

Norwegian coastal fisheries

An overview of the coastal fishing fleet of less than 21 meters

Edgar Henriksen





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<p><i>Summary/recommendation in Norwegian:</i> Denne rapporten gir en oversikt over den norske kystfiskeflåten under 21 meter lengde og inngår i et intensjonalt samarbeidsprosjekt om "Kystfiske rundt Nord-Atlanteren" ("Coastal fishing in the North Atlantic"). Rapporten gir en oversikt over kvotesystemet, fiskerihavner, fartøyenes alder, byggematerialer og motorstørrelse. Fangstdata i verdi og mengde er fordelt på fartøystørrelse, redskap og regioner.</p>	<p><i>Project No.:</i> 10646</p>

Preface

This report contains a mapping of the Norwegian coastal fishing fleet and is Nofima's contribution to work package 1 (WP1) of the project: "Coastal fishing in the North Atlantic". The purpose is to provide a data set that describes the coastal fisheries in Norway and hence provide a sufficient basis for comparing Norwegian coastal fisheries to the coastal fisheries in other nations around the North Atlantic

The main sources for the statistics presented are various official databases in the Norwegian Directorate of Fisheries (<http://www.fiskeridir.no/english/statistics>), as well as the directorate's end-note database (sluttseddeldatabasen). The latter contains detailed information on all commercial landings of fish and shellfish in Norwegian harbors. Other data sources are the Norwegian Export Council's (<http://en.seafood.no/>) export statistics and The Norwegian Coastal Administration (<http://www.kystverket.no/en/>) for information on numbers and location of fishery harbors. White papers (Meld.St) and draft resolutions and bills (Prop.) presented to the Parliament (Stortinget) by the Ministry of Fisheries and Coastal Affairs are additional sources of information about the different regulatory measures and regulation applied to the fishing fleet (<http://www.regjeringen.no/en/dep/fkd/Documents/propositions-and-reports.html?id=287>). Relevant reports and articles, mainly produced by scientists at Nofima (<http://www.nofima.no/en/publications>), are also used to complete this presentation.

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1 The quota system and regulatory measures

The present Norwegian fisheries management regime has been developed over more than a century. The Norwegian fishing industry is described in a book presented by the OECD (2006). This includes the fisheries policy, the management regime and the technical development of the fishing fleet as well as the use of market-like mechanisms to adjust fishing effort. Suggestions for reforming the structure- and regulation politics aimed at the different segments of the fishing fleet have been presented as white papers to Parliament (Stortinget) four times since 1992 [Norwegian Ministry of Fisheries and Coastal affairs, (1991–1992, 2002–2003, 2006–2007, 2012–2013)]. This comprehensive process has confirmed and reinforced the policy results over the past two decades. Access to the Norwegian common marine resources is restricted and the number of fishing vessels and fishers have been significantly reduced. Both are regarded by the authorities as the two most important measures to simultaneously rebuild stocks and increase the productivity in the sector.

Introduction of an Individual Transferable Quota system (ITQ) in its pure form was not seen as legitimate either by parliament, the public or the fishers (Williams and Hammer 2000). A regulatory regime based on TACs and closed access was introduced for the bulk of the fleet. In the important coastal fisheries a smaller portion of the Norwegian part of the TAC (about 7 percent of the TACs for cod, haddock and saithe) is allocated to an open access group to ensure the coastal population's access to the fish resources in their home waters.

Instead of an ITQ-system the Norwegian management model is licenses granted to a registered vessel on a yearly basis within an Individual Vessel Quota system (IVQ). The main rule is that the licenses granted will automatically be prolonged as long as the vessel owner¹ and the vessel² meet the conditions for holding a license. The system is combined with different regulatory instruments to manage overcapacity in the different segments of both the coastal fleet and the deep sea fleet. A Unit Quota System (UQS) was introduced to enable the owners of deep sea trawlers, deep sea purse seiners and deep sea long liners to transfer quotas from scrapped vessels to one remaining vessel. For the trawler fleet and the deep sea purse seiners the limitation in 2013 was up to two scrapped vessels (limitation on three quotas on one vessel) and up to four scrapped vessels for the deep sea long liners (limitation on five quotas on one vessel).

In the coastal fleet belonging to the closed group, two different regimes were introduced: a Structural Quota System (SQS) and a decommissioning scheme. The coastal fleet is divided into four different length groups, which after the last revision are divided into the following length spans: < 11 meters, 11–14.99 meters, 15–20.99 meters and 21 meters to a hull capacity of 500 cubic meters. The SQS was initially limited to vessels from 15–28 meters, but after the two latest revisions of the policy it includes vessels down to 11 meters. Suggestions made to the process leading up to the 2012–2013 revision to also include the group of less than 11 meters in the SQS system, were not taken into account.

Under the SQS system the main rule is that 80 per cent of vessel quota may be transferred to other vessels within the same length group and located in the same county under the condition that the

¹ Owners meet the requirements to be registered in the Register for Norwegian Fishermen i.e. be active fishers.

² Meet the relevant technical standards for safety at sea and fish handling.

vessel stripped of quotas is scraped. The remaining 20 per cent is shared among the remaining vessels in the same group. The exception to the rule is that vessel owners in the northernmost part of Norway (Finnmark county and the northern parts of Troms county) are allowed to buy vessels with quotas from the whole country which are also included in an SQS arrangement. Vessels with quotas may be sold, but access to the marked and therefore the user-right's to the bulk of common marine resources, is limited to active fishermen within a county (with the above mentioned exception). As long as the conditions are met, authorities always approve the transaction. The market limitations and the fact that quotas may not be stripped from a vessel and sold is, according to Williams and Hammer (2000), what distinguishes the Norwegian system from an ITQ-system in its pure form.

Under the present rules (2013) a fully structured vessel in the two longest vessel groups (>15 meters) may choose between having a quota portfolio of four IVQs in the cod fisheries (cod, haddock, and saithe, including fishing saithe with purse seine), two IVQs in herring fisheries in addition to quotas in the mackerel- and capelin fisheries or two IVQ's in the cod fisheries and four in the herring fisheries. For all IVQ's accessing three in either fishery 70 percent cent of vessel quota may be transferred and 30 per cent is shared among the remaining vessels in the same group. Vessels in the group 11–14.99 meters are allowed to have a quota portfolio of three IVQs in the cod fisheries (cod, haddock, and saithe, including fishing saithe with purse seine), one IVQ in herring fisheries in addition to IVQs in the mackerel fisheries. Alternatively one IVQ's in the cod fisheries and three in the herring fisheries. Not all vessels are structured to this level, but the tendency is a pronounced decrease in the number of vessels in all length groups.

Over time there have been different decommissioning schemes at work, the first dating back to 1960. Initially the aim was modernization as well as reduction of fleet capacity, but the latest schemes have been aimed solely at capacity reduction and were, in addition aimed at smaller fishing vessels not included in the SQS scheme. The arrangement established in 2003 was founded by an imposing a fee on the value of first hand landings and a 50 per cent government contribution. The result of both arrangements has been a reduction in total vessel numbers in the coastal fleet distributed as shown in Table 1.

Table 1 Percentage change in numbers of fishing vessels in the period 2002–12. Source: The Norwegian Directorate of Fisheries database on registered fishing vessels.

Length group	Change
<11meters	-43.6%
11–14.99 meters	-19.1%
15–20.99 meters	-61.6%
21–27.99 meters	-43.7%

Table 3 shows the development of total numbers of registered coastal fishing vessels in three length groups and by region in the years 2010–2012.

Table 4 shows the different licenses granted to the coastal fishing vessels in all length groups in 2012. Each license might hold several IVQs. It is apparent that the number of fishing vessels by far (at least two times) exceeds the number of licenses. There are two main explanations for this: There still are open fisheries and close to 800 registered vessels are not active (see Table 5).

2 Fishery harbors and fish processing plants

This chapter presents the division of Norway into regions, fisheries harbors and fish processing plants. The intention is to give the reader an impression of the infrastructure available for the coastal fishing fleet as background for the presentation in later chapters.

2.1 Counties and regions



Figure 1 Norway: Counties and regions. Spans from approximately 58° – 71° N and 5° – 31° E.

Dividing Norway into five regions is done to meet the conditions set for legal use of data – no data on landings or the economy of any individual person or business may be identified. Equally important is to be able to present the data in a surveyable manner. The regions consist of the following counties:

- North Norway: Finnmark, Troms, Nordland
- Mid Norway: Nord-Trøndelag, Sør-Trøndelag
- West Norway: Møre og Romsdal, Sogn og Fjordane, Hordaland, Rogaland
- South Norway: Aust-Agder, Vest-Agder,
- East Norway: Telemark, Vestfold, Buskerud, Akershus, Oslo, Østfold.

2.2 Fishery harbors by region

In 2013 the Norwegian Coastal Administration had 673 registered fisheries harbors in their database and they are located as shown in Figure 2 - Figure 6.

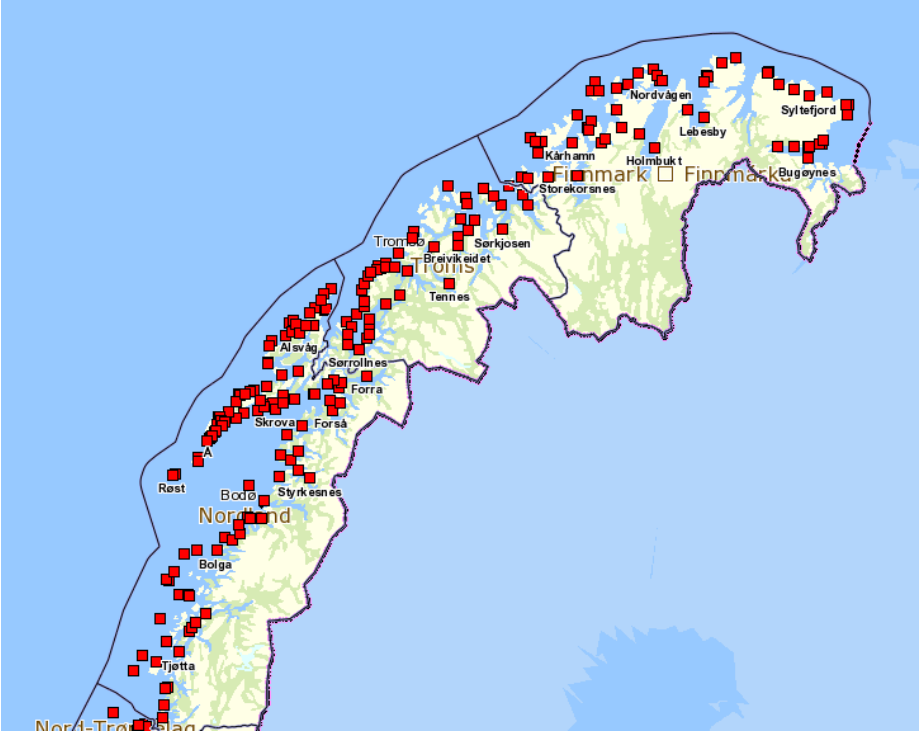


Figure 2 Fishery harbors in North Norway. Total 213: Finnmark: 58; Troms: 47; Nordland: 108.

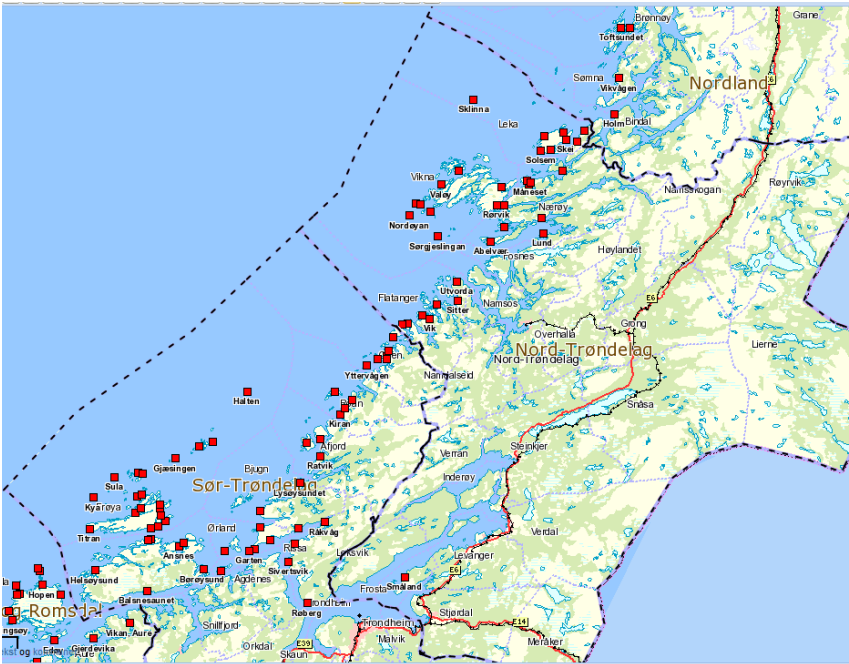


Figure 3 Fishery harbors in Mid Norway. Total 86: Nord-Trøndelag: 34; Sør-Trøndelag: 52.

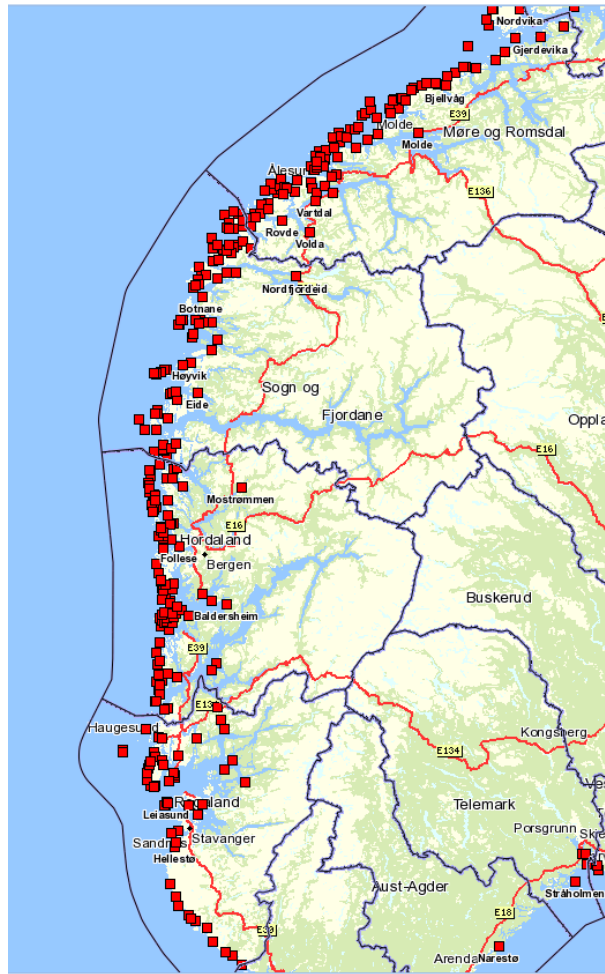


Figure 4 Fishery harbors in West Norway. Total 319: Møre og Romsdal: 98; Sogn og Fjordane: 75; Hordaland: 93; Rogaland: 53



Figure 5 Fishery harbors in South Norway: Total 25: Vest-Agder: 23; Aust-Agder: 2.

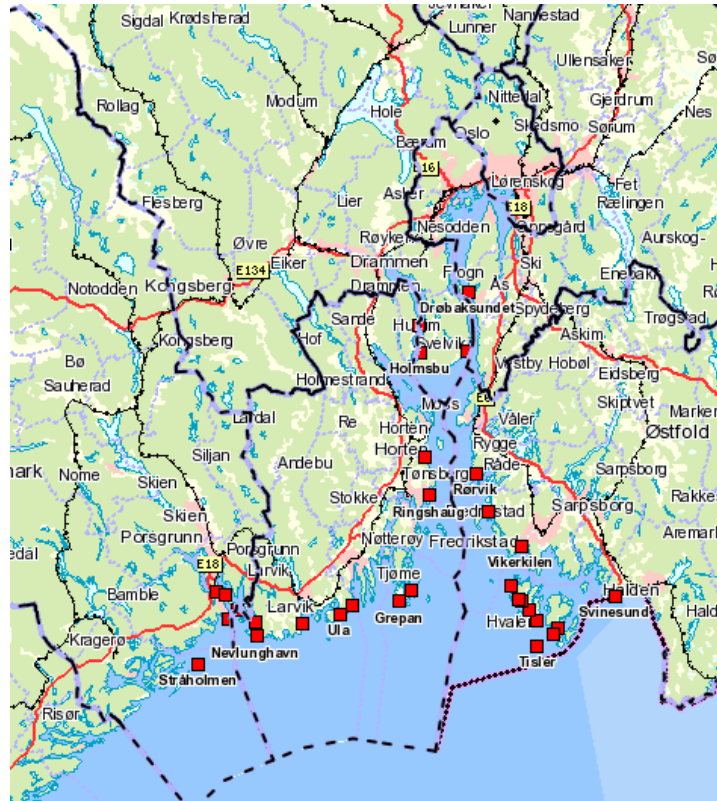


Figure 6 Fishery harbors in East Norway. Total 30: Telemark: 4; Vestfold: 11; Buskerud: 2; Akershus: 1; Østfold: 12.

2.3 Fish processing plants by region and type of production

Table 2 presents an overview of the fish processing industry by region, production category and species. As later statistics will show North Norway (152 processing plans, and West Norway (83 processing plants) are the two most important regions for the industry. The bulk of the plants (265) are producing transitional products, i.e. stock fish, clip fish, salted fish or fresh or frozen seafood, except fillets. Only 14 plants are producing white fish fillets, 6 of these in combination with traditional products. Six plants produce fish meal and fish oil.

Table 2 Number of fish processing plants by region, production category, and species, 2012. Traditional = Stock fish, clip fish, salted fish or fresh or frozen seafood, except fillets. W= All species of white fish for human consumption. P=Pelagic species for human consumption or for meal and oil. C=Crabs. S= Shrimps. Source: Nofima's database on Norwegian fish processing.

