17%). The remaining 4% is older than 65. The owners are on average older: 49% between 40-64, between 25-39 (36%) and both other categories each 8%. From the total fleet 91% has the Dutch nationality, 6% has a nationality from an EU country other than the Netherlands, and 2% from a nationality outside the EU. Most employees are medium educated (72%), 18% low and 4% higher and the rest unknown. On average in 2019 in the Netherlands fishers earned 44 415 EUR annually. The majority of the crewmembers onboard

<sup>1</sup> See the STECF report Social Data in Fisheries – update of the national profiles (STECF-23-14).  
[https://stecf.jrc.ec.europa.eu/reports/economic/-/asset\\_publisher/d71e/document/id/60569506?inheritRedirect=false&redirect=https%3A%2F%2Fstecf.jrc.ec.europa.eu%2Freports%2Feconomic%3Fp\\_p\\_id%3D101\\_INSTANCE\\_d71e%26p\\_p\\_lifecycle%3D0%26p\\_p\\_state%3Dnormal%26p\\_p\\_mode%3Dview%26p\\_p\\_col\\_id%3Dcolumn-2%26p\\_p\\_col\\_pos%3D1%26p\\_p\\_col\\_count%3D2](https://stecf.jrc.ec.europa.eu/reports/economic/-/asset_publisher/d71e/document/id/60569506?inheritRedirect=false&redirect=https%3A%2F%2Fstecf.jrc.ec.europa.eu%2Freports%2Feconomic%3Fp_p_id%3D101_INSTANCE_d71e%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_pos%3D1%26p_p_col_count%3D2)

the Dutch fishing vessels are self-employed. These fishers earn a fixed percentage of the net revenue of the fishing trip. There are multiple schools in the Netherlands focused on fisheries, the so-called 'visserijscholen'.

The total landings of fish by the Dutch fishing sector was 75% by the large pelagic fisheries and 21% by the cutter fisheries. The remaining part included the landings by the shellfish fisheries (mainly razor clam) and other small scale fisheries. The most important pelagic species landed in 2020 included: herring, blue whiting, mackerel and horse mackerel. The primary demersal species landed in 2020 include plaice, sole, turbot, brill, shrimp, red gurnard, mullet, mackerel, whiting, squid and nephrops. The small scale fleet mainly catches seabass, surmullet and shrimp in addition to shellfish (e.g. razor clam, spisula and ensis). The economic performance of the Dutch national fleet decreased in 2019 compared to 2016-2018. Total income for the Dutch national fleet in 2019 was 345 million EUR. The total landings in 2020 was approximately 304 million kilograms. A large number of registered vessels in the Dutch fleet are currently inactive according to official logbook data. This group encompassed 189 vessels in 2020, almost 45% of the entire small scale coastal fisheries fleet. Most of the fresh fish products are sold through one of the thirteen fish auctions in the Netherlands. More and more sales are digitalised and shrimp sold via contracts.

The average seafood consumption by Dutch people remains relatively small compared to surrounding countries, on average it is 22,2 kg pp per year (gross consumption). Dutch consumers mainly eat salmon, salted herring, canned tuna, fried cod and fish sticks, mussels, cod and shrimp. The Netherlands is important in the EU with regards to the processing and trade of fish. Most of the fish caught by the Dutch fishing industry is exported either fresh or after being processed in the Dutch processing industry. The most important export markets are Germany, Belgium, France, Italy and Spain. Nigeria is the most import exporting country for fish caught in the pelagic fisheries. The total turnover of these sectors result in 4,5 billion euros in 2017, and the main markets are in Europe. The Netherlands is a net exporter of fish and fish products. Between 2008 and 2018, exports increased by a total of 47%, while imports increased by 34%. In 2018 employment in the seafood sector, including processing, accounted for 5368 jobs.

At the national level the ministry of Agriculture, Nature and Food Quality is responsible for fisheries, and the CFP is an important frame for fisheries management in the Netherlands. The Netherlands fishes with ITQ's which are co-managed since 1992 between POs (established in 1971) and the government. Non-ITQ stocks are under national quotas and non-quota species are limited through licensing and closures. In addition fishers also need a license to fish. The Dutch quota system is different from other quota systems in the way that quota is transferable only to other quota owners—makes it nearly impossible for outsiders to buy ITQs. Recently the Dutch government decided to start to adapt the system to the current ITQ system to ensure the sustainable development in the Dutch fishery. The Dutch inspection agency, called the Nederlandse Voedsel en Warenautoriteit (NVWA) is responsible for controlling the Dutch fleet. In 2018, Netherlands spent EUR 7.1 million on financing services to the fisheries sector. And policies directly benefiting individuals and companies in the fisheries sector were totalling to EUR 2.9 million.

A number of policy measures taken in recent years have influenced and will influence the Dutch fleet on the North Sea. Due to Natura 2000, demersal trawl fisheries are facing many area closures. Besides that, other activities in the North Sea such as windmill parks claim more and more space. As a result, fisheries are forced to change their fishing grounds. The EU Green Deal is in short term another challenge that faces the fisheries fleet. In this EU plan a closure for fishing activity to 30% of EU waters is planned, in order to safeguard the biodiversity of these envisaged marine protected area. This ambition is valid for the entire EU fisheries fleet. Specifically for the Dutch coastal fleet (e.g. shrimp and mussel cutters) there is a more strict nitrogen emission regulation in place. And the ban on pulse fishing has impacted the sole fleet. But also two years of covid and climate change has and / or will impact(ed) the fleet. In addition the recent stark rise in the oil price (2022), as a consequence of the war in Ukraine, has furthered the negative spiral the fleet is operating in. Fishing companies are struggling to keep their business afloat and to understand what their future prospects are. This

negative situation has already impact on the availability of crew. The Netherlands has opened a decommissioning scheme in 2022, in relation to the loss of fishing opportunities due to Brexit. In 2023 it will become clear what part of the fleet signed in for this, expectations are that a significant part of the flatfish fleet will decommission.



## 2. Background to this profile

This national profile of the Netherlands is a first exercise to fulfil the demand for national profiles as context for the ambition of further social data collection of the EU. Following recommendations from the STECF EWG 19-03, an expert report was written by A. Delaney (2020) with templates for such national profiles. “Sector profiles would contribute to a better understanding of the fisheries management context of each individual country and would facilitate proper social analyses in the future” (Delaney 2020).





### 3. National Fisheries Profile - Introduction

This chapter provides a general description of the national context of the Dutch fisheries sector, the main fishing fleets, geographical areas, fleet descriptions, related societal/industry descriptions and governance aspects. More details on specific aspects can be found in Chapter 5.

#### 3.1. General description of the society

“The Netherlands is a low-lying country with around a quarter of its territory situated at or below sea level. Many parts of the Netherlands are protected from flooding by dykes and sea walls, and much of the land has been reclaimed from the sea” (EFMM, 2016). It is part of the Dutch historical socio-ecological experience to live with water. Aspects of living with water (especially to collectively keep water out) have become engrained in Dutch culture. For instance the Dutch speak of a ‘polder<sup>2</sup> cultuur’ or ‘polderen’, which means that we take time to discuss a situation with many parties and to try to reach consensus. “The Netherlands has a long coastline (1 276 km) bordering the North Sea. The main commercial port is Rotterdam and the biggest fisheries ports are IJmuiden and Urk. The Netherlands has a diversified maritime economy and a long maritime history. Fisheries represent a small part of this, accounting for less than 0.1 % of the national GDP.” (EFMM, 2016).



Figure 1: The Netherlands. Source: OECD, 2016

#### 3.2. Main fisheries categories and economic values

The Dutch fishing fleet consists of three large groups of vessels that encompass a variety of fishing techniques and target species:

- Pelagic freezer trawlers targeting small pelagics for human consumption: This group consisted of 6-9 vessels over 60m in length in the last years and target pelagic species, mainly herring, mackerel, and horse mackerel in both EU and non-EU waters. In total these vessels contribute to approx. 30% of the total value of the Dutch fleet (approx. 100 million euro turnover).

<sup>2</sup> A polder is a part of reclaimed land, low lying protected with dikes.

- The active cutter fleet consisted of 280-300 vessels in the last years and use demersal active gears in the southern and central North Sea. The larger vessels target sole (dominant in value) and plaice (dominant in volume) as well as other flatfish species. Since 2014 and until the recent EU-wide ban on pulse-trawling (2021) most of the > 24 m beam trawlers have used pulse trawls. Most of the smaller beam trawlers (“Eurocutters”) seasonally target shrimp or flatfish. This sector adds approx. 65% to the commercial catches of the Dutch fleet (approx. 250 million euro turnover).
- The small coastal fisheries is comprised of a large variety of mostly small scale fisheries using a wide variety of gears and target a multitude of fish species. The vast majority of the landings (>80% of the landings volume) of these vessels consists of shellfish (e.g. razor clam, ensis and spisula), which is caught by around 10 dredgers. Another part of the vessels uses passive gears to catch seabass and mullet in the coastal zone using gillnets and hook and line. A large part of these vessels has limited fishing activity and many vessels make less than 10 trips annually. The total turnover of these fisheries has been around 10 million euros over the last years.

### 3.3. Geographic areas

#### 3.3.1 Areas at sea

Commercial and recreational fishers are active in different areas at sea, as well as on the inland waterways. The Fisheries Act makes a distinction between three different sea fishing areas: 'fishery zone', 'coastal waters' and 'sea area' and different rules apply to these areas. More information on fishing areas at sea can be found in Section 5.4 (Main Resources) and 5.6 (Regulatory Drivers).

The Dutch fleet is highly diversified with a broad range of vessel types targeting different species. Dutch cutters mostly fish in the Greater North Sea ecoregion, which includes the channel, the North Sea, the Waddenzee, the Nordic zone and Skagerrak and Kattegat. Important fishing grounds for trawlers are the North Sea (demersal fleet), the North-east Atlantic Ocean (pelagic fleet), the Nordic zone, the Gulf of Biscay. A part of the pelagic fleet also operates in the South Pacific Ocean (near Peru and Chile) and various African waters such as those near Morocco and Mauritania (<https://vistikhetmaar.nl/onderwijs/lesmodules/vissersvaartuigen/>; OECD, 2016).

“The Greater North Sea ecoregion includes the North Sea, English Channel, Skagerrak, and Kattegat. It is a temperate coastal shelf sea with a deep channel in the northwest, a permanently thermally mixed water column in the south and east, and seasonal stratification in the north” (ICES, 2021a: 1). “Around 6600 vessels from nine nations operate in the Greater North Sea, with the largest numbers coming from UK, Norway, Denmark, the Netherlands, and France. Total landings peaked in the early 1970s and have since declined. The proportion caught by each country of the total annual landings has varied over time [Figure 2]. Since 2003, total fishing effort has declined [Figure 3]” (ICES, 2021b: 2).

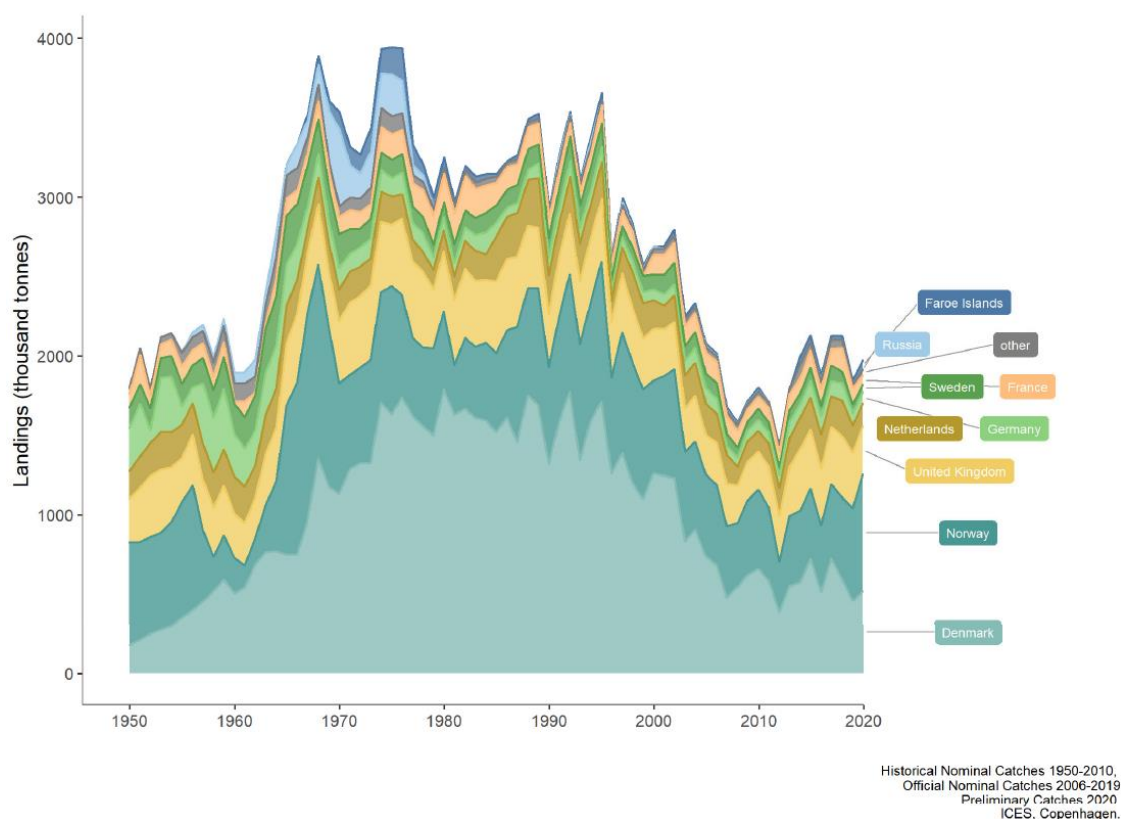


Figure 2: Landings (thousand tonnes) from the Greater North Sea 1950-2020, by country. The nine countries with the highest landings are displayed separately; the remaining countries are aggregated and displayed as "other" (ICES, 2021b: 6).

7

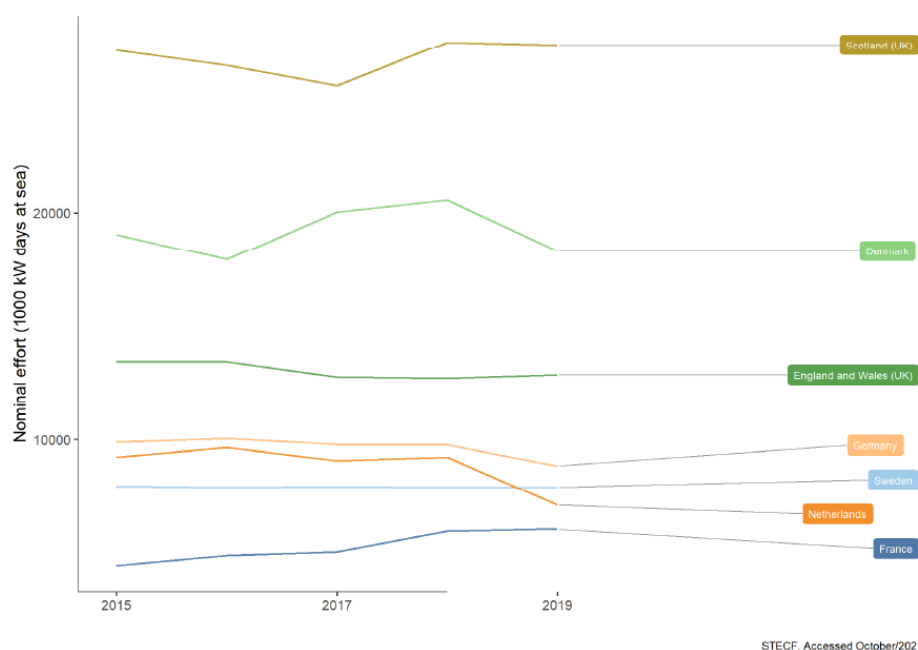


Figure 3: Greater North Sea fishing effort (thousand kW days at sea) 2015-2019, by EU nation. Confidential values are reported by Belgium, Lithuania, Poland and Portugal (ICES, 2021b: 7).

### 3.3.2 Inland Waterways

Commercial and recreational fishers also make use of the South-west Delta (a.o. Oosterschelde, Westerschelde, Grevelingen, Veerse Meer, Haringvliet, Volkerak-Zoommeer) and the inland waterways including het IJsselmeer, Markermeer and various rivers and lakes. These are the main inland waters besides the many smaller lakes, canals and rivers.

Regarding fishing on inland waterways, one may fish on an inland waterway if one:

- owns the water;
- rents a fishing right from the owner of a body of water;
- has permission from the owner or from someone who rents the fishing rights;
- has or rents permission from an owner of a 'heerlijk visrecht'<sup>3</sup>.

To be registered as a commercial fisher<sup>4</sup>, one needs to have the right to fish on a minimum of 250 hectares and have a turnover of at least 8,500 euros per year. As a new commercial fisher, the registration is valid for 2 years, and afterwards it needs to be extended every 4 years. More information can be found on the website of RVO (<https://www.rvo.nl/onderwerpen/visserijregelingen/registratie-beroepsvisser-binnenwateren>).

There is less clarity on which areas can, and are, fished. An overview of all the fishing grounds is, as far as the authors know, currently non-existent. The inland waterways have different owners, and fishing rights depend on the ownership of the waters. For example, there are 'heerlijke visrechten': whereby a fisher can 'rent' the waters. In addition, these rights are tradeable and hereditary (<https://www.rvo.nl/onderwerpen/visserijregelingen/visrecht-binnenwateren>). In some areas where fishing is allowed, there are other restrictions that one needs to take into account, for example the 'dioxineverbod' (prohibition of (commercial) fisheries when the level of dioxins is too high). A list of restricted areas can be found here: <https://www.rvo.nl/onderwerpen/visserijregelingen/gesloten-vervuilde-gebieden>.

Moreover, commercial fishers have different rights depending on the area where they are active. For example, in some areas the 'schubrecht' (fishing right for catching certain freshwater species) belongs to the recreational fishing federation (Sportvisserij Nederland) and thus commercial fishers can only take eel or Chinese mitten crabs (*Eriocheir sinensis*). Lastly, it is important to remember that these rules and regulations change over time.

### 3.3.3 Communities, (landing) ports, vessels and auctions

There are 44 fishing communities in the Netherlands as logged in the vessel register.

Table I. List of fishing communities (based on home ports), the municipality the community lies in and the fishery region it belongs to. 'Binnen' refers to inland fisheries. Source: WEcR

Abbreviation	Community	Municipality	Region
ARM	Arnemuiden	Middelburg	Zuidwest
BRU	Oostburg-Breskens	Sluis	Zuidwest
BRU	Bruinisse	Schouwen-Duiveland	Zuidwest
BZ	Bergen op Zoom	Bergen op Zoom	Zuidwest
EH	Enkhuizen	Enkhuizen	Binnen

<sup>3</sup> A 'heerlijk visrecht' is the right to fish in water. This right can be held by someone else than the owner of the land where the water lies. This right (and its name) comes from the middle ages, where a 'heerlijkheid' stands for a certain area. <https://www.lexlawyers.nl/rechtsgebieden/oude-zakelijke-rechten/heerlijk-visrecht/>

<sup>4</sup> In this document we will make use of fisher and fisherman/men, which can be both men and women.

Abbreviation	Community	Municipality	Region
FL	Finsterwolde	Oldambt	Waddenkust
GM	Genemuiden	Zwartwaterland	<i>Binnen</i>
GO	Goedereede	Goeree-Overflakkee	Zuidwest
GOE	Goes	Goes	Zuidwest
HA	Harlingen	Harlingen	Waddenkust
HD	Den Helder	Den Helder	Kop van Noord-Holland
HK	Harderwijk	Harderwijk	<i>Binnen</i>
HO	Hontenisse	Hulst	Zuidwest
IJM	Velsen-IJmuiden	Velsen	IJmuiden
KG	Kortgene	Noord-Beveland	Zuidwest
KW	Katwijk	Katwijk	Scheveningen-Katwijk
LE	Lemsterland-Lemmer	De Fryske Marren	Waddenkust
LO	Ulrum-Lauwersoog	Het Hogeland	Waddenkust
ME	Medemblik	Medemblik	<i>Binnen</i>
MS	Middenschouwen	Schouwen-Duiveland	Zuidwest
NB	Nieuw-Beijerland	Hoeksche Waard	Zuidwest
OD	Goedereede-Ouddorp	Goeree-Overflakkee	Zuidwest
OL	Oostdongeradeel	Dongeradeel	Waddenkust
SCH	Scheveningen	's-Gravenhage	Scheveningen-Katwijk
SL	Goedereede-Stellendam	Goeree-Overflakkee	Zuidwest
ST	Staveren (Stavoren)	Súdwest-Fryslân	Waddenkust
TH	Tholen	Tholen	Zuidwest
TM	Termunten	Eemdelta	Waddenkust
TS	Terschelling	Terschelling	Waddenkust
TX	Texel	Texel	Kop van Noord-Holland
UK	Urk	Urk	<i>Urk/Binnen</i>
UQ	Usquert	Het Hogeland	Waddenkust
VD	Edam-Volendam	Edam-Volendam	<i>Binnen</i>
VL	Vlaardingen	Vlaardingen	Zuidwest
VLI	Vlissingen	Vlissingen	Zuidwest
VLL	Vlieland	Vlieland	Waddenkust
WK	Workum	Súdwest-Fryslân	Waddenkust
WL	Westdongeradeel	Dongeradeel	Waddenkust
WO	Wonseradeel	Súdwest-Fryslân	Waddenkust
WR	Wieringen	Hollands Kroon	Kop van Noord-Holland
WSW	Westerschouwen	Schouwen-Duiveland	Zuidwest
YE	Yerseke	Reimerswaal	Zuidwest
ZK	Zoutkamp	Het Hogeland	Waddenkust
ZZ	Zierikzee	Schouwen-Duiveland	Zuidwest



Figure 4: Map of Dutch fishing communities. Source: WECR

A table with the communities, homeport, port code, number of vessels in 2011, number of vessels in 2020, landing ports, and auctions can be found in the table below. Note that the data from 2011 only contains active vessels, whereas the data from 2020 probably contains active and inactive vessels.

Table 2: Data on Dutch fishing communities and ports. Source: JRC , RVO, Wikipedia. Data collated by WEcR

Fishing communities JRC	Homeport as logged in vessel register	port code	nr of vessels 2011 (data JRC)	nr of vessels in feb 2020 (data fleet register)	landing port	auction
ARNEMUIDEN	ARM Middelburg (Arnhemuiden)	ARM	20	17		
BERGEN OP ZOOM	BZ Bergen op Zoom	BZ	3	6		
BRUINISSE	BRU Schouwen-Duiveland (Bruinisse)	BRU	40	46		
DEN HELDER	HD Den Helder	HD	26	28	1	1
EDAM-VOLENDAM	VD Edam (Volendam)	VD	3	11		
ENKHUIZEN	EH Enkhuizen	EH	2	12		
FINTERWOLDE	*not in fleet register*		2			
GOEDEREDE-OUDDORP	OD Goedereede (Ouddorp)	OD	15	10		
GOEDEREDE-STELLENDAAM	SL Goedereede (Stellendam)	SL	7	18	1	1
GOES	GOE Goes	GOE	1	1		
HARLINGEN	HA Harlingen	HA	30	21	1 ?	
HONTENISSE	Hontenisse	HON	1	3		
HOORN	HN Hoorn	HN	1	4		
KLUNDERT	KL Klundert	KL	1	2		
KORTGENE	KG Noord Beveland (Kortgene)	KG	11			
LEMSTERLAND-LEMMER	LE Lemsterland (Lemmer)	LE	4	8		
MIDDENSCHOUWEN	MS Schouwen-Duiveland (Midden-Schouwen)	MS	2	2		
NIEUW-BEIJERLAND	NB Nieuw Beierland	NB	2	2		
OOSTBURG-BRESKEN	BR Sluis (Breskens-Oostburg)	BR	18	26		
STAVEREN	ST Staveren	ST	4	10		
TERMUNTEN	TM Delfzijl (ter Munte)	TM	2	2		
TERSCHELLING	TS Terschelling	TS	5	7		
TEXEL	TX Texel	TX	46	48	1	
THOLEN	TH Tholen	TH	31	30		
ULTRUM-LAUWERSOOG	LO De Marne (Lauwersoog)	LO	8	10		
URK	UK Urk	UK	82	107		1
USQUERT	UQ Eemsmond (Usquert)	UQ	6	7	1	1
VELSEN-IJMUIDEN	IJM Ijmuiden	IJM	28	47		
VLIELAND	*not in fleet register*		1			
VLISSINGEN	VLI Vlissingen	VLI	7	11	1	1
WESTDONGERADEEL	WL Dongeradeel (Westdongeradeel)	WL	4	14		
WESTERSCHOUWEN	WSW Schouwen-Duiveland (Westerschouwen)	WSW	7	5		
WORKUM	WK Workum	WK	1	1		
ZIERIKZEE	ZZ Schouwen Duiveland (Zierikzee)	ZZ	14	14		



## 3.4 Fleet descriptions

### 3.4.1 General

“The Dutch fleet<sup>5</sup> is highly diversified with a broad range of vessel types targeting different species predominantly in the North Sea (demersal fleet) and North East Atlantic Ocean (pelagic fleet), around the UK and Ireland. Besides that, a small part of the pelagic fleet operates in African waters and in the Pacific. The national fleet consisted of 11 (DCF) fleet segments in 2019.” (STECF, 2021: 458).

