

3 Faroe Bank Cod

Summary

- The total reported landings in 2011 were 358 tonnes the largest observed since 2007.
- The summer and spring index suggest the stock is well below average while there is no indication of strong incoming year classes.
- The exploitation ratio has sharply decreased since 2006 but increased in 2011 due to the increase in catches. Since 2009 it is estimated to levels comparable to those in the 1990's for both survey indices.

3.1 State of the stock – historical and compared to what is now.

Total nominal catches of the Faroe Bank cod from 1987 to 2011 as officially reported to ICES are given in Table 3.7.1 and since 1965 in Figure 3.7.1 UK catches reported to be taken on the Faroe Bank are all assumed to be taken on the Faroe Plateau and are therefore not used in the assessment. Landings have been highly variable from 1965 to the mid-1980s, reflecting the opportunistic nature of the cod fishery on the Bank, with peak landings slightly exceeding 5 000t in 1973 and 2003. The trend of landings has been smoother since 1987, declining from about 3 500t in 1987 to only 330 t in 1992 before increasing to 3 600t in 1997. In 2011 landings were estimated at 358t which is a three-fold increase with respect to 2010. (Figure 3.7.1). Longline fishing effort increased substantially in 2003 and although it decreased in 2004 and 2005 the latter remains the second highest fishing effort observed since 1988 (Figure 3.7.1). From 2005 to 2007 the effort has been reduced substantially. In the 2010-2011 and 2011-2012 fishing years a total of 61 and 100 fishing-days were allocated to the Bank.

The Faroese groundfish surveys (spring and summer) cover the Faroe Bank and cod is mainly taken within the 200 m depth contour. The catches of cod per trawl hour in depths shallower than 200 meter are shown in Figure 3.7.2.

The spring survey was initiated in 1983 and discontinued in 2004 and 2005. The summer survey has been carried out since 1996. The CPUE of the spring survey was low during 1988 to 1995 varying between 73 and 95 kg per tow. Although noisy, the survey suggests higher, possibly increasing biomass during 1995 - 2003. The 2012 index is estimated at 45 kg per tow, which is the lowest observed since 1993. The 2011 summer index is estimated at 59 kg per tow which is very close to the observed average since 2004. The agreement between the summer and spring index is good during 1996 to 2001 and since 2006, but they diverged in 2002 and 2003.

The figure of length distributions (figure 3.7.3 and figure 3.7.4) show in general good recruitment of 1 year old in the summer survey from 2000 – 2002 (lengths 26 – 45 cm), corresponding to good recruitment of 2 years old in the spring surveys from 2001 to 2003 (40 – 60 cm). The spring index shows poor recruitment from 2006 to 2012 reflecting the weak year classes observed in the summer survey since 2004.

The recruitment is estimated by simply counting the number of fish in length groups in the surveys. In the spring index, recruitment was estimated as total number of fish below 60 cm (2-year old) and in the summer index as number of fish below 45 cm (1-year old). According to the summer index the recruitment of 1 year old has been good from 2000 to 2003, while the recruitment has been relatively poor since 2004 (Figure 3.7.5) The spring recruitment index in 2012 shows no sign of incoming year

classes. Correlation between the spring and summer survey recruitment indices is fairly good ($r^2=0.84$)

Figure 3.7.6 shows a positive correlation between the survey indices and the landings in the same year, but the relationship between the summer survey and the landings deteriorates in 2003. The ratio of landings to the survey indices provides an exploitation ratio, which can be used as a proxy to relative changes in fishing mortality. For the summer survey, the results suggest that fishing mortality has been reasonably stable during 1996 to 2002, but that it increased steeply in 2003, consistent with the 160% increase in longline fishing days in that year (Figure 3.7.1). The exploitation ratio has decreased since 2006 but increased in 2011 due to the increase in catches.

3.2 Comparison with previous assessment and forecast

The status of the stock remains almost unchanged with respect to last year assessment. Both the spring and the summer indexes suggest the stock is well below average while there are no indications of incoming recruitment.

3.3 Management plans and evaluations (Could just be a reference to the year when the plan was agreed/evaluated. Include proposed/agreed management plan.)

None

3.4 Management considerations

The landing estimates are uncertain because since 1996 vessels are allowed to fish both on the Plateau and on Faroe Bank during the same trip, rendering landings from both areas uncertain. Given the relative size of the two fisheries, this is a bigger problem for Faroe Bank cod than for Faroe Plateau cod, but the magnitude remains unquantified for both. The ability to provide advice depends on the reliability of input data. If the cod landings from Faroe Bank are not known, it is difficult to provide advice. If the fishery management agency intends to manage the two fisheries to protect the productive capacity of each individual unit, then it is necessary to identify the catch removed from each stock. Simple measures should make it possible to identify if the catch is originating from the Bank or from the Plateau e.g. by storing in different section of the hold and/or by tagging of the different boxes.

Consistent with the advice given in 2011 the WG suggests the closure of the fishery until the recovery of the stock is confirmed. The reopening of the fishery should not be considered until both surveys indicate a biomass at or above the average that of the period 1996-2002.

3.5 Regulations and their effects

In 1990, the decreasing trends in cod landings from Faroe Bank lead ACFM to advise the Faroese authorities to close the bank to all fishing. This advice was followed for depths shallower than 200 meters. In 1992 and 1993 longliners and jiggers were allowed to participate in an experimental fishery inside the 200 meters depth contour. For the quota year 1 September 1995 to 31 August 1996 a fixed quota of 1 050 t was set. The new management regime with fishing days was introduced on 1 June 1996 allowing longliners and jiggers to fish inside the 200 m contour. The trawlers are allowed to fish outside the 200 m contour.