Region	Production category	Production											SUM
		W	WC	WP	WPC	WPS	WPCS	WS	WCS	C	P	S	
East Norway	Traditional	0	0	0	0	2	2	1	3	0	1	0	9
South Norway	Traditional	1	0	3	0	3	2	0	6	1	3	2	21
	Fish meal and oil	0	0	0	0	0	0	0	0	0	2	0	2
West Norway	Traditional	45	5	13	1	0	0	1	0	4	9	0	78
	Fish meal and oil	0	0	0	0	0	0	0	0	0	2	0	2
	White fish fillets	1	0	0	0	0	0	0	0	0	0	0	1
	Traditional/fillet	0	0	0	2	0	0	0	0	0	0	0	2
Mid Norway	Traditional	6	4	3	0	0	1	0	1	3	0	0	18
North Norway	Traditional	99	14	8	0	0	0	2	1	6	5	4	139
	Fish meal and oil	0	0	0	0	0	0	0	0	0	2	0	2
	White fish fillets	4	3	0	0	0	0	0	0	0	0	0	7
	Traditional/fillet	3	1	0	0	0	0	0	0	0	0	0	4
SUM		159	27	27	3	5	5	4	11	14	24	6	285

3 The commercial coastal fishing fleet

This section present statistics covering regional distribution of registered vessels and fishers, different categories of licenses granted as well as income distribution and profitability amongst vessel groups. Building materials, hull age and engine size are also presented.

3.1 Regional distribution of total vessels in three length groups

The North Norway region holds the bulk of the costal fleet of less than 21 meters (57 percent in 2012) and West Norway the second most important region (Table 3). The number of vessels was reduced during the three year period 2010–2013.

Table 3 Number of official registered fishing vessels by size group (length in meters) and region. Source: The Norwegian Directorate of Fisheries database on registered fishing vessels.

Region	"<11m"			"11–14.99m"			"15–20.99m"		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
North Norway	2.732	2.699	2.729	451	453	452	145	143	132
Mid Norway	419	423	417	59	58	62	7	5	5
West Norway	1.322	1.322	1.316	166	152	155	38	33	32
South Norway	267	265	252	32	32	32	9	8	8
East Norway	200	202	188	33	32	28	4	3	1
Total	4.940	4.911	4.902	741	727	729	203	192	178

Table 4 shows the different licenses granted to coastal fishing vessels in all length groups in 2012. Each license might hold several IVQs.

Table 4 Number of different categories of licenses granted to the Norwegian coastal fleet in all size groups on a yearly basis, 2012. Source: The Norwegian Directorate of Fisheries database on licenses (konsesjons- og deltakerregisteret).

Licenses	North Norway	Mid Norway	West Norway	South Norway	East Norway	Sum
Cod, haddock and saithe- north of 62°N.	1.552	129	221	8	2	1.912
Cod south of 62°N	7	0	39	11	2	59
Saithe with purse seine north of 62°N	79	8	60	0	0	147
Saithe with seine south of 62°N	12	1	44	0	0	57
Shrimp with trawl south of 62°N	6	1	65	43	26	141
King crabs	170	5	6	0	0	181
Mackerel with purse seine	19	13	177	1	2	212
Mackerel with nets and line	33	16	136	25	5	215
Mackerel with purse seine (SUK) ³	9	1	7	0	0	17
Norwegian spring spawning herring	129	30	166	1	3	329
Herring with purse seine in the North Sea	1	2	82	0	4	89
Herring with purse seine in the North Sea (SUK) ²	9	1	7	0	0	17
Sum	2.026	207	1.010	89	44	3.376

³ SUK: Special permits for purse seine vessels less than 500 cubic meter hull size.

As Table 5 shows a large part of the vessel groups have no or low income. Thirty five percent of the fleet of < 11 meters had income below 50 thousand NOK. The corresponding figures for the fleet groups 11–14.99 meters and 15–20.99 meters are 6 percent and 13 percent.

Table 5 Vessels by income, length and region, 2012. Source: The Norwegian Directorate of Fisheries database on registered fishing vessels (fartøyregisteret).

Length group	"<11m"			"11–14.99m"			"15–20.99m"		
	Income in NOK	0	< 50000	> 50000	0	< 50000	> 50000	0	> 50000
Region									
North Norway	373	376	1.980	13	6	433	12	120	
Mid Norway	67	93	257	5	2	55	1	4	
West Norway	238	364	714	2	10	143	9	23	
South Norway	41	95	116	2	2	28	1	7	
East Norway	31	44	113	1	1	26	0	1	
Sum	750	972	3.180	23	21	685	23	155	

3.2 Building material

GRP³ is the dominant building material for vessels less than 15 meters. Wooden vessels are still common, but hardly any new wooden vessels have been built the last two decades. Aluminum and steel are common in new vessel longer than 15 meters (Table 6).

Table 6 Hull material by length group, all regions, 2012. Source: The Norwegian Directorate of Fisheries database on registered fishing vessels (fartøyregisteret).

Hull material/length group	"<11m"	"11–14.99m"	"15–20.99m"
GRP ⁴ , Aluminum	3.790	452	26
Wood	1.063	214	114
Steel	46	63	38

3.3 Engine size

Table 7 shows an estimate of average engine size for the different length groups in 2012.

Table 7 Estimated average engine size in HP, 2012. Source: The Norwegian Directorate of Fisheries database on registered fishing vessels (fartøyregisteret).

Length group	"<11m"	"11–14.99m"	"15–20.99m"
Engine size	121	277	402

⁴ GRP: Glass Reinforced Plastic

3.4 Hull age

As Table 8 shows the vessels in the respective size groups are rather old. Fifty five percent of the vessels in the length group shorter than 11 meters were built in 1984 or earlier. The corresponding figures for the fleet groups 11–14.99 meters and 15–20.99 meters are 39 percent and 65 percent. However, hull age alone does not reflect the technical standard of the fishing fleet. Even older vessels are normally well kept and have newer engines, modern hydraulic powered deck equipment and up to date navigation electronics.

Table 8 Registered fishing vessels by length group and year of construction, 2012. Source: The Norwegian Directorate of Fisheries database on registered fishing vessels (fartøyregisteret).

Year of construction	"<11m"	"11–14.99m"	"15–20.99m"
Before 1960	133	53	21
1960–69	219	47	35
1970–74	425	15	17
1975–79	844	77	26
1980–84	1062	93	17
1985–89	806	149	36
1990–94	266	66	6
1995–99	263	89	13
2000–04	308	70	3
2005–09	385	54	4
2010–12	185	16	0

3.5 Regional distribution of number of persons employed in the fishing fleet

It is mandatory for fishers who want to take part in the Fishermen's pension system and to qualify as vessels owners to register in The Register of Norwegian Fishermen (fiskermantallet). The Register includes information on age, gender, municipality of domicile and whether it's a main or secondary occupation. However, except for the vessel owners it's not possible to use these registers to precisely distribute fishers by vessel groups. Figure 7, Figure 8 and Table 9 show the regional and age distribution of main and secondary occupied fishermen in 2007.

Table 9 Number of registered fishermen by region, 2012.

	North Norway	Mid Norway	West Norway	South Norway	East Norway	Norway
Main occupation	4.614	594	4.003	279	322	9.812
Secondary occupation	1.181	203	623	138	80	2.225
Main + secondary occupation	5.795	797	4.626	417	402	12.037

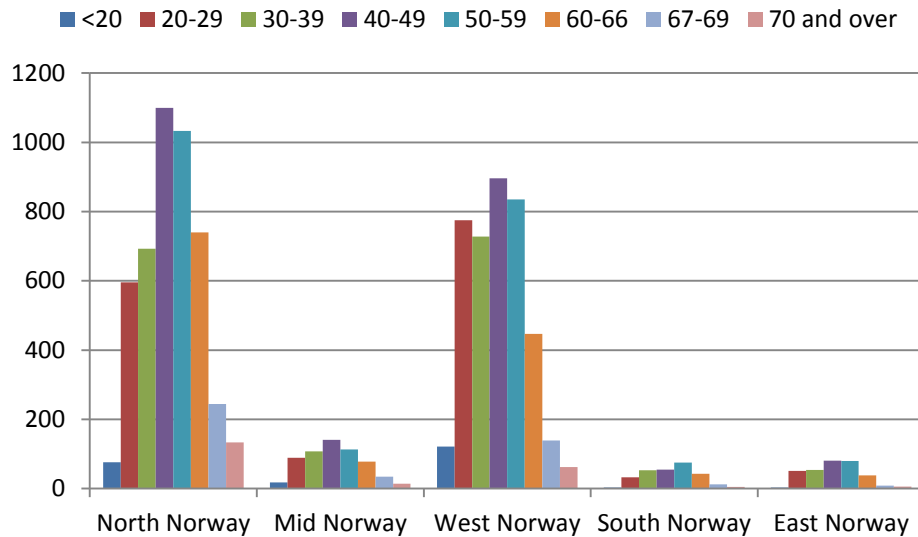


Figure 7 Number of main occupation fishermen by region and age group, 2012

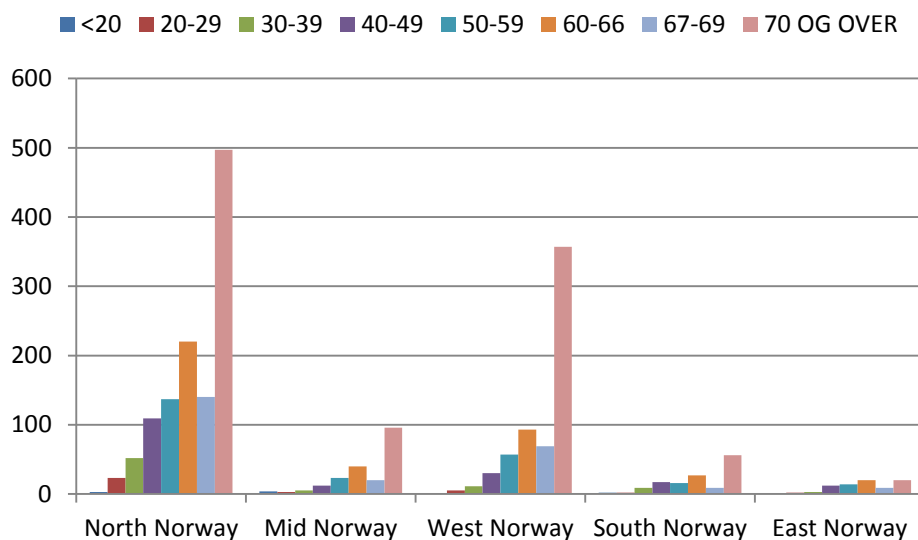


Figure 8 Number of secondary occupation fishermen by region and age group, 2012

The Directorate of Fisheries presents a profitability survey of the Norwegian fishing fleet⁵ annually. Table F1 in the survey offers an overview over man-labor years in the vessels comprising the survey. However, the total population exceeds the survey population; hence it is not possible to get exact numbers on man-labor years in the fishing fleet of less than 21 meters. As shown in Table 5 a relatively large part of the vessel group of less than 11 meters has relatively low income. Table 10 gives a rough estimate over number of man-labor years in the coastal fleet of less than 21 meters by region. This is an educated guess based on number of vessels, income level, man-labor years by

⁵<http://www.fiskeridir.no/statistikk/fiskeri/loennsomhetsundersokelse-for-fiskeflaaten/loennsomhetsundersokelse-for-fiskefartoy-publikasjoner>

vessel group and type of fishery. This also indicates that fishers might have alternative occupations on larger fishing vessels or even outside the fishery sector.

Table 10 Rough estimate over part of total man-labor years in the costal fleet less than 21 meters by region.

North Norway	Mid Norway	West Norway	South Norway	East Norway
50%–70%	60%–80%	25%–40%	50% –70%	100%

4 Catch statistics

The catch statistics in this report are generated from the Norwegian Directorate of Fisheries end-note database. It consists of detailed information of every single landing of fish in Norwegian harbors. The Directorate grants permission to use the database for different purposes under the strict condition that use complies with the Norwegian license for open government data (NLOD)⁶. The data cannot be used in ways that make it possible to identify the activities of individual persons or companies.

Catch statistics are presented by region where the vessels have their home port and by the vessels size groups. In the size group 15 – 20.99 meters there are very few vessels in two regions (Mid Norway (5) and East Norway (1)). In order not to violate the conditions for use of data, statistics for vessels from these regions in this size group are shown together with the neighboring regions.

The catch is divided into the following species or group of species:

- Cod: Cod from the Northeast Atlantic cod stock, The Norwegian coastal cod stocks, and the North Sea cod stock.
- Other codfish: White ling, tusk, haddock and saithe from different stocks north and south of 62°N.
- Crustaceans: Deep water shrimp, edible crab and king crab.
- Pelagic: Sprat, herring and mackerel⁷.
- Other: All other species. The most important are halibut, Greenland halibut, monkfish and different wrasses⁸.

In this report most catch statistics will be presented for the most recent three year period, 2010 – 2012. When presenting an overview or seasonal profile only 2012 numbers will be presented. In the main text catches by value in nominal millions NOK will be presented, but complemented in the appendix by statistics in tons by species and by gear type.

4.1 Overview

Figure 9 to 12 give an overview over the coastal fleet shorter than 21 meters. As Figure 9 one shows the fleet with home ports in the North Norwegian region lands the highest catch value as expected compared to number of vessels (Table 3) and number of licenses (Table 4).

⁶ <http://data.norge.no/nlod/en/1.0>

⁷ There are no registered catches of capelin for the actual vessels and time period.

⁸ Latin Family: Labridae. Used as cleaner fish, removing lice, in the salmon aquaculture industry.

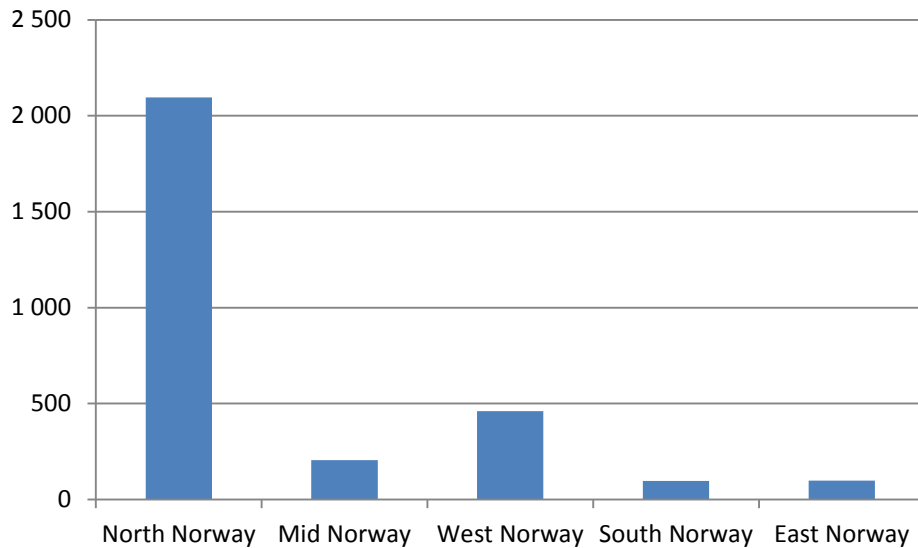


Figure 9 Value in millions NOK of all catch of fish and crustaceans for all registered vessels less than 21m by region, 2012. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

The vessel size group of less than 11 meters brings ashore the highest catch value. Because of the difference in size and therefore incompatible catch capacity the other two size groups (11–14.99 meters and 15–20.99 meters), the size groups should not be directly compared with each other. However, when value of catch in the different groups is compared to the number of vessels (Table 3) and vessels by income (Table 5) it is obvious that the relatively high catch value of the two other size groups indicates that they have another operating pattern and are used more intensively than the smallest vessel group (se Figure 10).

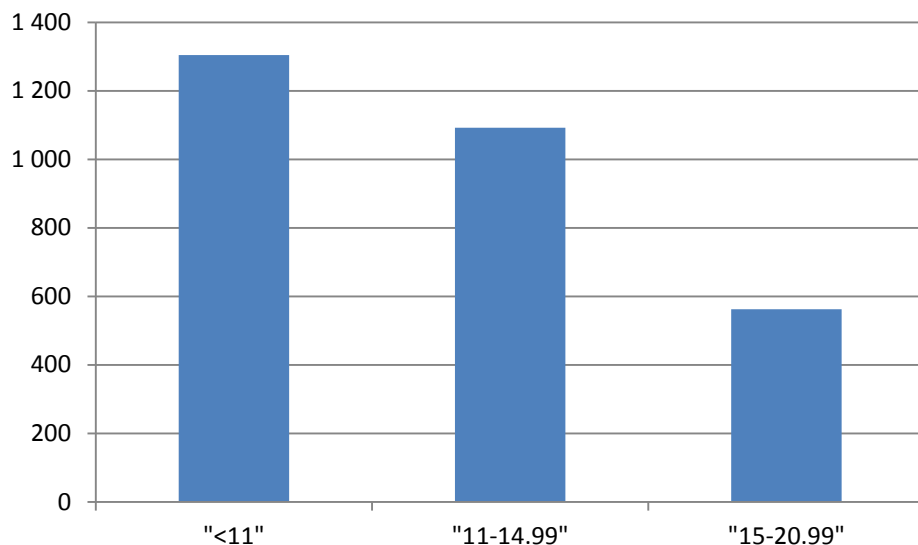


Figure 10 Value in millions NOK of all catch of fish and crustaceans for all registered Norwegian vessels by length group, 2012 Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

Figure 11 and Figure 12 shows the catch value divided by vessel size group and region.

