

## 2 Demersal stocks in the Faroe area (Division 5.b and Subdivision 2.a4)

*This section was updated in November 2021.*

### 2.1 Overview

#### 2.1.1 Fisheries

The main fisheries in Faroese waters are mixed-species, demersal fisheries and single species pelagic fisheries. The demersal fisheries are mainly conducted by Faroese vessels, whereas the pelagic fisheries are conducted both by Faroese vessels and by foreign vessels licensed through bilateral and multilateral fisheries agreements. The usual picture has changed, however. From 2010 there has been no full agreement between the coastal states with regards to mackerel and this also applied for Norwegian Spring Spawning herring in 2013 and blue whiting in 2016.

**Pelagic Fisheries.** Three main species of pelagic fish are fished in Faroese waters: blue whiting, herring and mackerel; several nations participate. The Faroese pelagic fisheries are conducted by purse-seiners, larger purse-seiners also equipped for pelagic trawling and trawlers otherwise performing demersal fisheries. The pelagic fishery by Russian vessels is conducted by large factory trawlers. Other countries use purse-seiners and factory trawlers.

**Demersal Fisheries.** Although they are conducted by a variety of vessels, the demersal fisheries can be grouped into fleets of vessels operating in a similar manner. Some vessels change between longlining, jigging and trawling, and they therefore can appear in different fleets. The number of licenses can be found in Table 2.3. The grouping of the vessels under the management scheme can be seen in Section 2.1.2. Fleets 4a and 4b were merged in 2021.

#### 2.1.2 Fisheries and management measures

The fishery around the Faroe Islands has for centuries been an almost free international fishery involving several countries. Apart from a local fishery with small wooden boats, the Faroese offshore fishery started in the late 19<sup>th</sup> century. The Faroese fleet had to compete with other fleets, especially from the UK with the result that a large part of the Faroese fishing fleet became specialized in fishing in other areas. So, except for a small local fleet most of the Faroese fleet were fishing around Iceland, at Rockall, in the North Sea and in more distant waters like the Grand Bank, Flemish Cap, Greenland, the Barents Sea and Svalbard.

Up to 1959, all vessels were allowed to fish around the Faroes outside the 3 nm zone. During the 1960s, the fisheries zone was gradually expanded, and in 1977 an EEZ of 200 nm was introduced in the Faroe area. The demersal fishery by foreign nations has since decreased and Faroese vessels now take most of the catches. The fishery may be considered a multifleet and multispecies fishery as described below.

During the 1980s and 1990s the Faroese authorities have regulated the fishery and the investment in fishing vessels. In 1987, a system of fishing licenses was introduced. The demersal fishery at the Faroe Islands has been regulated by technical measures (minimum mesh sizes and closed areas). In order to protect juveniles and young fish, fishing is temporarily prohibited in areas where the number of small cod, haddock and saithe exceeds 30% (in numbers) of the catches;

after 1–2 weeks, sometimes longer, the areas are again opened for fishing. A reduction of effort has been attempted through banning of new licenses and buy-back of old licenses.

A quota system, based on individual quotas, was introduced in 1994. The fishing year started on 1 September and ended on 31 August the following year. The aim of the quota system was, through restrictive TACs for the period 1994–1998, to increase the SSBs of Faroe Plateau cod and haddock to 52 000 t and 40 000 t, respectively. The TAC for saithe was set higher than recommended scientifically. It should be noted that especially cod and haddock but also saithe are caught in a mixed fishery and any management measure should account for this. Species under the quota system were Faroe Plateau cod, haddock, saithe, redfish and Faroe Bank cod.

The catch quota management system introduced in the Faroese fisheries in 1994 was met with considerable criticism and resulted in discarding and in misreporting of portions of the catches. Reorganization of enforcement and control did not solve the problems. As a result of the dissatisfaction with the catch quota management system, the Faroese Parliament discontinued the system as from 31 May 1996. In close cooperation with the fishing industry, the Faroese government developed a new system based on individual transferable effort quotas in days within fleet categories. The new system entered into force on 1 June 1996. The fishing year from 1 September to 31 August, as introduced under the catch quota system, was maintained.

The individual transferable effort quotas applied to 1) the longliners less than 110 GRT, the jiggers, and the single trawlers less than 400 HP (Groups 4,5), 2) the pairtrawlers (Group 2) and 3) the longliners greater than 110 GRT (Group 3). The single trawlers greater than 400 HP were in 2011 included into the fishing days system and were allocated a number of fishing days (tables 1 and 2). They were not allowed to fish within the 12 nautical mile limit and the areas closed to them, as well as to the pairtrawlers, had increased in area and time. Their catch of cod and haddock was before 2011 limited by maximum bycatch allocation. This fleet started to pair-trawl, and since the fiscal year 2011/12, merged with the pairtrawlers group. The single trawlers less than 400 HP were given special licenses to target flatfish inside 12 nautical miles with a bycatch allocation of 30% cod and 10% haddock. In addition, they were obliged to use sorting devices in their trawls in order to minimize their bycatches. One fishing day by longliners less than 110 GRT was considered equivalent to two fishing days for jiggers in the same gear category. Longliners less than 110 GRT could therefore double their allocation by converting to jigging. Table 2.1 shows the allocated number of fishing days by fleet group since the fiscal year 1996/1997 and in Table 2.2 is a comparison between number of allocated days and number of actually used fishing days. From Table 2.1 it can be seen that since 1996/1997, the number of days allocated has been reduced considerable and is now around half of the originally allocated days. Despite this, there still are many unused days in the system (Table 2.2).

Holders of individual transferable effort quotas who fish outside the thick line on Figure 2.2 could fish for 3 days for each day allocated inside the line. Trawlers were generally not allowed to fish inside the 12 nautical mile limit. Inside the innermost thick line only longliners less than 110 GRT and jiggers less than 110 GRT were allowed to fish. The Faroe Bank shallower than 200 m is closed to trawling. Due to the serious decline of the Faroe Bank cod, the Bank has been closed since 1 January 2009 for all gears except for a minor jigging fishery during summertime.