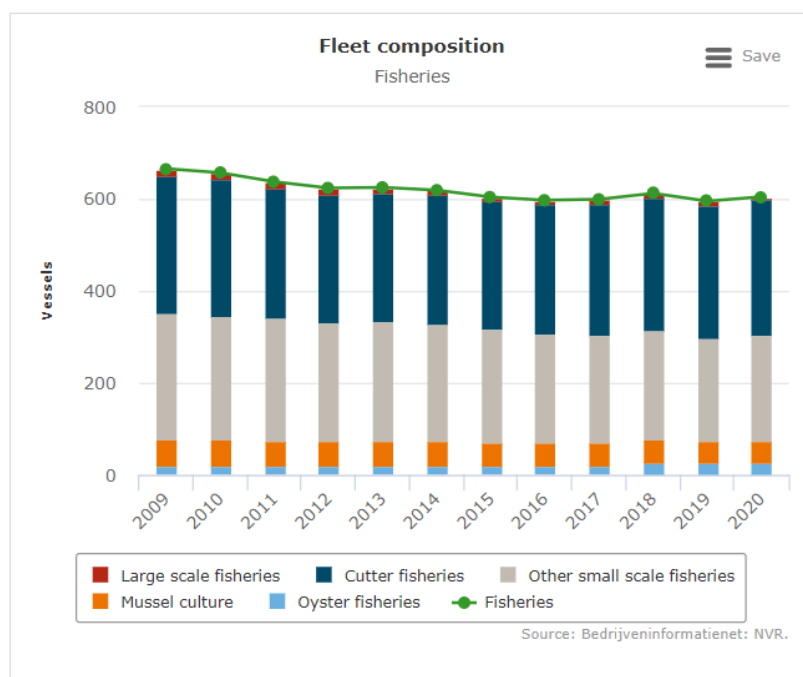


Figure 5: Fleet composition 2009-2020. Source: Agrimatie 2021c  
<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2860>

### Foreign flagged vessels

A significant amount of vessels owned by Dutch fishers, fishing with Dutch crews, sails under foreign (German, UK, Belgian) flag (see table 3 below).

<sup>5</sup> When we refer to the Dutch fleet, we only refer to the vessels under a Dutch flag. Yet a significant amount of vessels is owned by Dutch skippers, often have a Dutch crew yet fish under foreign (Belgian, UK, German) flag.



Table 3: Number of flagged vessels per community (from Kraan et al 2023)

# Flag vessels per community		# Dutch owned vessels per flag	
Urk	44	Belgium	24
Arnemuiden	3	German	25
Den Helder	2	Danish	1
Ijmuiden	5	English	22
Katwijk	6	Litowainian	1
Scheveningen	6	Polish	2
Tholen	3	French	7
Wieringen	3		
Wierum	1		
Yerseke	2		
Zoutkamp	4		
<b>TOTAL</b>	<b>79</b>		<b>79</b>

Reflagging the vessel has been a strategy for fishers to acquire more quota, when quota were becoming scarce (in the 1980ies -1990ies). This is called quota hopping, and is the explanation for the fishers under UK flag with sole and plaice quota (Hatcher et al 2002). This was possible under the CFP due to free movement of people, goods, services and capital – one of the founding principles of the EU (Hoefnagel & de Vos 2017). Also in the shrimp fishery a number of Belgian and German flagged vessels have Dutch ownership. Around 25 vessels with German flag are members of a Dutch PO: Rousant, a clear indication of Dutch interests in these companies. This development is mainly due to the limitation in the number of Dutch shrimp licences.

On the other hand, some small coastal vessels fishing with gillnets are owned and operated by Belgian fishermen.

### 3.4.2 Summary of the cutter fleet (2020 & 2021)

- 295 ships
- 1200 crew members
- 216 million euros turnover

The number of active Dutch flagged cutters in the cutter fleet has increased from 278 in 2013 to 290 cutters in 2020. In 2003, however, the fleet comprised of 274 ships. Reasons for this decrease include: cessation schemes, and export of vessels to fish under other flags. In 2020 3 new cutters were added to the fleet. In 2021 some new cutters are expected, some replacing older ships.

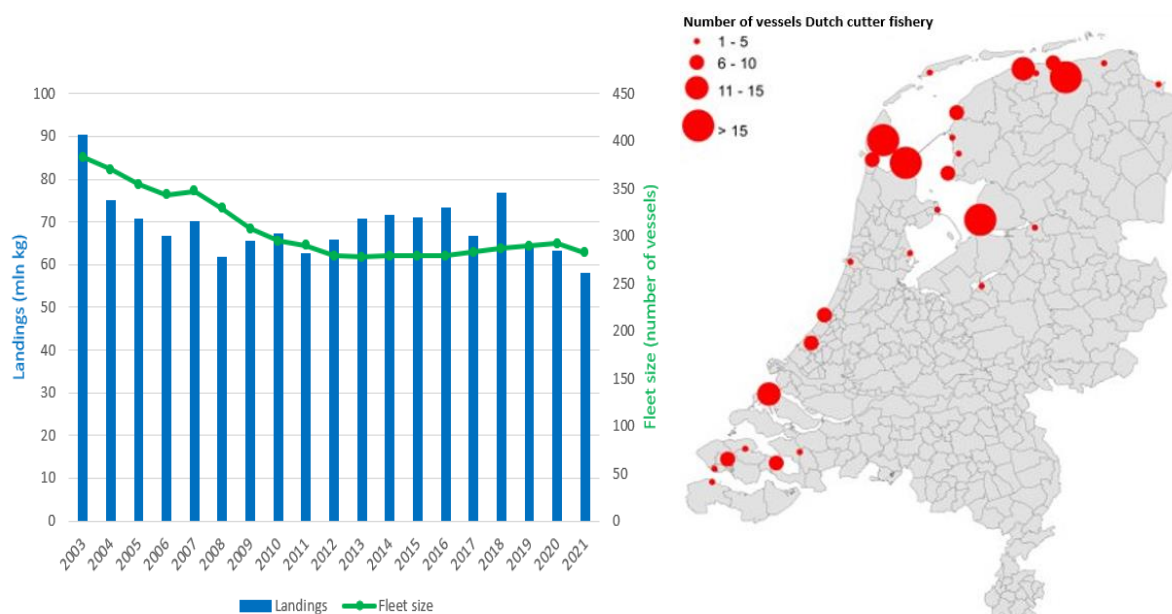


Figure 6: Fleet and landings in the Dutch Cutter fishery. Source: Agrimatie 2021b. <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2862>

After 2012 fishery entrepreneurs were given a chance again to invest in their ships due to the positive net profits of 2012. Lower costs (particularly due to the relatively low fuel costs and energy efficient fishing gear), increased catches and higher returns led to a stronger financial position for many companies. However, since 2017 many of the catches of certain commercial species have decreased. Moreover, high uncertainty and developments surrounding the Brexit-deal after 2025, the prohibition of pulse from 1 July 2021 for all fishing vessels in the EU, the North Sea Agreement (including wind farms and protected areas) and the landing obligation have an inhibiting effect on innovations and investments in new ships (Source: Agrimatie 2021b. <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2862>)

### 3.4.3 Summary of the trawler fleet (2020 & 2021)

- 6 ships
- 275 crew members
- 97 million euros turnover

The trawler fleet was relatively stable with approximately 14 active trawlers until 2012. The fleet halved in the period 2012-2014 to 7 vessels, a number of them were reflagged to other member states. In 2017 and 2018 the fleet consisted of 8 ships, in 2019 there were 7 active ships and in 2020 the fleet further reduced to 6 ships (Agrimatie, 2021a:

<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2861>)

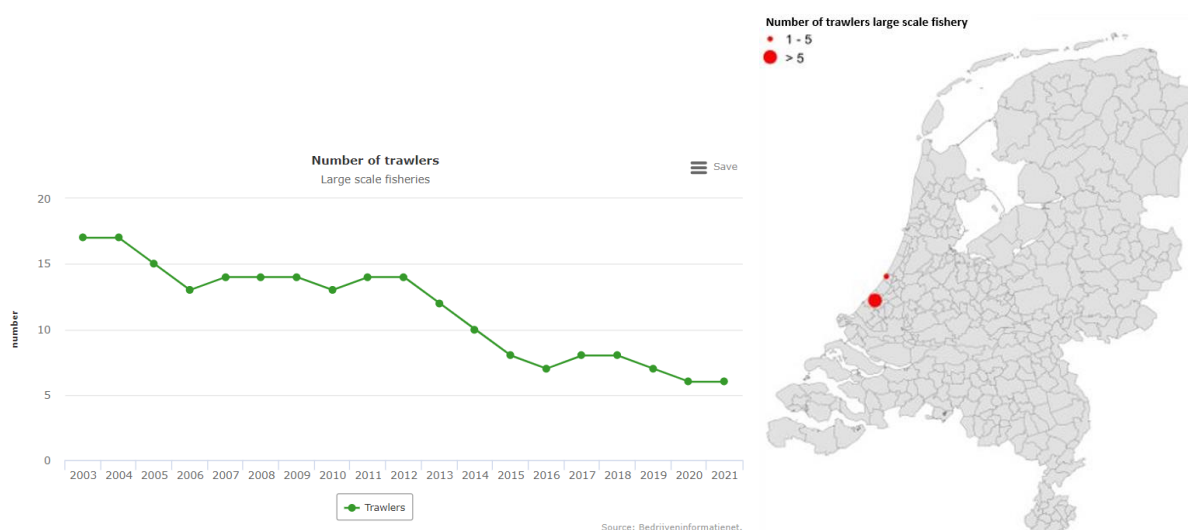


Figure 7: Number of trawlers in the Netherlands (2003- 2020). Source: <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2861>

In 2020 one new trawler was registered in the Dutch Registry of Fishing Vessels. The vessel came from Curacao under a Dutch flag and left early 2021 for its first fishing trip using the Dutch flag. What makes this trawler special is that it lands fresh fish instead of frozen fish.

### 3.4.4 Summary of the small-scale fisheries fleet (2020 & 2021)

- 230 vessels
- 155 fte
- 16 million euros turnover

Towards the end of 2019, the small-scale fisheries (SSF) consisted of 222 active vessels, a bit less than in 2018 where there were 225 active. In 2020 the estimated number of active vessels was 232. The SSF (excluding gillnets) consists of various fishing practices such as angling, trammel fisheries, fykes and traps, small trawls and shellfish fisheries. The number of vessels specifically used for gillnet fisheries has decreased significantly since 2014. This is largely because of the low sole catches and the high prices for sole quota during several years (Kraan and Hoefsloot 2020) and more recently due to the low catchability of sole in Dutch coastal waters. (Agrimatie 2021c)

<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2865>

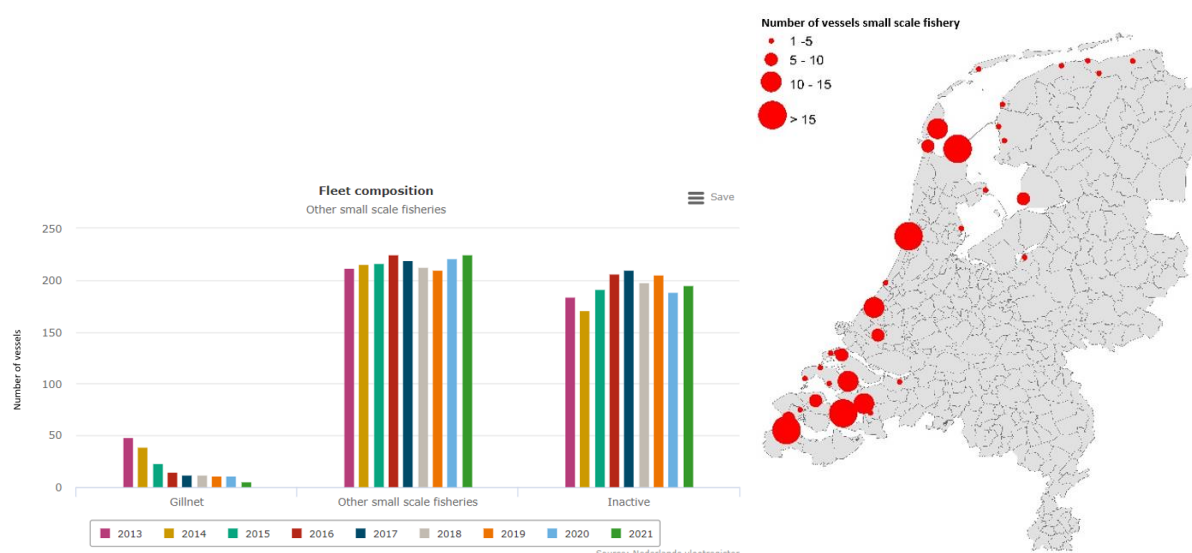


Figure 8: Fleet composition of small-scale fisheries (2013-2020). Source: Agrimatie 2021c <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2865>

A large number of registered vessels in the Dutch fleet are inactive according to official logbook data. This group encompassed 189 vessels in 2020, almost 45% of the entire small scale coastal fisheries fleet.

The total number of fishing vessels in this part of the fleet has decreased by 5% in the last 10 years to 605 vessels.

## 3.5 Related societal/industry descriptions

### 3.5.1 Seafood Consumption

The average seafood consumption by Dutch people remains relatively small compared to surrounding countries. The Dutch seafood processing and seafood wholesalers thus tend to focus largely on export with Europe being the most important market for their products. The average gross consumption in the EU was 25,1 kg per inhabitant in 2015. The Netherlands scored lower with an average of 22,2 kg. In comparison, in

Portugal the average consumption of seafood per inhabitant was almost 2,5 times as much as in the Netherlands (55,9 kg). Spain followed with almost double (45,2 kg) the consumption of the Netherlands, and the French ate 1,5 times as much (33,9 kg). The Dutch spent a lot more money on meat than on fish: 7-8 times more was spent on meat than on fish (Hoekstra, 2019).

The fish species that were bought include mainly imported species such as salmon, salted herring, canned tuna, fried cod, and fish sticks. This is followed by species from the North Sea: mussels, cod, and shrimp. The most consumed fish products were fresh (55%), followed by frozen (28%) and canned (17%). The majority was bought in the supermarket (35%), fish stall (21%), fish shop (17%) and the catering industry (15%). Of the remaining 22% only 2% of fish products were bought online (Hoekstra, 2019).

Growth was mostly seen in the catering industry. The Dutch started eating more seafood outside of their homes and started spending more on seafood. In 2017 the average Dutch person spent 73 euros on fish and 21 euros on crustaceans. A year later this was 86 euros and 26 euros respectively. Based on interviews held with companies, it turns out that inhabitants from countries such as Belgium, France and Portugal are willing to pay much more for seafood than Dutch inhabitants. Net seafood consumption in the Netherlands was 170 million kg seafood. Estimates suggest that in the last 10 years, the Dutch consumed (net) 70 grams of seafood per week (Hoekstra, 2019).

### 3.5.2 Processing industry and trade

The Netherlands is important in the EU with regards to the processing and trade of fish. The total turnover of these sectors result in 4,5 billion euros in 2017 (table 1). The main reason for this is the central position of the Netherlands in the EU, the port facilities in the harbour of Rotterdam and the logistical system. More information can be found in section 6.3.

### 3.5.3 Fisheries innovation

The Dutch fisheries sector is investing in new and sustainable fisheries techniques in cooperation with fish processors, ship builders, net producers, universities and other interested parties. One of the outcomes of this is the Fisheries Innovation Centre South-West Netherlands in Stellendam (<https://visserij-innovatiecentrum.nl/>). In this centre new designs of gears and processing equipment can be developed, tested and presented to the public at large. From 2023 onwards a new network organisation (Visserij Innovation Network) has been set up by the government to promote innovation.

## 3.6 Governance

### 3.6.1 Responsible authorities

The Common fisheries Policy was established in 1983 and was one of the few policies under exclusive competence of the EU. Before that time fisheries were managed nationally up to 3nm and since 1964 12nm out of the coast and beyond that line fisheries were unrestricted by government and based on the principle of free access (van Hoof et al 2020).

The CFP therefore is an important frame for fisheries management in the Netherlands. The member states are to implement and operationalize the policy, which they also do together with neighbouring member states in the regional seas since the reform of 2013. Other EU policies also impact on fisheries as they deal with conservation such as the Marine Strategy Framework Directive (Directive 2008/56/EC), the birds - (Directive 2009/147/EC) and habitat - (Council Directive 92/43/EEC) guidelines or marine spatial planning (Maritime Spatial Planning Directive (2014/89/EU).

At the national level the ministry of Agriculture, Nature and Food Quality is responsible for fisheries. Since the introduction of Total Allowable Catches (TACs) in 1975 by the North East Atlantic Fisheries convention (NEAFC) the Netherlands set up a system of individual quotas for the fishers, which became ITQs (individual transferable quotas) in 1980s. Since 1992 these ITQs were co-managed between the government and the Producer Organisations (Van Hoof et al 2020) (see 3.6.2.). Non-ITQ stocks are under national quotas and non-quota species are limited through licensing and closures (Carpenter, Kleinjans 2017). Next to fishing quota fishers also need a license to fish, therefore since 2004 there are 2 major segments: Mfl1 and Mfl2. Mfl1 vessels may target quota species and Mfl2 cannot, they (mostly small scale fishers) mainly fish on species like oysters, cockles, mullet, sea bass, crabs, lobsters, shrimps and grey gurnard (Carpenter, Kleinjans 2017). Next to this fishermen need a variety of specific permits to fish with specific gears, in specific areas or land specific species. PO's and ministry have a monthly meeting to discuss all matters at hand.

The Dutch inspection agency, called the Nederlandse Voedsel en Warenautoriteit (NVWA) is responsible for controlling the Dutch fleet. Within Dutch territory it inspects Dutch and foreign fishing vessels. It checks if they fish within the quota limits, if the horse power (HP) of motors is in line with the rules, if fishers comply with the appropriate technical measures (such as mesh sizes); by making use of at-sea inspections and automated systems such as VMS, AIS and logbooks.

### 3.6.2 Producer Organisations

Since 1971 POs have been established in the Netherlands (Van Hoof 2010), first only two later more POs followed up to 11 currently.

Producer Organisations “are bodies set up by fishery or aquaculture producers and officially recognised by EU countries under common EU-wide rules. They are in charge of the day-to-day management of producers’ activities and

- guide their members towards sustainable fishing and aquaculture, in particular by collectively managing their activities
- take measures to channel the supply and marketing of their members’ products
- promote their members’ products through certification schemes
- work towards reducing the environmental impact of the fishing or aquaculture activities of their members.

They can also be represented in associations of producer organisations” ((European Commission, 2022: [https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets\\_en](https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets_en))).

The following table (Table 4) provides a list of Producer Organisations in the Netherlands.

Table 4: Producer Organisations in the Netherlands. Source: European Commission, 2022. [https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets\\_en](https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets_en)

<b>NEDERLAND</b>					
NLD 003	<u>Coöperatieve Producentenorganisatie Wieringen u.a.</u>				
PO					
(C)	Havenkade 1		Tel.	0031 (0)227 51 20 48	1986-12-29
(N)	1779 GT Den Oever		Email	<a href="mailto:info@co-wieringen.nl">info@co-wieringen.nl</a>	
NLD 004	<u>Coöperatieve Producentenorganisatie Nederlandse Visserbond u.a.</u>				
PO					
(C)	Het Spijk 20		Tel.	0031 (0)527 69 81 51	1987-12-02
(N)	8231 WT Urk		Email	<a href="mailto:secretariaat@visserbond.nl">secretariaat@visserbond.nl</a>	
			Web:	<a href="http://www.visserbond.nl">www.visserbond.nl</a>	
NLD 005	<u>Producentenorganisatie van de Nederlandse Mosselcultuur</u>				
PO					
(A)	Postbus 116		Tel.	0031 (0)113 57 60 66	1991-01-09
(N)	4400 AC Yerseke		Email	<a href="mailto:info@pomosel.nl">info@pomosel.nl</a>	
NLD 006	<u>Coöperatieve Producentenorganisatie Texel U.A.</u>				
PO					
(C)	Have 15		Tel.	0031 (0)222 31 42 91	1993-10-06
(N)	1792 AE Oudeschild		Email	<a href="mailto:cpo@cvtexel.nl">cpo@cvtexel.nl</a>	
NLD 008	<u>Coöperatieve Producentenorganisatie Nederlandse Visserbond IJsselmeer u.a.</u>				
PO					
(O)	Het Spijk 20		Tel.	0031 (0)527 69 81 51	1996-06-27
(N)	8231 WT Urk		Email	<a href="mailto:secretariaat@visserbond.nl">secretariaat@visserbond.nl</a>	
NLD 009	<u>Redersvereniging voor de Zeevisserij</u>				
PO					
(H)	Louis Braillelaan 80		Email	<a href="mailto:info@pelagicfish.eu">info@pelagicfish.eu</a>	1996-01-22
(N)	2719 EK Zoetermeer				
NLD 011	<u>Coöperatieve Producentenorganisatie Delta Zuid U.A.</u>				
PO					
(C)	Postbus 116		Tel.	0031 (0)113 76 81 01	2003-11-11
(N)	4400 AC Yerseke		Email	<a href="mailto:info@odeltszuid.nl">info@odeltszuid.nl</a>	
NLD 012	<u>Coöperatieve Producentenorganisatie West U.A.</u>				
PO					
(C)	Postbus 116		Tel.	0031 (0)223 67 06 70	2003-11-11
(N)	1780 AC Den Helder		Email	<a href="mailto:powest@civeth.nl">powest@civeth.nl</a>	
NLD 013	<u>Internationale Garnalen P.O. Rowant U.A.</u>				
PO					
(C)	Nimersweg 8		Tel.	0031 (0)595 44 71 50	2009-04-15
(T - GER)	9985 TC Lauwerzijl		Email	<a href="mailto:info@cpocousur.nl">info@cpocousur.nl</a>	
			Web:	<a href="http://www.goldehrup.nl">www.goldehrup.nl</a>	
NLD 014	<u>COÖPERATIEVE PRODUCTENORGANISATIE VOOR DE VISSERIJ URK U.A.</u>				
PO	CPO Urk				
(C)	Po Box 100		Tel.	0031 (0)527 68 41 41	2010-06-04
(N)	8320 AC Urk		Email	<a href="mailto:cpo@visserij.nl">cpo@visserij.nl</a>	
			Web:	<a href="http://www.visserij.nl">www.visserij.nl</a>	
NLD 016	<u>Coöperatieve Visserij Organisatie U.A.</u>				
APO	8203226				
(C)	Het Spijk 20		Tel.	0031 (0)527 69 81 51	2014-11-07
(N)	8231 WT Urk		Email	<a href="mailto:secretariaat@cvo-visserij.nl">secretariaat@cvo-visserij.nl</a>	
			Web:	<a href="http://www.cvo-visserij.nl">www.cvo-visserij.nl</a>	

### 3.6.3 Government support to fisheries

“Governments provide support to their fisheries sectors through a wide range of policies. The objectives vary but tend to centre on goals such as maintaining employment, improving fishers’ welfare, or ensuring the sustainability of the sector and the resources it relies on. Usually, government finance services to the fisheries sector, which benefit the sector as a whole or some of its segments, and also provide direct support to individuals and companies.

#### Financing of services to the fisheries sector

In 2018, Netherlands spent EUR 7.1 million (USD 8.3 million) on financing services to the fisheries sector . Net of cost-recovery charges, the public cost of services to the fisheries sector amounted to 1.6% of the value of production, while the OECD average was 8.5% in 2018.

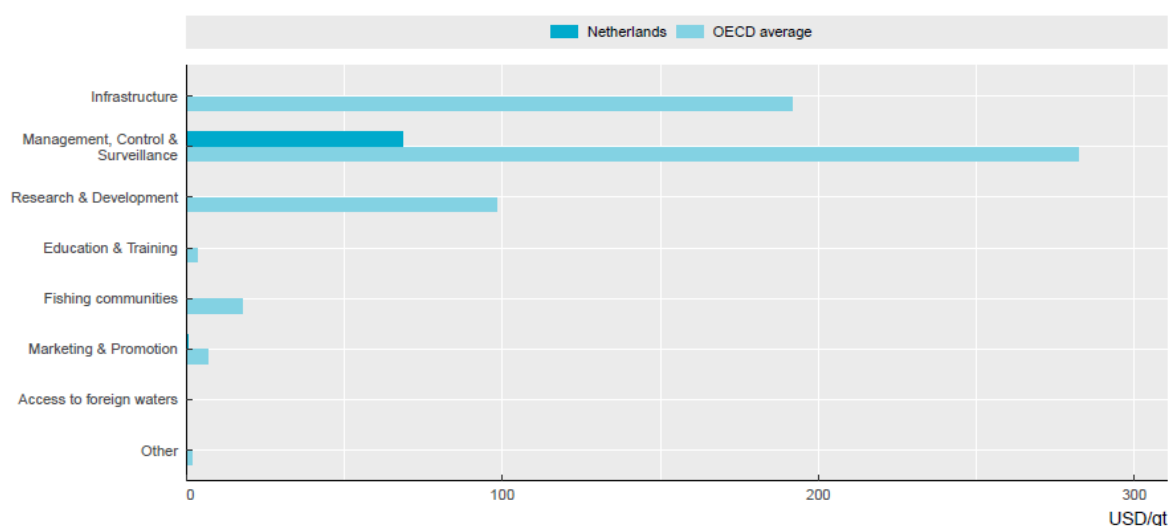
The intensity of fisheries services’ financing relative to fleet size was USD 69.1 per gross tonne (gt) of total fleet capacity in 2018. This compares with an OECD average of USD 601.8 per gt in 2018.