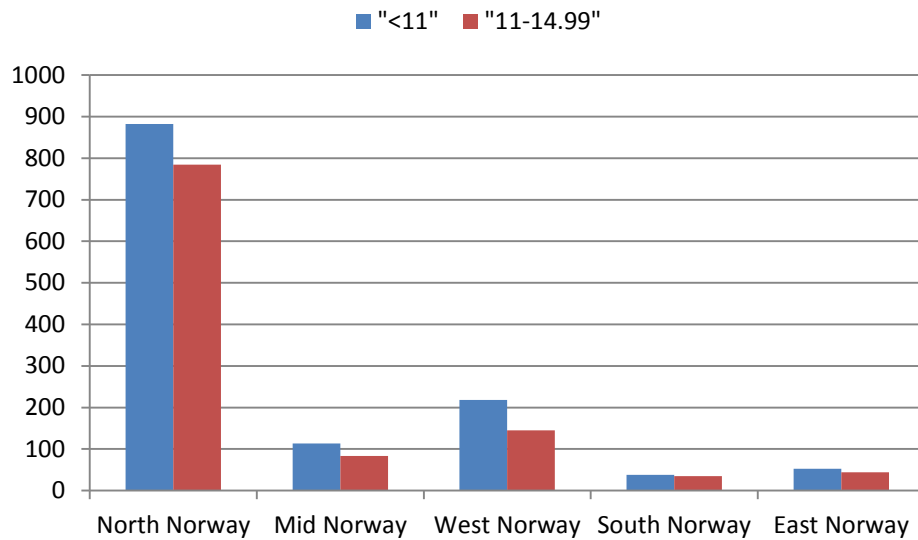


Figure 11 Value in millions NOK of all catch of fish and shellfish for all registered vessels by length group and region, 2012 Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

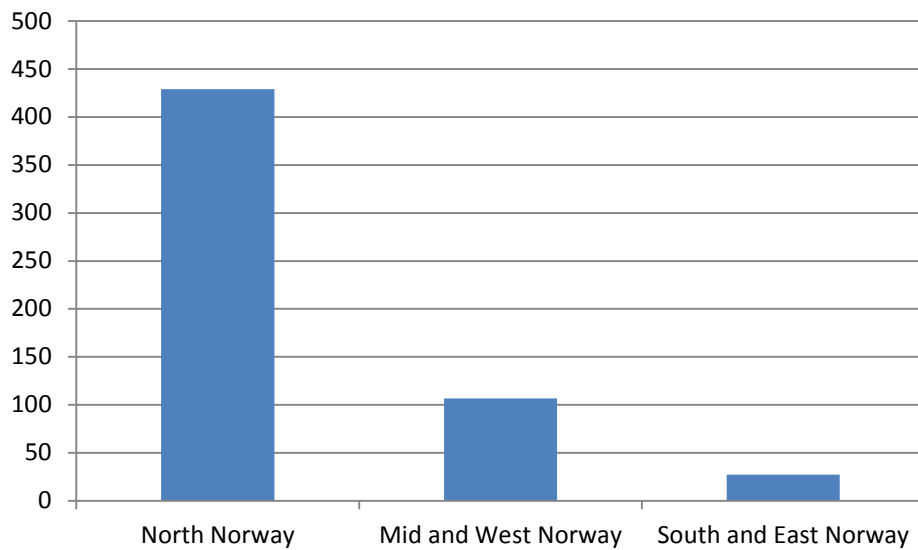


Figure 12 Value in millions NOK of all catch of fish and shellfish for all registered vessels between 15–20.99m and by region, 2012 Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

4.2 Catch statistics by region

Catch statistics will be presented by region and vessel size group for the three year period 2010–2012. Catch value will be divided by species or species groups as listed above. Additional statistics (weight in tones by species and by gear type) are presented in the appendix.

4.2.1 North Norway (Counties: Finnmark, Troms, Nordland)

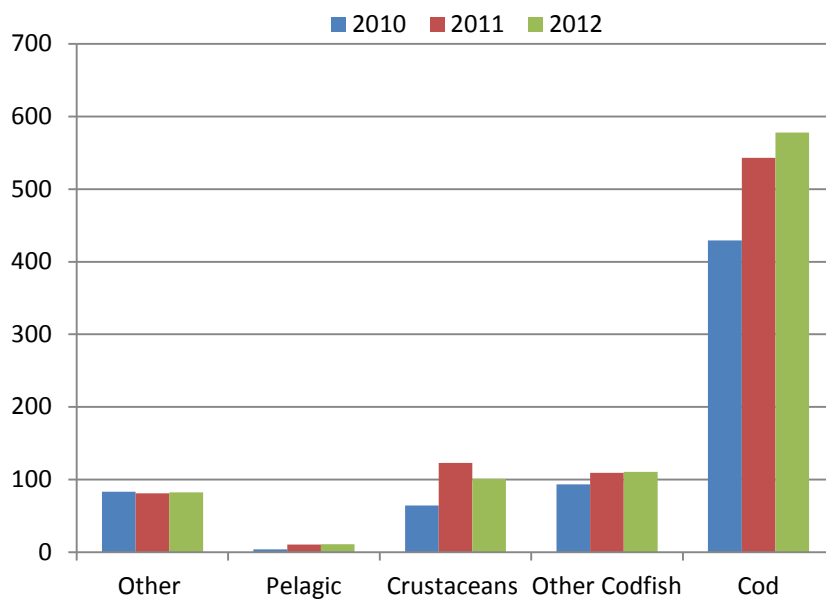


Figure 13 Total value of landings in millions NOK of the North Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

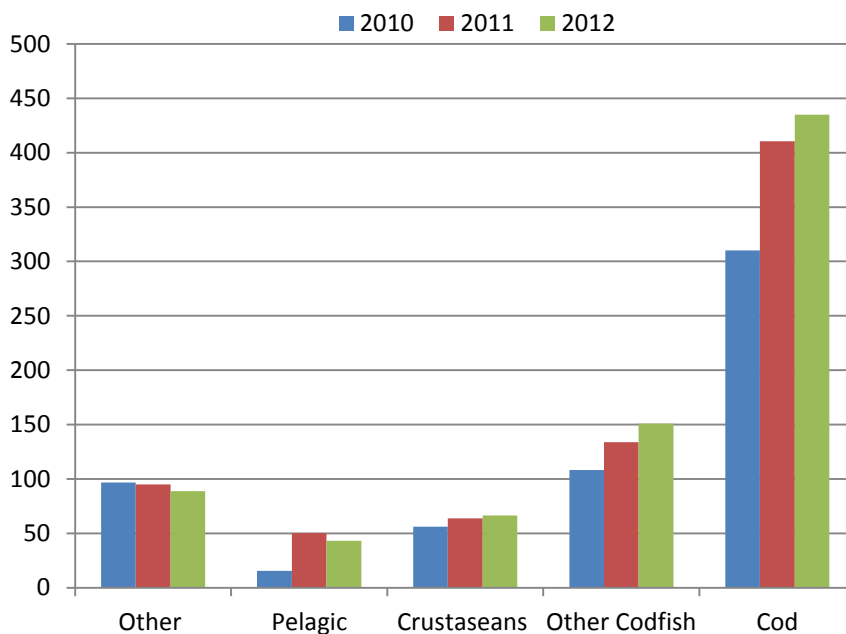


Figure 14 Total value of landings in millions NOK of the North Norwegian fleet 11–14.99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

For the North Norwegian vessel group of less than 11 meters cod is by far the most important species and represents 65.5 percent of the catch value in 2012 (Figure 13). Other codfishes (12.5 percent) and crustaceans (11.5 percent) also have some importance. The King Crab fishery is very important to this fleet group in Finnmark County. Gill net is the most important gear type followed by jigging and long-line (Figure 38).

Also for North Norwegian vessel group 11–14.99 meters (Figure 14) cod constituted the main value of the total catch in 2012 (55.5 percent), but other codfish species are relatively more important than for the lesser size group (19.2 percent). Other species are also important to this group (11.3 percent). Monk fish and Greenland halibut are the important species in this category. Shrimp is the most important specie in the crustacean category. Gill nets are even more important in this size group than in the lesser group, but jigging is rare. Long-line is still important and purse seine (pelagic fish and saithe) and Danish seine are also important gear types (Figure 44).

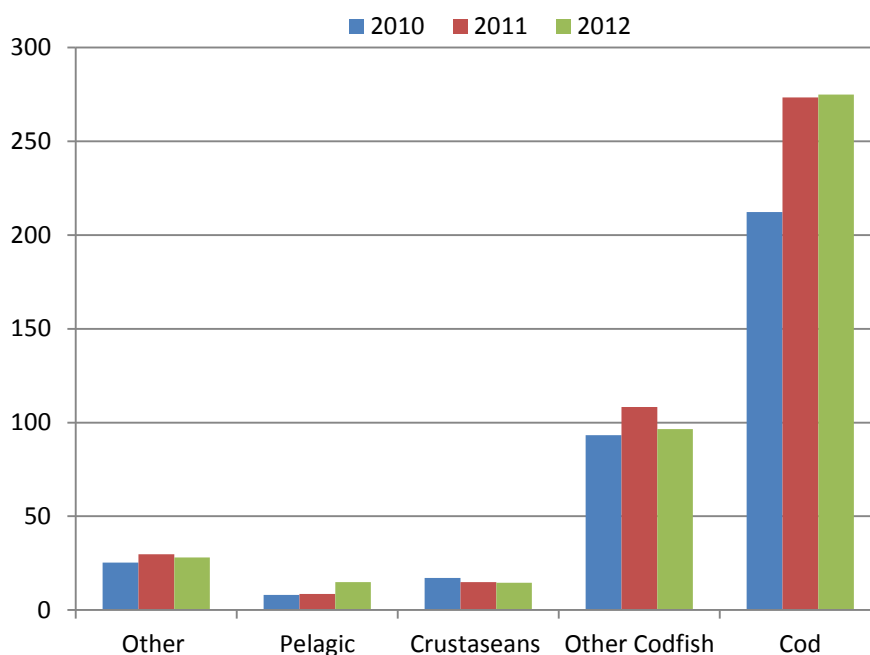


Figure 15 Total value of landings in millions NOK of the North Norwegian fleet 15–20,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

As for the other vessel groups the North Norwegian vessel group 15–20.99 meters (Figure 14) cod constituted the main value of the total catch in 2012 (64.1 percent). Other codfish species are relatively important (22.5 percent), where haddock caught by Danish seine and long-line contributes equally to the income. In addition, monk fish and Greenland halibut are important species in this category. Shrimp is the most important specie in the crustacean category. Danish seine is the most important gear for this group, followed by gill nets, long-line and purse seine (pelagic fish and saithe) (Figure 46).

4.2.2 Mid Norway (Counties: Nord-Trøndelag and Sør-Trøndelag)

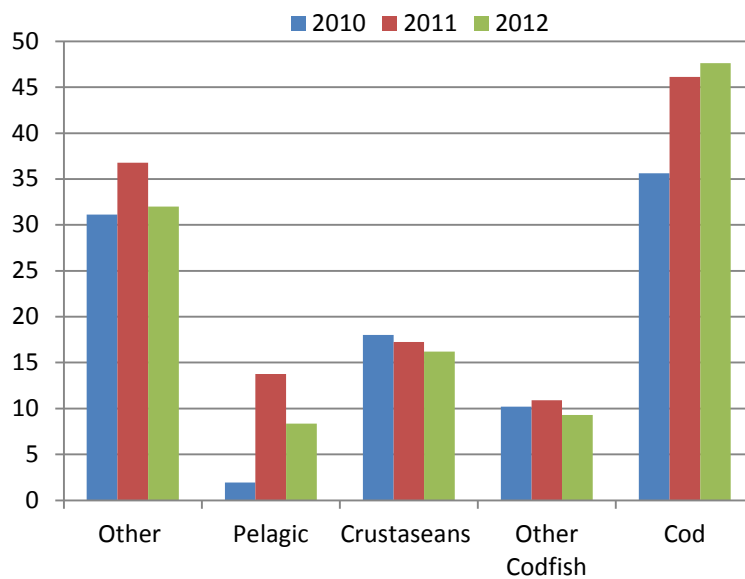


Figure 16 Total value of landings in millions NOK of the Mid Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

For the Mid Norwegian vessel group of less than 11 meters cod is also the most important specie (42 percent of the catch value in 2012), but not as dominant as for the North Norwegian similar vessel group. Other species, where wrasses and monk fish are most important, make up 28 percent of the groups income. Crustaceans (14.1 percent) are important and in this part of the country edible crab is the important species (Figure 16). Gill net is the most important gear type followed by pots, traps, and jigging (Figure 48).

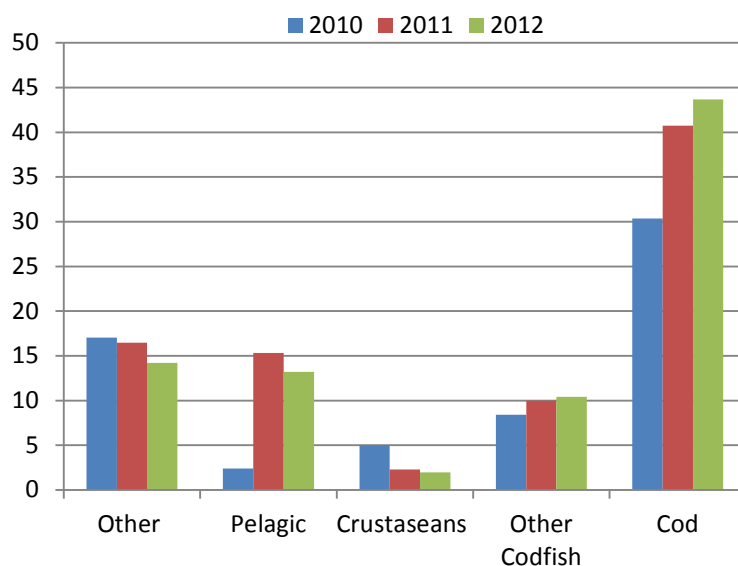


Figure 17 Total value of landings in millions NOK of the Mid Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

For the Mid Norwegian vessel group 11–14.99 meters (Figure 17) cod constituted the main value of the total catch in 2012 (52.3 percent) and other codfish species (12.5 percent). Other species are also important to this group (17 percent), where monk fish are the important species in this category. Pelagic fish, where herring dominates, comprised 15.8 percent of the vessel groups income i 2012. Gill nets and purse seine are the important gear types (Figure 50).

4.2.3 West Norway (Counties: Møre og Romsdal, Sogn og Fjordane, Hordaland and Rogaland)

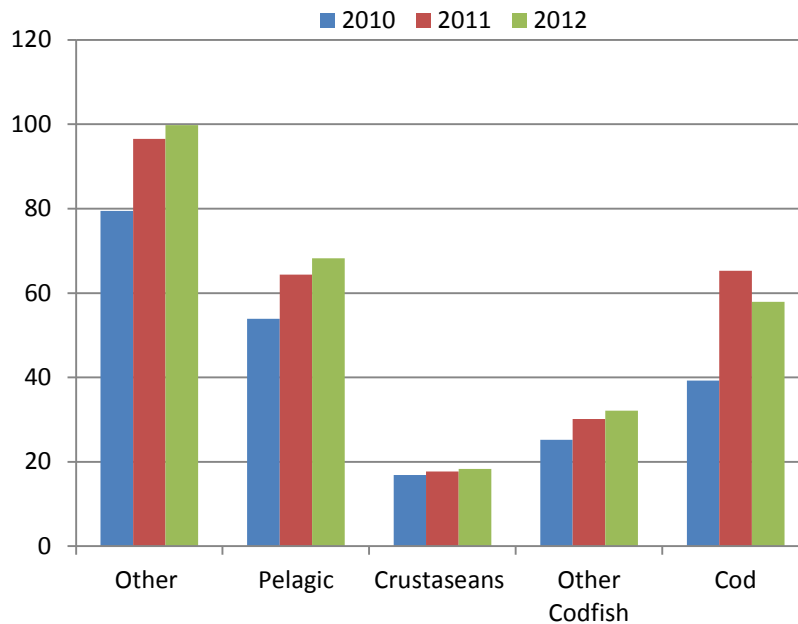


Figure 18 Total value of landings in millions NOK of the West Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

The income profile of the West Norwegian vessel (Figure 18) group of less than 11 meter is very different from the comparable North Norwegian group (Figure 13). Both species other than cod (36.1 percent of the vessel groups income in 2012), where wrasses dominate, pelagic species (24.6 percent), where mackerel is the most important, are more important to the vessel groups income (21 percent). Other codfishes (11.6 percent) have some importance. In terms of volume purse seine, gill nets and jigging are more important than pots and traps (Figure 52), but the value of the wrasses brought ashore alive from pots and traps, makes this gear category most important to this vessel group.

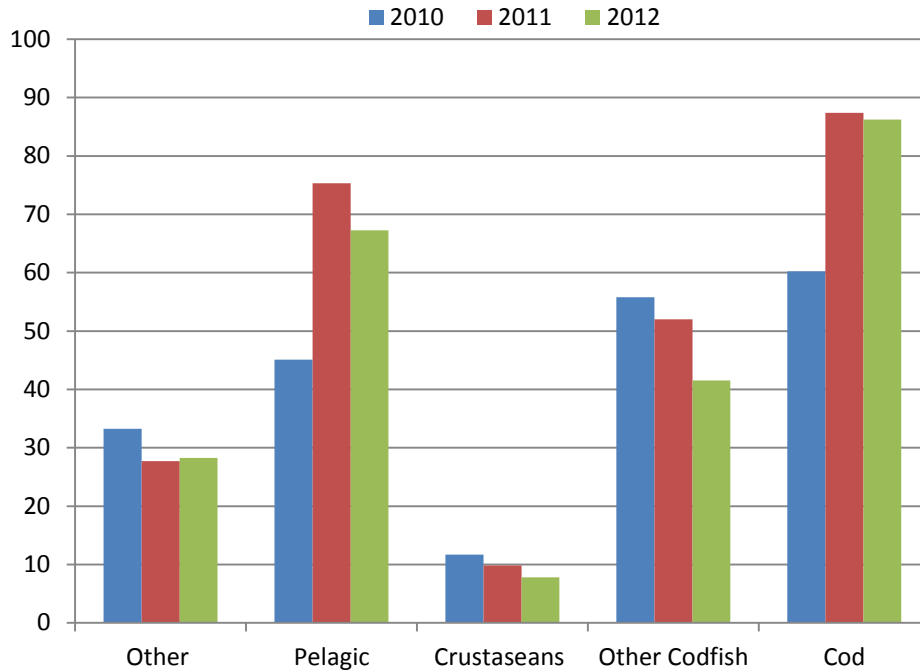


Figure 19 Total value of landings in millions NOK of the West Norwegian fleet 11–14.99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

For the West Norwegian vessel group of 11–14.99 meters (Figure 19) cod was the most important species by value in 2012 (37.3 percent), but pelagic species were also of great importance (29.1 percent). Other codfish species, where saithe dominates are also important (18 percent). Other species have less importance to this group (12 percent), where monk fish are the important species in this category. Gill nets, purse seine and jigging are the important gear types (Figure 54).