The fleet segmentation used to regulate the demersal fisheries in the Faroe Islands and the regulations applied are summarized in Table 2.3.

The effort quotas are transferable within gear categories. The allocations of number of fishing days by fleet categories were made such that together with other regulations of the fishery they should result in average fishing mortalities on each of the 3 stocks of 0.45, corresponding to average annual catches of 33% of the exploitable stocks in numbers. Built into the system was also an assumption that the day system was self-regulatory, because the fishery was expected to move between stocks according to the relative availability of each of them and no stock would

be overexploited. In retrospect these target fishing mortalities were substantially higher than the  $F_{MSY}$  reference points that were defined for cod, haddock and saithe in spring 2017. Also, the fishing mortality on cod was higher than for haddock and saithe, probably because the fleets targeted cod more than haddock and saithe.

The technical measures as mentioned above are still in effect. An additional measure to reduce the fishing mortality on cod and haddock and to especially reduce the mortality on the youngest age groups was introduced (See the 2013 NWWG report, Figure 2.3) in July 2011, but was terminated in August 2013.

### 2.1.3 The marine environment and potential indicators

The waters around the Faroe Islands are in the upper 500 m dominated by the North Atlantic current, which to the north of the islands meets the East Icelandic current. Clockwise current systems create retention areas on the Faroe Plateau (Faroe shelf) and on the Faroe Bank. In deeper waters to the north and east and in the Faroe Bank channel there is deep Norwegian Seawater, and to the south and west is Atlantic water. From the late 1980s the intensity of the North Atlantic current passing the Faroe area decreased, but it has increased again and has since been stable. The productivity of the Faroese waters was very low in the late 1980s and early 1990s. This applies also to the recruitment of many fish stocks, and the growth of the fish was poor as well. Since then, there have been several periods with high or low productivity, which has been reflected in the fish landings a couple of years afterwards.

There has been observed a clear relationship, from primary production to the higher trophic levels (including fish and seabirds), in the Faroe shelf ecosystem, and all trophic levels seem to respond quickly to variability of primary production in the ecosystem (Gaard *et al.* 2002). There is a positive relationship between primary production and the cod and haddock individual fish growth and recruitment  $\frac{1}{2}$ –2 years later. The primary production index has been below average since 2002 except for 2004 and 2008–2010 and 2017 when it was above average (Figure 2.3). The primary production index could therefore be a candidate ecosystem and stock indicator. Another potential indicator candidate is the Subpolar Gyre Index (Hátún *et al.*, 2005, Hátún and Chafik, 2018 (Figure 2.3). The subpolar gyre index presented here is merged from these references using simple linear regression for the 1993–2003 period.

Work (Steingrund *et al.*, 2012) shows that there is a moderate positive correlation between primary production on the Faroe Shelf and the subsequent production of cod (Steingrund and Gaard, 2005). There is also a moderate positive correlation for haddock and saithe. If all three species are combined, the positive correlation becomes stronger (Figure 2.4). However, the period of high productivity (2008–2010) did not lead to any marked increase in the stock size of cod/haddock, but only in saithe. The catchability of cod with longlines also increased by a factor of 2–3 in the same period. The productive period in 2016–2017 also seems not to have led to any marked recovery of cod, but probably more so for haddock.

### 2.1.4 Summary of the 2021 assessment of Faroe Plateau cod, haddock and saithe

A summary of selected parameters from the assessment of Faroe Plateau cod, Faroe haddock and Faroe saithe is shown in Figure 2.6. As mentioned in previous reports of this WG, landings of cod, haddock and saithe on the Faroes appear to be closely linked with the total biomass of the stocks.

For cod and haddock, the exploitation ratio and fishing mortality have remained relatively stable over time, although they have been more fluctuating since the 1980s (Figure 2.6). For saithe, the

exploitation rate was low in the 1930s and 1950s and increased until the 1970s, it decreased from the early 1990s–2004 and has increased close to the highest values observed in 2009. It has since declined again.

Another main feature of the plots of landings, biomasses, mortalities and recruitment is the apparent periodicity during the time-series with cod and haddock showing almost the same fluctuations and time-trends. Moreover, while the sum of cod, haddock and saithe biomasses has been rather constant over time (varied between 300–500 thousand tonnes most years), the proportion of saithe has increased during the period from 1924 up to today whereas the proportion of cod has decreased (Figure 2.6).

### 2.1.5 Reference points for Faroese stocks

A benchmark assessment was held in February 2017 where the assessment model was changed from the XSA to SAM. Since the assessment model was changed, the reference points were recalculated/revised at the NWWG 2017 (ICES, 2017) meeting, according to the ICES guidelines (ICES fisheries management reference points for category 1 and 2 stocks, January 2017, [http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/12.04.03.01\\_Reference\\_points\\_for\\_category\\_1\\_and\\_2.pdf](http://ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/12.04.03.01_Reference_points_for_category_1_and_2.pdf)).

These reference points are all estimated based on single-species models. Multispecies models may give different perception of  $F_{MSY}$  reference points than single-species models, and for the Faroe area this could be extra true, since there is a close relationship between the environment and the fish stocks and between fish stocks (see Section 2.1.3). For example, adding the recruitment of cod and haddock and relating them to zooplankton concentration shows a strong negative correlation (Figure 2.5). Sandeels are abundant at times with strong cod and haddock recruitment (age 1) and sandeels probably graze down the zooplankton biomass during summer when they are numerous.

Faroe saithe stock dynamics is puzzling. If the biomass estimates prior to 1961 are approximately correct (see ICES, 2016) then there has been an increase in biomass from 1925 up to now as well as in catch and exploitation rate. There might be an interaction with cod, since the cod biomass has decreased over the same period. It might be speculated that trawling activity in the deep areas (> 150 m) from the 1950s has had a negative effect on cod and a positive effect on saithe. Hence, it might not be possible to maximize cod and saithe catches at the same time.