Some services to the sector aim to ensure its sustainability or improve fishing communities’ well-being, while only indirectly supporting the intensity of fishing activities. In the OECD, such services, including management, control and surveillance, accounted for an average of 59.2% of spending on services to the sector in 2018.



Other services target fishers' ability to operate their businesses more efficiently or more sustainably, such as investment in education and training, marketing and promotion or research and development. These services accounted for an average of 16% of spending on services to the sector in the OECD in 2018.

Finally, some forms of support can have a more direct relationship with production capacity, such as investment in or subsidised access to infrastructure like ports. In the OECD, these services have accounted for an average of 24.5% of financing of services to the sector in 2018.” (OECD, 2021: 3).



Source: OECD datasets 'Fisheries Support Estimate (FSE)' and 'Fishing fleet' (OECD.Stat).

Note: Figure uses the latest data reported by Netherlands (2018) and OECD average for 2018.

Figure 9: Financing of services to the fisheries sector, 2018. Source: OECD, 2021

### 3.6.4 Direct support to individuals and companies in the fisheries sector

The OECD report showed that in 2018, the Netherlands provided support totalling EUR 2.9 million through policies directly benefiting individuals and companies in the fisheries sector<sup>6</sup>.

A common objective of direct support policies is to maintain or increase the incomes of fishers. Relative to employment, direct support to individuals and companies decreased by 53% since 2008.

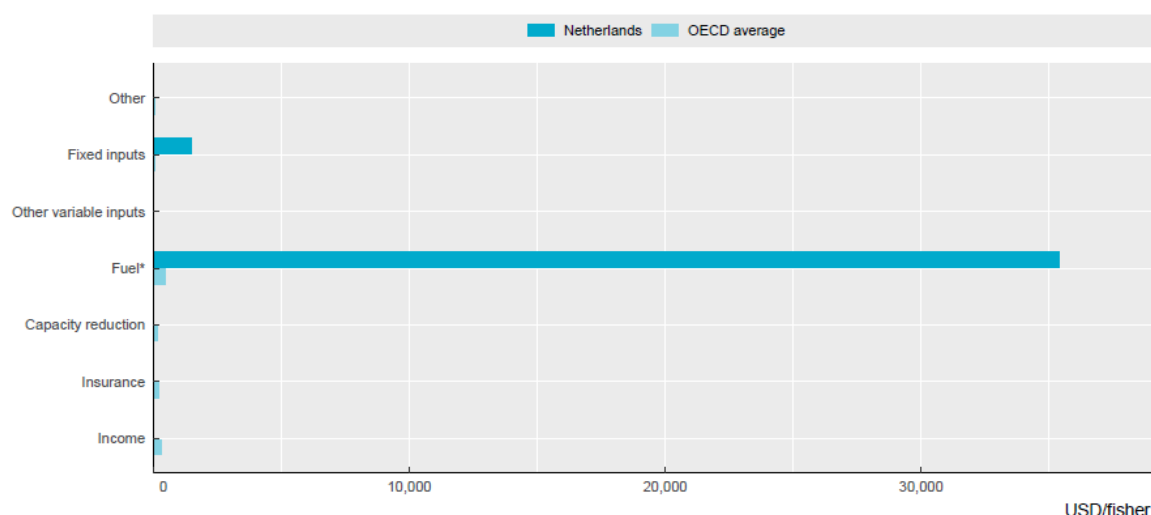
Direct support to individuals or companies originates in a variety of policies. Some payments can be partially de-coupled from fishing activities, such as income support, special insurance systems. Netherlands spent USD 0 per fisher on these types of policies in 2018. In the OECD, the average spending per fisher was USD 496.8 in 2018.

Benefits can also be given in exchange for capacity reduction, such as through decommissioning schemes or payments for early retirement. The Netherlands has opened a decommissioning scheme in 2022, in relation to the loss of fishing opportunities due to Brexit. In 2023 it will become clear what part of the fleet signed in for this, therefore this is not yet included in this section. Expectations are that a significant part of the flatfish fleet will decommission.

<sup>6</sup> The total support reported was 72,9 million euro, but this was caused by the erroneously reported estimate of the fuel tax exemptions (70 million euro), which was included in the report.



Other policies are directed at lowering the cost of inputs. These include support for fuel, for other variable inputs (like payments to reduce the cost of ice or bait) and for fixed inputs (such as support to vessel construction and modernization or to the purchase of gear). In 2018, Netherlands spent USD 1485 per fisher on policies lowering the cost of inputs.



Source: OECD datasets 'Fisheries Support Estimate (FSE)' and 'Employment' (OECD.Stat)

Notes: Figure uses the latest data reported by Netherlands (2018) and OECD average for 2018.

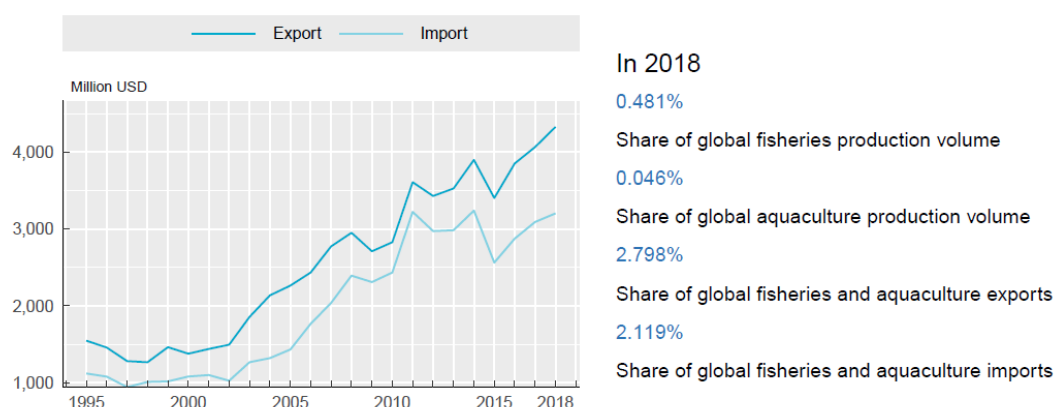
\*In the OECD dataset 'Fisheries Support Estimate (FSE)' (OECD.Stat), there are two different types of support to fuel, tax concessions and direct transfers to reduce the cost of fuel. Since impacts are similar, they are jointly considered as support to fuel. Tax concession to fuel are often not specific to fisheries, as the same policies sometimes also apply to other sectors such as agriculture, a number of countries and economies reporting to the FSE database do not include it in their reporting, which affects the relative total support to inputs.

Figure 10: Intensity of direct support to individuals and companies relative to employment, 2018. Source: OECD, 2021. The estimate of the fuel tax exemptions (70 million euro, 35410 euro per fisher) was reported erroneously and should be ignored.

### 3.7 Description of recent history/ trends in the industry

In recent history the following main trends can be seen in the Dutch fisheries sector as described below.

#### 3.7.1 Production and trade in the global context



Source: Trade data (UN Comtrade; WITS - World Integrated Trade Solution - the list of commodities included is specified in the OECD dataset 'International trade of fisheries products', OECD.stat) and FAO dataset 'Fishery and Aquaculture Production Statistics' (FishStatJ).

Figure 11: Trade in fish and fish products. Source: OECD, 2021

“Netherlands is a net exporter of fish and fish products. Between 2008 and 2018, exports increased by a total of 47%, while imports increased by 34% (OECD, 2021: 2).

### 3.7.2 National fleet performance (adapted from STECF 2021)

“The economic performance of the Dutch national fleet decreased in 2019 compared to 2016-2018. Although the net economic result (profit) was still positive, it decreased with -52% compared to the previous year (STECF 2021).

22

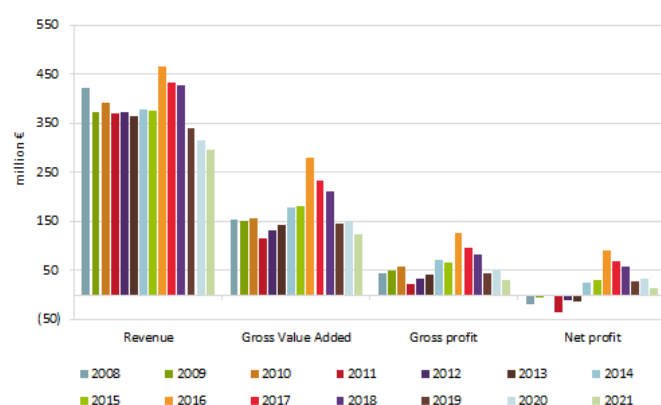


Figure 12: Economic performance of the Dutch fleet. Source: STECF 2021

After years of economic losses (before 2014) the profits increased between 2014 and 2016. 2016 was a year with relatively high landing prices and high live weight landings for the demersal part of the Dutch fleet (mainly shrimp and flat fish), which is the largest part. From 2017 the weight of landings decreased more and more by year.

In 2019, the total amount of income generated by the Dutch national fleet decreased with 21%. This consisted of EUR 341 million landings value and around EUR 3 million in non-fishing income. When including income from leasing fishing rights and direct income subsidies (EUR 1.3 million), total income amounted to EUR 345 million” (STECF, 2021: 452-3).

In terms of landed weight, the Netherlands caught 51% in their landings in the NSEA (North Sea and Eastern Arctic) region in 2019. The pelagic fisheries influence these ratios to a large extent (STECF, 2021: 90).

“Total costs in 2019 were EUR 320 million. A decrease of 14% from 2018. In particular, labour costs (crew wages) decreased with 19% due to lower economic results. Labour and energy costs, normally the two major fishing expenses, amounted to EUR 87 and EUR 70 million, respectively in 2019.

In 2019, GVA, gross profit and net profit generated, decreased for the Dutch national fleet. Respectively -31%, -49% and -55% compared with the previous year. In similar order, these parameters were estimated at EUR 146 million, EUR 44 million and EUR 27 million.

For 2019, the Dutch fleet had a (depreciated) replacement value of EUR 213 million, which was 11% lower than the year before. The value of fishing rights was unknown because of a low number of transactions on the market, but it was expected to decrease. Main cause is an annually lower uptake of quota for the major species: plaice and common sole. Fishing rights and quota are transferable in the Netherlands. Selling/buying and leasing these rights are quite common and prices fluctuate substantially from year to year, depending on market availability (e.g. quota for sole or plaice available or not).

“In 2018, the fleet consisted of 833 powered vessels, up by 1% since 2008. Small-scale vessels, those below 12 meters in length, accounted for 41.2% of the total number of vessel. The total gross tonnage of the Dutch fleet in 2018 was 120509 tonnes, down by 23% since 2008. Small-scale vessels accounted for 0.7% of the total gross tonnage” (OECD, 2021: 2).

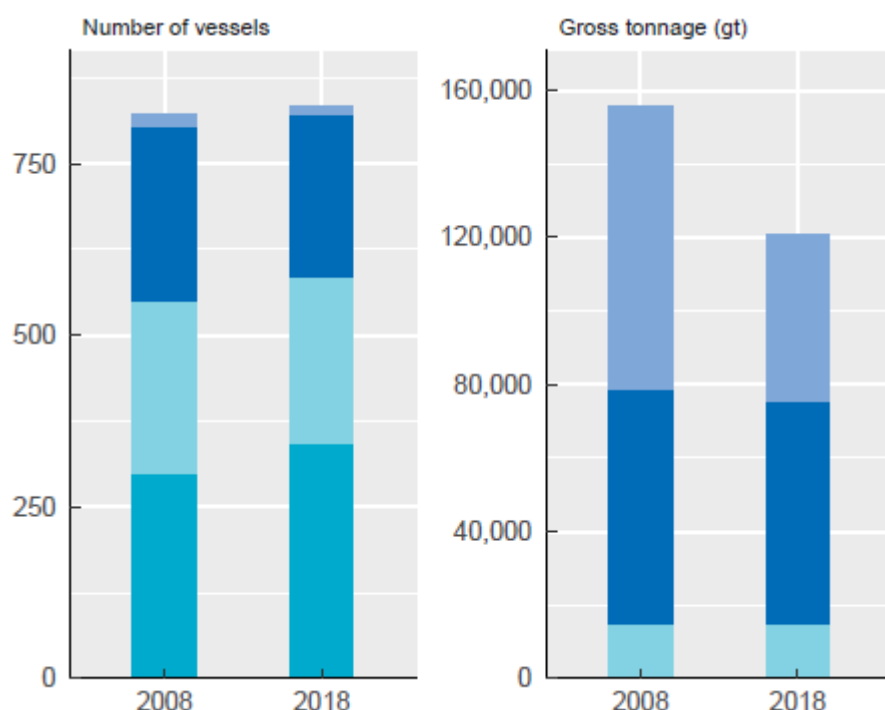


Figure 13: Fleet size by fleet segment. Source: OECD, 2021

Dutch vessels are becoming older: the average age was 32 years despite multiple new built vessels have been introduced in 2019. The improved economic performance stimulated further fleet renewal in the cutter fleet before covid. New flyshoot (purse seiner), twinrig (DTS) and shrimp vessels (TBB) are built or ordered since 2016. Yet since covid, uncertainties like Brexit, multi-use of the North Sea (offshore windmill parks for instance), the landing obligation, ban for pulse fishery and the capacity at shipbuilding companies to build new vessels have an inhibiting effect on the speed of the fleet renewal.” (STECF, 2021: 452-3). Since 2022 the Dutch fleet is undergoing a major restructuring as many vessels signed in for the decommissioning scheme, mainly from the cutter fleet.

### 3.7.2 Resource productivity and efficiency indicators

“The gross profit margin in 2019 was 13%, a minus of 35% operating efficiency of the sector compared to the three years’ average of the years before. This percentage fluctuated, yet increased yearly from 2011 (gross profit margin of 6%) until 2016 (27%). From 2017 it annually decreased, mainly by lower landings value of the demersal fleet. Net profit margin was estimated at 8%, a strong decrease (-43%) from 2018 (profit margin of 19%). The Rate of Return on Fixed Tangible Assets (RoFTA) decreased in comparison with 56% (2018) but it still positive with 10% in contrary to negative ratios in 2011-2013.

Labour productivity (GVA/FTE) decreased in 2019 with 28% from previous year: EUR 87 800 per FTE. GVA (-30%) decreased more than FTE (-3%), therefore, the labour productivity deteriorated by its inefficiency.

In 2019, fuel consumption per landed tonne increased with 27% compared to 2018 and amounted 504 litres per tonne landed in 2019.” (STECF, 2021: 452).

### 3.7.3 Pulse fishery

Ever since the 1980ies scientists and fishers have been trying to find alternative ways to catch sole with trawl gear, yet using less fuel. The pulse gear has been trialled and tested for many years. This was shortly halted due to a ban on electric fishing in 1988, but commenced again in the 1990ies and in the beginning of 2004 first trials were performed on a commercial fishing vessel in the Netherlands. When the application become more successful, a derogation to the ban was agreed in 2006 and when the demand for it become higher due to the rising oil prices in 2008, pulse fishing soon took off as a promising alternative to the beam trawl. After a series of requests of the Dutch government to increase the number of licences (in 2010 and 2014), soon a majority of the sole fleet was fishing with the pulse trawl. Stakeholders over the years have been concerned about the impact of pulse fishing and critical about the suite of expansions in licences for the Dutch fleet (Haasnoot *et al* 2016). These concerns were only partly addressed in a multi-annual impact assessment project that took place between 2017 and 2020. Before that project was finalised, a decision already had been made to ban pulse fishing in the EU from 1st July 2021. This decision followed a successful campaign against pulse fishing led most prominently by a French environmental Non-Governmental Organization. With that pulse fishing come to an end.

### 3.7.3 Nordic Zone

On January 1st, 2022, Norway decided to ban beam trawl fisheries in its waters (the Nordic zone). From the 1st of March, 2022, this ban would be enforced. Norway decided on this prohibition because the beam trawlers can damage the sea floor, and thus this method of fishing has been banned for Norwegian fishers for the past 15 years. As such, the government decided to also ban beam trawlers for non-Norwegian fishers. For the Dutch fishers in the area this meant a loss of valuable fishing grounds and income (<https://www.vissersbond.nl/het-noorse-boomkorverbod/>).

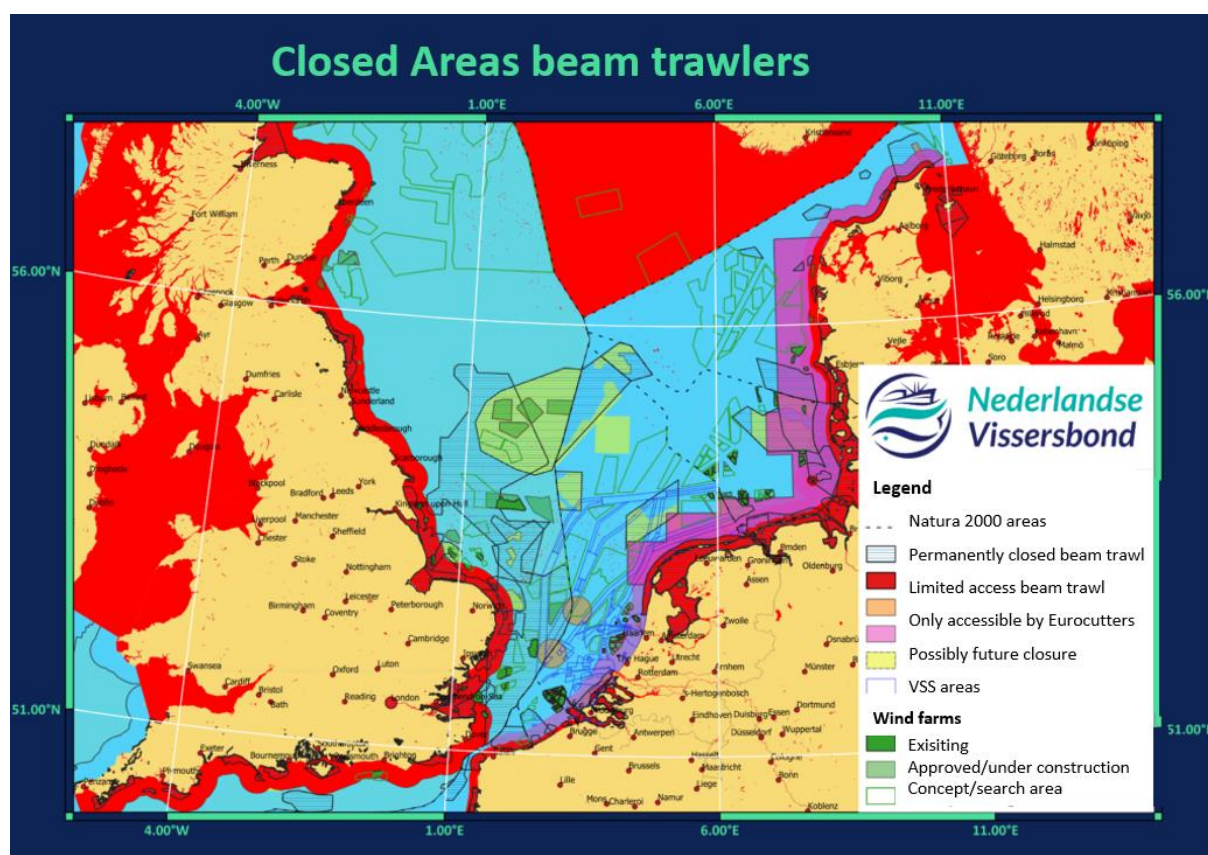


Figure 14: Closed areas for beam trawlers. Horizontal lines: Natura 2000 areas. In red: permanently closed for beam trawlers. Orange: limited accessibility for beam trawlers. Pink: only accessible for Eurocutters. Yellow: Potentially closed off areas. White: Areas VSS. Dark green: existing wind farms. Light green: approved/ under construction wind farms. Source: <https://www.vissersbond.nl/het-noorse-boomkorverbod/>.

## 4. Methods & Data

This national profile was based on a large variety of data sources on the Dutch fish cluster, including the processing and trade. Main data sources are:

- Economic data from the fisheries sector collected under the EU data collection framework.
- Official fisheries data from the Dutch ministry of Agriculture, Nature and Food Quality
- Import and export data from Eurostat

Various reports on the Dutch fishing sector:

- STECF reports on the economic aspects and social aspects
- ICES reports on fish catches
- Numerous scientific publications on the fisheries sector.
- Grey literature





## 5. Production Sector – Detailed

### 5.1 Catch (stock) Profiles

#### 5.1.1 General

The total landings of fish by the Dutch fishing sector was 75% by the large pelagic fisheries and 21% by the cutter fisheries. The remaining part included the landings by the shellfish fisheries (mainly razor clam) and other small scale fisheries. The total landings in 2020 was approximately 304 million kilograms. That is 4% lower than the previous year where the total landings were 316 million kilograms (live weight). In the 2018 this was 406 million kilograms. Almost all of the types of fisheries have observed a decrease; for large-scale fisheries the landings decreased by 5% (partially because there was one trawler less), for cutters the catch remained almost the same compared to the previous year (64 million kilograms).

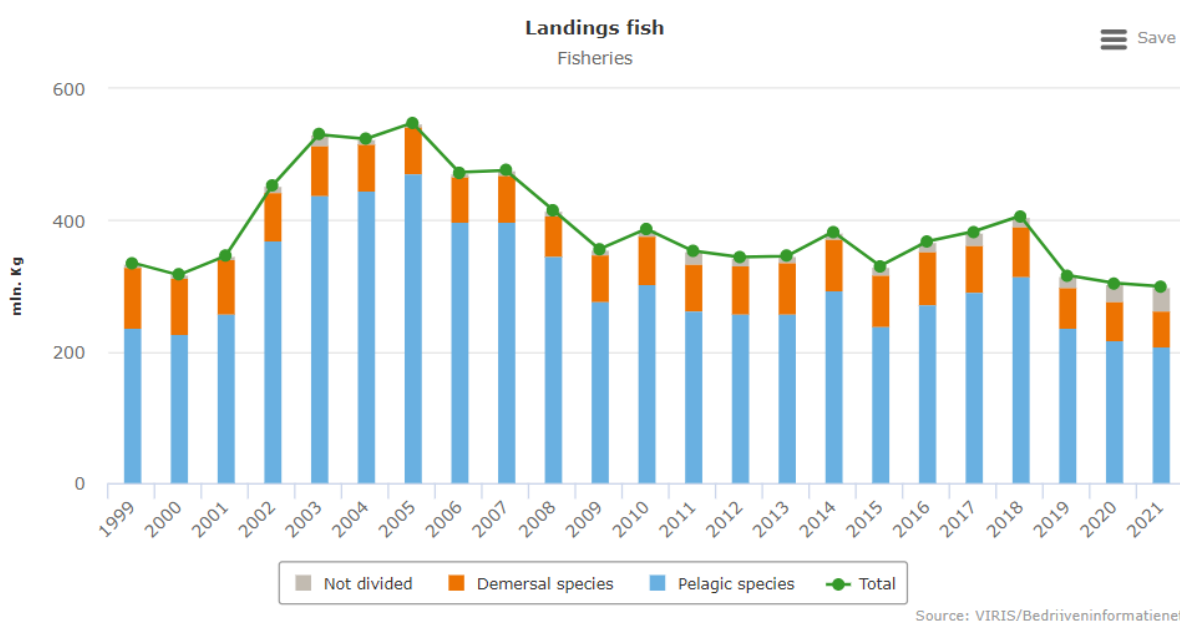


Figure 15: Landings fish 1999-2020. Source: Agrimatie 2021c

<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2860>

The landings of frozen and packaged fish by the large scale fishing sector in 2018 was 317 million kilograms. Due to the decreased amount of available catch quota and number of pelagic trawlers under the Dutch flag, the landings decreased to 239 million kilograms in 2019 and 227 million kilograms in 2020. The most important pelagic species landed in 2020 included: herring, blue whiting, mackerel and horse mackerel. For the cutter fisheries the landings remained relatively stable in 2019. Nevertheless, the last few years less target species such as sole and plaice were caught. After the surplus of caught shrimp in 2018 (approximately 28 million kilograms), this amount decreased to 16 million kilograms in 2019 and 18 million kilograms in 2020. The primary demersal species landed in 2020 include plaice, sole, turbot, brill, shrimp, red gurnard, mullet, mackerel, whiting, squid and nephrops.