4.2.4 15–20.99 Mid- and West Norway

Because of the limited number of vessels in Mid Norway in the vessel group 15–20.99 meters statistics for the Mid- and West Norwegian vessels in this group are presented together.

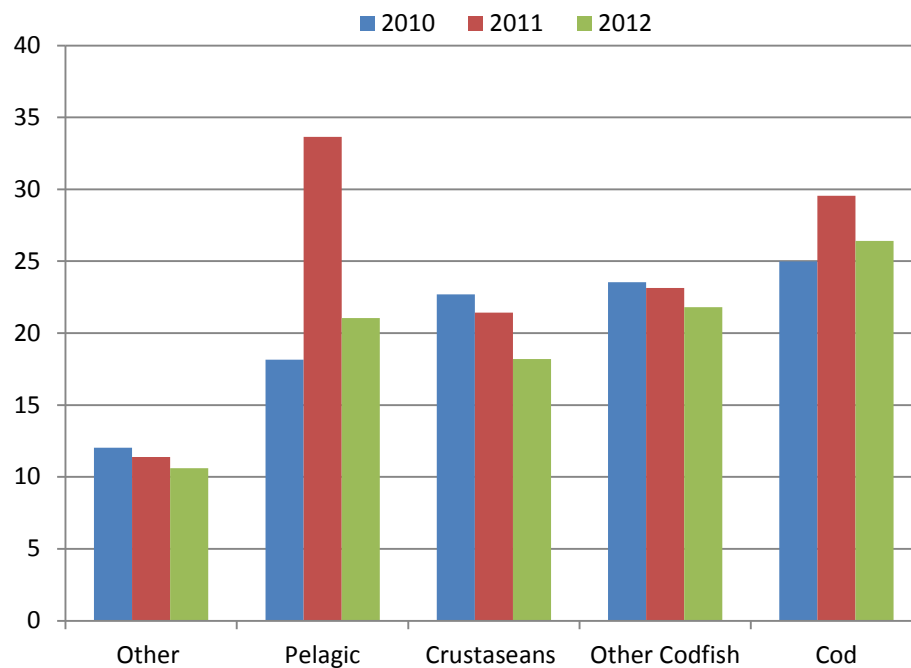


Figure 20 Total value of landings in millions NOK of the Mid and West Norwegian fleet 15–20.99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

The income structure of the Mid and West Norwegian vessel group of 15–20.99 meters (Figure 20) is very different from the comparable North Norwegian vessel group (Figure 14). In 2012 cod contributed with 26.9 percent of the income, other codfish 22.2 percent, were saithe was dominant, pelagic species 21.5 percent, mostly herring and crustaceans, mostly shrimp, 18.5 percent. Purse seine, and gillnets are the most important gear types. Long-line and trawl (for shrimp) are also important (Figure 56).

4.2.5 South Norway (Counties: Aust-Agder and Vest-Agder)

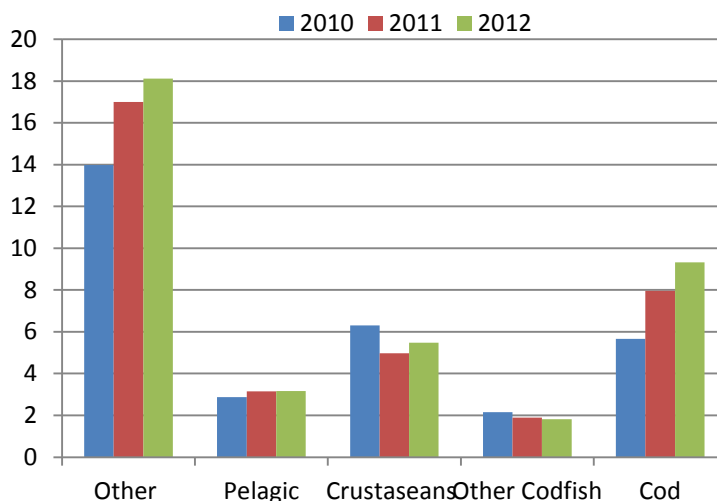


Figure 21 Total value of landings in millions NOK of the South Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

The income profile of the South Norwegian vessel group of less than 11 meters (Figure 21) is to some extent similar to the same vessel group in West Norway (Figure 18). Other species (47.8 percent of the vessel groups income in 2012), where wrasses dominates are twice as important as cod (24.6 percent). Crustaceans, dominated by shrimps also hold some importance (14.1 percent) and so do pelagic species (9,1 percent), where mackerel is most important. In volume gill nets, jigging and trawl (for shrimps) are more important than pots and traps (Figure 58), value of the wrasses brought ashore alive from pots and traps, makes this gear category most important to this vessel group.

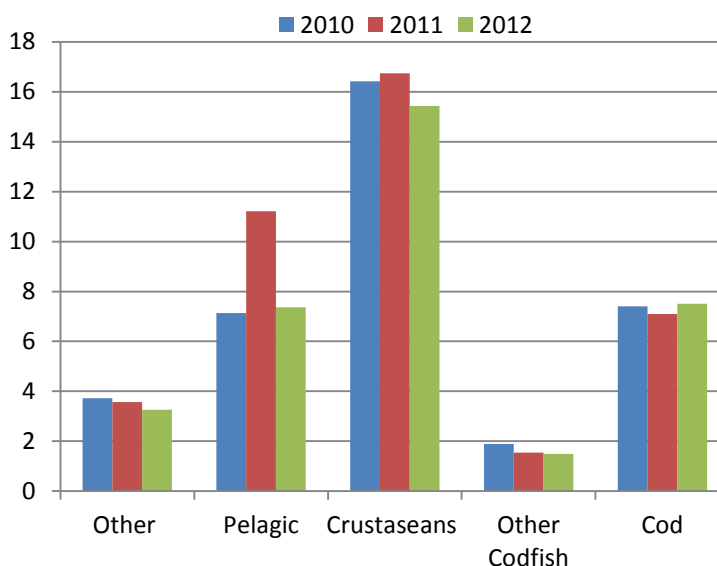


Figure 22 Total value of landings in millions NOK of the South Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

The South Norwegian vessel group of 11–14.99 meters (Figure 22) is typical of the coastal vessels in the southern part of Norway where trawl fishing for shrimp dominates. Hence, in 2012, 44 percent of the income was from crustaceans. Cod (21.4 percent) and pelagic species (21 percent), mostly mackerel, are equally important. Gill nets and jigging are the important gear types by volume (mackerel), but trawl is the most important gear by value (Figure 60).

4.2.6 East Norway (Counties: Telemark, Vestfold, Buskerud, Akerhus, Oslo and Østfold)

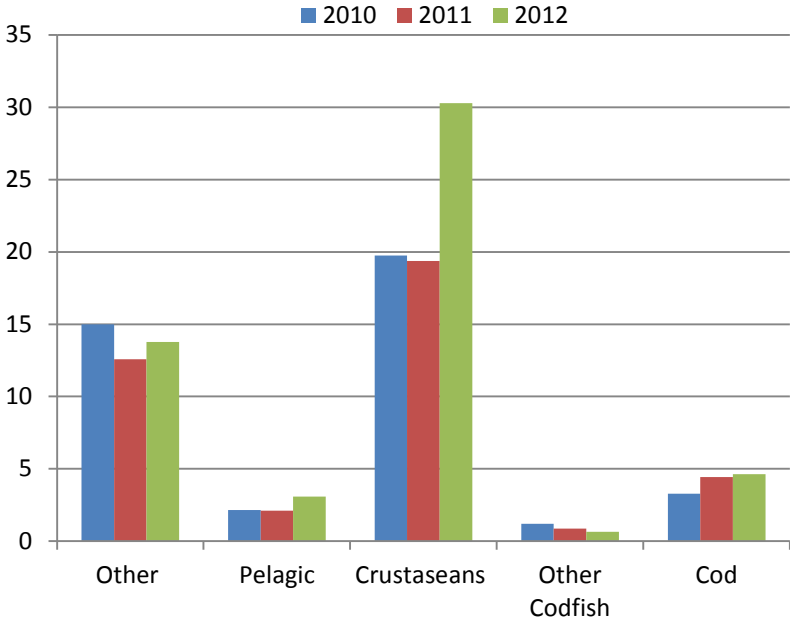


Figure 23 Total value of landings in millions NOK of the East Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

Shrimp is the most important species for the East Norwegian (Figure 23) fleet of less than 11 meters (56.4 percent of the income in 2012). Other species are also important (26.3 percent). In this category wrasses are most important as well as by-catch of shrimp in the trawl fishery. Cod (8.8 percent) and pelagic species, mainly mackerel (5.6 percent) have some importance for the income. Trawl is the dominant gear. Gill nets, jigging and purse seine are also important. Value of the wrasses brought ashore alive from pots and traps, makes this gear category more important to this vessel group than the volume of catches implies (Figure 62).

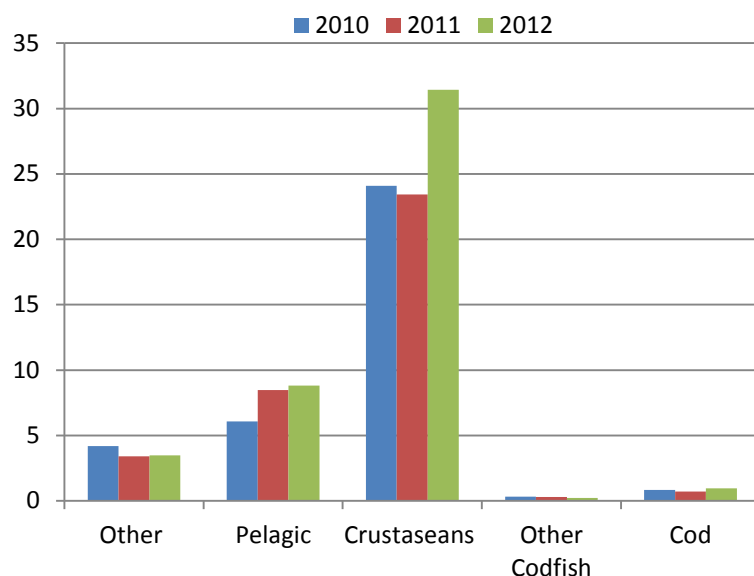


Figure 24 Total value of landings in millions NOK of the East Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

Trawl fishery for shrimps is the dominant fishery for the East Norwegian vessel group of 11–14.99 meters. Seventy one point five percent of the vessel group’s income in 2012 came from shrimp and when by-catch is included this fishery contributes 78.9 percent of income. Pelagic fish where herring and sprat are more important than mackerel, generated 20.1 percent of income (Figure 24). In volume, purse seine is the most important gear (Figure 64).

4.2.7 15–20.99m South and East Norway

Because of the limited number of vessels in both South and East Norway in the vessel group 15–20.99 meters statistics for these regions are presented together.

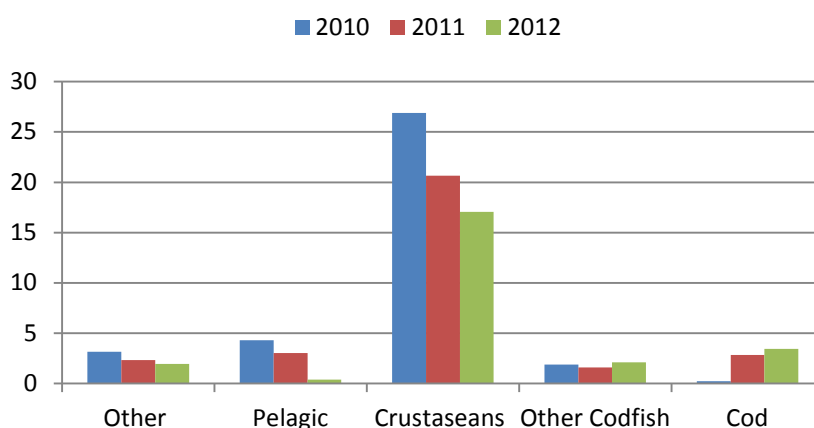


Figure 25 Total value of landings in millions NOK of the South and East Norwegian fleet 15–20,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

As for the other vessel groups in the southern part of Norway, the shrimp fishery is vital to their income (68.4 percent in 2012). Other species mainly caught as by-catch in the trawl fishery for shrimps, are also important (7.8 percent). Cod contributes 13.8 percent of the vessel group’s income (Figure 25). Trawl and gill nets are the important gear types in 2012 (Figure 66).

4.3 Development of first hand prices

Prices for fish obtained by vessels in Norwegian ports (i.e. first hand prices) do vary over the year and between years. Rising quotas for cod, combined with increased economic problems in important markets, are believed to have resulted in reduced market prices for products and hence first hand prices.

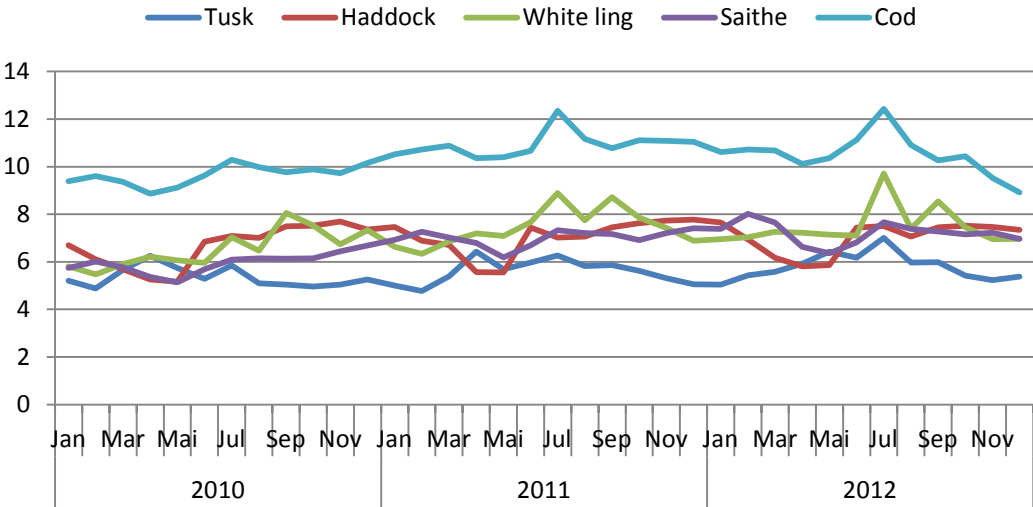


Figure 26 Average first hand prices on cod and other codfish in NOK/kg round weight. Total landings of fresh catches in Norway from vessels less than 21 meters. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

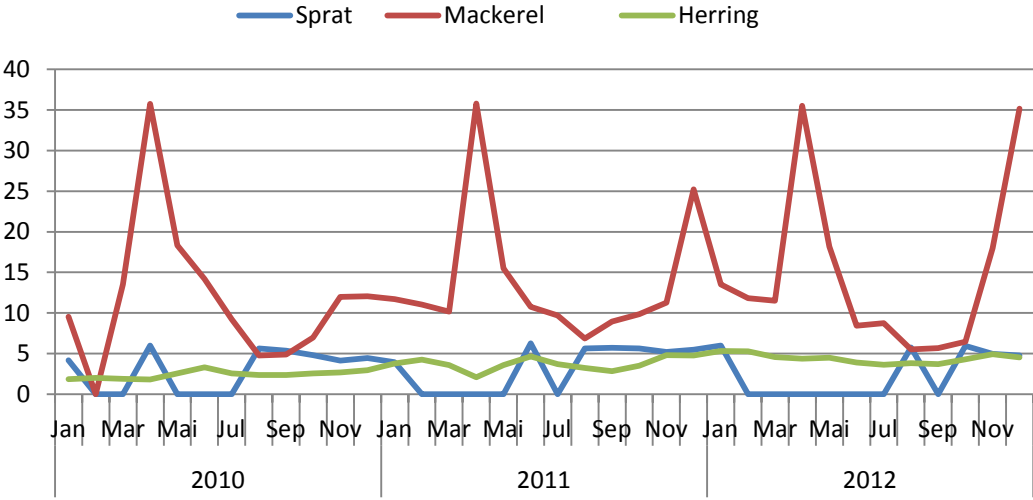


Figure 27 Average first hand prices on pelagic species in NOK/kg round weight. Total landings of fresh catches in Norway from vessels less than 21 meters. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

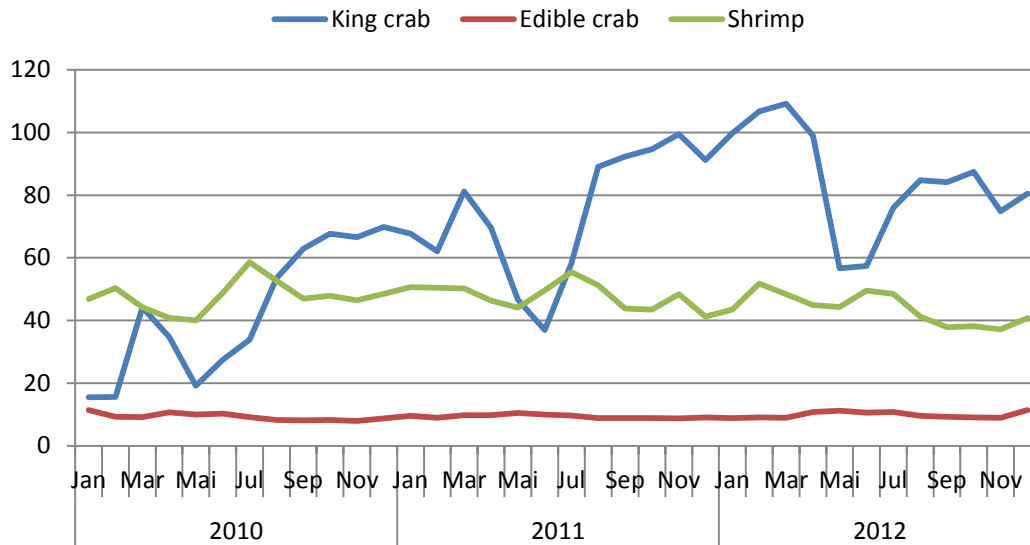


Figure 28 Average first hand prices on crustaceans in NOK/kg round weight. Total landings of fresh catches in Norway from vessels less than 21 meters. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

4.4 Profitability

The Directorate of Fisheries annual profitability survey of the Norwegian fishing fleet operates with two different profitability measures: operating margin and return on total assets. The total vessel population is not included in the survey, only vessels with a catch income above a certain level dependent on vessel size. Hence, while the total number of registered vessels less than 21 meters in 2010 was 5884 (see Table 3) the number of vessels included in the survey was 1319 in the same year (see Table C 4 in Profitability survey on the Norwegian fishing fleet, 2010). Therefore it is likely that the profitability measures listed in Table 11 overrate the profitability of the total population and presents the profitability of the most professionally operated vessels.