### 2.1.6 Management plan

In 2011, the Faroese minister of fisheries established a group of experts to formulate a management plan for cod, haddock and saithe including a harvest control rule and a recovery plan. The group consisted of scientists from the Faroe Marine Research Institute and the Faroese University, of 1 representative from the industry (trawlers) and 1 from the Ministry of Fisheries. The results of this work was delivered to the Minister of Fisheries in spring 2012 but the outcome has not been approved by the authorities so far and not been implemented. Basically, the plan builds on the MSY framework developed by ICES.

In 2015, the Faroese minister of fisheries established a new group of experts to formulate a new fisheries management system. The reason was that all fishing licences would be withdrawn on 31 December 2017 – 10 years after the Faroese Parliament decided to do this. The group delivered its recommendations on 3 October 2016. The group recommended that the effort management system was replaced by a quota system in the new fisheries management system. The following treatment in the political system resulted in a law that was adopted by the Faroese Parliament in December 2017. In the law it was stated that the large trawlers (Group 2) and the large longliners

(Group 3) should be regulated by catch quotas whereas the rest of the fleets will be regulated in the same way as before, i.e., by fishing days and licences. This was supposed to be implemented on 1 January 2019, but that was in November 2018 postponed to 1 January 2020. The fiscal year starting on 1 September 2017 and ending 31 August 2018 was extended to 31 December 2018. From 2019 the fishing year was equal to the calendar year. As already mentioned, the fishery since 2019 has been regulated by fishing days and licences.

A committee was in September 2018 set by the Ministry of Fisheries to work on management plans for cod, haddock and saithe in Faroese waters. The committee was composed of representatives from the Ministry of Fisheries, the fishing industry, Faroe Marine Research Institute and Faroe Coastal Guard. The committee delivered its report in May 2019. There were two main outcomes in the report. Firstly, the continuation to use fishing days as the main measure of fishing effort for all fleets (i.e., abandoning the quotas for Group 2 and Group 3), and secondly, the formulation of a harvest control rule. The harvest control rule aimed to keep fishing mortalities within sustainable limits and a recovery plan was used in cases when spawning stocks were below certain limits. A buffer was applied so that the number of fishing days could only be changed by either -5%, 0% or 5% from one year to the next. The management plan was implemented in 2021. The Faroese fishery for cod, haddock and saithe on the Faroe Plateau was certified as sustainable in September 2021 by Marine Stewardship Council.

The partial  $F$  per fishing day for the fleets is not constant but varies between years. In the case of longliners this is probably a result of the varying amounts of sandeels (Figure 2.7) – cod and probably haddock prey preferably on sandeels and, if they are scarce, on other prey items like longline baits. Also, the recruitment of cod and haddock is positively correlated with sandeel abundance (Figure 2.8). When sandeels are abundant, recruitment of cod and haddock is high while the partial  $F$  per fishing day is low – this may lead to a rapid increase in the stock. Conversely, when sandeels are scarce, the opposite happens, recruitment is low while the partial  $F$  per fishing day is high and the stocks may decrease rapidly. This implies that the cod and haddock stocks may be fished too hard during periods with low sandeel abundance. The implemented management plan, especially the limits of fishing mortalities, needs to be scrutinised in the future to ensure that the management plan is sustainable. The management plan is not yet sent to ICES for evaluation.

## 2.1.7 Other issues

In order to put assessments into a wider context, the biomass of Faroe saithe, cod and haddock on the Faroe Plateau has been estimated over centuries (ICES, 2016). The biomass of Faroe Plateau cod was in the years 2006–2017, the lowest compared to the last 300 years. The biomass of Faroe haddock in the same time period was the lowest for a century. Saithe on the other hand, shows an opposite trend, its biomass in the same time period is well above average and it had a lower biomass prior to 1960, when there was little fishery for saithe. The stock dynamics of saithe is therefore a bit contradictory since an increase in fishing mortality is associated with increased biomass.

The stock assessment of saithe has the last five-ten years had the tendency to overestimate stock size and underestimate fishing mortality and this has led to a too high advised catch. For some reason the fishing fleet has not been able to fish the advised catch and this situation will likely be the case in 2022. There is a need to get a better biological understanding why the fleet is not able to fish the advised catch even though an effort management system is in place. It is also worth mentioning that sorting grids were introduced in the saithe fishery (Group 2) in September 2021 and at the same time two closed areas with young saithe were opened.

During the NWWG meeting in October 2021 the issue was raised whether there was a migration of cod between Faroe Plateau and Faroe Bank (since year classes have been downscaled on the Faroe Plateau and at the same time there has been an increase of cod biomass on Faroe Bank). Although there has been conducted a tagging experiment on the Faroe Plateau since 1997, there has been very little fishing activity on Faroe Bank and hence making recoveries of tagged cod originating from Faroe Plateau difficult to demonstrate. There have not been conducted any recent genetic analyses of cod from Faroe Plateau or Faroe Bank. It should be pointed out, however, that there is a positive correlation between an o-group index of cod on Faroe Bank and total survey catch per tow in March four years later indicating that a migration from Faroe Plateau is not necessary to explain the stock development of cod on Faroe Bank.

### 2.1.8 References

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**Table 2.1. Number of allocated days since the fiscal year 1996/97. The fiscal year 2017/2018 was extended to 31 December 2018 (2017/2018 end). Group 4a and 4b were merged in 2021.**