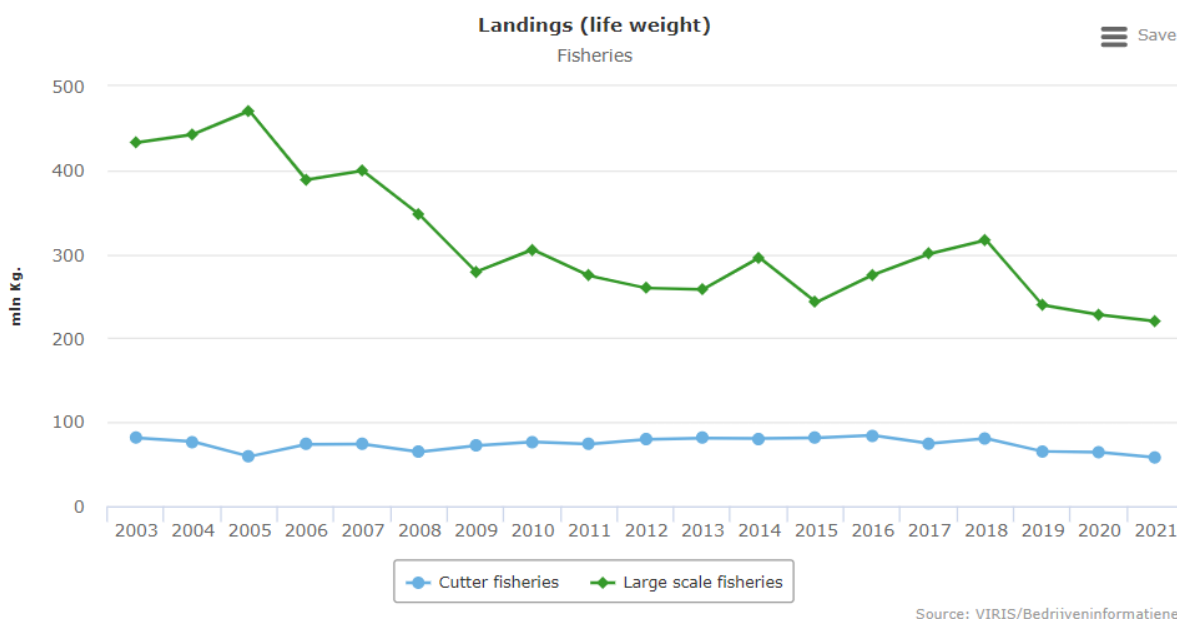


Figure 16: landings cutter sector and large scale fisheries (live weight). Source: Agrimatie 2021c <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2860>

### 5.1.2 Pelagic Fleet

The 7 trawlers that participated in fisheries in 2019 landed approximately 239 million kilograms of fish. In 2020 that amount was reduced by 5%, namely approximately 228 million kilograms. The average landings per trawler was, however, higher in 2020 than in the previous year (circa 38 million kilograms fish as opposed to 34 million kilograms in 2019). The estimated landings of frozen and packaged fish by the large scale fisheries in 2020 consisted of blue whiting (27%), herring (35%), horse mackerel (9%), mackerel (13%), sardinella (10%) and other fish 97%) (Agrimatie 2021a:

<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2861>)

Halfway through 2019 a new fisheries agreement was established between the EU and Morocco. This meant that 19 European pelagic trawlers are allowed to catch up to 375 million kilograms fish (e.g. horse mackerel, mackerel, and sardines) in 4 years' time, with funding by the EU to Morocco. This agreement has stimulate that these European trawlers must employ Moroccans onboard.

The fisheries agreement with Mauritania ended in November 2019. Just prior to this date it was agree to extend this 4-year agreement by one year in order to continue the negotiations. The European Parliament agreed with the extension in December 2020. Because of the covid-19 pandemic the negotiations were delayed.

The Total Allowable Catches (TACs) in European waters for 2019 and the catch quotas were significantly lower compared to 2018: for herring (-26%), for mackerel (-20%) and for blue whiting (-20%) due to concerns over these fish stocks. After consideration the recommended quota for herring and mackerel were adjusted later in the year and increased after renewed calculations.

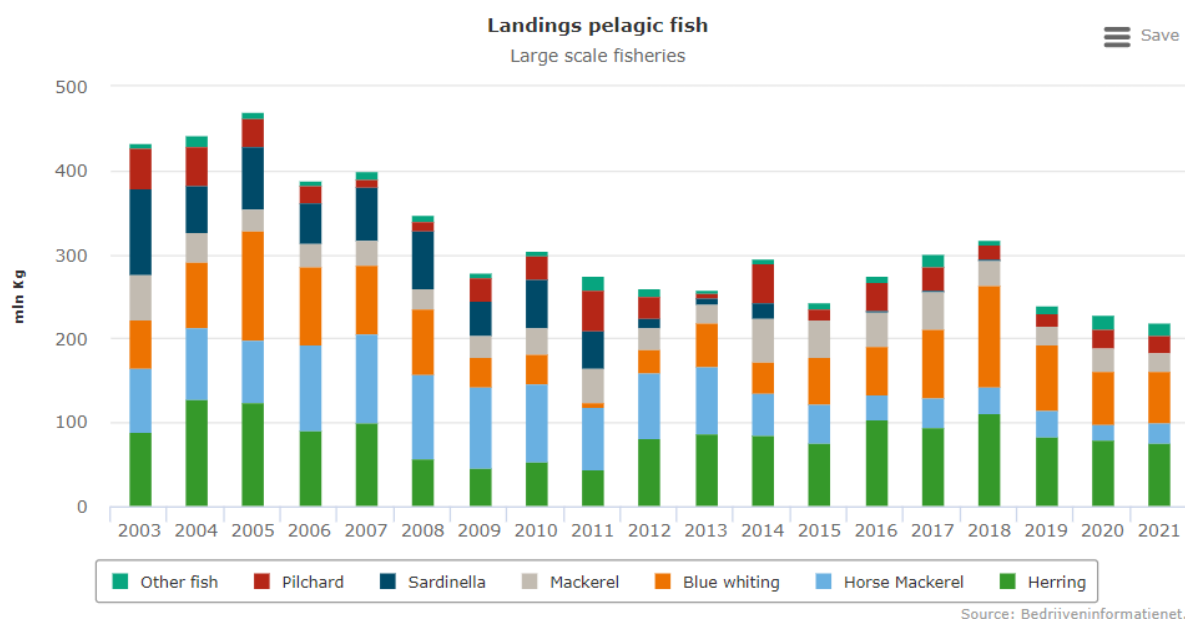


Figure 17: Landings of pelagic fish species in the Netherlands (2003-2020). Source: <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2861>

Brexit has also had an influence on trade between the EU and the UK. EU-fishers are allowed to fish in British waters, but compensation is required. The UK receives a higher share of the TACs than it did when it was still part of the EU. As a result, the pelagic sector was confronted by a relative quota reduction of 26% for mackerel, 12% for North Sea herring and 32% for North Sea Horsemackerel in 2020. These are important species for the dutch trawlers. The transfer of quota towards the UK takes place in fases and will occur between 2021 and 2026. After these 5 years, negotiations must take place again about EU's access to British waters (Agrimatie 2021a:

<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2861>)

### 5.1.3 Cutter Fleet

The number of active Dutch flagged cutters in the cutter fleet has increased from 278 in 2013 to 290 active cutters in 2020. In 2003, however, the fleet was comprised of 274 ships. Reasons for this decrease include: cessation schemes, and export of vessels to fish under other flags. In 2020, 3 new cutters were added to the fleet. In 2021 multiple new cutters, predominantly under the Belgian and British flags, are expected, with some replacing older ships.

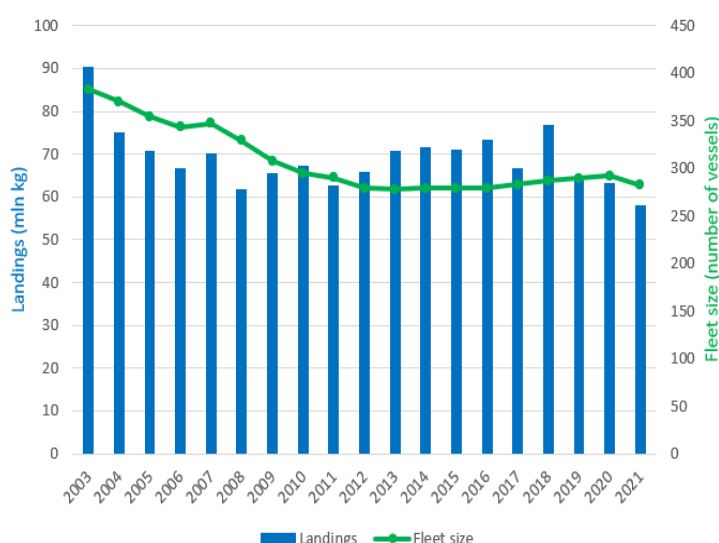


Figure 18: Fleet and landings in the Dutch Cutter fishery. Source: Agrimatie 2021b. <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2862>

After 2012 fishery entrepreneurs were given a chance again to invest in their ships due to the positive nettoresults of 2012. Lower costs (particularly due to the relatively low fuel costs and energy efficient fishing gear), increased catches and higher returns led to a stronger financial position for many companies. However, since 2017 many of the catches of certain commercial species have decreased. Moreover, high uncertainty and developments surrounding the Brexit-deal after 2025, the prohibition of pulse from 1 July 2021 for all fishing vessels in the EU, the North Sea Agreement (including wind farms and protected areas) and the landing obligation have an inhibiting effect on innovations and investments in new ships (Source: Agrimatie 2021b. <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2862>)

### 5.1.4 (Other) Small-scale Fisheries

Towards the end of 2019, the other small-scale fisheries (SSF) consisted of 222 active vessels, a bit less than in 2018 where there were 225 active. In 2020 the estimated number of active vessels was 232. The SSF (excluding gillnets) consists of various fishing practices such as angling, trawling, seining, gillnetting, potting and dredging for shellfish. The number of vessels specifically used for trammel fisheries has decreased significantly since 2014. This is largely because of the low sole catches and the high prices for sole quota during several years (Agrimatie 2021c

<https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2865>)

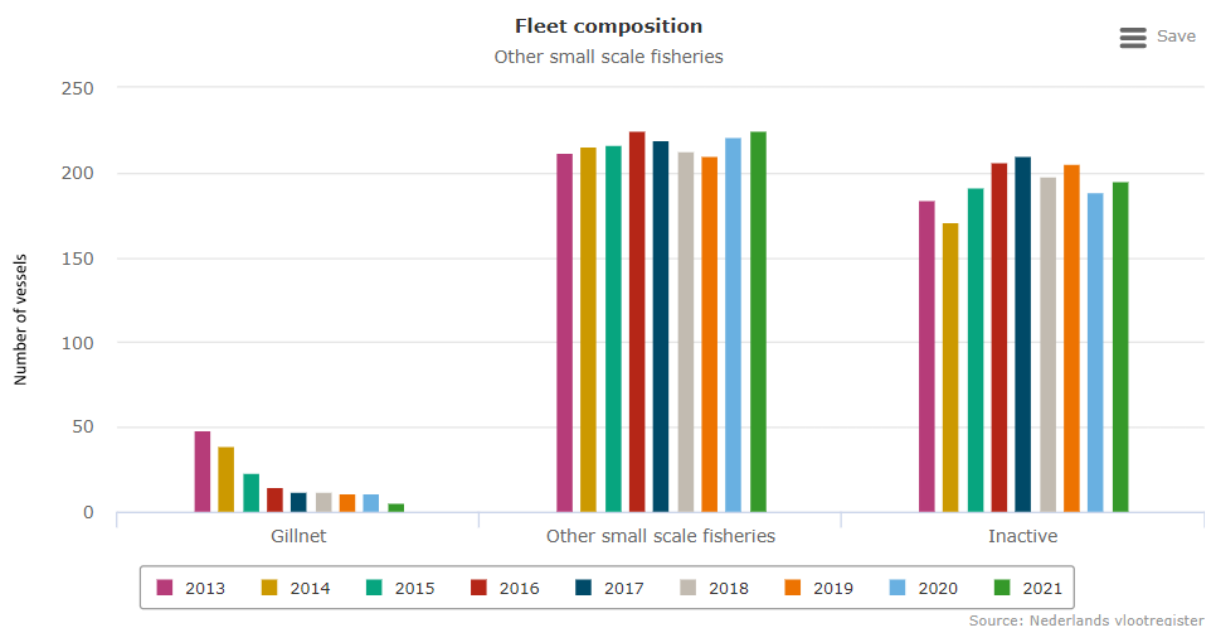


Figure 19: Fleet composition of small-scale fisheries (2013-2020). Source: Agrimatie 2021c <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2865>

A large number of registered vessels in the Dutch fleet are currently inactive according to official logbook data. This group encompassed 189 vessels in 2020, almost 45% of the entire small scale coastal fisheries fleet.

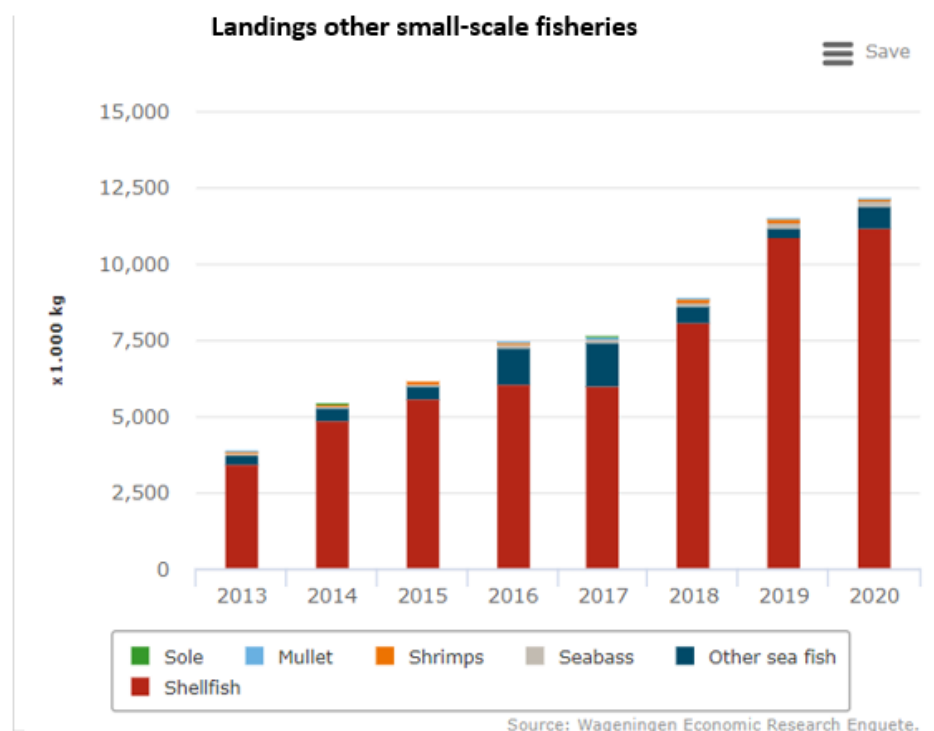


Figure 20: Landings of other small scale fisheries. Source: Agrimatie 2021c. <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2865>

In 2020 the total official registered landings of the remaining SSF (so excluding gillnets) was 12,3 million kilos (live weight). Seabass, surmullet and shrimp were the most important species in addition to shellfish (e.g. razor clam *spisula* and *ensis*). The category 'overige soorten [other species]' includes a large variety of species such as lobster, flatfish and eel.

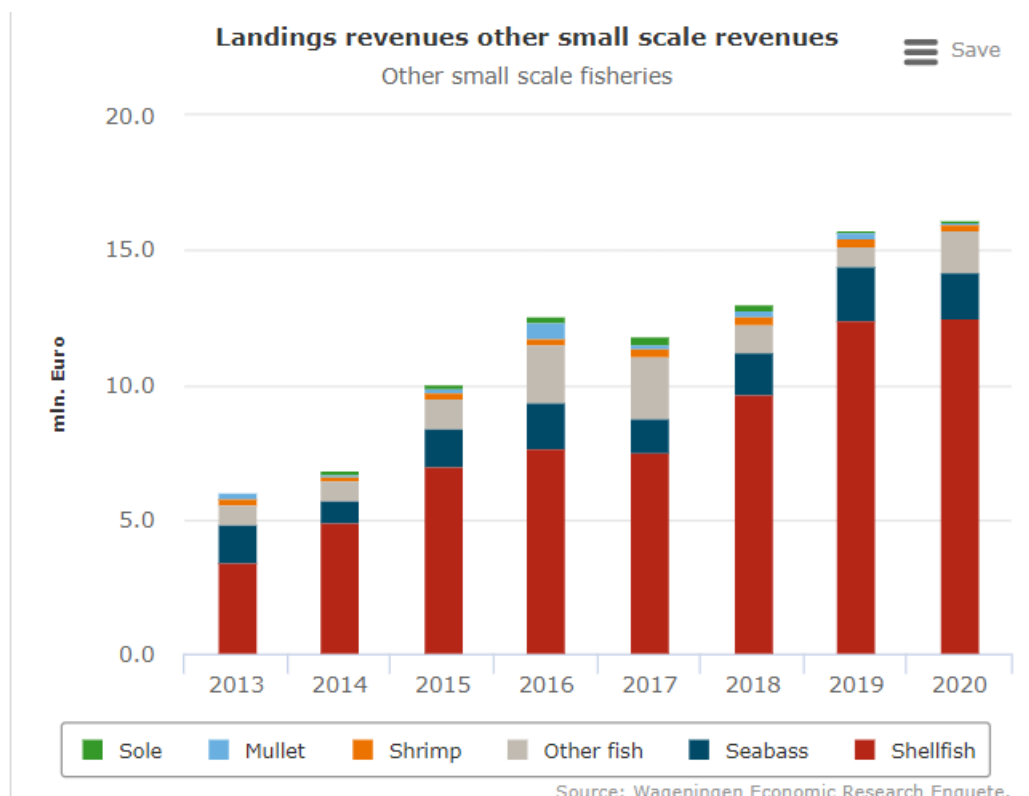


Figure 21: Landings revenues - other small scale revenues. Source: Agrimatie 2021c <https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&themaID=2286&indicatorID=2880&sectorID=2865>

## 5.2 Landing Sites

In 2022, the following ports were classified as official fishing landing ports: Amsterdam, Breskens, Colijnsplaat, Delfzijl, Den Helder, Den Oever, Eemshaven, Harlingen, Lauwersoog, Rotterdam, Scheveningen, Stellendam, Termunterzijl, Urk, Velsen, Vlaardingen, Vlissingen, and IJmuiden. In the ports of Amsterdam, Rotterdam and Velsen, only trawlers are allowed to land (<https://wetten.overheid.nl/BWVBR0030288/2022-09-01#Bijlage2>). Besides, vessels are also allowed to land their fish in the following locations (<https://wetten.overheid.nl/BWVBR0030288/2022-09-01#Bijlage3>):

- Nieuwe Statenzijl (municipality Reiderland)
- Noordpolderzijl (municipality Eemsmond)
- De Cocksdorp (municipality Texel)
- Oudeschild (municipality Texel)
- Petten (municipality Zijpe)

- Camperduin (municipality Bergen)
- Schoorl (municipality Bergen)
- Bergen aan Zee (municipality Bergen)
- Egmond aan Zee (municipality Bergen)
- Katwijk aan Zee (municipality Katwijk)
- Terheide (municipality Monster)
- Europoort (municipality Rotterdam)
- Neeltje Jans (municipality Schouwen-Duiveland)
- Stellendam (municipality Goedereede)
- Bruinisse (municipality Schouwen-Duiveland)
- Burgsluis (municipality Schouwen-Duiveland)
- Roompotsluis (Colijnsplaat, municipality Noord-Beveland)
- Kats (municipality Noord-Beveland)
- Yerseke (municipality Reimerswaal)
- Wilhelminadorp (municipality Goes)
- Zierikzee (municipality Schouwen-Duiveland)
- Walsoorden (municipality Hontenisse)
- Sint-Annaland (municipality Tholen)
- Nes (municipality Ameland)
- Loswal (municipality Schore)
- Schelphoek (municipality Schouwen-Duiveland)
- Bergse Diepsluis (municipality Tholen)
- Haventje van Waarde (municipality Reimerswaal)
- Haven Flauwers (municipality Zierikzee)

Table 4 provides an overview of the total landings in 2021 in each of the landing sites as an indication of the relative importance of the locations. For the pelagic freezer trawlers, the ports of Amsterdam, IJmuiden, Scheveningen and Vlissingen are important. The cutter and small coastal fisheries land their catches in a large number of ports and locations.

Table 5: Sum of landings per landing site 2021. The landings for cutters includes the landing figures of small-scale fisheries and shellfish fisheries. Source: WEcR, 2022

	2021	2021	Total 2021
	Trawlers	Cutters	
AMELAND		4	4
AMSTERDAM	29.605.621		29.605.621
BERGEN OP ZOOM		19.865	19.865
BRESKENS		572.292	572.292
BRUINISSE		42.013	42.013
CAMPERDUIN		2.809	2.809
COLIJNSPLAAT		209.133	209.133
DE COCKSDORP		8.829	8.829
DELFIJL		50.187	50.187
DEN HELDER		9.006.194	9.006.194
EEMSHAVEN		4.128.529	4.128.529
EGMOND AAN ZEE		870	870
EUROPOORT		15.920	15.920
HANSWEERT		13.455	13.455
HARLINGEN		10.329.944	10.329.944
HOLWERD		179.239	179.239
IJMUIDEN	89.637.623	6.201.941	95.839.564
KATWIJK		852	852
KORNWERDERZAND		25.195	25.195
KOUDEKERKE		2.460	2.460
LAUWERSOOG		14.752.282	14.752.282
MAKKUM		20.971	20.971
NEELTJE JANS		5.590.365	5.590.365
NES		8.793	8.793
OUDESCHILD		227.916	227.916
PETTEN		2.059	2.059
ROOMPOTSLUIS		847.307	847.307
SCHEVENINGEN	44.756.957	2.053.447	46.810.404
SCHOORL			
SINT-ANNALAND		7.890	7.890
STAVOREN		23.655	23.655
STELLENDAAM		2.794.289	2.794.289
TER HEIJDE		57	57
TERNEUZEN		141	141
TEXEL		2.485	2.485
URK		55.202	55.202
VLAARDINGEN		3.249	3.249
VLIELAND			
VLISSINGEN	18.368.163	4.641.949	23.010.112
WEST-TERSCHELLING		35.747	35.747
WIERINGEN		3.582.846	3.582.846
WILHELMINADORP		794	794
YERSEKE		27.306	27.306
ZIERIKZEE		3.086	3.086
ZOUTKAMP		175.794	175.794
<b>Eindtotaal</b>	<b>182.368.364</b>	<b>65.667.361</b>	<b>248.035.725</b>

### 5.3 Fishing practices/systems

In 2018 we performed a métier analysis of the Dutch fleet looking at landing profiles of 320,000 trips performed between 2001-2016 which we derived from logbook data. This resulted in 16 métiers in the whole Dutch fishing fleet: three pelagic, four shrimp, 5 demersal and three small-scale and 1 razor clam (Schadeberg et al 2021).

Table 6: Overview of métiers in the Dutch fishing fleet (from Schadeberg et al 2021).

	Practice	Reference Number	N Trips	Species (numbers represent % of total landings)	Landings per trip (mean kg)	Peak season	Area (mode, name)	Gear (mode, name)	Mesh Size (mean mm)	Vessel length (mean m)	Trip length (mean nights at sea)	N vessels per year	Which other practices? (cor > 0.25)
Demersal	Flyshoot	1	15,026	GUU 12, MUR 12, WHG 10, COD 10, DAB 8,	4,807 (5,210)	Summer	29F0	SSC	87 (19)	27 (5.4)	2 (1.9)	79 (16)	12
	Coastal sole target	2	22,160	SOL 26, PLE 22, CSH 18, FLE 15	3,715 (1,944)	Spring	32F3	TBB	77 (14)	29 (8.0)	3 (1.0)	204 (41)	11
	80mm mesh flatfish	3	30,561	PLE 52, SOL 21, DAB 7	9,594 (3,917)	Autumn/Winter	32F2	TBB	80 (0)	41 (3.4)	4 (0.6)	116 (26)	11
	Wide range flatfish	4	35,790	PLE 49, SOL 20	8,329 (5,344)	no peak	32F2	TBB	82 (7)	37 (7.6)	4 (0.8)	169 (40)	7, 8
	Mixed gears plaice target	5	13,410	PLE 62, SOL 6, DAB 5, COD 3, GUU 3, NEP 3	13,422 (8,100)	no peak	37F2	TBB	90 (14)	34 (7.9)	5 (1.9)	106 (11)	5
Pelagic	North Sea pelagic	6	1,004	HER 40, WHB 30, HOM 9	622,247 (1,102,515)	Autumn/Winter	32F2	OTM	42 (18)	58 (33.3)	6 (7.5)	16 (6)	None
	English Channel pelagic	7	536	HER 46, HOM 37	385,095 (147,440)	Autumn	29F0	PTM	33 (2)	54 (5.6)	10 (3.7)	3 (1)	None
	High-volume pelagic	8	1,478	HER 23, HOM 21, WHB 17, SAA 14	2,943,990 (1,404,702)	no peak	20T2	OTM	44 (6)	113 (18.2)	28 (8.7)	13 (2)	None
Shrimp	Spring shrimp	9	51,508	CSH 92	2,460 (1,384)	Spring	NA	TBB	NA	23 (3.7)	3 (1.1)	215 (25)	3, 4
	Shrimp mix	10	24,906	CSH 49, COD 14, DAB 13	591 (798)	Spring to Autumn	NA	TBB	NA	21 (4.8)	2 (1.1)	220 (43)	3, 4
	Summer shrimp	11	37,616	CSH 99	1,529 (1,048)	Summer/Autumn	NA	TBB	NA	21 (3.2)	2 (0.8)	184 (13)	1, 2
	Autumn shrimp	12	35,045	CSH 98	1,746 (1,069)	Autumn	35F5	TBB	21 (2)	21 (3.2)	2 (0.6)	161 (32)	1, 2
Small-scale or specialist	Longline	13	16,120	COD 41, DAB 18, FLE 12, WHG 5	260 (567)	Summer	32F3	HOK	-	13 (7.0)	Same day (0.6)	155 (21)	None
	Small scale demersal	14	18,556	SOL 64, COD 13	174 (226)	Spring/Summer	33F4	DFN	110 (22)	11 (4.5)	Overnight (0.9)	75 (11)	15
	Small scale sole	15	7,443	SOL 90	50 (22)	Summer	34F4	DFN	100 (10)	10 (2.9)	Same day (0.1)	31 (8)	10
	Razor clams	16	9,139	RAZ 99	4,646 (6,053)	no peak	32F3	DRB	-	37 (3.2)	Same day (0.5)	5 (1)	None

### Social factors explaining fishing practices of demersal fishers

The demersal fishing practices were further analysed for social factors that could help understand the heterogeneity within métiers and that were stable over time, observable in the data, and relevant to the stakeholders themselves. The social factors are a useful addition to métier analysis. Métier analysis uses logbook data to analyse what fishers do at sea: where they fish, when and with what gear resulting in which landings. They cannot (nor do they claim to) understand why fishers make those choices nor the habitual and normative aspects of behaviour. But also these factors can be known. After analysing text data from 25 interviews with demersal fishermen we identified three factors that can be used to differentiate different groups of fishers and that drive how they behave.