Table 11 shows that the return on total assets in the coastal fleet is below or hardly exceeds the level of interest rates and hence poorly rewards the owners for the risk involved in the operation. Hermansen et al (2012), in a study of the profitability of the vessel group of less than 11 meters concluded: "Today's fishers in a limited extent must be regarded as professional investors, focused on return on investments. They rather emphasize that the activity is not unprofitable, whilst it gives a reasonable salary to the fishers employed." The study also showed a rather big spread in the distribution of income as well as profitability among vessels within this group and that about 20 percent of the vessels have acceptable profitability. It might also be reasonable to assume that owners of vessels larger than 11 meters, especially vessels that under the SQS-scheme have invested in additional quotas, are perceived as "normal" investment objects. In 2009 and 2011 coastal purse seiners appeared as very profitable.

Table 11 Profitability by vessel groups and type of fishery. Source: Directorate of Fishery annually profitability survey on the Norwegian fishing fleet, 2010 and 2011, Table E 6.

Vessels holding license in length group Year	Operating margin ⁹			Return on total assets ¹⁰		
	2009	2010	2011	2009	2010	2011
Coastal vessel less than 11 meters	-0.1	-0.7	6.2	0.3	-0.5	5.5
Coastal vessel less than 11 – 14.99 meters	6.0	7.8	6.6	4.7	4.9	4.7
Coastal vessel less than 15 – 20.99 meters	5.5	6.5	8.0	3.6	3.2	3.9
Costal purse seiners less than 11 meters	16.8	-1.5	14.1	15.8	-0.9	13.7
Costal purse seiners less than 11 – 21.35 meters	31.8	12.8	18.5	20.4	4.9	12.8

⁹ Operating Margin = Operating Earnings / Revenue

¹⁰Return on total assets (total capital) = (Net income - Dividends) / (Debt + Equity). Return on total capital is also called *return on invested capital (ROIC)* or *return on capital*.

5 Seasonal and regional distribution of landings

Most commercial species available to the Norwegian coastal fishing fleet have a distinct migration pattern where cohorts migrate between spawning ground and feeding grounds. The migration patterns result in a pronounced seasonal and regional patterns of landings as presented in this section.

5.1 Seasonal distribution

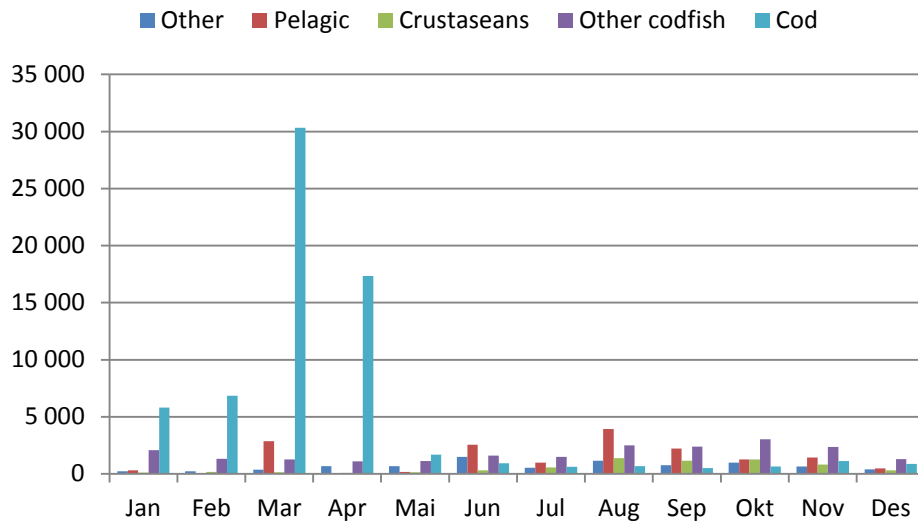


Figure 29 Total landings in tonnes by month from all Norwegian fishing vessels <11 meters, 2012. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

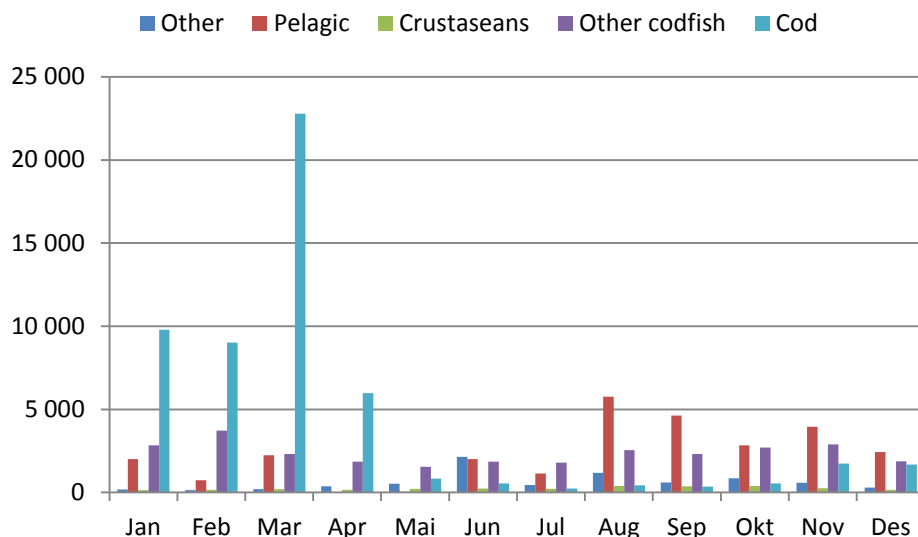


Figure 30 Total landings in tonnes by month from all Norwegian fishing vessels 11–14.99 meters, 2012. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

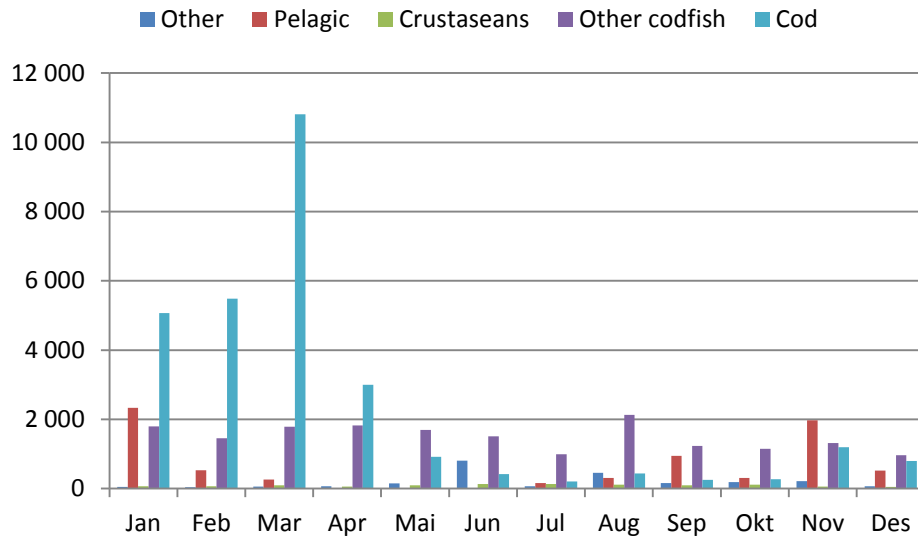


Figure 31 Total landings in tonnes by month from all Norwegian fishing vessels 15–20.99 meters, 2012. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

Figure 30- Figure 32 shows the total landings in tonnes by month from all Norwegian fishing vessels in the three vessel groups in 2012. The profile, with a pronounced peak in landings during the winter season for cod is mainly the same for these vessel groups with only minor variations between years. Pelagic fisheries also have a seasonal pattern with the bulk of the landings during autumn and early winter. Hermansen and Dreyer (2010) explain the seasonal pattern with temporal variations in CPUE and sailing distance due to the species migration pattern, making seasonal fishing extremely productive and cost efficient. It is also possible to target the most valuable cohorts (size and valuable by products) and the opportunity cost tends to be low in the peak seasons for cod and pelagic species (that is no lucrative alternative fisheries is lost during season).

This pattern fits well in with production of salted cod, klippfish and stockfish. It is more difficult to have industrial production of fillets based on a seasonal raw material supply.

5.2 Regional distribution

The regional distribution of landings does not vary substantially between years, hence only landings from 2012 are presented. To complete the picture fresh and frozen at sea landings from vessels larger than 21 meters are also presented.

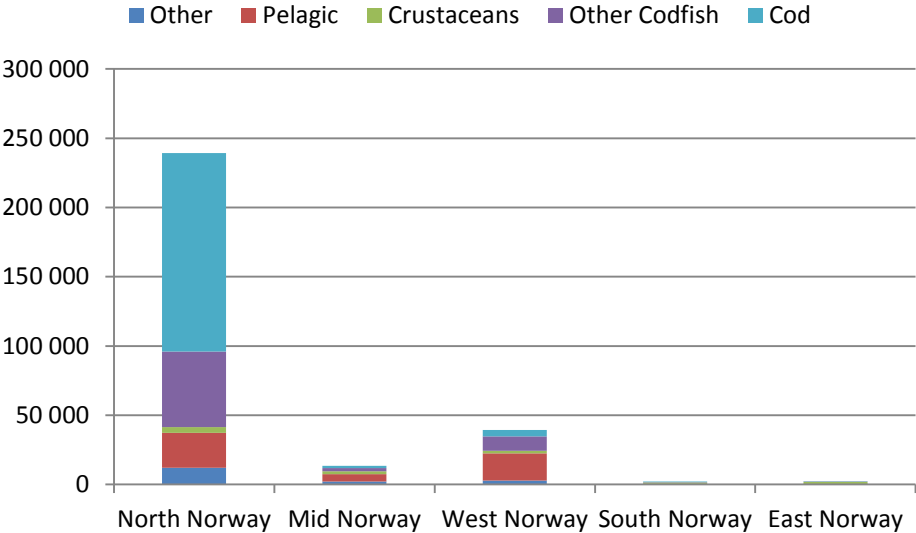


Figure 32 Total landings of fresh fish and crustaceans in tones by region from all Norwegian fishing vessels less than 21 meters, 2012. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

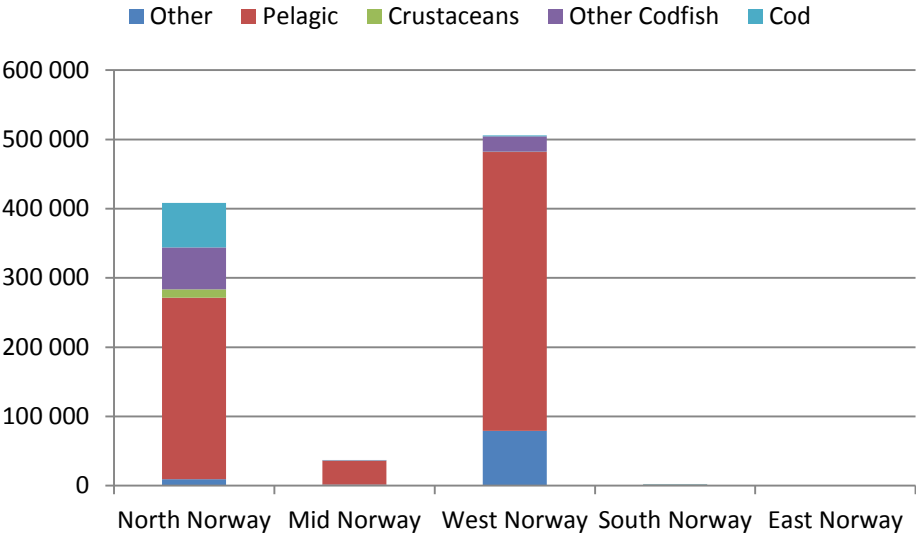


Figure 33 Total landings of fresh fish and crustaceans in tones by region from all Norwegian fishing vessels 21 meters or longer, 2012. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

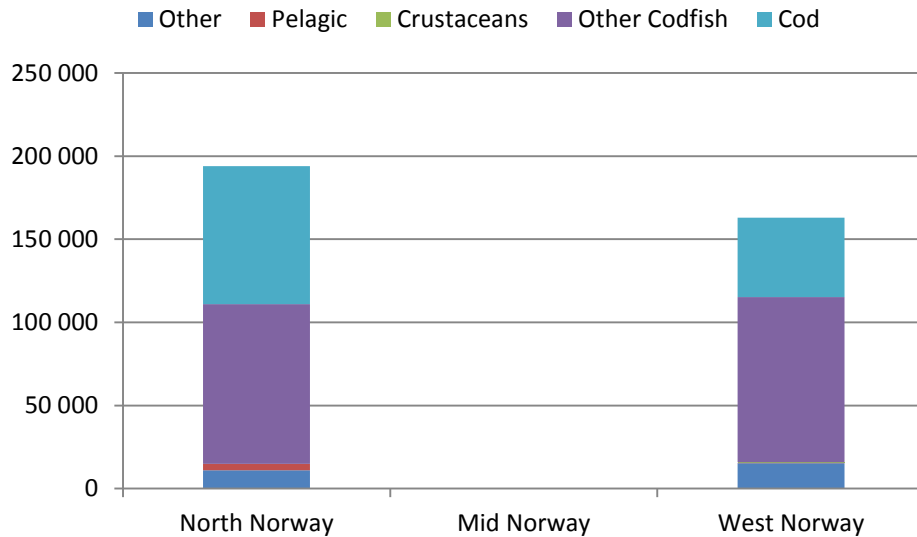


Figure 34 Total landings of frozen at sea fish and crustaceans in tonnes by region from all Norwegian fishing vessels 21 meters or longer, 2012. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

Figure 32-Figure 34 confirms that North-Norway and West-Norway are even more dominant regions when it comes to landings than for number of vessels, fishers and fish landed by vessels originating in the five regions. For fresh landings (Figure 32 and Figure 33) the reason is participation in the dominant seasonal fisheries of the coast of North- and West Norway of vessels from all regions. Landing of Frozen at sea fish and Crustaceans (Figure 34) reflects that the most important fishing grounds for larger vessels are the North Norwegian coast and in the Barents Sea, but also in the North Sea and the West Norwegian coast (for saithe). It also reflects that the main part of the off shore fleet is owned or controlled by West Norwegian fishermen and that frozen cod and saithe are important inputs into the production of salted and dried products (klippfish).

6 Exports of cod, haddock and saithe

Ninety to 95 percent of Norwegian catches are exported. This chapter offers a short presentation of which parts of the world Norwegian cod, haddock and saithe are exported to and the main category of export products. Only quantity, converted to whole fish weight¹¹, will be shown.

6.1 Cod

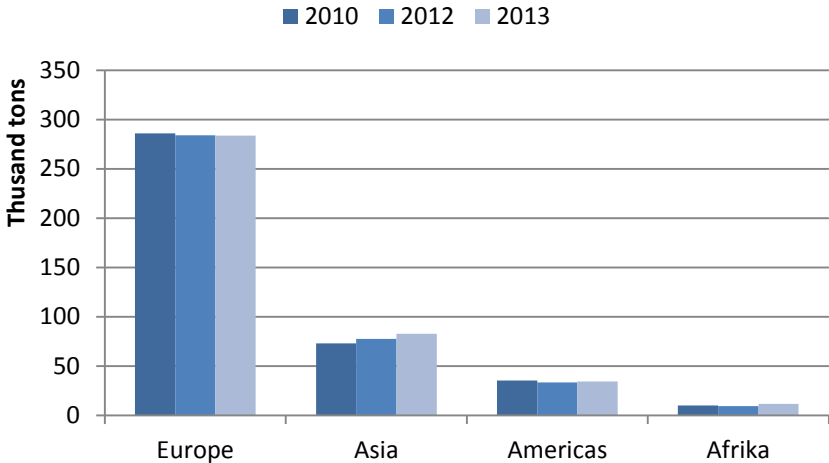


Figure 35 Norwegian export of cod converted to whole fish weight by part of the world. Source: Statistics Norway (SSB).

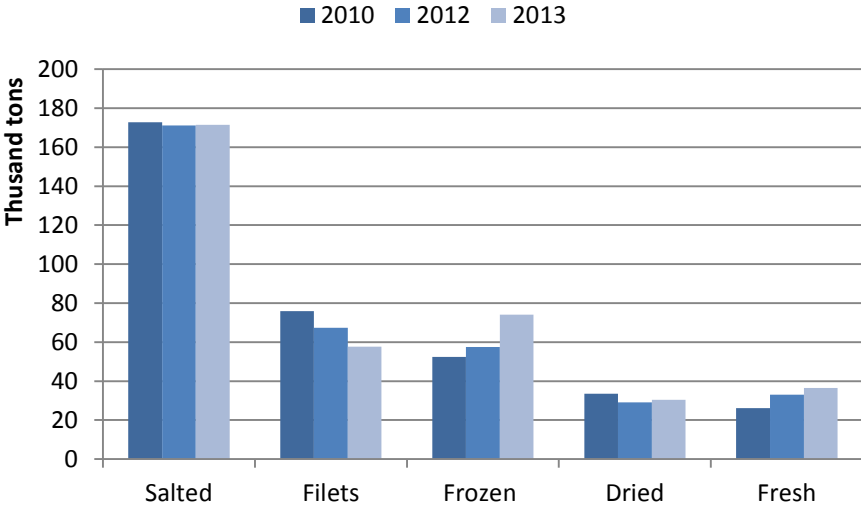


Figure 36 Norwegian export of cod by product category converted to whole fish weight. Salted: Salted butterflies, salted fillets and clip fish. Fillets: Fresh and frozen fillets and mince. Frozen: Frozen headed and gutted or gutted fish. Dried: Dried fish and heads. Fresh: Fresh headed and gutted or gutted fish. Source: Statistics Norway (SSB).