	Number of allocated days								
	Fleet group								
Fishing year	2 outer	2 inner	3	4 A	4 B	4 T	5	Total days	Total 2-4
1996/1997		8225	3040	4700	3080		22000	49585	20275
1997/1998		7199	2660	4696	4632		23625	43389	19187
1998/1999		6839	2527	4461	4400		22444	41219	18227
1999/2000		6839	2527	4461	4400		22444	41219	18227
2000/2001		6839	2527	4461	4400		22444	41219	18227
2001/2002		6839	2527	4461	4400		22444	40671	18227
2002/2003		6771	2502	4416	4356		22220	40265	18045
2003/2004		6636	2452	4328	4269		21776	39461	17685
2004/2005		6536	2415	4263	4205		21449	38868	17419
2005/2006		5752	3578	1770	2067	1766	21235	36168	14933
2006/2007		5752	3471	1717	2005	1713	20598	35256	14658
2007/2008		5637	3402	1683	1965	1679	20186	34552	14366
2008/2009		4406	2940	1323	1756	1540	17259	30762	12595
2009/2010		4406	2940	1323	1756	1540	17259	29224	11965
2010/2011	1700	5174	2852	1323	1756	1540	13259	27604	11745
2011/2012	1530	4657	2657	1058	1405	1386	10607	23210	12603
2012/2013	1530	4626	2567	1011	1533	1386	10607	23260	12653
2013/2014	1530	4441	2387	1011	1533	1386	9865	22153	12288
2014/2015	1530	4455	2887	1029	1530	1386	9865	22182	12317
2015/2016	1530	4455	2387	1029	1530	1386	9865	22182	12317
2016/2017	1530	4386	2029	859	1323	1178	8879	20660	11781
2017/2018	1530	4386	2029	859	1323	1178	8879	20660	11781
2017/2018 end	2040	5848	2705	1145	1764	1571	11839	26912	15073
2018 cal year	1530	4386	2029	859	1323	1178	8879	20184	11305
2019 cal year	1530	4386	2029	791	1436	1178	11029	22379	11350
2020 cal year	1582	4291	2571	902	1851	1581	11029	23807	12778
2021 cal year	1661	4506	2442	2615		1502	10478	23204	12726

**Table 2.2. Number of used days since the fiscal year 1997/1998. The values for 2021 were based on the January 1 to October 15 period and scaled up by 12/9.5. Group 4a and 4b were merged in 2021.**

	Number of used days		3	4 A	4 B	4 T	5 A	5 B	Total days	Total 2-4
	2 outer	2 inner								
1996/1997										
1997/1998		6211	2469	2619	3983					15282
1998/1999		5907	2309	2147	3715					14078
1999/2000		6497	2207	2255	3995					14954
2000/2001		6065	2469	2733	4435					15702
2001/2002		5643	2494	2454	4450					15041
2002/2003		4688	2432	2303	4554					13977
2003/2004		5018	2186	2184	5108					14496
2004/2005		5070	2468	1647	4613					13798
2005/2006		4381	3141	1200	1717	2443				12883
2006/2007		4186	2820	961	1113	2208				11288
2007/2008		4524	2447	582	1036	1923				10512
2008/2009		4065	2273	415	1016	1434				9201
2009/2010		4585	2078	426	1158	1382				9629
2010/2011		3883	2071	405	1016	1412	2856	4525	17506	8787
2011/2012	895	4758	1986	260	657	1313	1834	3160	14862	9869
2012/2013	879	3953	1205	271	688	1166	1410	2845	12415	8162
2013/2014	797	3916	1120	272	519	895	1136	3337	11992	7519
2014/2015	1125	4308	1235	254	565	717	1297	3709	13210	8204
2015/2016	1312	3784	1452	315	699	919	810	4421	13711	8481
2016/2017	1225	3882	1075	280	556	1111	646	3440	12215	8129
2017/2018 est.	1202	4472	963	289	812	990	634	2904	12267	8729
2017/2018 end	1390	5562	1568	461	895	1518	887	5486	17719	11394
2018 cal year	1043	4077	1201	391	718	1239	785	5053	14507	8669
2019 cal year	864	3940	1665	420	818	1390	3801	5539	18320	9097
2020 cal year	845	2284	1759	284	454	1182	4022	1745	12575	6808
2021 cal year, estim.	948	3752	1432	980		1307	3408	1633	13460	8419



**Table 2.2. Continued. Number of used days since the fiscal year 1997/1998 (%). Group 4a and 4b were merged in 2021.**

	Percentage of used days						5	Total days	Total 2-4
	2 outer	2 inner	3	4 A	4 B	4 T			
1997/1998		86	93	56	86				
1998/1999		86	91	48	84				77
1999/2000		95	87	51	91				82
2000/2001		89	98	61	101				86
2001/2002		83	99	55	101				83
2002/2003		69	97	52	105				77
2003/2004		76	89	50	120				82
2004/2005		78	102	39	110				79
2005/2006		76	88	68	83	138			86
2006/2007		73	81	56	55	129			77
2007/2008		80	72	35	53	115			73
2008/2009		92	77	31	58	93			73
2009/2010		104	71	32	66	90			80
2010/2011		75	73	31	58	92	56	63	75
2011/2012	58	102	75	25	47	95	47	64	78
2012/2013	57	85	47	27	45	84	40	53	65
2013/2014	52	88	47	27	34	65	45	54	61
2014/2015	74	97	43	25	37	52	51	60	67
2015/2016	86	85	61	31	46	66	53	62	69
2016/2017	80	89	53	33	42	94	46	59	69
2017/2018 est.	79	102	47	34	61	84	40	59	74
2017/2018 end	68	95	58	40	51	97	54	66	76
2018 cal year	68	93	59	46	54	105	66	72	77
2019 cal year	56	90	82	53	57	118	85	82	80
2020 cal year	53	53	68	31	25	75	52	53	53
2021 cal year, estim.	57	83	59	37		87	48	58	66

**Table 2.3. Main regulatory measures by fleet in the Faroese fisheries in 5.b. The fleet capacity is fixed, based on among other things no. of licenses. Number of licenses within each group (by May 2006) are as follows: 1:12; 2:29; 3:25; 4A: 25; 4B:21; 4T:19; 5A:140; 5B:453; 6:8. These licenses have been fixed in 1997, but in group 5B a large number of additional licenses can be issued upon request.**