1) Business structure (family owned vs skipper as employee): Traditionally, fishing in the Netherlands has been conducted by family businesses, where the skipper of the vessel is also the owner (usually in conjunction with his father and/or son). Recently, large fishing companies are acquiring multiple vessels, hiring skippers as employees who have fewer responsibilities than skipper-owners. Decision-making processes are very different for the two skipper roles.

2) Working rhythm (works mon-fri vs works wed to wed, on and off): Traditionally, demersal fishers have maintained a weekday fishing rhythm: they go to sea in the early hours of Monday morning and return to auction their catch on Thursday or Friday, leaving the weekend for the crew to rest. Due to changing social norms and economic pressures, some fishers are choosing to work in shifts so that the vessel is continuously operating.

3) Polyvalence (specialist vs switcher): Demersal fishers can operate their business in a manner that specialises in gear, target species, and area (i.e. they use as few fishing practices as possible), or they can operate with



some flexibility, changing seasonally or in reaction to market price. Both are currently viable strategies, but result in different behavioural patterns (Schadeberg et al 2021)

## Pelagic fisheries

Pelagic fisheries are performed by freezer trawlers. Their fishing trips are often longer (at least 2 weeks), fishing takes place in the Greater North Sea area but also in West Africa and South America. Pelagic species such as herring, mackerel and horse mackerel are fished, and on board immediately sorted, frozen and packaged. Thus the size of the vessels gives mainly space to processing and freezing capacity. Schools of target species are found based on historical catches and acoustic gear (Annual Economic Report 2021).

## Small scale fisheries

In a previous study we looked at the small scale fishing sector. Where the demersal and pelagic fleet are quite well covered in data collection, the small scale fisher fleet is relatively out of sight. Also in data collection they are part of a default category 'remaining coastal fisheries'. It includes: all fishers that apply passive fishing techniques; fishers that apply active fishing gear, but had an income which was below 50 k euro per year; fishers who had been active only part of the year and finally also fishers that are not required to fill in the logbook such as dredge fishers (De Vos & Kraan 2015). Most small-scale fishers make day trips.

The following métiers were found in that study.

Table 7: Overview of métiers in the Dutch small-scale fishing fleet. Source: De Vos & Kraan, 2015).

	Characteristics	
Métier description	Gear	Target species
Shrimp fishery (<20 m vessel)	Bottom trawl/pulse	Shrimp
Gillnet fishery	Gillnet	Sole
	Gillnet	Cod
	Gillnet	Grey mullet/seabass
Shellfish picking	Rake	Cockles
Shellfish picking	Hand knife	Oysters/mussels
Hook and lines	Line with one or several hooks	Seabass/cod
Fyke nets and baskets	Fyke nets and baskets	Eel, flounder, smelt, crab
Recreational/angler fishery	Gillnet/scines/hook and lines, baskets, fyke nets, cages. Sports = with hook and line	Sprat, eel, mackerel, garfish, whiting
Pelagic nets (<300 hp)	Pelagic net, demersal bottom trawl	Smelt
Demersal trawl (<300 hp)	demersal trawl	Plaice, dab, flounder, shrimps
Anchor nets	Anchor nets	Smelt, shrimp, sprat
Razor clams	Airlift	Razor clams

This table was developed by the authors and cross-checked with a small-scale fisher representative

## Shrimp fisheries

In a fairly recent study we assessed the fishing practices of shrimp fishermen. After interviewing shrimp fisheries experts (including fishers) it was meaningful to speak of groups of shrimp fishermen that can be divided according to their home port: South, Den Oever, Lauwersoog/Harlingen and Urk. It is important for the fishing location of the fishermen, and the fleets of the different ports roughly differ from each other in vessel size and in species that are targeted besides shrimp (such as flatfish or nephrops). Trip length is mainly affected by weather conditions, and actual and expected shrimp catches. The choice for target species is determined,

among others, by availability of the gear, fish price, quota rent prices and expected and realized catches (Steenbergen et al., 2015).

Table 8: Estimations by the respondents of the number of vessels per home port (from: Steenbergen et al 2015).

Port	Number of active vessels	Number of vessels with GK-license	Switch to other target species	Remarks
The South	30	0	Majority	Switch to sole
Den Oever	40	30	25% switches actively, 50% has the possibility	Switch to Nephrops
Harlingen	30 (5 non-active)	35	Majority does not switch	
Lauwersoog	50	25	Majority does not switch	
Urk	15-20	0	Majority does not switch	
Texel	7	0	Majority does not switch	
Foreign vessels fishing in Dutch coastal waters	20	0	Unknown	Ca. 50% Belgian and 50% German flag

## 5.4 Main resources (waters/seas)

“The Fisheries Act makes a distinction between three different sea fishing areas: 'fishery zone', 'coastal waters' and 'sea area'. Different rules apply to these areas.

### Coastal Waters

Coastal waters include the Wadden Sea, the Dutch part of Dollard and Eems, the Maasmond, the Nieuwe Waterweg up to the line of the main eastern harbour of Maassluis to the green range light no. 14, the Calandkanaal and open harbours to the most seaward lying dike, the Beerkanaal with open harbours, the Zeegat van Goeree, the Brouwerhavensegat, the Oosterschelde and the Westerschelde.

NB. The sea adjoining the beaches of Noord-Holland and Zuid-Holland and above the Wadden Islands are practically always referred to as coastal waters, but according to the Fisheries Act these are not 'coastal waters'.

### Sea Area

Contrary to what one might think, only a few limited areas of water are considered under the term sea area: the harbours of IJmuiden (including the inner side of jetties) with connecting channels to the Noordzeekanaal (North Sea Canal) and Uitwateringskanaal (Freeboard Canal) at Katwijk and the harbours of Scheveningen to the most seaward lying dikes.

### Fishery Zone

The fishery zone refers to the North Sea along the Dutch coast which is connected to the sea area and coastal waters. In general everyday language the fishery zone is what we would call 'sea'.” (Visit Holland, n.d.)

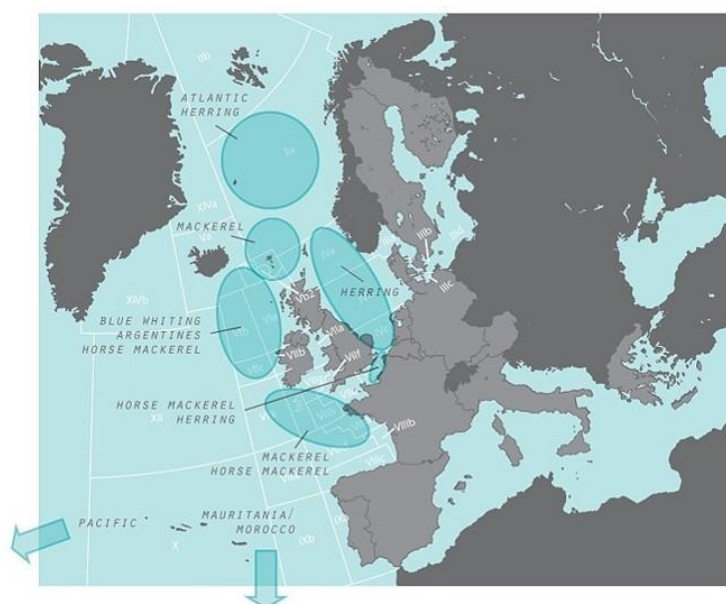


Figure 22: an overview of fishing grounds in European waters for trawlers. Source: <https://vistikhetmaar.nl/onderwijs/lesmodules/vissersvaartuigen/>

Dutch cutters mostly fish in the North Sea Canal, the North Sea, the Waddenzee, the Nordic zone and Skagerak. Important fishing grounds for trawlers are the North Sea, the Atlantic (west of Ireland and Scotland), the Nordic zone, the Gulf of Biscay, the Pacific Ocean (near Peru and Chile) and various African waters such as those near Morocco and Mauritania (<https://vistikhetmaar.nl/onderwijs/lesmodules/vissersvaartuigen/>).

In the Southwest Delta (Zuidwestelijke Delta), important fishing areas include the Oosterschelde, Westerschelde (although now restricted due to PFAS pollution), Grevelingen, and the Voordelta. In other areas, such as the Veerse Meer, Volkerak-Zoommeer and the Haringvliet, fishing occurs on a very small scale.

## 5.5 Markets, Trade, and Economics

### 5.5.1 Fish sales and auctions

Fish caught by the Dutch fisheries are sold through various channels:

- Fish caught by the pelagic trawlers is sold on the international markets by the trade departments of the integrated companies.
- The large part of the shellfish fishery (razor clams, *spisula* e.g.) is also directly sold internationally by the vertically integrated companies or sold directly to processing companies.
- Part of the small coastal fishermen sell their fish directly to local customers (e.g. restaurants) and some directly to consumers.
- The landings of the so called cutter fleet and part of the fish and shrimps from the small coastal fisheries are sold through the auctions.

Most of the fresh fish products are sold through one of the thirteen fish auctions in the Netherlands. These fish auctions are located along the coast in the important fishing villages: Vlissingen, Stellendam, Colijnsplaat, Yerseke, Scheveningen, IJmuiden, Den Helder, Den Oever, Harlingen, Lauwersoog and Zoutkamp. The auction

of Urk is special in the sense that it is the largest fish auction in the Netherlands, but it is not located near the coast. All of the fish auctioned in Urk is transported to the auction by truck from the various harbours. This is due to the fact that almost all of the Urker vessels sold their fish at the Urk fish auction until recently. The new EU obligation to weight and register the catch upon landing makes this practice increasingly complex. The fish needs to be taken of the ice and weighted before it can be transported to the auction of Urk. By doing so the cold chain is interrupted and the ing the cold chain and ing the landings.

The fish auctions have seen a decline in total sales volume during the last 6 years (fig. @@). This has resulted in the closure of the auction in Breskens and increased cooperation of other fish auctions.

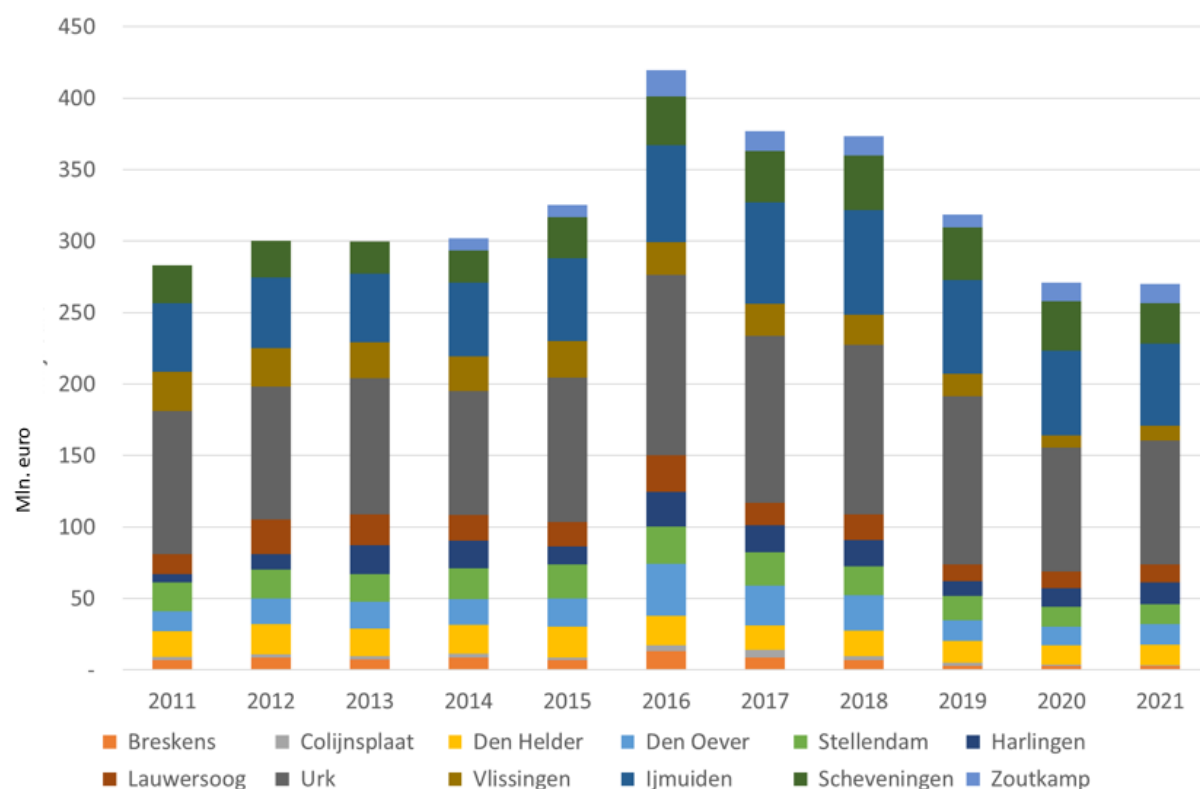


Figure 23: Total value of sold fish and shellfish on Dutch fish auctions in the period 2011-2021 (Source: Wageningen Economic Research).

Besides the increased cooperation in the fish auctions, the main trend in first sales of fish has been the digitisation of the sales process. Many of the buying parties buy fish through the online auction portals and the number of people present in the physical auction has decreased.

Another trend of the last years is the sale of shrimps through contracts. This practice has occurred for the last years, but in 2021 all shrimp landings have been sold this way. As a result the price formation through the auction becomes less transparent and shrimp prices have become more stable.

### 5.5.1 Processing & trade

Most of the fish caught by the Dutch fishing industry is exported either fresh or after being processed in the Dutch processing industry. Accurate figures on the proportion of fish that is exported are lacking as the landings of the Dutch fisheries are mixed with imports in the processing sector, but the main markets for the fish that is caught by the Dutch fishing sector is abroad. The most important export markets are Germany, Belgium, France, Italy and Spain. Nigeria is the most import exporting country for fish caught in the pelagic fisheries.

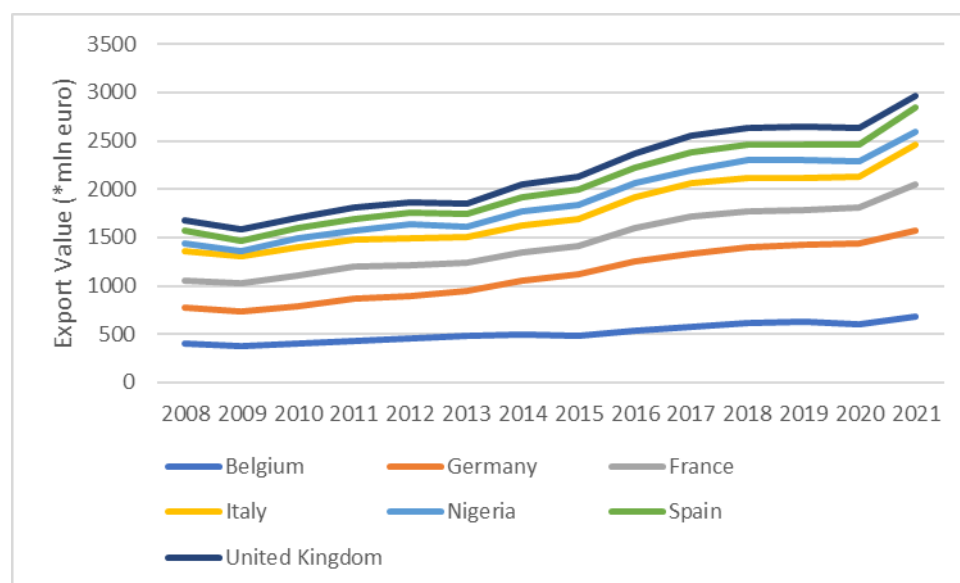


Figure 24: Total export value of fish and fish products from the Netherlands in the period 2008-2021 (Source Wageningen Economic Research).

The main demersal species caught in the Dutch fisheries have specific markets in the EU; North Sea shrimp is mainly exported to Belgium and Plaice to Italy (mainly frozen fillets). Sole is exported to a number of countries, mainly Spain, Italy and Belgium. More information on imports and exports of fish can be found at Eurostat trade statistics (<https://ec.europa.eu/eurostat/web/international-trade-in-goods/data/database>).

The Common Fisheries Policy also concerns the marketing and processing of fish. More information on this can be found at: [https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets\\_en](https://oceans-and-fisheries.ec.europa.eu/fisheries/markets-and-trade/seafood-markets_en). The Dutch Food and Consumer Product Safety Authority (NVWA) monitors the entire fisheries chain, from catching or farming to the restaurant.

## 5.6 Regulatory drivers (Management system)

In the Netherlands both commercial and recreational fisheries exist and a wide variety of rules and regulations exist for sea, coastal, and inland fisheries.

The fishery policy for the North Sea is a European policy and is called the Common Fisheries Policy (EU Regulation no. 1380/2014). European fishery regulations are aimed at preventing overfishing and at generating sustainable fish stocks, which is why fishermen on the North Sea must comply with the EU regulations. The EU regulation does not apply to fishing for shrimps and shellfish (Noordzeeloket, 2022). These fisheries and the other coastal and inland waters are governed by Dutch regulations. The EU and the Dutch government are stimulating fishermen to develop sustainable fishing methods. Within the EU legislative framework and the national legislative framework various types of legislation exist and are outlined in the sections below.

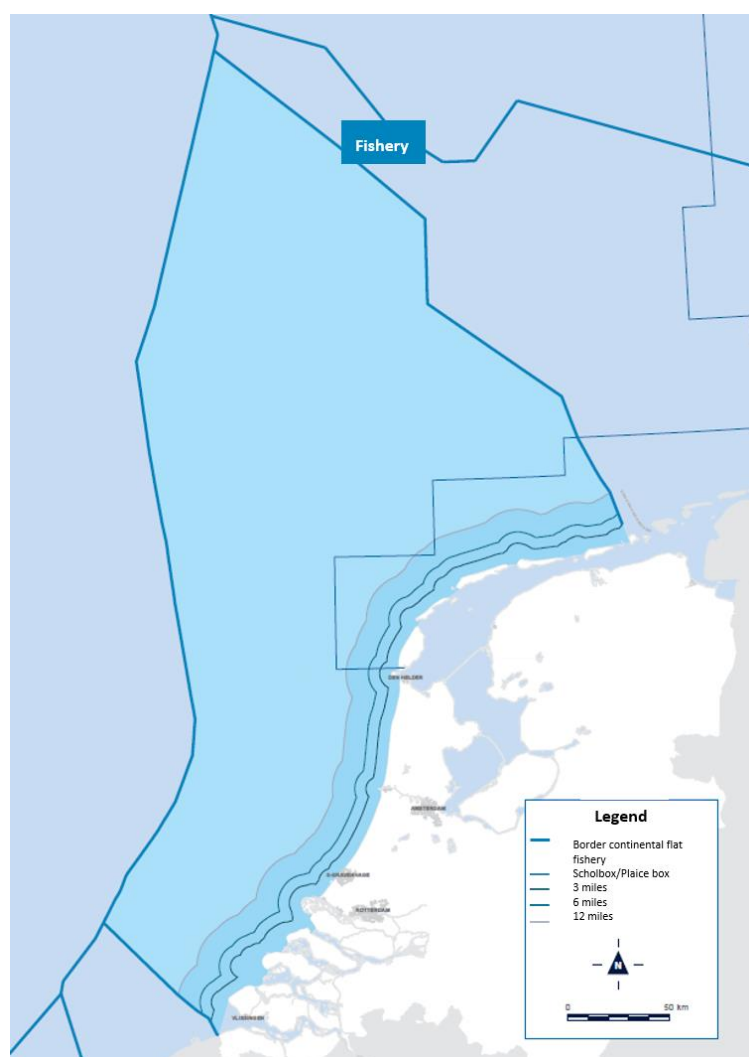


Figure 25: Map of sea fisheries in the Netherlands. Source: Noordzeeloket, 2022. <https://www.noordzeeloket.nl/functies-gebruik/visserij/>

### 5.6.2 Common Fisheries Policy

“The EU’s Common Fisheries Policy obliges the fishing industry in the North Sea to comply with strict measures and regulations in order to maintain sustainable, healthy numbers of fish and in that way guarantee the continued existence of the sector itself. These measures and regulations relate to the permitted catch amount, the locations where fishing is permitted and period and/or number of fishing days, the permitted engine capacity and the regulations for fishing gear and fishing techniques. In a European context, the development of innovative, sustainable fishing technologies is a major point of focus. The Dutch fishery policy is strongly targeted at cooperation with the sector so that sustainable fishing can be realised. The Dutch vision of the European Fisheries Policy is recorded in the paper *Fish as Sustainable Capital* (2009). The new Common Fisheries Policy came into force in 2015” (Noordzeeloket, 2022).

### 5.6.3 Zoning and interaction with other uses

“Professional fishermen must register their vessels in the Fisheries Register and everybody who wants to fish in the North Sea requires a European fishing permit. In addition, fishermen with vessels that are 12 metres or longer must transmit their logbook data electronically.



To a certain extent, Dutch territorial waters are also accessible to fishermen from neighbouring countries. However, the zone up to 3 miles off the coast is exclusively for Dutch fishermen.

In the zone extending from 3 to 12 nautical miles off the coast, Belgian fishermen may fish for all species of fish, Germans can only fish for cod and shrimps and Danes may only fish for demersal species, sprat, sandeel and horse mackerel. French fishermen may fish for all species in the zone extending from 6 to 12 nautical miles off the coast. In the same zone, fishermen from the United Kingdom may only fish for demersal species of fish, but exclusively in the area between the southern point of Texel west to the Netherlands/Germany frontier.

Only ships with an engine capacity of less than 300 horsepower may fish inside the 12-mile zone and in the so-called 'Plaice Box' to the north of the Wadden Islands and in German Bight.

Fishing is not permitted in wind turbine farms, inside a zone of 500 metres around drilling platforms, in shipping routes, approach areas and clearways, above areas where a great deal of munitions are located and in certain parts of Natura 2000 areas. All of this makes up just a relatively small part of all the space on the North Sea. But for fisheries that are more or less tied to a particular area (for example, shrimp fishing along the coast), this means that an integral part of their fishing area is not longer accessible" (Noordzeeloket, 2022).

#### **5.6.4 Frisian Front, Dogger Bank and Cleaver Bank**

In protected nature reserves, the disruptive effects of fishing can only be prevented by means of restrictions or total exclusion. In Natura 2000 areas in Dutch territorial waters, such restrictive measures are being or have been laid down in management plans. In 2009, a large-scale process was initiated to prepare for measures to be taken in protected areas outside the 12-mile zone (Frisian Front, Dogger Bank and Cleaver Bank). In the FIMPAS programme, authorities worked together with the fishing industry, knowledge institutes and civil society organisations" (Noordzeeloket, 2022).