¹¹ The reason is that in dried fish, clip fish and fillets the yield is low and, hence product weight will not give a good understanding of to what products categories the landings are allocated. Official conversion factors are used.

Figure 35 shows that Europe is the most important market for products based on Norwegian cod. Asia has grown to be the second largest market.

According to Figure 36 salted cod is the most important product and the bulk of this product category is exported to Portugal. Fillets are mainly sold fresh to Europe and some frozen to North-America. Most cod sold to Asia goes as frozen raw material to the Chinese fillet industry. The main market for dried cod (stock-fish) is Italy, but a smaller quantity is also exported to Africa – mainly Nigeria. Fresh cod is exported to Europe, either directly to the retail sector or as input to the European fish processing industry. This industry also sources frozen cod from Norway.

For the coastal fleet shorter than 21 meters fishing cod, Europe is the all-important market. Some stock-fish of insufficient quality for the Italian market is exported to Nigeria. The bulk of the products produced from landings in the peak winter season are exported to Portugal, Italy and Spain, which are all economies in decline. During the peak season fresh, headed and gutted cod is also exported as input to the European fish processing industry.

6.2 Haddock

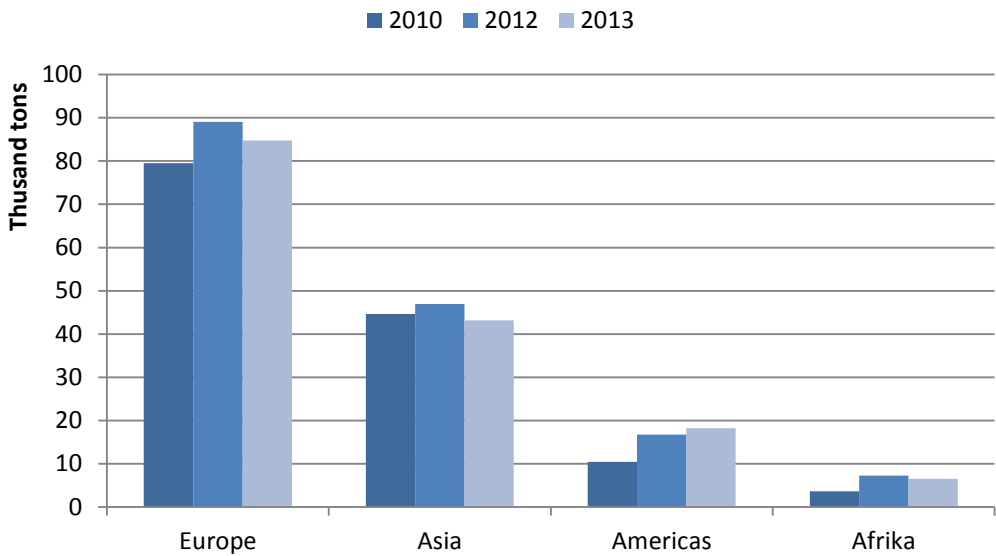


Figure 37 Norwegian export of haddock converted to whole fish weight by part of the world. Source: Statistics Norway (SSB).

Figure 37 shows that Europe is the most important market for products based on Norwegian haddock. Asia has grown to be the second largest market.

Figure 36 shows that frozen haddock is the most important product and the bulk of this product category is exported to the European (England, Poland and Baltic) and Asian (China) fillet industries. Fillets are mainly sold fresh to Europe and some frozen to North-America. Some fresh haddock is exported to Europe as input for the European fish processing industry. Dried and salted haddock is mostly destined for the African market.

For the coastal fleet shorter than 21 meters fishing haddock, Europe is the most important market and most of the products are exported as fresh fillets or fresh headed and gutted input to the European fish processing industry.

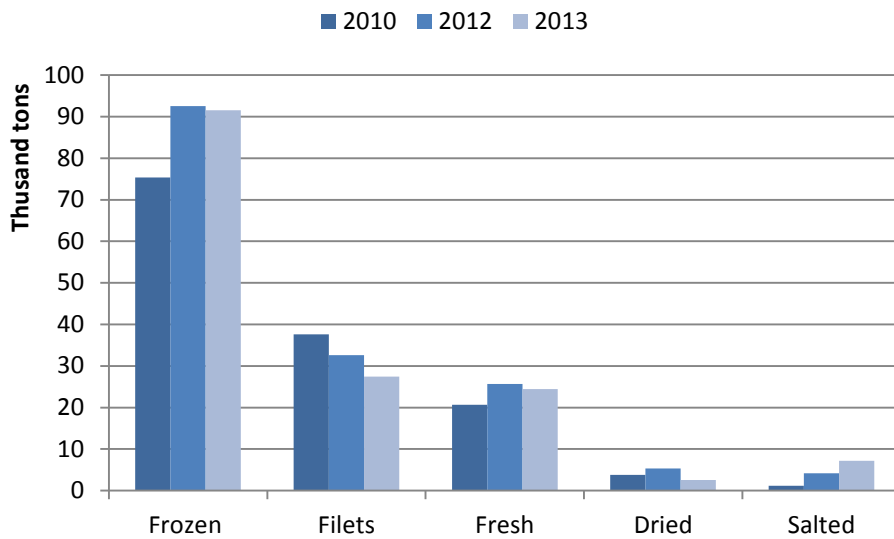


Figure 38 Norwegian export of haddock by product category converted to whole fish weight. Salted: Salted butterflies, salted fillets and clip fish. Fillets: Fresh and frozen fillets and mince. Frozen: Frozen headed and gutted or gutted fish. Dried: Dried fish and heads. Fresh: Fresh headed and gutted or gutted fish. Source: Statistics Norway (SSB).

6.3 Saithe

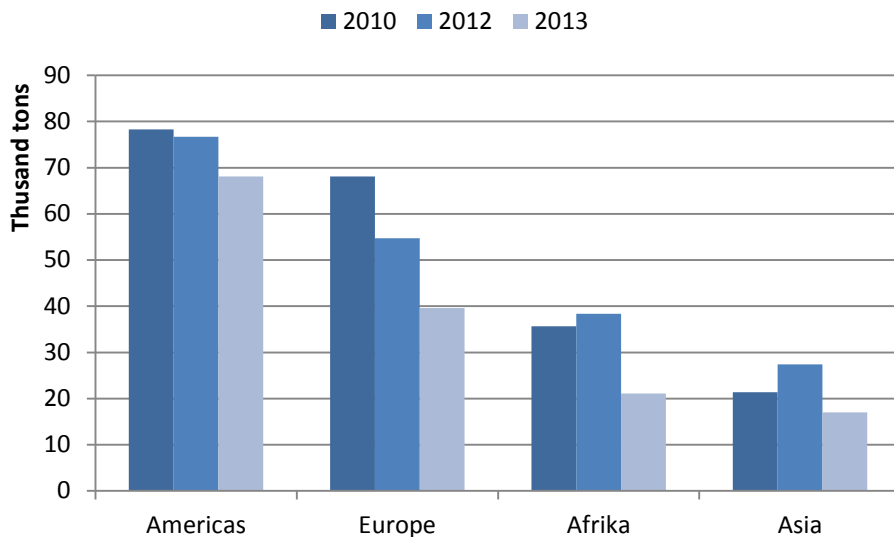


Figure 39 Norwegian export of saithe converted to whole fish weight by part of the world. Source: Statistics Norway (SSB).

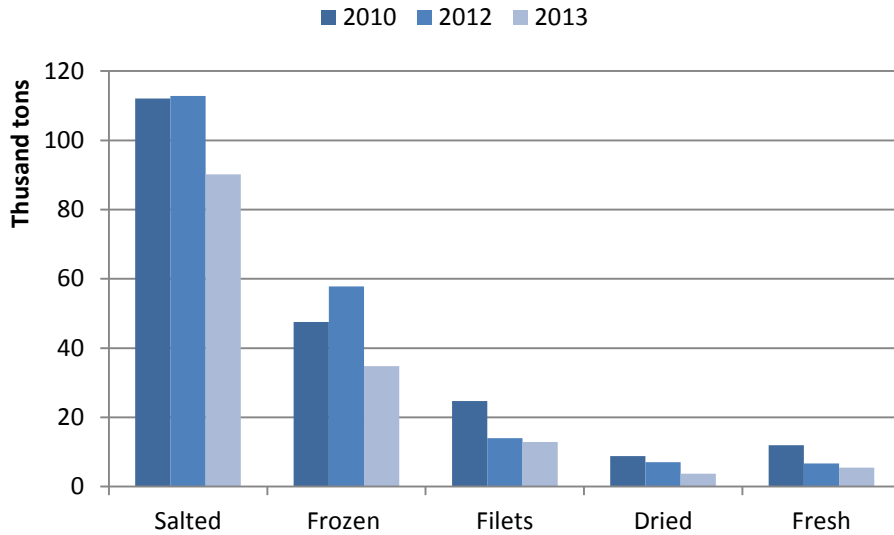


Figure 40 Norwegian export of saithe by product category converted to whole fish weight. Salted: Salted butterflies, salted fillets and clip fish. Fillets: Fresh and frozen fillets and mince. Frozen: Frozen headed and gutted or gutted fish. Dried: Dried fish and heads. Fresh: Fresh headed and gutted or gutted fish. Source: Statistics Norway (SSB).

Figure 39 shows that American markets are most important for products based on Norwegian saithe. Large quantities are also exported to Europe, Africa and Asia.

Figure 40 shows that salted products form saithe are most important and the bulk of this product category is exported to the Caribbean and South-American (Brazil) countries and to West African countries. Most of the frozen saithe is sold to the Asian (China) fillet industry. Fillets are mainly sold fresh or frozen to Europe. Also some fresh saithe is exported to Europe as input for the European fish processing industry. Dried saithe is destined for the African market.

For the coastal fleet shorter than 21 meters fishing saithe, American and African markets are the most important. The bulk of the products are exported as salted or dried products.

7 References

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8 Appendix: Total landings by region, species and gear type

8.1 North Norway

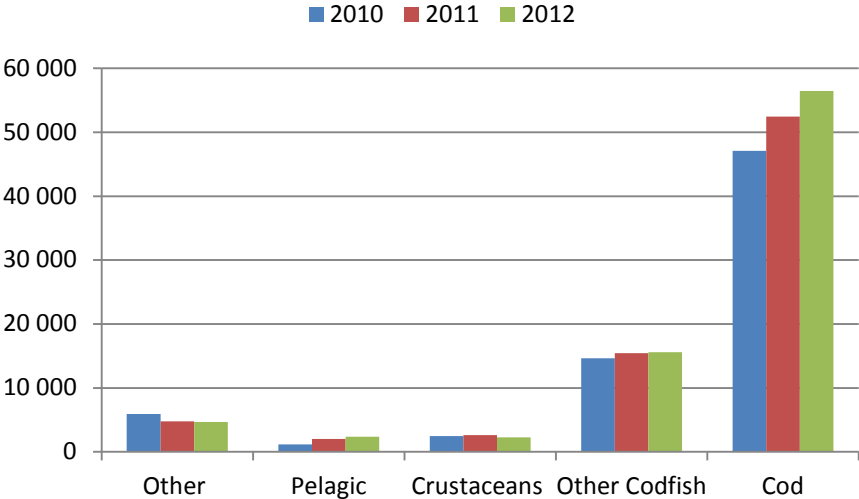


Figure 41 Total landings in tons of the North Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

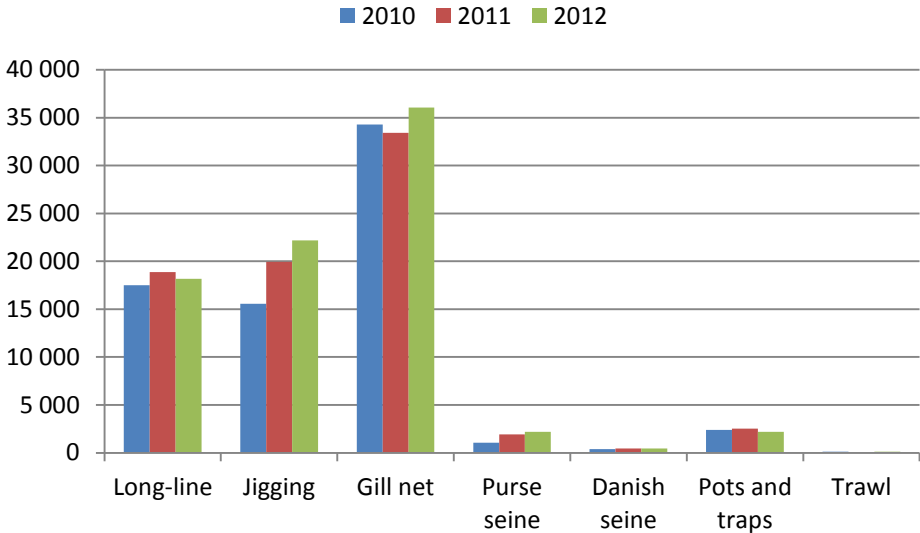


Figure 42 Total landings in tons of the North Norwegian fleet <11m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

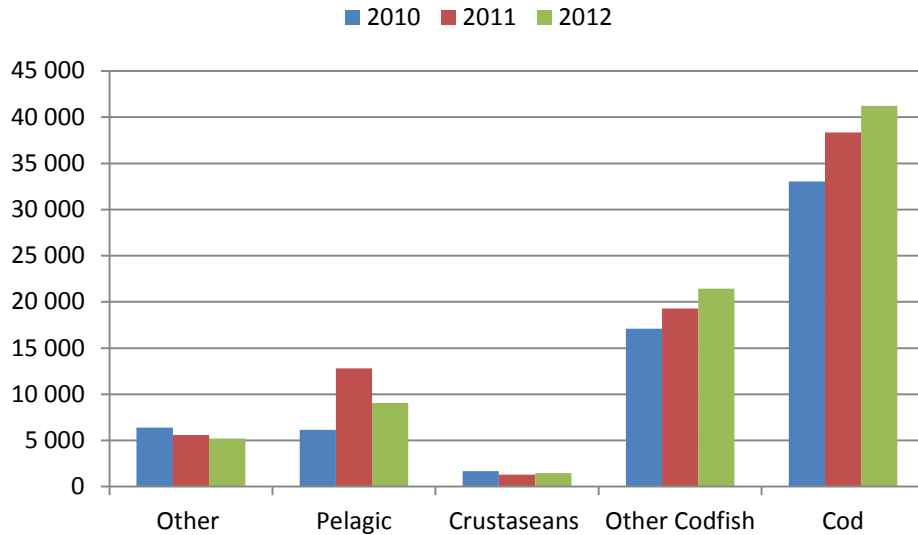


Figure 43 Total landings in tons of the North Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

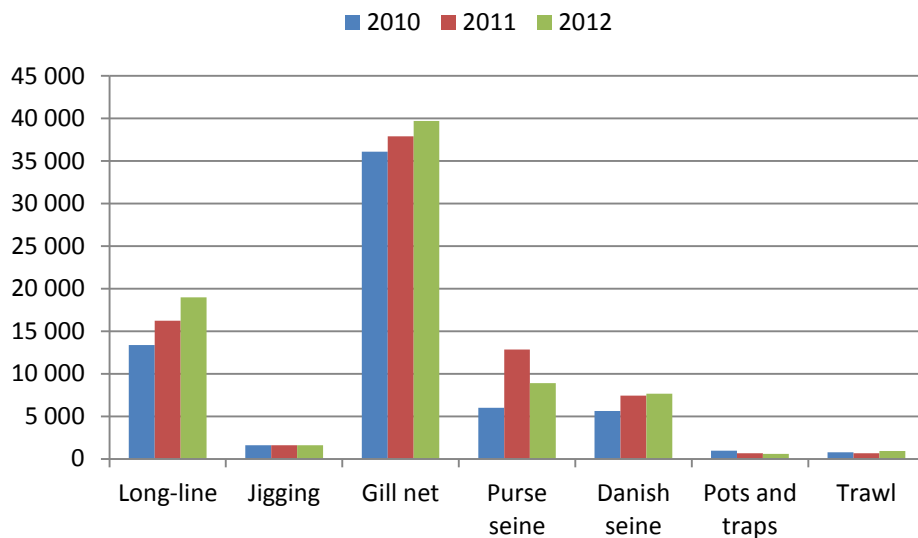


Figure 44 Total landings in tons of the North Norwegian fleet 11–14,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

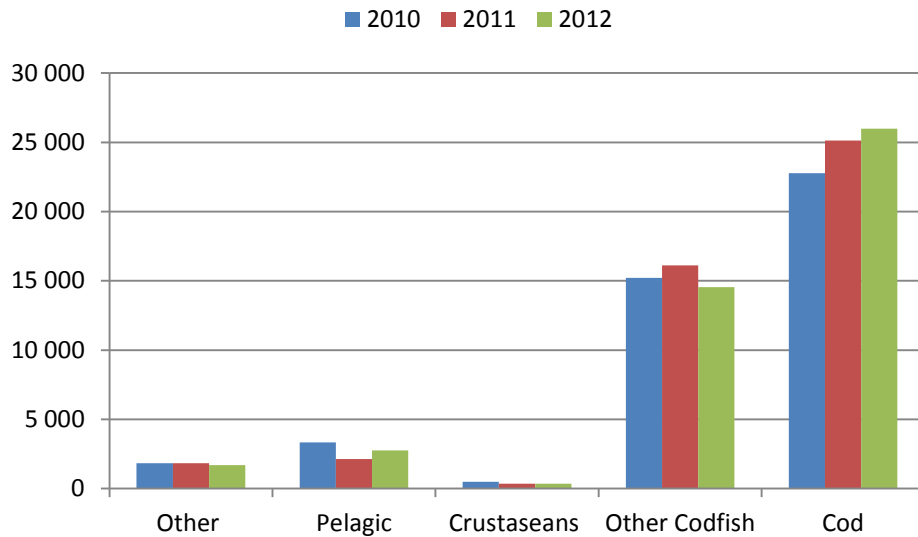


Figure 45 Total landings in tons of the North Norwegian fleet 15–20,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