Fleet segment	Subgroups		Main regulation tools
1 Single trawlers > 400 HP	none		Fishing days, have from 2011/12 been merged with the pairtrawlers, area closures
2 Pairtrawlers > 400 HP	none		Fishing days, area closures
3 Longliners > 110 GRT	none		Fishing days, area closures
4 Coastal vessels > 15 GRT	4A	Trawlers 15-40 GRT	Fishing days
	4A	Longliners 15-40 GRT	Fishing days
	4B	Longliners > 40 GRT	Fishing days
	4T	Trawlers > 40 GRT	Fishing days
5 Coastal vessels <15 GRT	5A	Full-time fishers	Fishing days
	5B	Part-time fishers	Fishing days
6 Others	Gillnetters		Bycatch limitations, fishing depth, no. of nets
	Others		Bycatch limitations

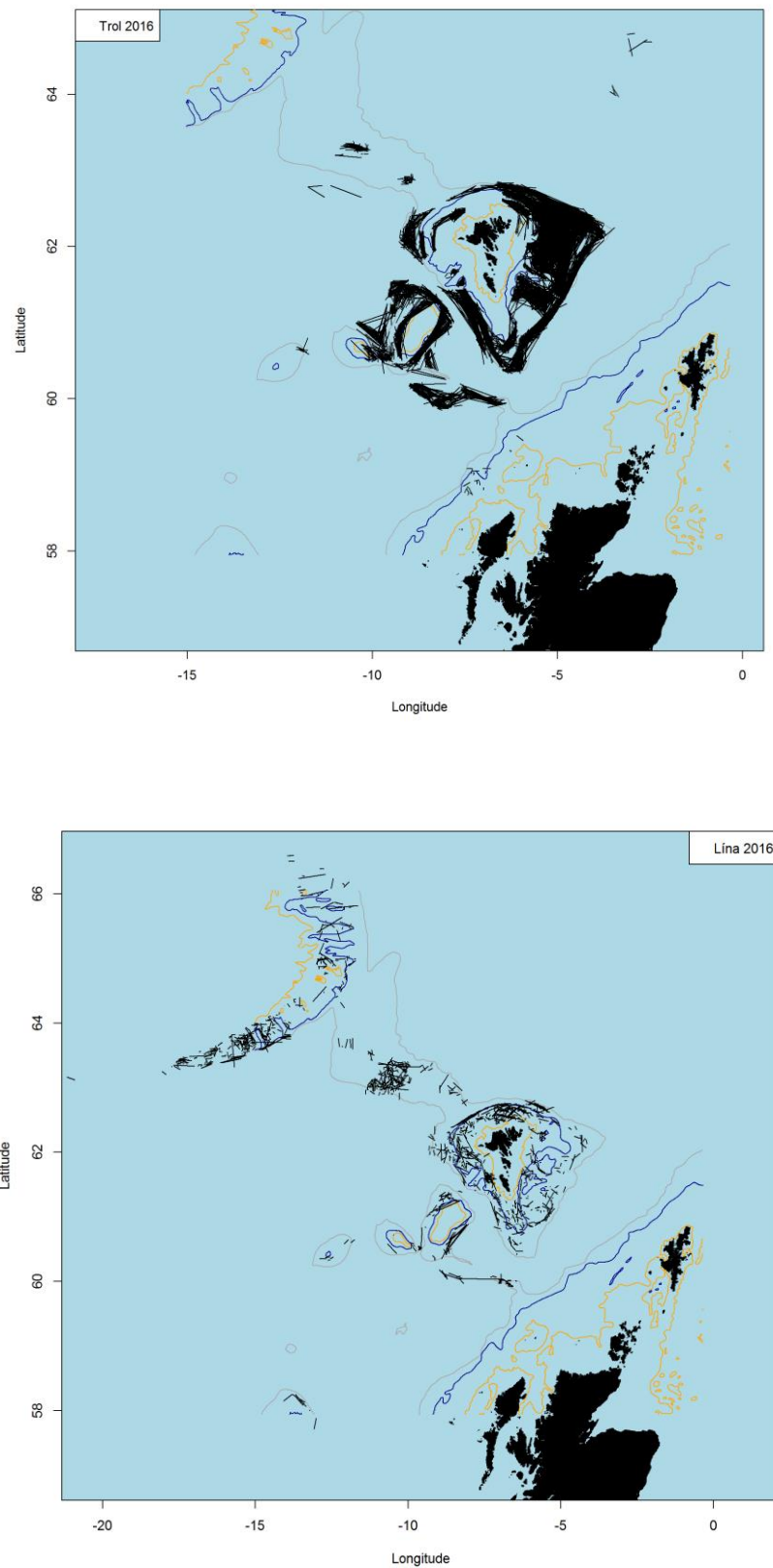


Figure 2.1. The 2016 distribution of fishing activities by some major fleets. From top: 1010HP, trap and trawl > Gillnet, longline. The longline fleet below 110 GRT is not shown here since they are not obliged to keep logbooks.

Exclusion zones for trawling		Spawning closures	
Area	Period	Area	Period
a	1 jan - 31 des	1	15 feb - 31 mar
aa	1 jun - 31 aug	2	15 feb - 15 apr
b	20 jan - 1 mar	3	15 feb - 15 apr
c	1 jan - 31 des	4	1 feb - 1 apr
d	1 jan - 31 des	5	15 jan - 15 mai
e	1 apr - 31 jan	6	15 feb - 15 apr
f	1 jan - 31 des	7	15 feb - 15 apr
g	1 jan - 31 des	8	1 mar - 1 may
h	1 jan - 31 des		
i	1 jan - 31 des		
j	1 jan - 31 des		
k	1 jan - 31 des		
l	1 jan - 31 des		
m	1 feb - 1 jun		
n	31 jan - 1 apr		
o	1 jan - 31 des		
p	1 jan - 31 des		
r	1 jan - 31 des		
s	1 jan - 31 des		
C1	1 jan - 31 des		
C2	1 jan - 31 des		
C3	1 jan - 31 des		