#### **5.6.5 Sustainable fisheries management**

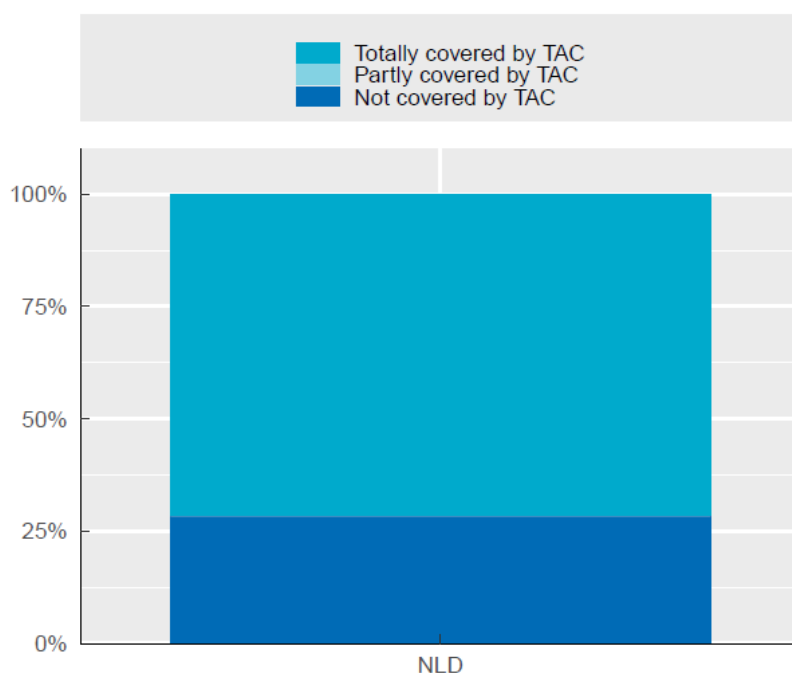
"With the adoption of Sustainable Development Goal 14 (SDG 14) of the 2030 Agenda for Sustainable Development, member countries of the United Nations (UN) agreed to end overfishing by 2020 and effectively regulate fishing activities on the basis of science.

Ending overfishing relies on controlling the quantity of fish being caught, and enforcing scientifically established total allowable catches (TACs) for at least the main species of commercial interest is recognised as an effective and transparent way of achieving this. The value of production of the top-5 Dutch species was USD 352.7 million, accounting for 69.5% of total fisheries production value in 2018. 4 of these species were then entirely under TAC limits, while 0 were partly under TAC limits (i.e. TAC limits were set for some fisheries targeting these species but not all).

Regularly assessing the status of individual fish stocks is an essential component of sustainable fisheries management. Determining where stocks sit with respect to key limit or target reference points allows management performance to be evaluated. For the Review of Fisheries 2020, a total of 1119 stocks across 16 countries and economies (including the European Union), were reported as having recently been assessed, of which, 734 (66%) were assessed to have a biologically favourable status.

Determining stock status and enforcing TACs on the basis of quantitative assessments can require extensive information and expertise. In some cases, such as when fishers harvest a wide variety of species, the value of a stock is low, or data is unavailable, the cost and practicality of quantitatively assessing and managing individual stocks with TACs can be prohibitive. In these instances, data on catch rates and other relevant sources of information might be utilised to infer stock status. In addition, alternative tools to control the impact of fishing include limits to fishing effort such as on days at sea or fishing licenses and restrictions on fishing practices

such as on fishing areas, gear and seasons. Such tools were used to manage 5 of the top-5 species” (OECD, 2021: 5).



Note: Figure uses the latest data reported (2018).

Figure 26: Use of total allowable catch (TAC) limits in managing the key species. Source: OECD, 2021

The ICES advice for the TAC's of 2023 are presented in the table below:



Table 9: ICES advice for 2023 for the TAC (in tonnes) for the most important fish species for the Dutch fishing sector. For herring and whiting the recommended amount for human consumption is put in brackets. Source: <https://www.visserijnieuws.nl/nieuws/algemeen/39345/zwart>

Species	Spawning stock development	Fishing pressure development	ICES catch advice for 2023 (in tons)	Change (%) catch advice 2023 compared to TAC 2022	Actual catch in 2021
Sole	➡	⬇️	9.152	-40%	9.144
Plaice	↗️	⬇️	150.705	6%	72.903
Turbot	➡	➡	2.432	-33% <sup>2</sup>	2.788
Brill	⬇️	↗️	1.315	-30% <sup>2</sup>	1.698
Cod	↗️	⬇️	22.946	44%	18.583
Whiting	↗️	⬇️	110.172 (106.892 <sup>1</sup> )	214%	33.186
Sea bass	↗️	➡	2.542	15% <sup>2</sup>	2.027
Herring	⬇️	➡	414.886	-60%	365.351

### 5.6.6 Management instruments

“The Dutch fleet is managed mainly through ITQs for the most important species, together with a range of input controls. In the context of the recovery of cod stocks, a number of effort measures (including real time closures) were implemented depending on the fishing gear in the North Sea, the Irish Sea, Skagerrak and west of Scotland. Many additional yearly restrictions exist, depending on the fleet segment, the species and area. In 2015, the North Sea cod management plan was discontinued and limits on days-at-sea in the North Sea stopped. Due to Natura 2000, demersal trawl fisheries are facing many area closures. Besides that, other activities in the North Sea such as windmill parks claim more and more space. As a result, fisheries are forced to change their fishing grounds. The EU Green Deal is in short term another challenge that faces the fisheries fleet. In this EU plan a closure for fishing activity to 30% of EU waters is planned, in order to safeguard the biodiversity of these envisaged marine protected area. This ambition is valid for the entire EU fisheries fleet. Specifically for the Dutch coastal fleet (e.g. shrimp and mussel cutters) there is a more strict nitrogen emission regulation in place. The fisheries vessels operate in Natura 2000 waters where a nature protection permit is required. These permits are only (bi)annually obtained if nitrogen emissions are not exceeding the minimum level. In 2019 the current permits were still valid but for next years it is expected that the emission levels will be exceeded by the vessels their fuel usage. If no solutions are found it could result into no extension of the nature protection permits which means no allowance to fish in the Dutch Natura 2000 waters” (STECF, 2021: 454).

For the Dutch demersal fisheries, the following management constraints have been imposed:



Table 10: Management constraints imposed on Dutch demersal fisheries in the North Sea. Source: Rijnsdorp et al., 2008: 128

Year	Management regulation
1946	Minimum landings sizes (sole=24 cm; plaice=25 cm); 3 nautical mile zone
1975	Introduction of total allowable catch (TAC) and individual quotas of plaice and sole; 12 nm zone closed for trawling for flatfish with vessels >300 hp and >50 GRT; number of shrimp fishing licenses restricted
1983	Common Fisheries Policy (CFP)
1985	Introduction of engine power licenses
1986	List of vessels allowed to fish with beam trawls within the 12 nm coastal zone
1987	Maximum beam trawl size: 2*12 m for vessels >300 hp and 2*4 (later 2*4.5 m) for vessels ≤300 hp); maximum engine power of beam trawlers set at 2000 hp; Parliamentary debate on unreported landings and warning for Dutch fisheries minister
1989	Plaice box closed in 2nd and 3rd quarter
1990	Parliamentary fisheries crisis over unreported landings; Dutch fisheries minister resigns
1992	Mesh size increases to 100 mm with a derogation of 80 mm for the sole fishery south of 55°N
1994	Quota management groups; plaice box closed in 4th quarter
1995	Plaice box closed during the whole year
2000	Mesh size of 80 mm in sole fishery south of 55°N west of 5°E and south of 56°N east of 5°E
2003	CFP includes effort limitation

### 5.6.7 Fighting illegal, unreported and unregulated (IUU) fishing

“IUU fishing harms law-abiding fishers by creating unfair competition and cutting profitability and employment opportunities, while weakening food security in countries that depend on local seafood. IUU fishing also undermines governments’ capacity to manage fish stocks sustainably by adding pressure that is difficult to quantify when setting catch limits. It further threatens ecosystems when it makes use of damaging harvest methods and targets species that are already endangered.

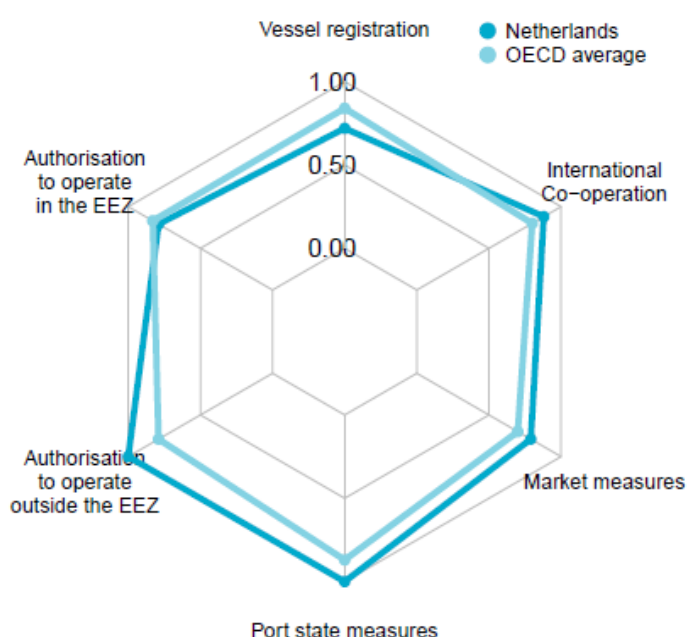
Adopting and implementing internationally recognised best policies and practices against IUU fishing is thus key to accelerate the elimination of this serious threat as agreed under SDG 14, which sets the objectives to end IUU fishing and eliminate subsidies contributing to it by 2020.

The OECD IUU policy indicators investigate the extent to which countries meet their responsibilities in the most important dimensions of government intervention in relation to IUU fishing:

- Vessel registration, by which countries collect and publicize information on vessels operating in their exclusive economic zone (EEZ) or flying their flag;
- Authorisation to operate in the EEZ, by which countries regulate fishing and fishing-related operations in their EEZ;
- Authorisation to operate outside the EEZ, by which countries regulate the operations of vessels flying their flag in areas beyond national jurisdictions and in foreign EEZs;
- Port measures, by which countries monitor and control access to and activities at port;

- Market measures, by which countries regulate how products enter the market and flow through the supply chain and economically discourage IUU fishing;
- International co-operation, by which countries engage in regional and global information sharing and joint activities against IUU fishing.

Netherlands performs most strongly in Authorisation to operate outside the EEZ, Port state measures; greatest scope for progress is in the area of Vessel registration” (OECD, 2021: 6).



Note: Figure uses the latest data reported by Netherlands (2018) and OECD average for 2018

Figure 27: Country's progress in implementing best policies and practices. Source: OECD, 2021

### 5.6.8 Landing Obligation

As of 1 January 2015, all fishing companies have to **land** all the fish they catch. While they used to release bycatch at sea, there are now obligated to land the fish. When the fish is regulated by quota, the catch is also deducted from the quota. This has a large impact on the fishing industry since fishing companies have to be more precise in their fishing activities; catching the wrong species can have a significant impact on their business. In pelagic long-distance fishing the bycatch is 5 to 10%, but given the volumes landed in this type of fishing this concerns several thousand tonnes of fish. In demersal fishing bycatch is much higher and close to 60%. Therefore, fishing companies are keen to introduce new technologies that allows them to reduce bycatch significantly.” (STECF, 2019: 85).

“In the Netherlands a *de minimis* exemption was set for multiple quota species between 2016 and 2019 in the North Sea. For instance, for species as plaice, common sole, Norwegian lobster (nephrops), turbot, ray and common shrimps.

Different projects, partly funded by the EMFF, are started in the Netherlands for finding solutions for a workable LO. The projects mainly focus on increasing survivability of quoted unwanted fish species and improving selectivity of nets. By increasing survivability species like sole and turbot could be excluded from

the LO. Improving selectivity will reduce the amount of unwanted bycatch. Especially in Norwegian lobster (nephrops) fisheries net adjustments improved selectivity. The new developed SEPNEP, a net with two cod ends that separate the nephrops from the other fish, reduces unwanted bycatch up to 65% (unwanted plaice and dab by -69% and -78% respectively) without losing (too much) marketable fish.

Another project started to monitor discards, named Fully Documentary Fisheries. Around 5-10 fisheries vessels have camera on board to monitor the enforcement of the LO by the European fleet.

Dutch fishers fear that the discard ban will not be workable. Beside of the extra costs and the need of additional crew, the most important concern is related to choke species, i.e. losing catches of species where quota are still available. Discards are highly variable depending on the fishery in terms of quantity and composition. It is expected that a quota uplift may not be sufficient in some fisheries to prevent a “choke”. In such a situation, the fishing activities are halted regardless of the available quota for other species. Particularly in a mixed fishery where the stocks and quotas of the target species are high, this could be an issue as many species are caught at the same time and multiple choke species may occur. Rays, turbot and brill are potential choke species candidates in mixed demersal fisheries” (STECF, 2021: 454-455).

## 5.7 Fishing communities/ central ports

### 5.7.1 Communities and ports

The municipality of Urk is by far the most important community in the Netherlands when it comes to fish processing. 23% of all active fish processing companies and 26% of the total turnover in 2017 are from Urk. After Urk, the top 10 municipalities with active fish processing and wholesaler companies include Yerseke, Ijmuiden and Scheveningen/ the Hague each with 8% of the total number of companies and each with 7% of the total turnover in 2017. Since 2017, these figures have changed a lot and many events have occurred (see Chapter 7). For example, the fish auction in Den Helder will likely close its doors at the end of 2022 due to the lack of a future vision in the fishery sector, and all of its employees have been fired already (Gutker, 2022).

The presence of an auction and the types of species landed largely influence the types of companies that choose to establish in a particular municipality. Urk, Ijmuiden and Scheveningen/ the Hague, for example, are largely topologised by active companies working in demersal and fish wholesales. In Scheveningen/ the Hague one will also find the most pelagic fish processing companies because multiple of those shipping companies are based there. Yerseke is most famous for the shellfish and crustaceans. In 2017, Katwijk (3% of the number of companies and 6% of total turnover) had the most herring processing companies while in Bunschoten-Spakenburg (3% of the number of companies, 5% of the total turnover) most of the smokeries for salmon and eel, as well herring processing companies, were located. In Amsterdam and Rotterdam many importers and fish wholesalers are located due to their favourable location close to airports. If one were only to look at the turnover rates (in 2017), Zoutkamp (7%), Volendam (5%), Harderwijk (3%) and Krimpen aan de IJssel (2) would be positioned in the top 10 instead of municipalities such as Stellendam, Amsterdam, Rotterdam and Breskens.

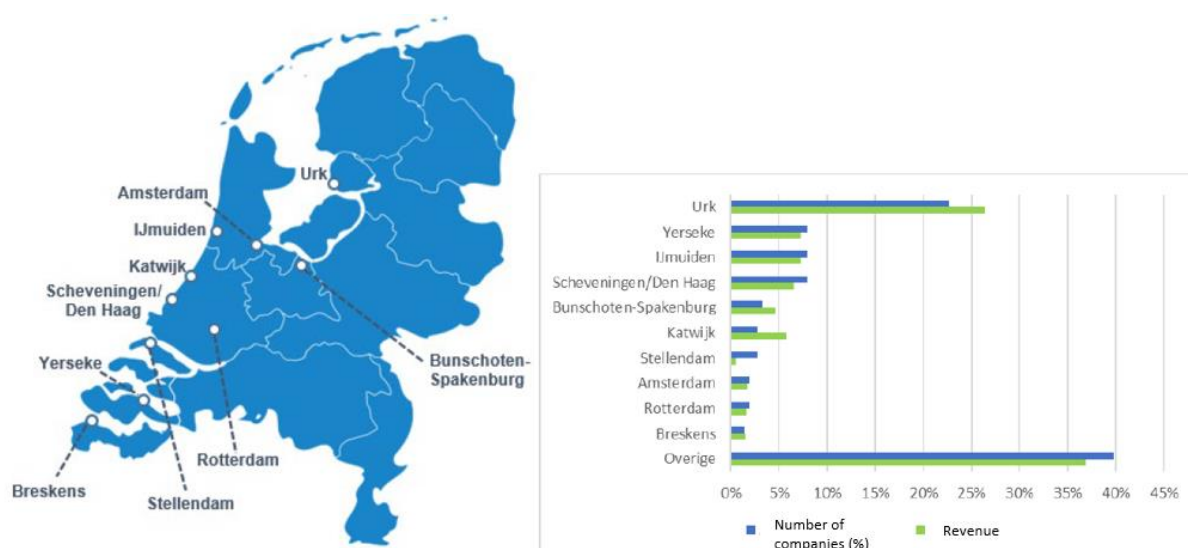


Figure 28: Most important municipalities for the Dutch fish processing and wholesaler companies in 2017. Ranking is based on the number of companies per municipality. Source: Hoekstra, 2019, p.6

### 5.7.2 Ancillary Activities

According to a report by STECF (2018), the estimated ancillary employment (in FTE) for the Netherlands in 2009 was 480 (335-625) and in 2014 it was 611 (390-831) (note that it includes 90% confidence intervals). Ancillary employment in marine fishing is also visualised in Figure 28: Geographical map of ancillary employment in marine fishing. Source: DG MARE 2016, p.36. The estimated ancillary income for the Netherlands was 174,899 million euros in 2009, and 151,327 million euros in 2014 (with a 90% confidence interval) (STECF 2019).

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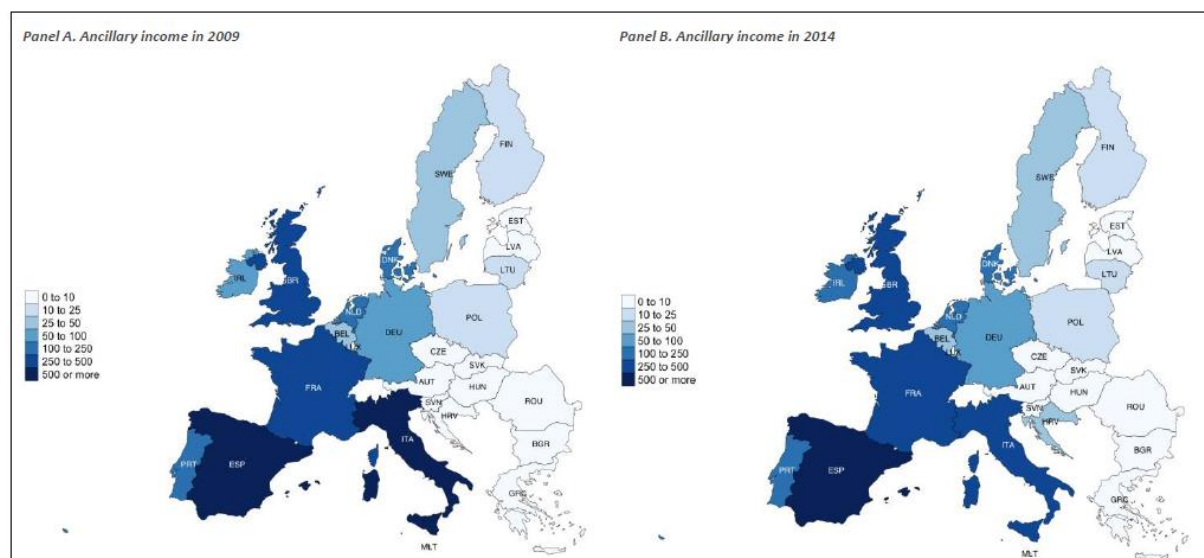


Figure 28: Geographical map of ancillary employment in marine fishing. Source: DG MARE 2016, p.36



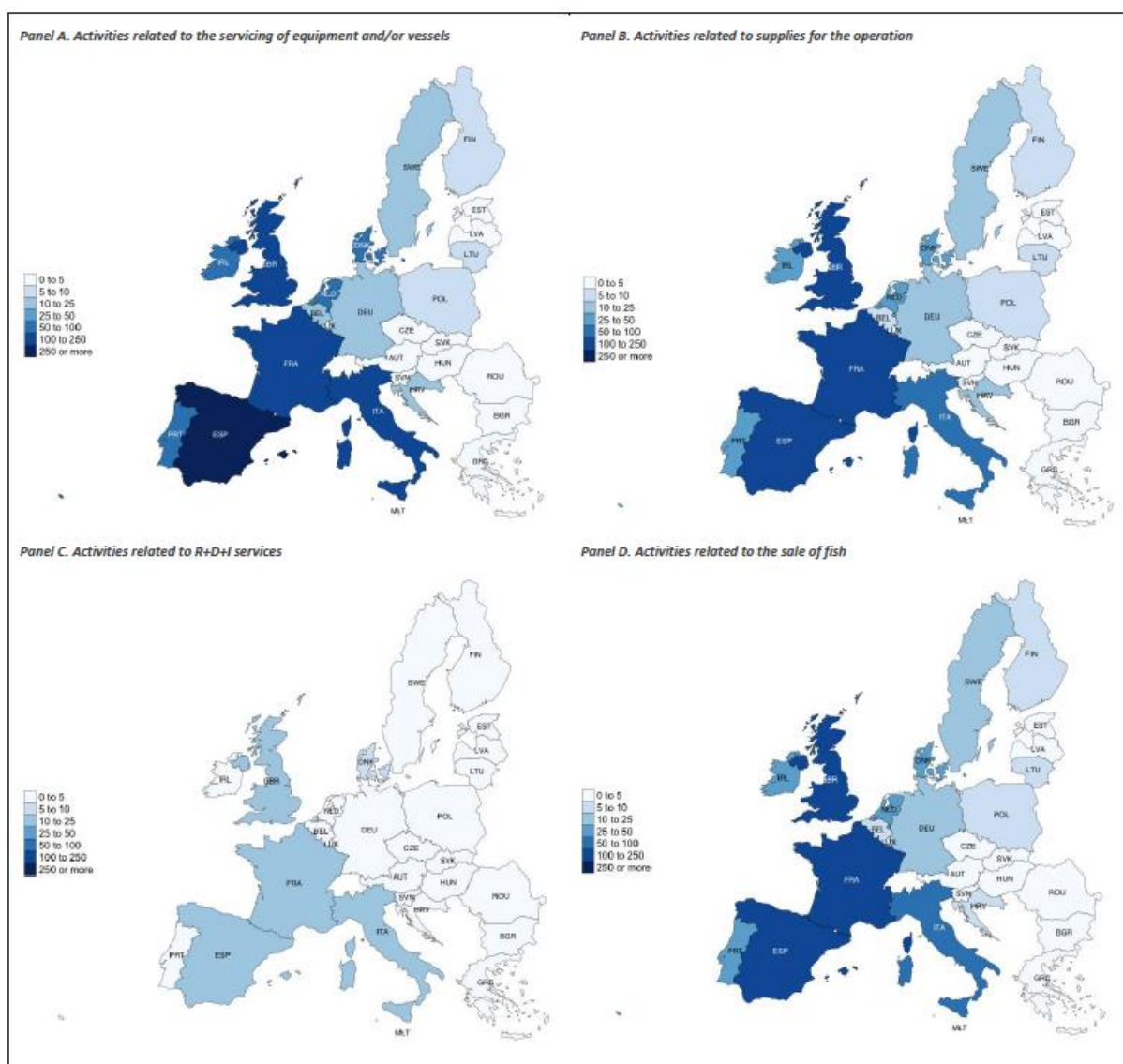


Figure 29: Income per subsector in the sector ancillary to marine fishing in 2014. Source: DG MARE 2016, p.39

Ports for maintenance work include (<https://wetten.overheid.nl/BWBR0030288/2022-09-01#Bijlage2>).

1. Stellendam
2. Den Oever
3. Oudeschild
4. Urk
5. Lauwersoog
6. Yerseke

## 6. Social (and socioeconomic) aspects of fisheries

### 6.1 Context

Fishing in the Netherlands is a traditional practice. Fisheries and trade have always played an important role in Dutch fisheries. The Netherlands was a seafaring nation, and many people living in port towns and coastal villages in the 17<sup>th</sup> century were dependent on the maritime sector for their livelihoods. The fisheries sector provided job opportunities and food security, which allowed urban areas to grow. The herring fleet played an important role in bringing the Netherlands the Golden Age. The Netherlands was a dominant player in the European fisheries sector around 1600 (with Enkhuizen having the biggest herring fleet in Northwest Europe) and had the biggest fleet until the 19<sup>th</sup> century (Quirijns et al., 2019).

The sea and the fisheries sector have formed an important theme in Dutch art (literature and paintings) throughout those centuries. Fisheries are part of two aspects that are rooted in Dutch identity: life with water and its maritime history. The diverse fisheries, open air and maritime museums illustrate this, as well as the diverse national museums that have paintings of the sea, fisheries, fishermen, whalers and the maritime sector.

After 1900 the (national) economic importance of fisheries decreased rapidly, but the social-cultural importance of fisheries in the Netherlands is still deeply rooted in the diverse cultural heritage that remained of its history. This includes material heritage (keys, buildings, ships, statues, memorial monuments, paintings) as well as immaterial heritage (such as stories, knowledge, last names, and sayings). In addition, a part of this heritage is still alive and is embodied by the current sector, formed by fishermen from the ...th generation fisher, and is rooted in the diverse fishing ports and villages that still exist in the Netherlands (Quirijns et al., 2019).

The fishing sector plays an important role in fishing communities through the sponsoring of events, organizing a 'vlootshouw' (fleet review) or 'vlaggetjesdag' (flag day). A lot of fish is also widely distributed in the villages. The frequent sharing of fish with neighbours, family and friends is a positive form of reciprocity and contributes to maintaining social relations.

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### 6.2. Role of fisheries in the national economy

Fishing is not only a cultural-historical heritage, but is also a social-economic activity that contributes to the Dutch economy in various ways. In the Netherlands there hasn't been much research on the socio-cultural importance of fisheries.