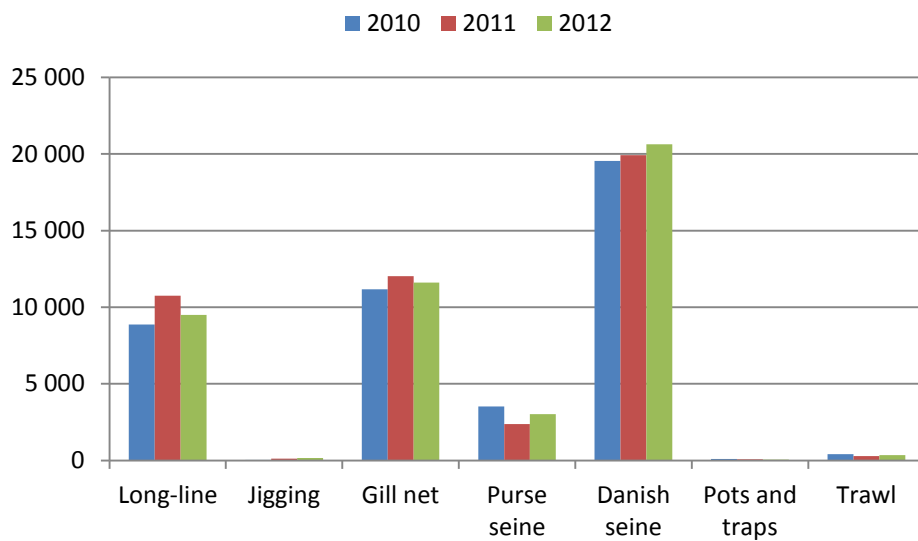


Figure 46 Total landings in tons of the North Norwegian fleet 15–20,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

8.2 Mid Norway

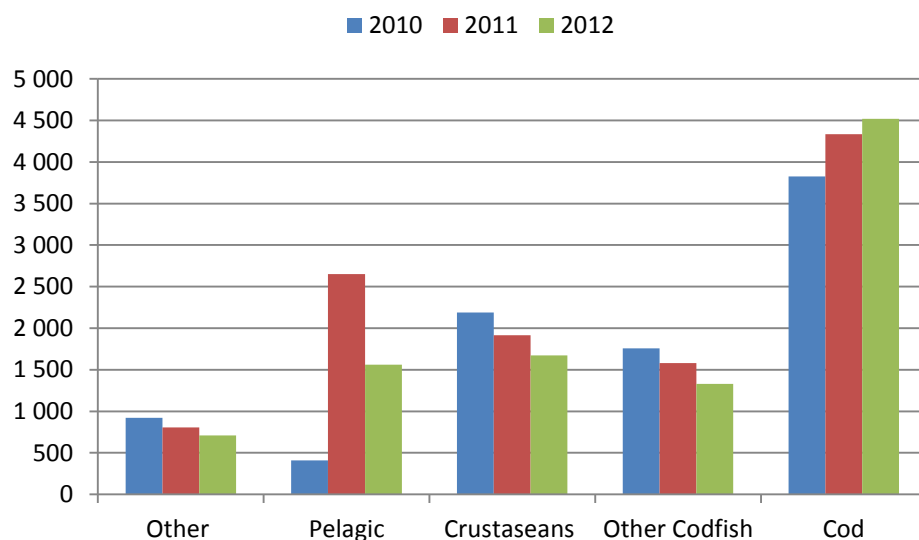


Figure 47 Total landings in tons of the Mid Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

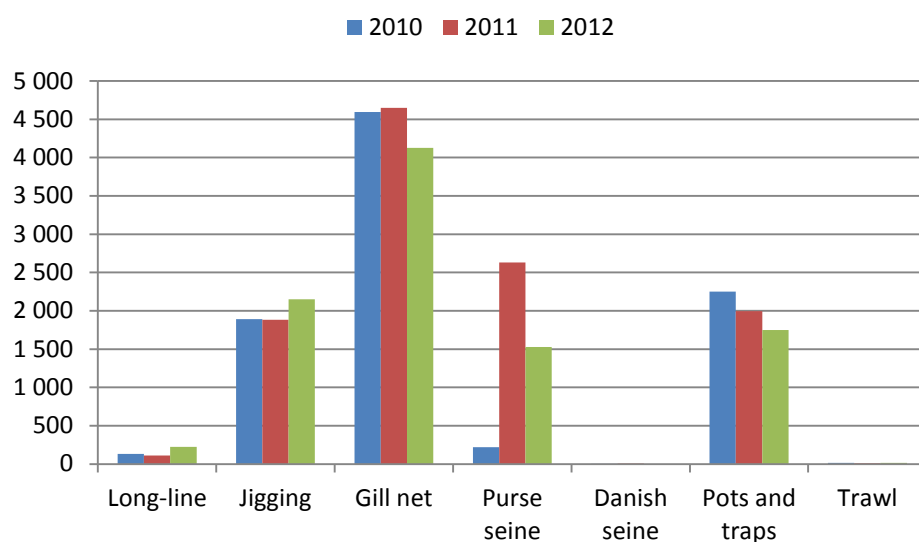


Figure 48 Total landings in tons of the Mid Norwegian fleet <11m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

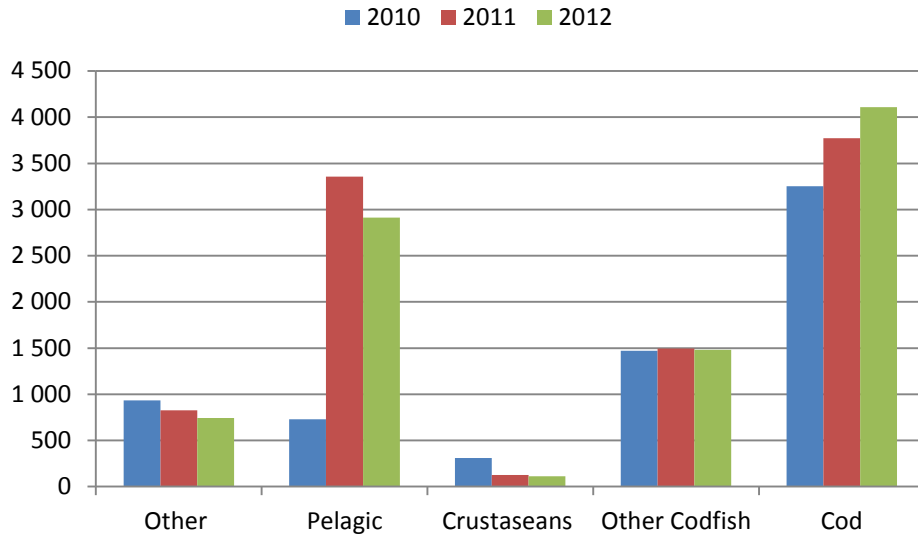


Figure 49 Total landings in tons of the Mid Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

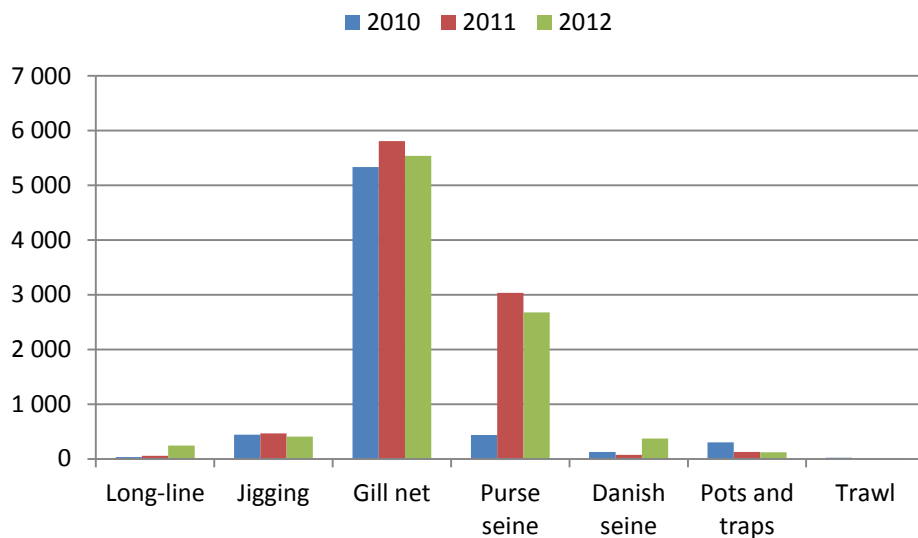


Figure 50 Total landings in tons of the Mid Norwegian fleet 11–14,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

8.3 West Norway

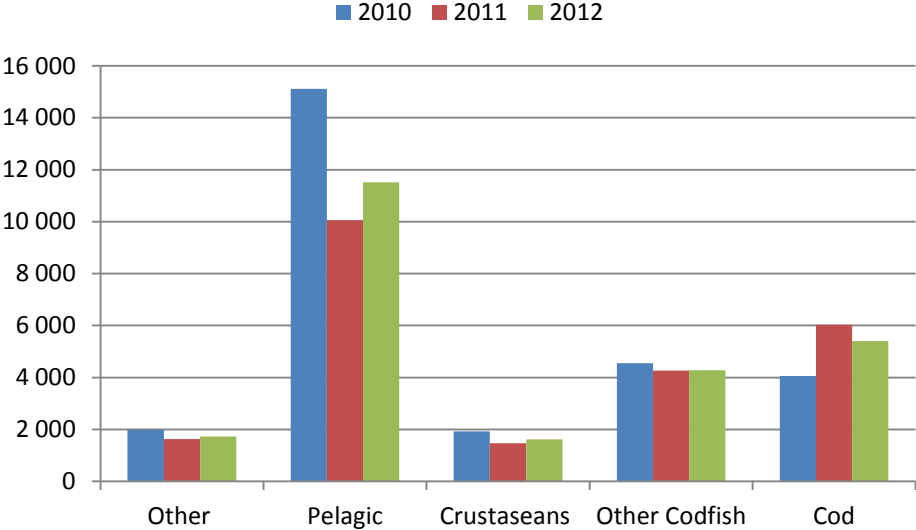


Figure 51 Total landings in tons of the West Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

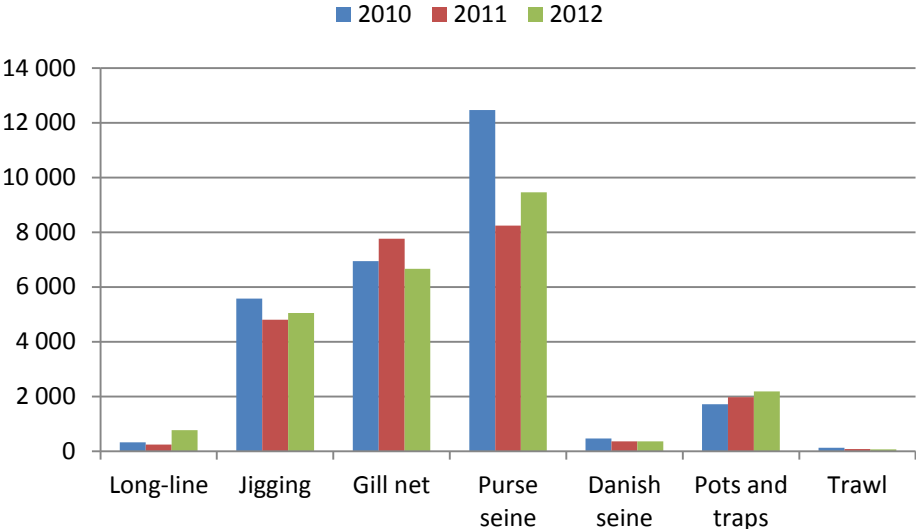


Figure 52 Total landings in tons of the West Norwegian fleet <11m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

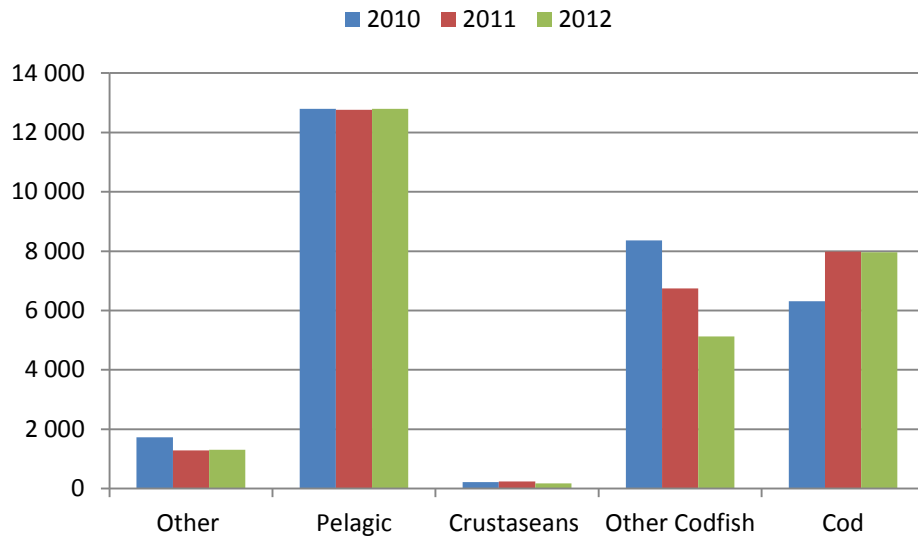


Figure 53 Total landings in tons of the West Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

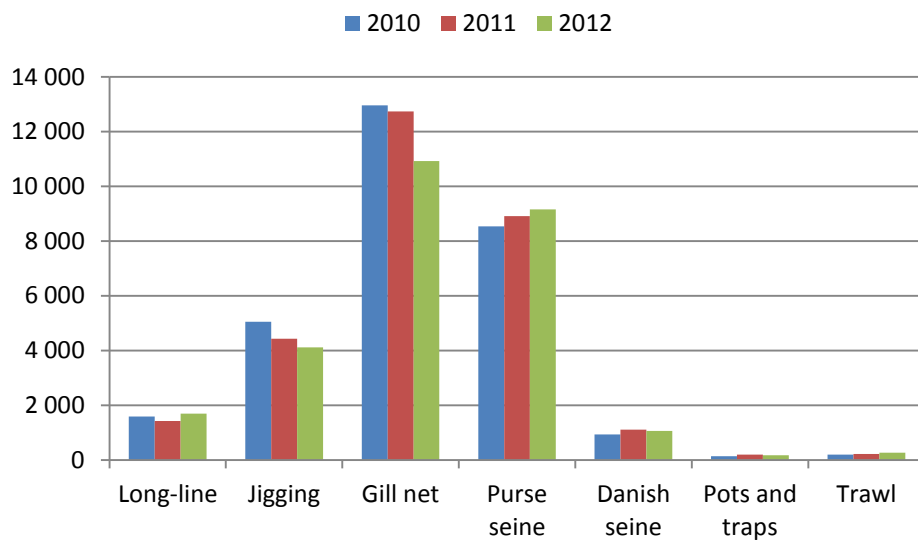


Figure 54 Total landings in tons of the West Norwegian fleet 11–14,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

8.4 15–20.99 Mid and West Norway

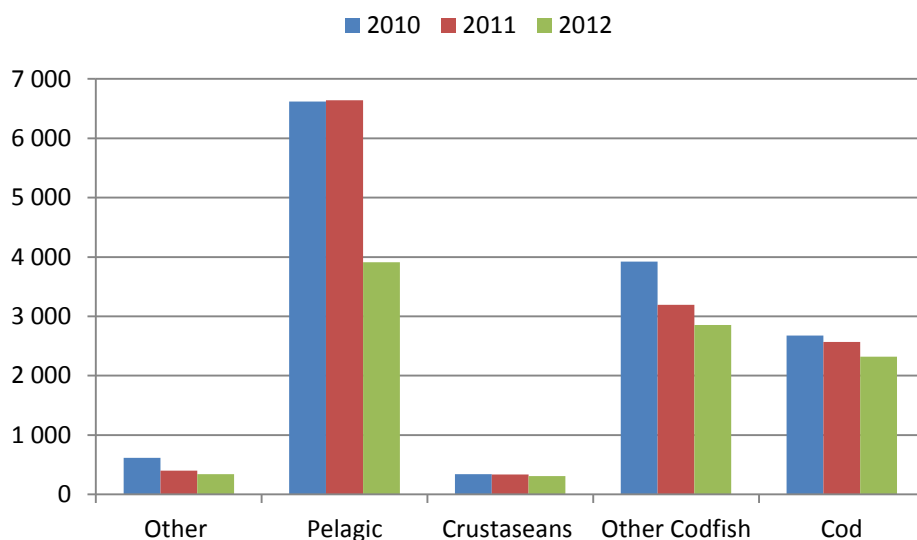


Figure 55 Total landings in tons of the Mid and West Norwegian fleet 15–20,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

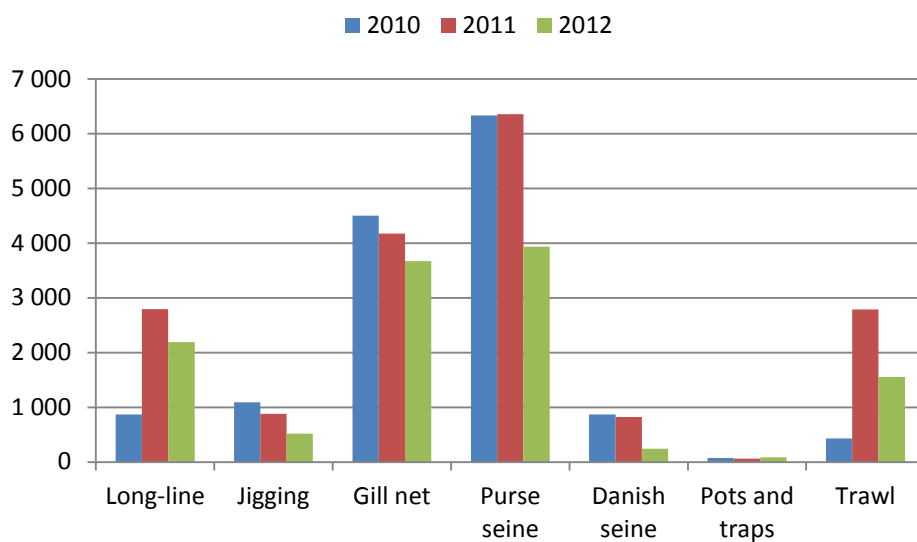


Figure 56 Total landings in tons of the Mid and West Norwegian fleet 15–20,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