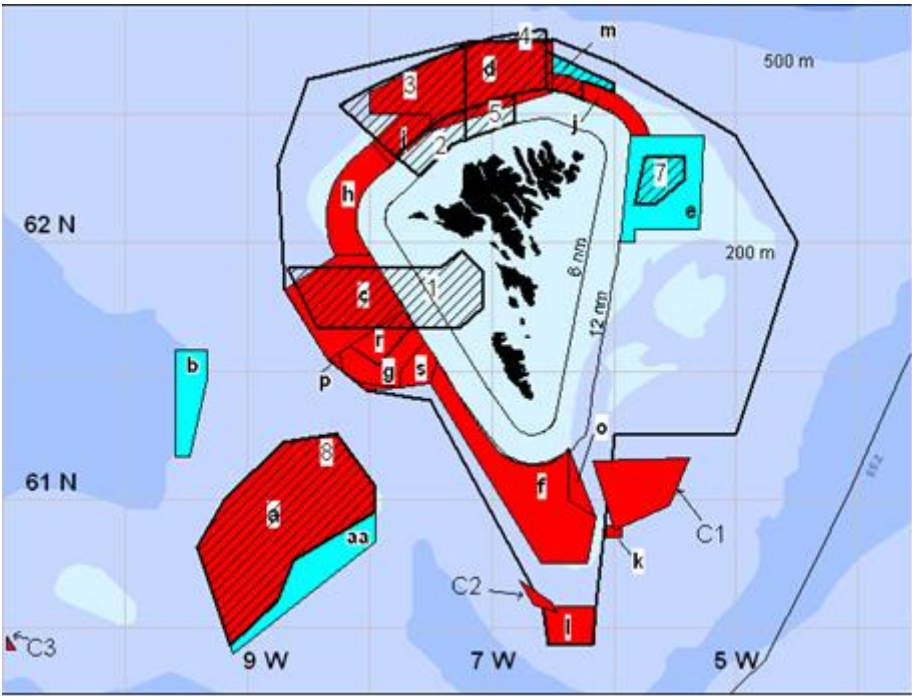


Figure 2.2. Fishing area regulations in Division 5.b. Allocation of fishing days applies to the area inside the outer thick line on the Faroe Plateau. Holders of effort quotas who fish outside this line can triple their numbers of days. Longliners larger than 110 GRT are not allowed to fish inside the inner thick line on the Faroe Plateau. If longliners change from longline to jigging, they can double their number of days. The Faroe Bank shallower than 200 m depths (a, aa) is regulated separate from the Faroe Plateau. It is closed to trawling and the longline fishery is regulated by individual day quotas.

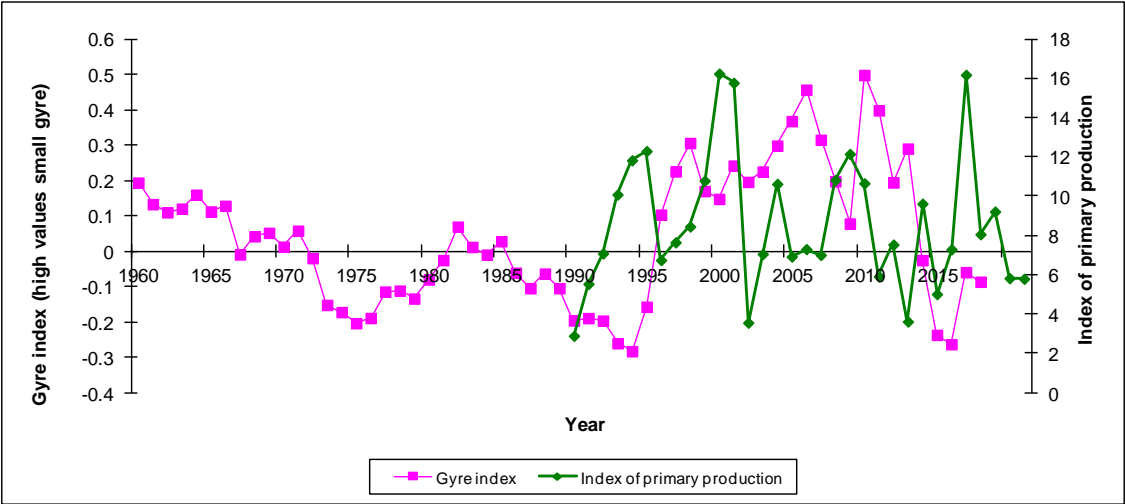


Figure 2.3. Temporal development of the phytoplankton index over the Faroe Shelf area (< 130 m) and the Subpolar Gyre index which may indicate productivity in deeper waters.