The Dutch fisheries sector does not appear to have a large economic contribution on a national scale (344 million euros in 2021, VisserijCijfers.nl). This is less around 0.03% of the total Dutch economy (IMF.org). On a regional scale it appears to have a larger contribution (Urk, Texel, De Marne, Goedereede, Harlingen). Identifying areas that are (socially) economically dependent on fisheries is difficult due to various reasons, but it is clear that the fisheries sector plays a bigger economic role in economically less developed regions. The figure below (Figure 30) shows fishing communities (yellow) and auctions (red) in the Netherlands. Most of the fisheries activities occur in 'krimpregio's' (Zeeland, Friesland, Groningen, kop van Noord-Holland) where the existence of local job opportunities is relatively more important (Quirijns et al., 2019).



Figure 30: Map of the Netherlands with in yellow the fishing communities, in red the fishing auctions, and in blue the (historical) fishing villages in noord-Friesland and Groningen. The places with a lot of overlap or not visible in all the colours. Source: Quirijns et al., 2019: 31

For the regions Noord-Friesland and Groningen, the historical fishery communities (blue) have also been indicated on the map. This illustrates that the cultural-historical roots in the region exist further than the 3 ports (Harlingen, Lauwersoog, Delfzijl). With further research it would be possible to see in what ways this contributes to the meaning of (historical) fisheries for the identity of the region currently, and whether it contributes to employment opportunities and tourism (Quirijns et al., 2019).

Women play an important role in the wider community and contribute to identity formation and the preservation of the culture. This was historically the case, and still is today. The role women play(ed) has been largely underreported and neglected. In family businesses there is mostly likely hidden labour taking place. The profitability of the businesses does not rely solely on the fishing sector, but also on the activities and/or income of the women. Many fisher wives have a position in the company, and when their husbands are sea they take care of the household while maintaining the relationships with many external contacts (e.g. banks, accountants, the ministry, trade) (Quirijns et al. 2019).

The fishing sector has an important contribution to the provision of healthy food and food security in the Netherlands, as well as globally.

In general, the role of the fishing sector to the national economy can be summarized as follows (Quirijns et al., 2019):

- A resilient economy: profit, job opportunities, relations with suppliers, trade, processing and tourism
- Health and safety: food provisioning, search and rescue



- Education and knowledge development: training of crew members, ecological knowledge transfer (e.g. to policy, new generations)
- A healthy living environment: stewardship, participation in research and management
- A socially cohesive, culturally diverse and lively community: cultural heritage and history of the fishing sector, 'sense of place' and identity
- Relaxation and recreation: infrastructure and public spaces (docks, wharf, slipway), bait for recreational fisheries

### 6.3 Markets and Trade

"In 2012, the Dutch fish-processing industry comprised 84 enterprises with a total turnover of €775 million. The main products are flatfish, shrimp and mussels, for which raw material is sourced from the north Sea and Wadden Sea. The processing of salted herring is also important for the Dutch processing industry, although nearly all raw materials are imported from elsewhere in northern Europe. Besides these traditional products, an increasing volume of imported species, such as pangasius and tropical shrimp, is sourced by Dutch enterprises for processing and trading. The Dutch fish-processing and wholesaling industry as a whole has an important function as a trading hub for other EU countries. In the Netherlands, processing is becoming more and more integrated with trading activities" (EMFF, 2016: 3).

The annual turnover in the period 2013-2017 for the Dutch fish processing industry and the fish wholesalers increased with 0,9 billion euros (+26%) to 4,5 billion euros in 2017 (table 11). In 2013 the annual turnover was 2,6 billion euros. The fish processing industry and wholesalers can be divided into 9 subsectors, of which 5 are focused on the processing and trade of North Sea fish, crustaceans, shellfish, pelagic fish, herring, demersal species and North Sea shrimp. For these companies focused on the North Sea fish, the turnover increased from 1,9 billion euros in 2012 to 2,2 billion euros. For each of these subsectors, separate factsheets van been developed and published by Wageningen Economic Research (Hoekstra, 2019).

The companies that focused on other species had a greater increased turnover than those that focused on North Sea fish: from 1,6 billion euros in 2013 to 2,3 billion euros in 2017. Within these companies, 4 groups can be distinguished: the fish processing industry and the fish wholesalers active in *smoked salmon and eel*, *importers*, *fish wholesalers* and *remaining fish processing companies and wholesalers*. The latter group (remaining fish processing and wholesaler companies) includes primarily the fish mongers (fish (specialty) shops and stalls) and wholesalers where fish, shellfish and crustaceans only make up a small portion of the turnover compared to the sales of other food products and goods (Hoekstra, 2019).

Table 11: Number of companies, turnover and employment (in number of people and fte) for the Dutch fish processing industry and retailers/ wholesalers in 2017. Source: Hoekstra, 2019 p.2

Factsheet nr.	Subdivision	Number of companies	Revenue (mln. Euro)	Employment (number of persons)	Employment (FTE)
<b>Subdivisions with mainly North Sea fish</b>		<b>87</b>	<b>2.213</b>	<b>3.742</b>	<b>2.803</b>
1	Shellfish	19	353	725	590
2	Pelagic fish species	6	464	185	164
3	Herring processing	9	210	419	349
4	North Sea shrimp	8	516	456	369
5	Round and flatfish	45	670	1.957	1.331
<b>Subdivisions not or hardly related to North Sea fish</b>		<b>129</b>	<b>2.263</b>	<b>3.311</b>	<b>2.850</b>
n/a	Smoked salmon and eel	21	556	1.126	965
n/a	Importers	32	765	469	400
n/a	Fish wholesalers	61	823	1.515	1.315
n/a	Other fish processing and wholesalers	15	120	201	170
<b>Total</b>		<b>216</b>	<b>4.486</b>	<b>7.059</b>	<b>5.655</b>

Source: Wageningen Economic Research, 2019

The most important reason for the increase in turnover for the entire sector was the increased sales prices of seafood products (fish, crustaceans and shellfish) for human consumption. In addition, many Dutch companies in the sector upscaled their companies which allowed them to increase the volume that could be processed, stored and cooled and traded. The area (in squared meters) that companies use have increased over the years.

According to the FAO, the global demand for seafood has kept increasing for decades. Global seafood consumption between 1961 and 2016 increased by 3,2% annually while the global population increased on average by 1,6% annually. In 2030 the seafood consumption is expected to increase 20% compared to 2016. Europe is the most important markets for Dutch seafood processing and wholesaler companies.

The total number of active companies in the Dutch seafood processing and wholesale decreased from 286 companies in 2013 to 216 active companies in 2017. Reasons for this include that in 2017 only companies with a turnover more than 1 million euros were included in the study, whereas in 2013 smaller companies were also included.

Companies that processed herring and demersal fish species also decreased from 15 to 9 companies and 61 to 45 companies respectively. Reasons for this decrease include acquisition through consolidation, bankruptcy, and diversification strategies that led to a shift from North Sea fish to other fish species.

While the turnover increased between 2013 and 2018, the employment opportunities (expressed in persons) remained roughly the same. In 2013 there were 7.085 employed in the sector, and in 2017 it was 7.059 (see table I). The number of employed people in 2013 was slightly skewed because many of the fishmongers (e.g. fish shops and stalls) that were selected in 2017 would no longer be included in active companies because of their turnover which is lower than 1 million euros in processed or traded fish. This means that the employment opportunities of the remaining companies in this period has likely slightly increased. The increased turnover in those 5 years is nevertheless much higher than the employment opportunities (+26%). The reason behind

this labour efficiency (relatively higher increase in turnover than in labour) is the increase of wholesaler activities by companies. In the past, there was a clear distinction between specialized fish processing and wholesaler companies. These two activities are becoming more and more intertwined in many companies. Moreover, the price of many seafood products has risen over the years. Fish products with large price increases include, for example, salmon and lobster.

## 6.4 Employment

### 6.4.1 Employment in the fisheries sector

There was a decrease in the total employment in Dutch sea and coastal fisheries in 2020. In 2020, the total number of crew members was 2.165, of which at least 1.100 crew members belonged to the cutter fisheries (Agrimatie, 2021d:

<https://www.agrimatie.nl/SectorResultaat.aspx?subpubID=2232&sectorID=2860&themaID=2264>)

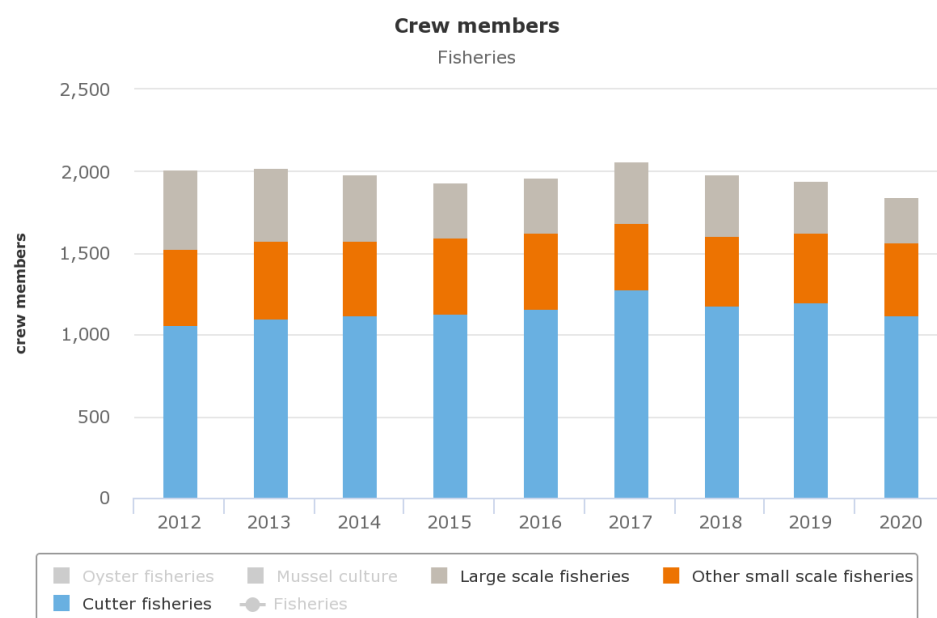


Figure 31: Crew members in Dutch fisheries. Source: Agrimatie, 2021d: <https://www.agrimatie.nl/SectorResultaat.aspx?subpubID=2232&sectorID=2860&themaID=2264>

“Around 18% of the jobs come from the SSCF, whereas the rest comes from the LSF (66% from demersal cutter fleet and 16% from the pelagic trawler fleet). If expressed in FTE, the contribution of the small coastal fleet is much lower: about 5% of the total. The trend from 2008-2015 was downward for employment mainly due to decreasing number of vessels characterized by years of economic losses or small profits (up to ca. EUR 30 million for the total fleet). In 2016 there was a kind of renewed hope by high profits which resulted into new investments (e.g. new vessels) and therefore (re)entering of crew into the fleet. From 2016 the number of pelagic freezer trawlers was decreasing which clarifies the again drop of engaged crew in the fleet” (STECF, 2021: 451).

The STECF report (2019, p.135-6) states the following about employment: “Of the total fleet 60% is an employee and 37% is owner of the fishing vessel. The resting 2% of the total employees is unknown. In the

Dutch fishing fleet the largest part consists of family owned enterprises. Therefore, still more than a third of the active fishing vessels are owned by the family members. Despite the pelagic trawlers are family owned business, the ratio of owners versus employees is to expected lower. These pelagic trawlers are not yet included in this report. Regarding to the employment status 99% of the total fleet consists of male employees and owners.

“From the collected data it is known that there are 432 unpaid labour workers in the Dutch fishing fleet. Most of them are pensioned fishers who still contribute with certain tasks (e.g. driving crew to harbour). Relatively to the total of 1,700 paid employees this is 25% on average. Of these unpaid labour workers 99% are males. The questions rises to what extend respondents define unpaid labour in a consistent and similar way since many females are involved in family owned business (e.g. financial administration)” (STECF, 2019, p.135).

“In 2018 employment in the seafood sector, including processing, accounted for 5368 jobs. This represented 11% more jobs than in 2008. Over the same period, the average value of production per employee decreased by 20% in marine fisheries and decreased by 31% in aquaculture” (OECD, 2021: 2).

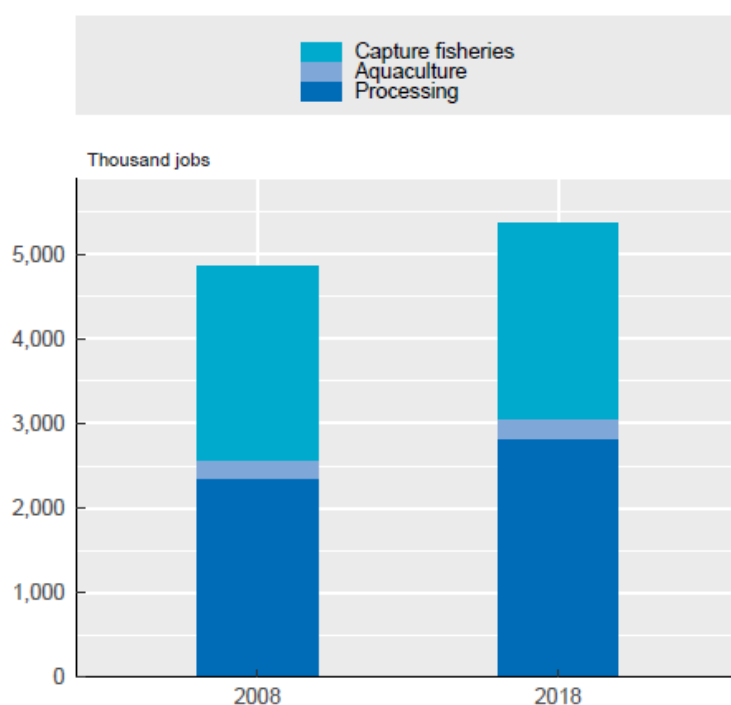


Figure 32: Employment by subsector. Source: OECD, 2021

## 6.4.2 Social structure of the fishers' population

“Regarding to the gender of the crew aboard, almost the entire Dutch fleet consists of males. In total the estimated number of employees at active Dutch fishing vessels, excluding the pelagic fleet, is 1,700. In FTE this number is around 1,455. Both numbers are excluding the crew at Dutch pelagic trawlers since the data collection for this part of the fleet is still work in progress at the time of writing. In 2017 there were 8 pelagic trawlers in the Dutch fishing fleet. Expected is that including Dutch pelagic trawlers, the number of employed persons of the total Dutch fleet will surpass 2,100. Among the estimated 1,700 employees aboard there were only 3 female workers known. This is less than 1% of the total number of employees. During the data collection process of social variables the Dutch fleet provided feedback that there is willingness and openness to stimulate females to work in the fishing fleet. However, according to the respondents there is a limitation in the maximum gross tonnage permitted for fishing vessels by EU legislation. To be able to stimulate females to work in the fishing fleet the required facilities (e.g. separated bath rooms) should be aboard in line with good

employment conditions. This is a paradox according to the industry. Since employers should invest into the required facilities to stimulate employability. Especially to encourage females to become part of the labour market in the fishing fleet. However, to increase employability the economic performances should not decrease. Building these new facilities aboard means sacrificing a significant part of the available gross tonnage and therefore sacrificing fishing capacity necessary for sustainable economic performance. Therefore, from practical reasons there is a major limitation that could discourage females to enter the job market of the EU fishing fleet.”

### **6.4.3 Demographic data of fishers population**

Demographic data from 2019 suggests that: “Most of the crew are at the age of 40-64 years with a 40% (675 employees) of the total fleet. The second largest category of age is 25-39 years with 39% (665 employees) followed by 15-24 years with 17% (286 employees) and older than 65 years is on average 4% (68 employees). Considering the 17% of the category 15-24 years it could be clarified by the education required to become a skilled employee in fisheries. Students need to acquire the qualified certificates before entering the fishing fleet as an employee. Frequently these students younger than 25 years do have internships aboard of fishing vessels during the study program.

Focusing on the owners most of them are 40-65 years old (49%) followed by the category 25-39 years (36%), 15-24 years (8%) and older than 65 years (8%). Especially among the group of owners with the age between 40 and 65 years it would be relevant to gain more insights about the extent of available succession in case of family owned business.

Regarding nationality most of the employees are Dutch (91%). From the total fleet 6% has a nationality from an EU country other than the Netherlands. Solely 2% of the total 1,700 (excluding pelagic trawlers) has a nationality of outside EU” (STECF, 2019: 134).

In 2019, the Dutch fishing fleet consisted of employees of whom 72% were medium educated, 18% had a low education, 5% of the total employees had an unknown level of education, and 4% had a higher level of education (STECF, 2019).

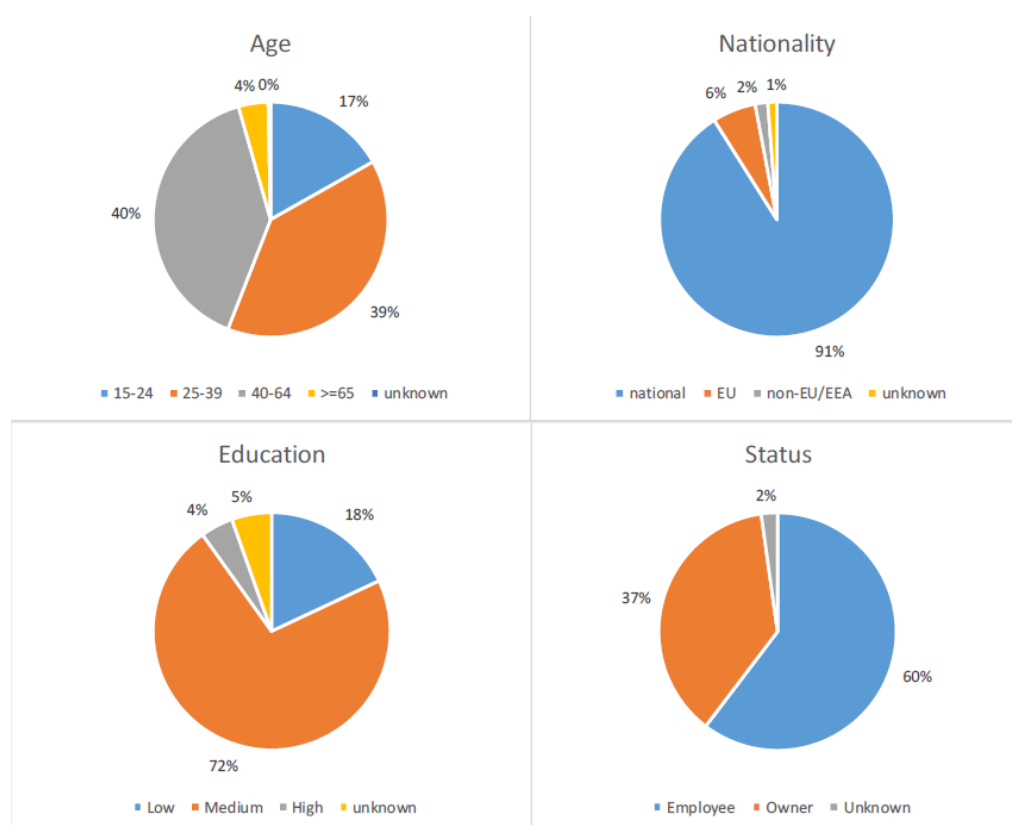


Figure 33: Demographic data of the employees working on the Dutch fishing fleet. Source: STEFC report 2019, p. 134

#### 6.4.4 Annual wages in the context of EU Member States

“At EUR 76 064, Belgian fishers earned the highest annual wages on average in 2019, followed by Denmark (EUR 64 178) and The Netherlands (EUR 44 415) fishers. However, since Belgium calculate their annual earnings differently than the other Member States, these numbers might not show the whole picture. Bulgarian fishers received the lowest average wage (EUR 556), followed by Cypriot (EUR 725) and Romanian (EUR 1 911) fishers” (Figure 34) (STECF, 2021: 36).

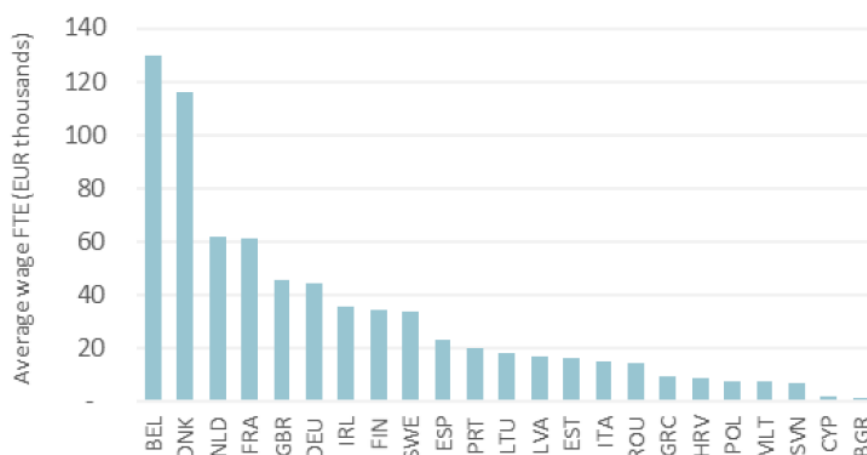


Figure 34: Average wage per FTE by MS. Source: STECF, 2021: 37

## 6.4.5 Labour productivity

“Apart from a small decline between 2011 and 2012, labour productivity of the EU fishing fleets has generally increased since 2008. However, in 2019, labour productivity was estimated at EUR 40 732 which implies a 7% decrease compared to 2018. The Danish fleet is reporting the highest level (EUR 279 544), followed by the Belgian fleet (EUR 177 330) and the Netherlands (EUR 87 803).” (STECF, 2021: 43).

## 6.5 Social Security systems

The majority of the crewmembers onboard the Dutch fishing vessels are self-employed. These fishers earn a fixed percentage of the net revenue of the fishing trip (mostly gross revenue minus some operational costs (e.g. landing costs and fuel costs). This provides flexibility in the labor market in the fishing industry and reduces labor costs. However, there is no social security system in place for these fishermen in addition to the general provisions by the Dutch state.

In order to insure fishers against invalidity, in 1971 the ‘Sociaal Fonds voor de Maatschapvisserij’ (the Social Fund for Society’s Fisheries) was established. Ever since, the SFM is a unique insurance organisation as it is the only one addressed in the national social legislation. The SFM insures its members against invalidity until the date the member obtains the right for his/ her fixed pension. The insurance is paid by the SFM itself in the first year of invalidity. After that, insurance is covered by a Dutch insurance company for which the SFM has a collective accident insurance policy. Members are also able to voluntarily sign up for additional invalidity insurance. The SFM doesn’t only insure fishers working on board Dutch fishing vessels, but also those fishing onboard foreign vessels on the precondition that they are self-employed (<https://aovsfm.nl/>).

## 6.6 Education and Training

There are multiple schools in the Netherlands focused on fisheries, the so-called ‘visserijscholen’. These are in Stellendam (STC), Vlissingen (Scalda, Michiel de Ruyter), Katwijk (STC), IJmuiden (Nova college), Den

Helder (Nautisch college/ROC Kop van Noord-Holland), Zwolle (STC), Urk (ROC Friese Poort). It is unclear how many students are currently studying in these schools, or have in the past.

Although the level of education is relevant, it is more important to have insights about the qualified certification among the fishing crew for safety reasons. Fishing could have risks because of the weather conditions at sea and the labour intensity of the job. Therefore, it would be more meaningful to know more about the level of sufficient qualified certifications (e.g. risk monitoring, first aid etc.) among employees (STEF, 2019).

## 6.7 Access to fisheries

“The introduction of quota management in 1975 and the subsequent allocation of individual vessel quotas of sole and plaice in the Netherlands gradually developed into an ITQ system (Salz, 1996) with a variety of implications for fisheries. The most important economic implication was that individual fishing rights became a valuable commodity. Due to lack of enforcement, the quota regulation did not constrain the fisheries until the end of the 1980s (Daan, 1997, De Wilde, 2006). However, since then, quotas have been enforced and have consequently been restrictive in the sense that the capacity of the fleet exceeded the quota. In this way the ITQ-system (together with the governance organisation through the Producer Organisations) has shown to be an effective way to control fishing activities of the Dutch fleet (Van Hoof, 2013). Quota constraints have varied across years due to variations in the accuracy of stock assessments and to political decisions” (Rijnsdorp *et al*, 2008: 128). This situation has sustained for pelagic species and some demersal species until now. For the main flatfish species (plaice and sole), however, the quota constraints have not been limiting fishing activities since 2019, as the uptake of these species has been low.

The Dutch quota system is different from other quota systems in the way that quota is transferable only to other quota owners—makes it nearly impossible for outsiders to buy ITQs (Hoefnagel en Vos, 2017). In an international evaluation of the various quota systems in the EU in 2017 (Carpenter and Kleinjans, 2017), the Dutch system was criticised for not providing fair access to fishing opportunities for all fishers, while the system scored well on security and flexibility for those involved. Recently the Dutch government decided to start to adapt the system to the current ITQ system to ensure the sustainable development in the Dutch fishery (<https://www.rijksoverheid.nl/documenten/kamerstukken/2022/07/22/openstelling-saneringsregeling-visserij>)

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## 6.8 Societal trends

In general the following trends can be identified that have an influence on the Dutch fisheries sector:

- Increased market potential for sustainable fish products. In a growing world population with more wealth, the demand for (sustainable) fish products is continuously growing.
- Increased focus on sustainability and nature conservation at sea. This poses challenges for the Dutch fisheries which partly targets bottom dwelling species using active fishing gears. Because of increasing space for nature conservation the fishing grounds will become smaller and restrictions on gear use will probably increase.
- Increased interest in use of marine space for various economic activities (e.g. wind parks, solar energy, fish/mollusc/algae culture) This will also decrease the fishing grounds.