8.5 South Norway

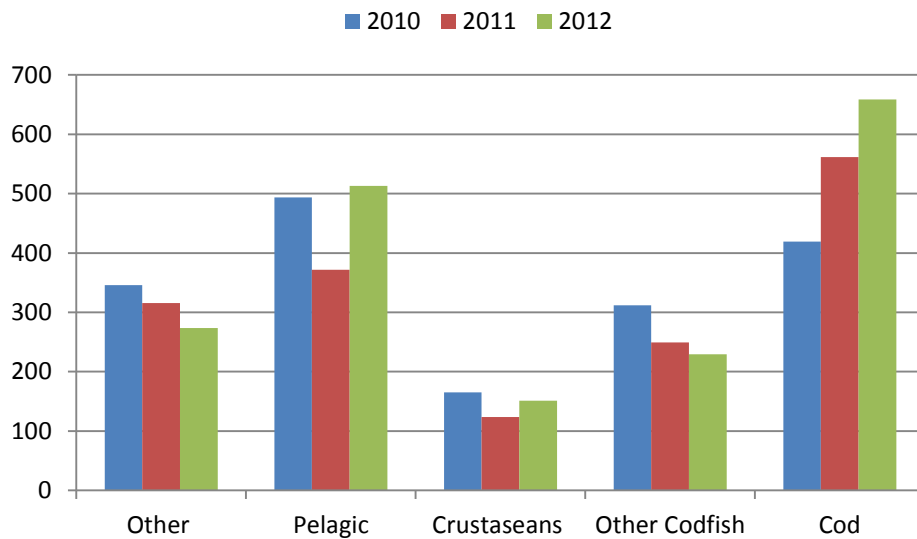


Figure 57 Total landings in tons of the South Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

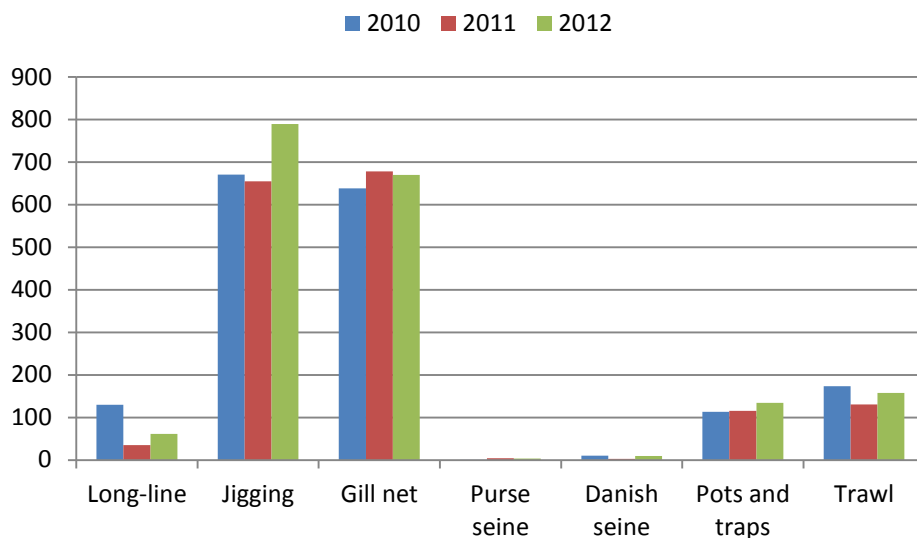


Figure 58 Total landings in tons of the South Norwegian fleet <11m by gear type, 2010–12. Source: The Norwegian

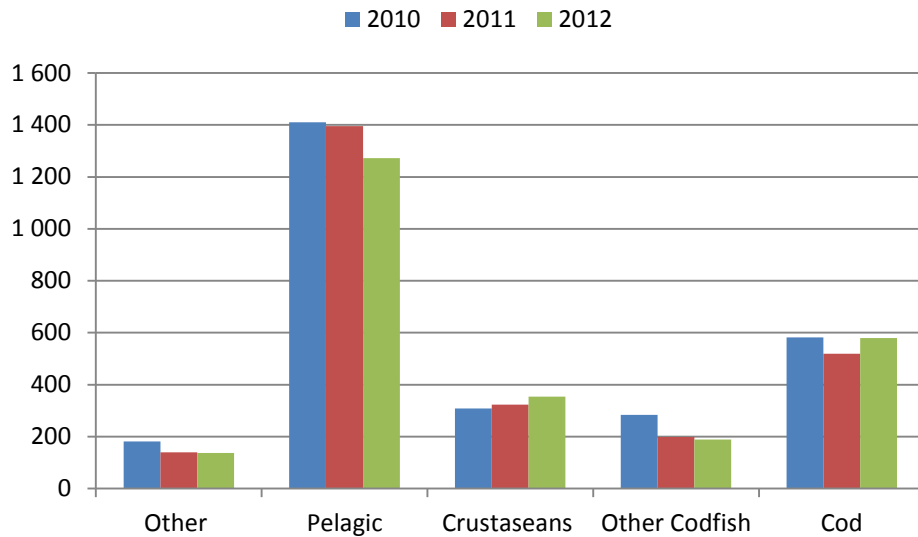


Figure 59 Total landings in tons of the South Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

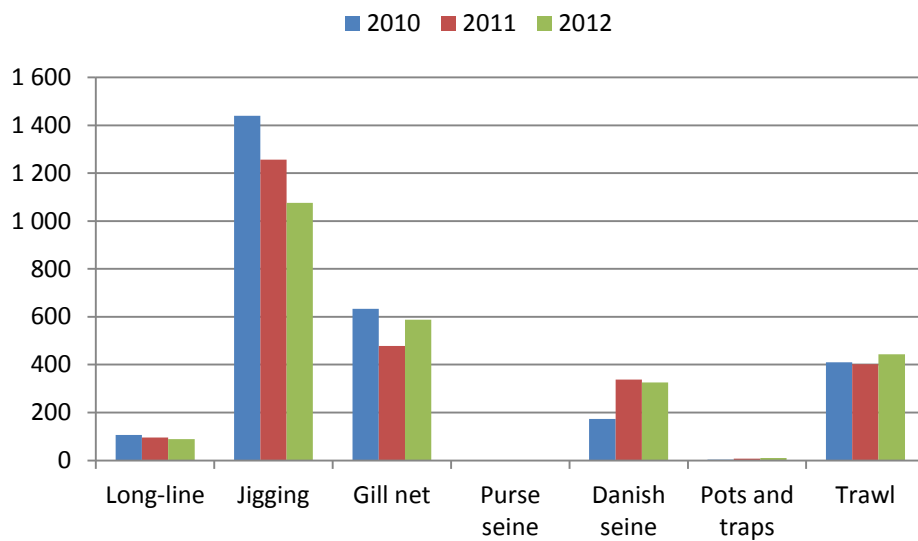


Figure 60 Total landings in tons of the South Norwegian fleet 11–14,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

8.6 East Norway

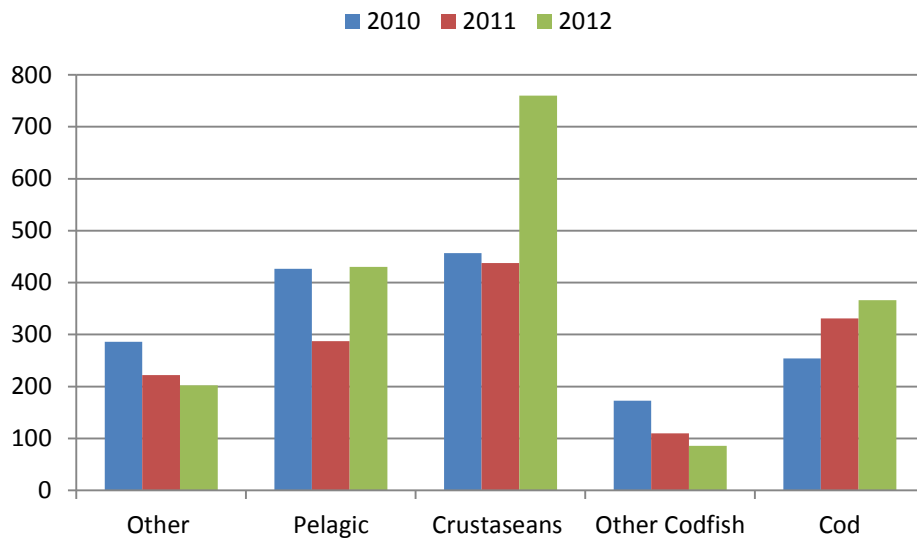


Figure 61 Total landings in tons of the East Norwegian fleet <11m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

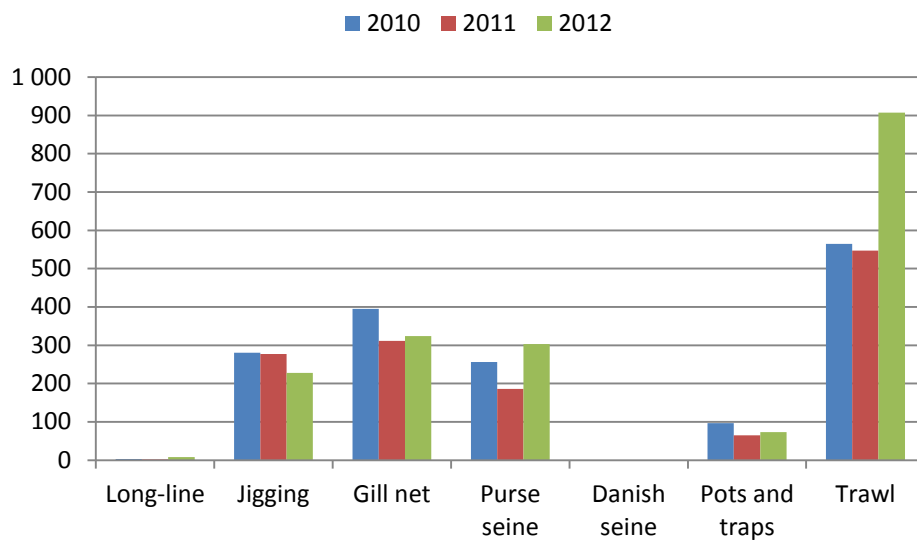


Figure 62: Total landings in tons of the East Norwegian fleet <11m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddatabasen).

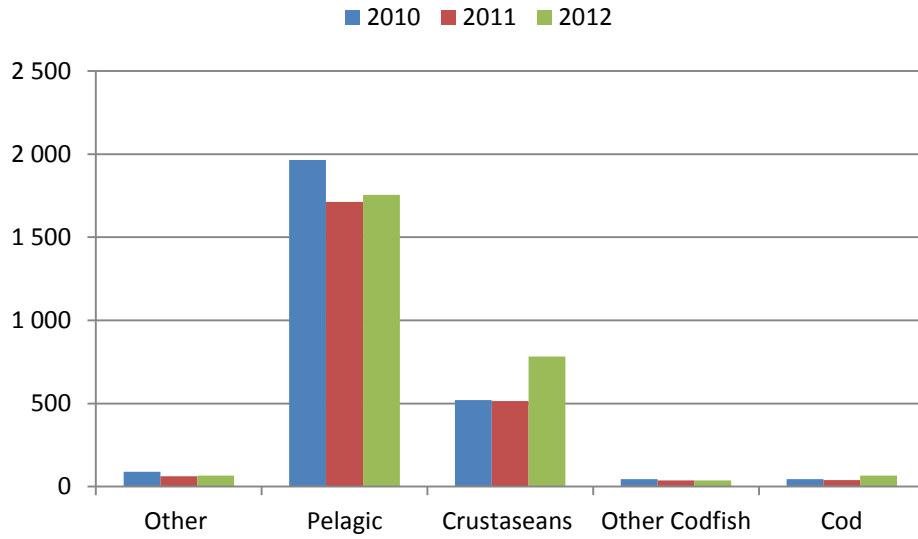


Figure 63 Total landings in tons of the East Norwegian fleet 11–14,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

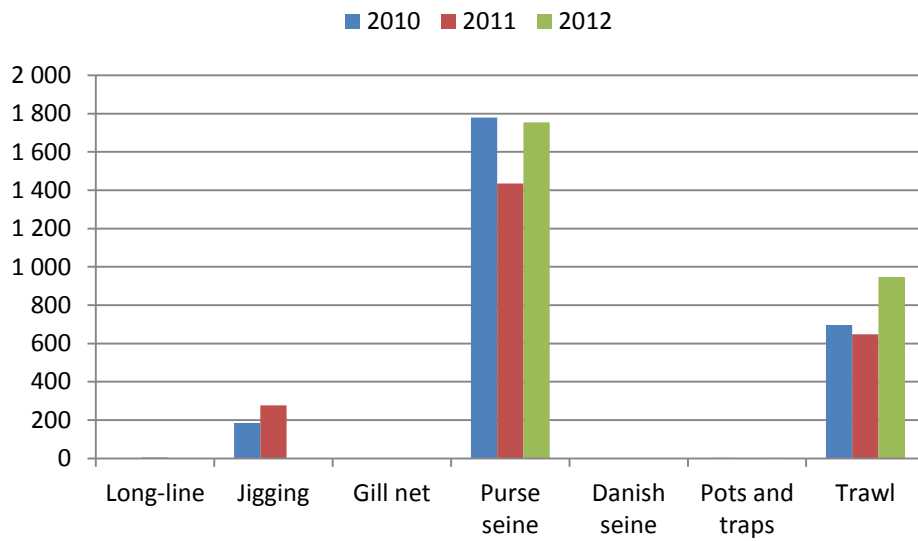


Figure 64 Total landings in tons of the East Norwegian fleet 11–14,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

8.7 15-20.99m South and East Norway

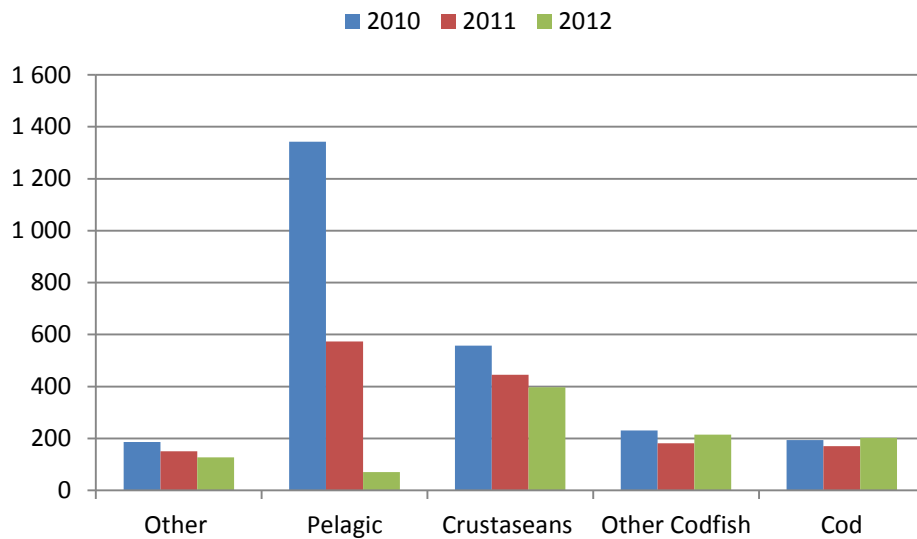


Figure 65 Total landings in tons of the South and East Norwegian fleet 15–20,99m, 2010–12. Pelagic: Herring, mackerel and sprat. Other codfish: White ling, tusk, haddock and saithe. Crustaceans: King crab, edible crab, deep water prawns. Other: All other commercial species. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen).

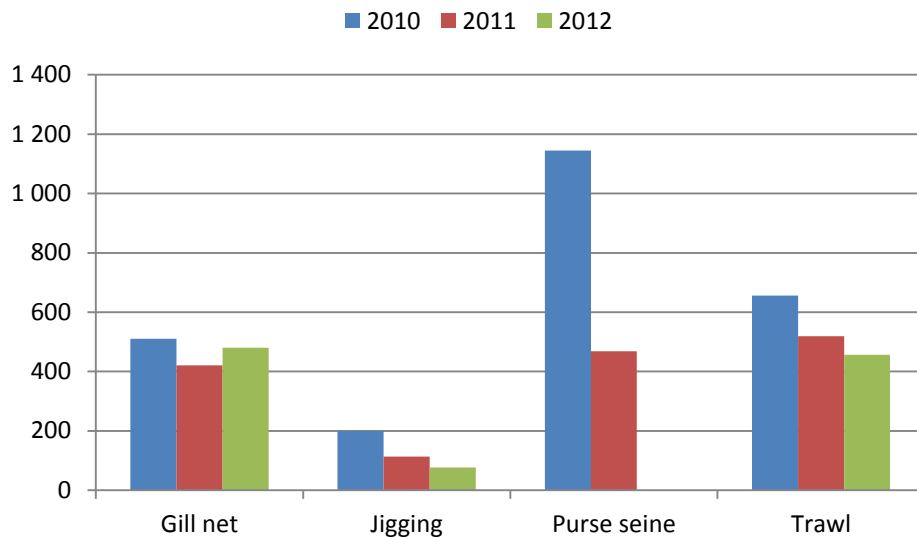


Figure 66 Total landings in tons of the South and East Norwegian fleet 15–20,99m by gear type, 2010–12. Source: The Norwegian Directorate of Fisheries end-note database (sluttseddeldatabasen)