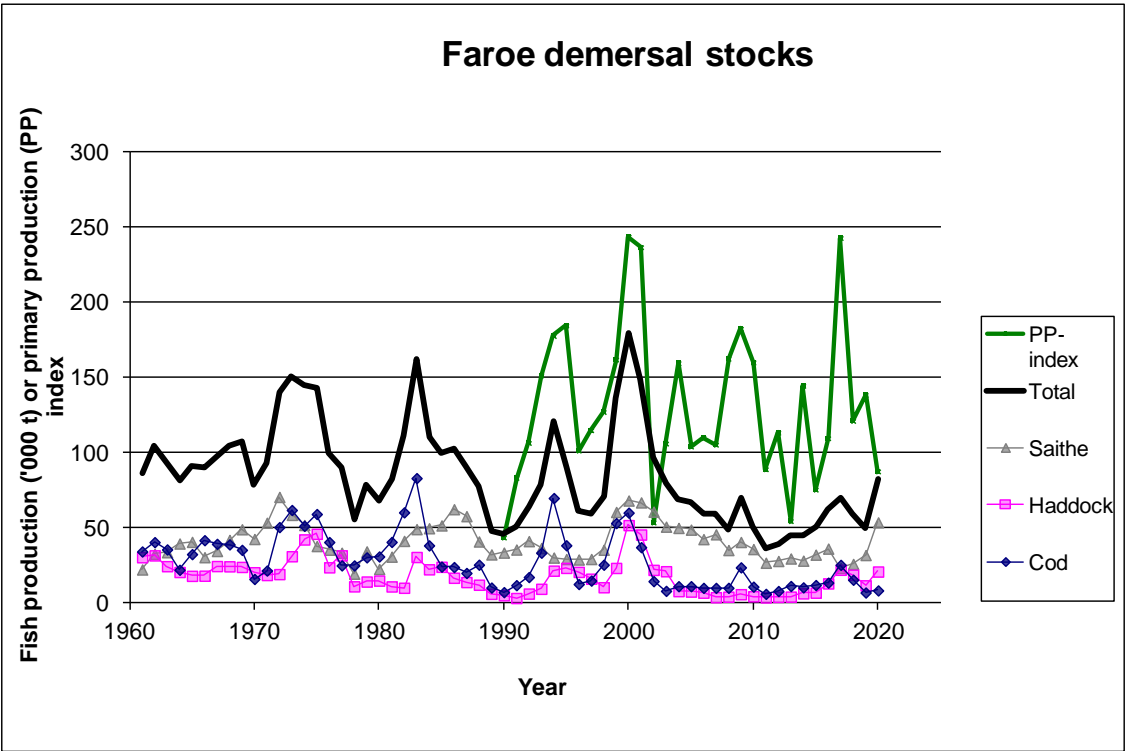


Figure 2.4. Temporal development of primary production and production of cod, haddock and saithe.



Figure 2.5. Relationship between zooplankton concentration in June/July and recruitment of cod and haddock on the Faroe Plateau.

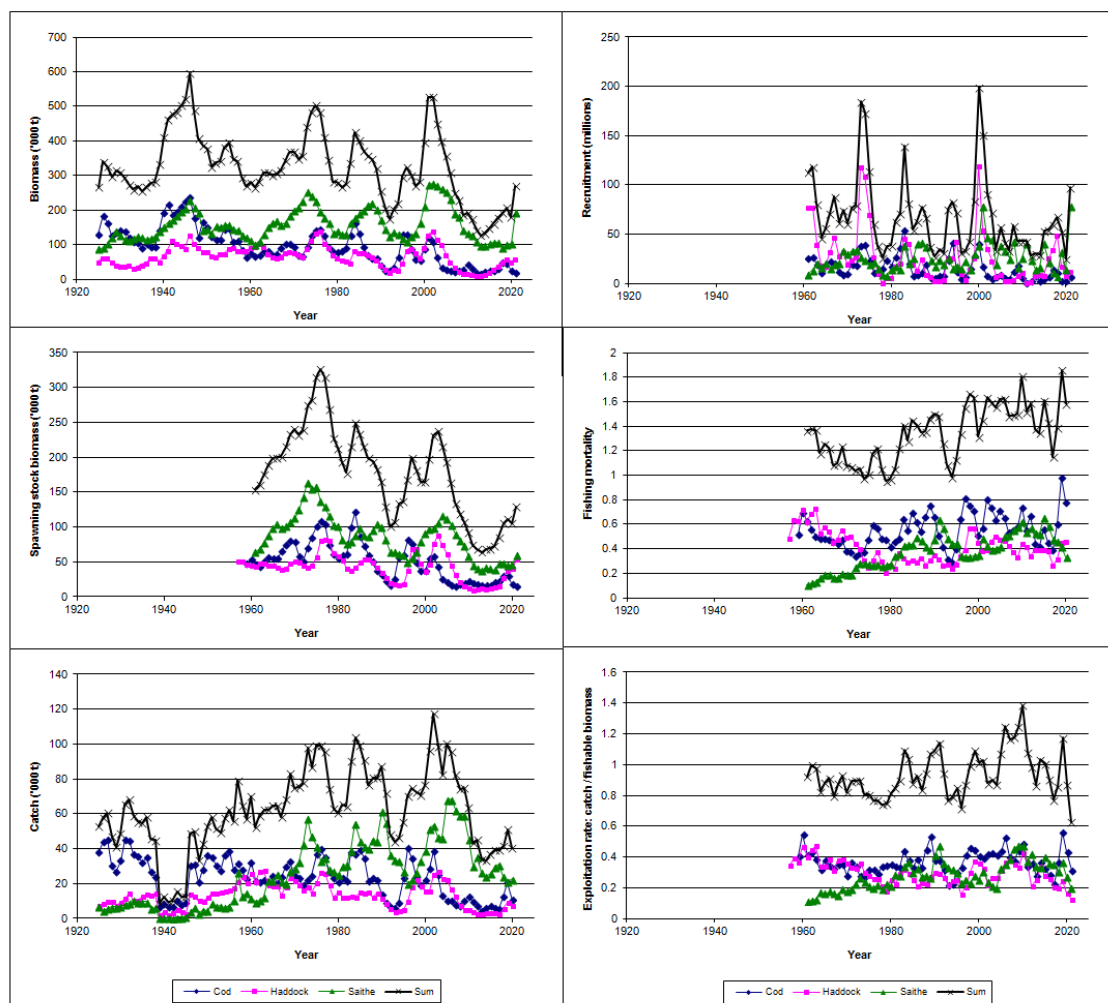


Figure 2.6. Summary of the stock dynamics for Faroe Plateau cod, Faroe haddock and Faroe saithe. Fishable biomass is age 3+ for cod and haddock and age 4+ biomass for saithe.