The fishing industry has had to face many challenges over the years, such as high uncertainty and developments surrounding the Brexit-deal after 2025, the prohibition of pulse from 1 July 2021 for all fishing vessels in the EU, the North Sea Agreement (including wind farms and protected areas) and the landing obligation have an inhibiting effect on innovations and investments in new ships. This year, there has also been an enormous increase in fuel prices and fishers have to adhere to new nitrogen measures. The cessation schemes for the Dutch fleet have been approved by the EU, which has also brought much uncertainty. It is likely that many fishers will sell their capital (i.e. ships). The fish auctions are also increasingly worried that there will not be enough supply to keep their businesses running (Gutker, 2022).



## 7. Trends, Issues and Development

### 7.1 Summary of the overall trends

#### 7.1.1. In fisheries

As most of the figures we have used in this profile show data of a number of years, we focus here on a qualitative description of trends affecting the fishing industry.

Fisheries generally operate within a sea of uncertainty. It is still one of the most dangerous professions in the world. Weather can change rapidly with dire consequences. The level of the stocks fluctuate, being able to find the fish changes from trip to trip, and if a good catch has been achieved, it is still a question what price one will gain on the market.

The Dutch fishing fleet has currently been confronted with significant changes in the socio-ecological system in which they operate. First of all climate change will impact the availability and distribution of stocks which generally is seen as a concern. But also a number of policy changes have occurred with direct and major impacts, such as Brexit, the landing obligation, the ban for pulse fishing; but also the increase of other uses of the North Sea has heavily impacted the fishing opportunities. Especially space available for fishing has been diminished, a trend that is not at its end yet. The Dutch government is planning more wind parks and also discussion are ongoing to increase the space for MPA's to enhance biodiversity.

The recent period of covid (2020-2021) meant an additional blow as it impacted fishing opportunities and altered markets. Below are some graphs that illustrate the trend over 2020-21 of the landings of different fish species by the cutter fleet.

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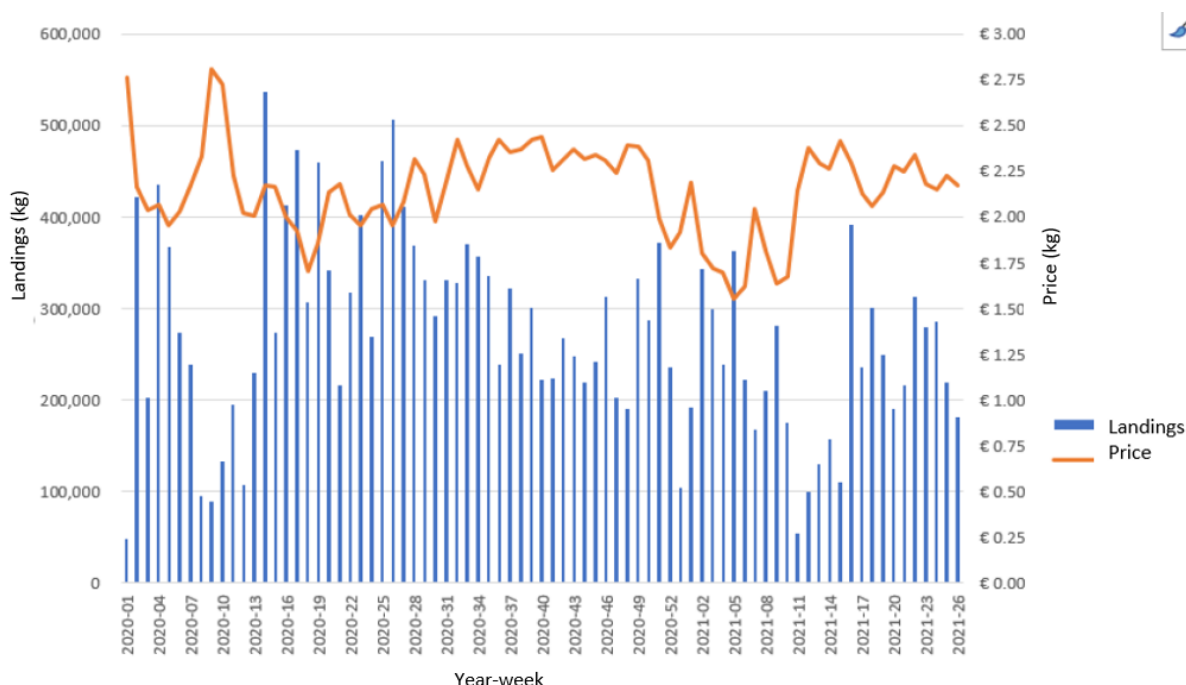


Figure 35: Cutter fleet (plaice) - Covid-19. Source: Visserij in Cijfers 2021

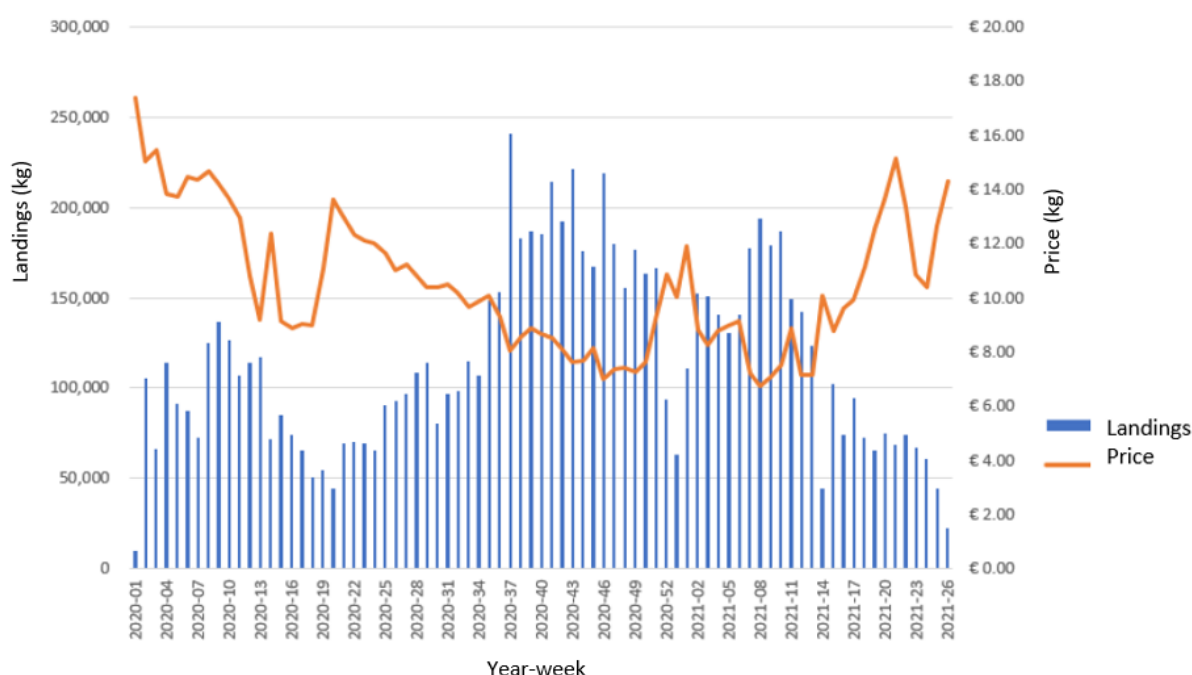
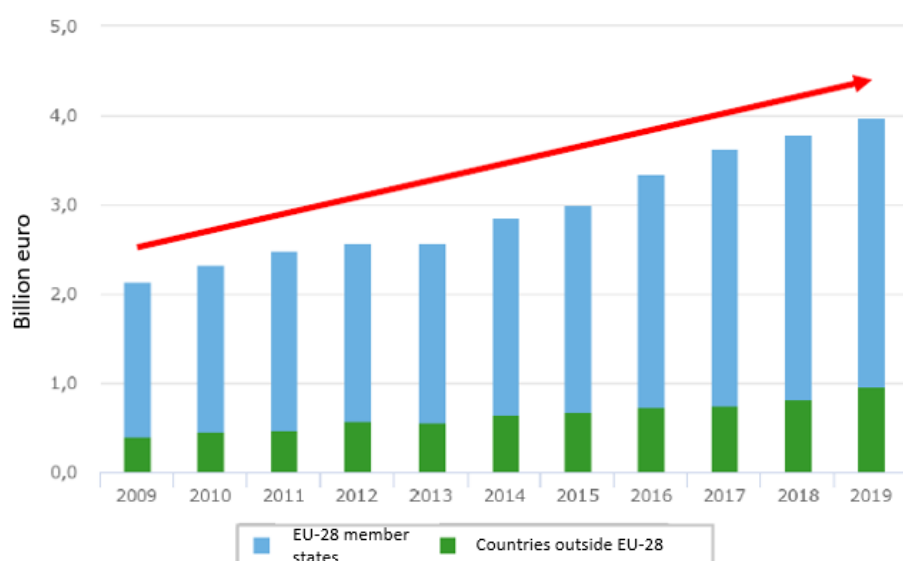


Figure 36: Cutter fleet (sole) 2020-21. Source: Visserij in Cijfers 2021

And lastly the recent stark rise in the oil price, as a consequence of the war in Ukraine, has furthered the negative spiral the fleet is operating in. Especially the rise of the oil price, and the lack of prospect that it will decline soon, has put enormous pressure on the demersal fleet. In combination with the ban on pulse fishing, fishers are not too optimistic that they will find a way to reduce the use of oil. This is particularly true for the sole-directed fishers using the beamtrawl. This negative situation has already impact on the availability of crew. In the generally 'good' labour market, it is a challenge to maintain crew. Many have made the change to other jobs, including shipping and navigation.

### 7.1.2 In trade

Until 2019 the fishing sector saw continuous growth (see graph below). There was a yearly growth of circa 6% (in euros), a 10 year growth in export (2009-2019) which resulted in +85% (in euro) and +56% (volume). There was a record turnover of 4,0 billion euros, including re-export 5 billion euros.



**Export revenue fish products (billion euros)**  
Source: CBS, adapted by Wageningen Economic Research

Figure 37: Export turnover fish products (in billion euros). Source: Visserij in Cijfers, 2021

In 2020, the impact of Covid-19 became visible. From 2019 to 2020, there was -2% (in euro) and -5% (volume). The export turnover was 3,9 billion euros, including re-export of 4,7 billion euros. The decrease in seafood export in 2020 appeared not to be too bad, but these figures don't show the winners and losers. In the summer of 2020 and 2021 the catering sector opened again. Import increased (+4%) to 2,9 billion euros and up to 841.00 tonnes (+8%), particularly concerning sea bass species, salmon (for EU retail) and pelagic species (Visserij in Cijfers, 2021).

## 7.2 Constraints

The next section will describe constraints and negative trends for fisheries and trade.

### 7.2.1 General Challenges – Fisheries

#### Developments cutter fisheries

Although it's difficult to predict how the cutter fleet will develop, a number of developments/ trends have been identified (Quirijns et al., 2019):

- there is an increased concentration of ownership whereby companies own multiple cutters
- there is increased integration of the fisheries value chain: fishery companies that also process the landings, or fish processing companies that also have a share in cutter companies or have their own cutters.
- More and more people are continuously fishing; not only from Monday to Friday, but also on the weekends
- More and more areas are being closed off for the fishing sector (see figure 40). These areas include windmill farms (not only in the Netherlands where in the future 20% of the Dutch Exclusive Economic Zone will have windmills, but also outside of this area), nature reserves and additional areas that are

closed off for the Dutch fishery sector by other countries (e.g. pulse fishing in the French and Belgian 12-mile zone);

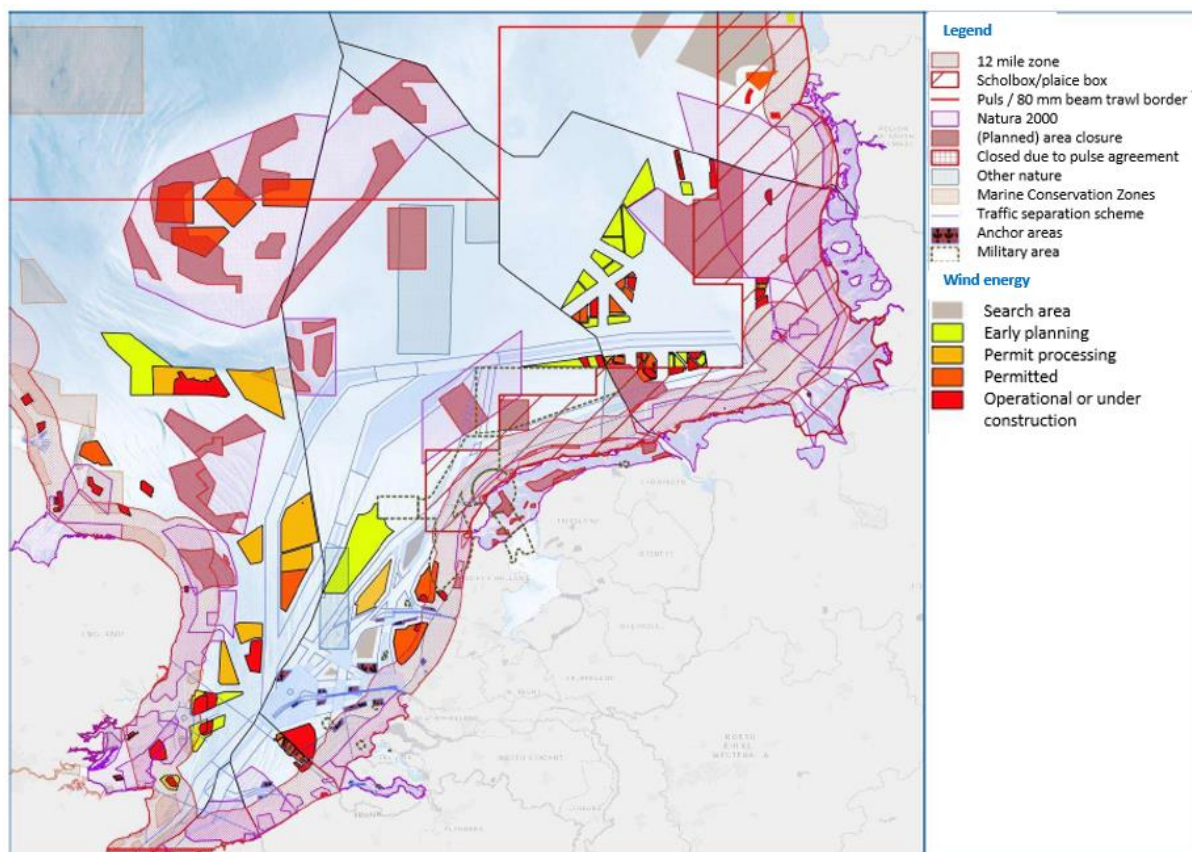


Figure 38: Current and expected use of space in the greater North Sea, excluding fisheries. Source: Burger, 2019: 10

- After a long period of minimal and sometimes negative economic results, the period between 2012 and 2017 saw better years with positive economic results. This was due to the lower fuel prices, the higher fish prices and less fuel usage due to the application of the pulse technology;
- The ban on pulse fishing means that the pulse fleet needs to reorient themselves on other fishing techniques
- The sole stock is healthy and the plaice stock has grown a lot. However, the catchability of these two species has decreased over the last few years, for unknown reasons.
- There have been many negative experiences with the innovation subsidies from the EFMZV, a consequence of the additional administrative burdens and the reclamation of subsidies in 2016
- Because of the ban on pulse fishing, there has been some scepticism in the sector concerning the participation in innovation trajectories. The sector invested a lot of energy in developing the pulse technology in those areas that they will not be allowed to fish anymore. This has created a fear that new innovations will also be stopped. The current attitude is 'it doesn't matter anyway'.
- The landing obligation, meant as a stimulant for selective fisheries, potentially leads to higher costs for the cutter sector

- Climate change will cause some species to travel north, and new species to enter these waters
- Individual interests inhibit collective innovation, and there is increasing segregation between the Dutch subsectors, but also between countries
- Awareness by consumers and citizens on sustainable fisheries is gaining traction
- Another major challenge is acquiring “sufficient educated employees who do have the required qualified certificates. Because of the decreasing economic performances of the Dutch fleet and uncertainty about the coming years (Brexit, banned pulse fishing, landing obligation and closed fishing areas for nature protection and wind parks) the recruitment of new fisheries students is becoming more difficult” (STECF, 2019: 138).

For the **pelagic fleet** Brexit has been a major impact. After Brexit, the landings of mackerel was -/- 26%, -/- 12% herring, and -/- 32% horse mackerel. The fact the new negotiations are at the doorstep, makes their future outlook also uncertain. The pelagic companies are vertically integrated companies, and increasingly also active within the cutter fleet and some in demersal trade. Because of Covid-19, the markets they would usually supply to were closed, so storage occurred in coldstores. The sector faced challenges in terms of crew. Access to fishing grounds further away, in South America and West Africa is dependent on negotiations which often are also uncertain.

**Small scale fishers** have expressed difficulties in catching fish in coastal waters, making it difficult to continue securing their livelihoods. Catches of sea bass increased. Crab fisheries (the export) suffered due to Covid-19. Cockle fisheries are done manually. There were high mortality rates in 2018/ 2019/ 2020 because of heat waves. Shellfish fishers mostly fish *Spisula* and *Ensis*, and are the largest group in terms of turnover. Their effort was adjusted according to decreased demand.

The **Dutch shrimp fleet** is uncertain about the possibilities to continue fishing in the Wadden Sea (a N2000 area), where the national need to diminish the emission of nitrogen, especially near N2000 areas, requires adaptations to their vessel. Yet which exactly is not clear yet, and funding schemes of the government are not available yet. However they can only fish in the Wadden Sea based on a license (linked to the nature law) which needs to be renewed the 1<sup>st</sup> of January 2023.



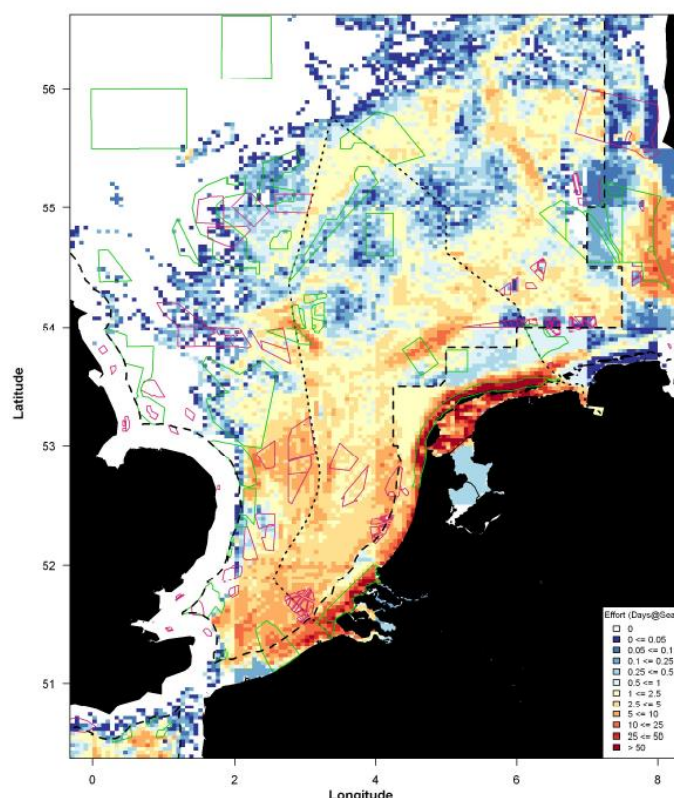


Figure 39: Fishery intensity of the Dutch demersal trawlers (including shrimp trawlers) in the North Sea in the period 2015-2017. Green outlined areas are current and planned windmill farms, purple outlined areas are the Natura 2000 areas, and the thick dashed line shows the 12-mile zone and the Scholbox. The thin marked line shows the Dutch Exclusive Economic Zone. Source: Burger, 2019: 11

### 7.2.3 General Challenges - Trade

The Dutch fish processing sector faces many future challenges. “The decreased supply of many fish species to the Netherlands has caused many problems in the ability to deliver seafood products by the fish processing and fish wholesale companies to customers. Political challenges such as the ban on pulse fishing, Brexit, restricted/ closed areas for fishing, the development marine protected areas and wind farms, the landing obligation all contribute to the uncertainty of the supply of wild caught fish, shellfish and crustaceans in the North Sea.

Wild caught seafood remains a natural product whereby the size of the fish stock and the catchability are influenced by many factors including natural factors such as water temperature, available food in the oceans for the fish, migration routes by fish species etc. The predictability of catches is therefore very complex. Sourcing of seafood may become even more important than the sales. Aside from scaling up in production volume through value chain integration and strategic partnerships, it’s important for Dutch companies to distinguish themselves through added value on the global market. Marketing (branding in particular) can help differentiate processed fish products (such as fish fillets) from the wide range of comparable homogeneous products. Another way of to distinguish oneself is through product innovation. One could think of the valorisation of waste streams from a circular economy perspective. Many elements of seafood and sidestreams such as water and heat are (partially) lost while diverse by-products could be produced (Hoekstra, 2019: 9)

The processing and wholesaler companies also face other challenges. For example: the Paris Climate Agreement – companies will need to adhere to more rules and regulations regarding more sustainable

production. More and more fishing companies as well as fish processing and wholesaler companies will need to justify in what ways they are contributing to a more a circular economy. Demographic challenges include those related to an aging Dutch population; the older generations consume a lot more seafood than the younger generations who are more concerned with sustainability and value food differently. Moreover, there are increasing difficulties in finding qualified employees for the fishing sector. Companies will start to invest more in technological solutions such as automatization and robotisation for many production processes. Traceability will also gain importance, both for the processing/ wholesaler companies as well as for the consumers (Hoekstra, 2019: 10).

Aside from the political challenges on the North Sea, global geopolitics can also have a large impact on trade within the fishing sector. For example: trade war between the USA and China, the ban of import/ export to Russia and Nigeria, the Russia-Ukraine war (including high fuel prices) etc. Moreover, currency rates are also important to consider. Fluctuation in exchange rates have an effect on the Dutch fishing sector through import and export of seafood (Hoekstra, 2019: 10).

## 7.3 Opportunities

### 7.3.1 Fisheries

As discussed above, the fishery sector has increasingly less space to fish in the North Sea, and considerable steps need to be taken towards sustainable fishing. The means that the fleet needs to adjust itself to the changing circumstances and the transitions that are taking place. An independent advisor to the Dutch government in 2019 highlighted the importance of (1) further developing innovations, and (2) restructuring the fleet (Schouten, 2019).

In summary, there are 2 main starting points when it comes to realising a future perspective for the Dutch (cutter) sector:

1. The fishery sector needs to be diligent when it comes to fishing. If one would compare fish stocks to money on a bank account, fishing should not exceed the interest of the capital. No more shall be fished than the maximum sustainable yield, with as little by-catch as possible and within the ecosystem boundaries.
2. Fishers need physical space to fish and are tightly bound to their fishing grounds. This means that the division of scarce space in an increasingly busy North Sea needs to (re-)consider the needs of fishermen.

Multiple opportunities exist, but they will not be discussed in detail below. For more detailed information, see Burger, 2019. These opportunities are largely based in the following areas:

- Innovation (idea creation; testing, implementation and upscaling);
- flexibility in the regulations surrounding fishing gear categories;
- fuel saving/ reduction;
- (re)gaining profits;
- restructuring of the fleet (buy back schemes; social and cultural aspects of restructuring)
- fisheries and society (i.e. encouraging young fishers, closing the gap between fishers and citizens; expanding maritime entrepreneurship; improving transparency and compliance; organisational structure);
- research.



### 7.3.2 Trade

The biggest opportunity for the fish processing and wholesaler companies is the increasing global demand for seafood. The estimated global population in 2050 is 9,5 billion people, of which 70% are expected to live in urban areas. Providing enough food and protein for all these people is a challenge, and can play an important role. The expectation is that wild caught fish won't play such a big role, but rather aquaculture. The supply of fish from aquaculture has already surpassed the supply of wild caught fish. Most countries where seafood is grown are based outside the EU. Dutch companies already import a lot to meet the demand. Opportunities for growth in production volume are mostly based in aquaculture as a supplement to the supply from fisheries. At the same time, there are opportunities to create a distinctive character when it comes to wild caught fish (e.g. local, authentic, health benefits (no added supplements), sustainability etc.). Fresh seafood in particular can be promoted as an exclusive and unique product. On the other hand, fresh seafood has a shorter expiration date compared to frozen or conserved seafood. The origin of the product is also increasingly being amplified by legislation. Another advantage of fish compared to other animal protein sources is its low food conversion rate. For wild caught fish this is lower than farmed species (Hoekstra, 2019).



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