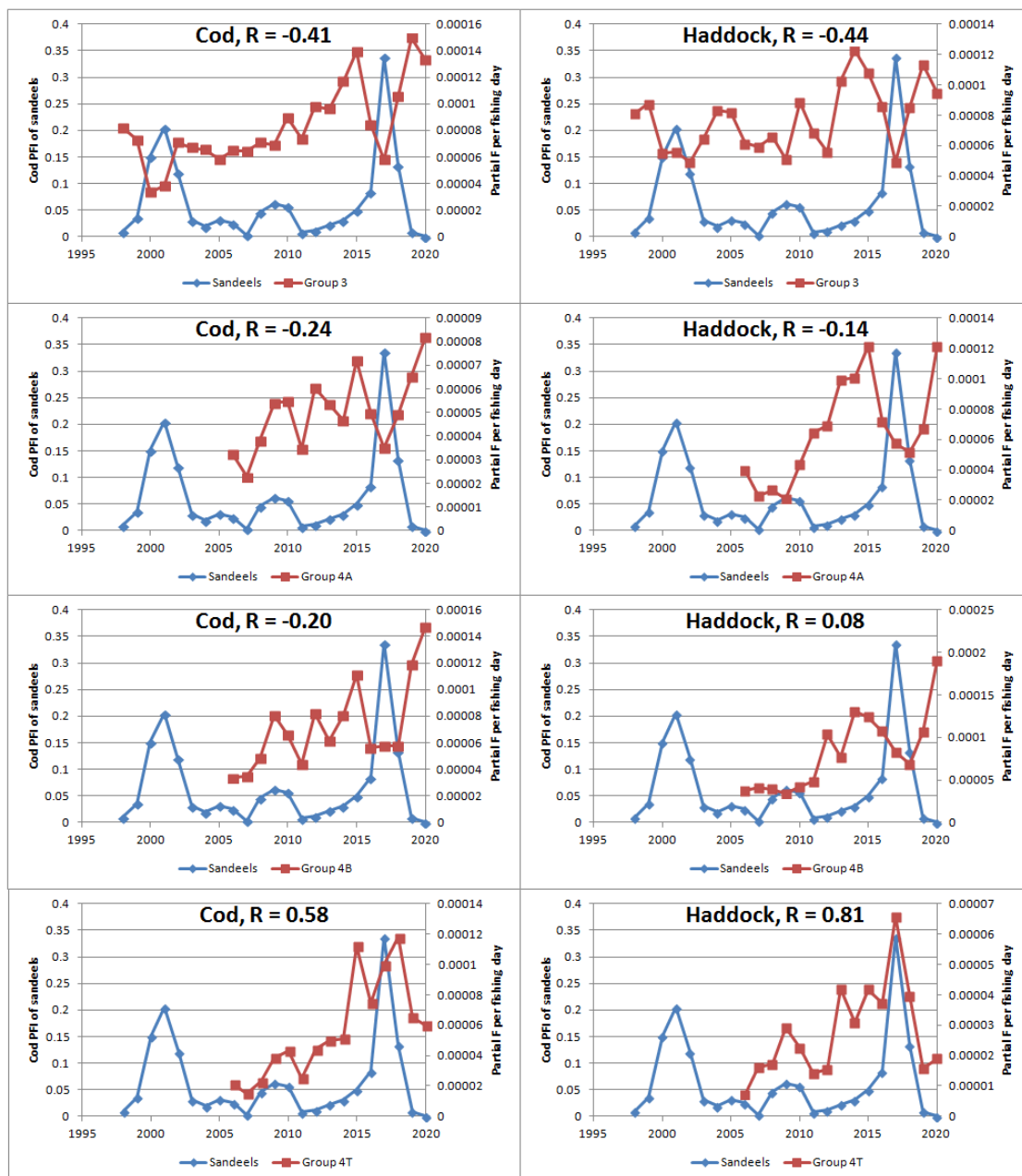


Figure 2.7. Partial F per fishing day of cod and haddock for large longliners (Group 3), medium-sized longliners (Group 4A) and small longliners (Group 4B) as well as small single trawlers (Group 4T). A comparison with sandeel abundance is made.

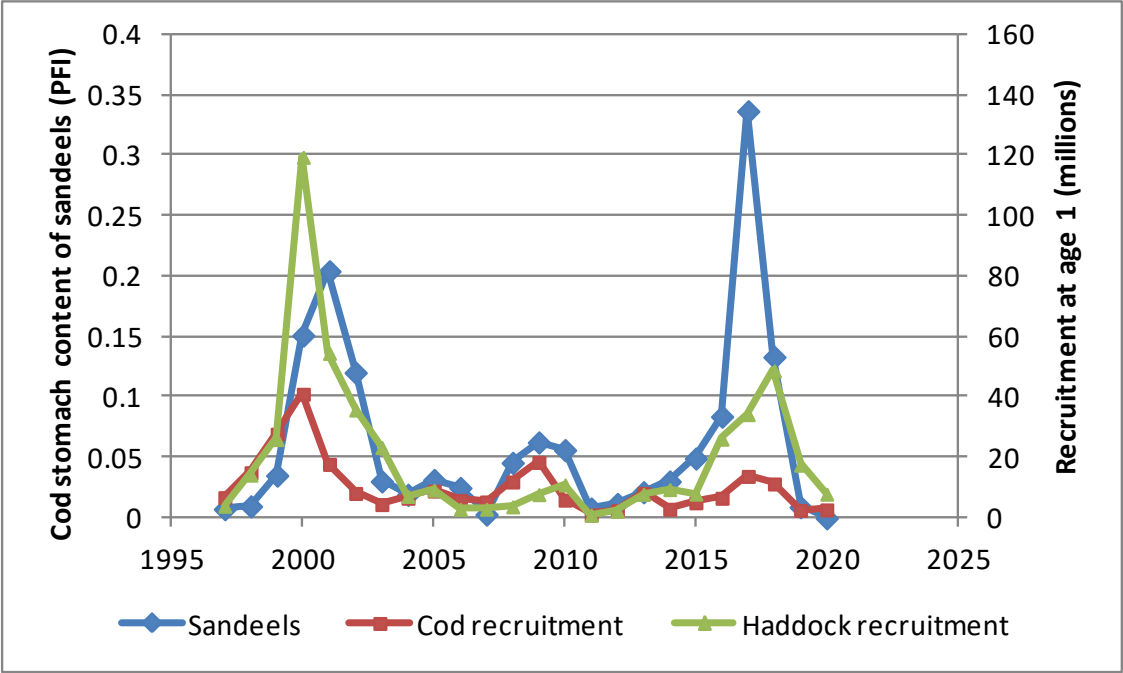


Figure 2.8. Sandeel abundance, as measured by cod stomach partial fullness index of sandeels, compared with the recruitment of cod and haddock.