A total fishing ban during the spawning period (1 March to 1 May) has been enforced since 2005. In 2009 fishing was restricted to all fishing gears from 1 January to 31 August. In 2010 and 2011, however, a total of 61 and 100 fishing days were allowed to small longliners (<15 BRT) in the shallow waters of the Bank.

3.6 Changes in fishing technology and fishing patterns

None

3.7 Changes in the environment

None

Table 3.7.1. Faroe Bank (sub-division Vb2) cod. Nominal catches (tonnes) by countries 1986-2011 as officially reported to ICES. From 1992 the catches by Faroe Islands and Norway are used in the assessment.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Faroe Islands	1836	3409	2966	1270	289	297	122	264	717	561	2051	3459	3092
Norway	6	23	94	128	72	38	32	2	8	40	55	135	147
UK (E/W/Nl)	-	-	-	-	2 ²	1 ²	74 ²	186 ²	56 ²	43 ²	126 ³	61 ³	27 ³
UK (Scotland)	63 ³	47 ³	37 ³	14 ³	205 ³	90 ³	176 ³	118 ³	227 ³	551 ³	382 ³	277 ³	265 ³
Total	1905	3479	3097	1412	568	426	404	570	1008	1195	2614	3932	3531
Used in assessment					289	297	154	266	725	601	2106	3594	3239

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Faroe Islands	1001		1094	1840	5957	3607	1270	1005	471	231	81	111	381
Norway	88	49	51	25	72	18	37	10	7	1	4	1	
Greenland	-	-	-	-	-	-	-	-	-	-	-	5	
UK (E/W/Nl)	51 ³	18 ³	50 ³	42 ³	15 ³	15 ³	24 ³	1 ³					
UK (Scotland)	210 ³	245 ³	288 ³	218 ³	254 ³	244 ³	1129 ³	278 ³	53	32	38	54	
Total	1350	312	1483	2125	6298	3884	2460	1294	531	264	123	171	381
Correction of Faroese catches in Vb2			-65	-109	-353	-214	-75	-60	-28	-14	-5	-7	-23
Used in assessment	1089	1194	1080	1756	5676	3411	1232	955	450	218	80	105	358

* Preliminary

¹ Includes Vb1.

² Included in Vb1.

³ Reported as Vb.

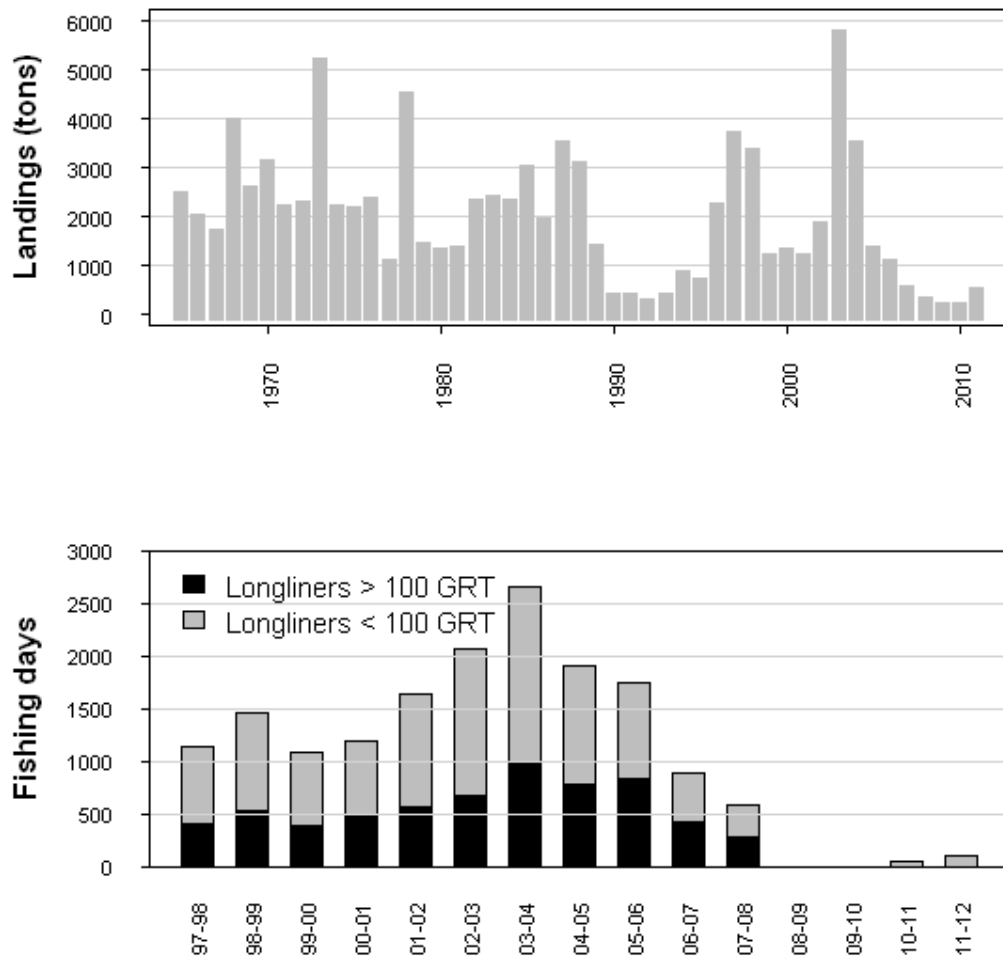


Figure 3.7.1. Faroe Bank (sub-division Vb2) cod. Reported landings 1965-2011. Since 1992 only catches from Faroese and Norwegian vessels are considered to be taken on Faroe Bank. Lower plot: fishing days (fishing year) 1997-2012 for long line gear type in the Faroe Bank.

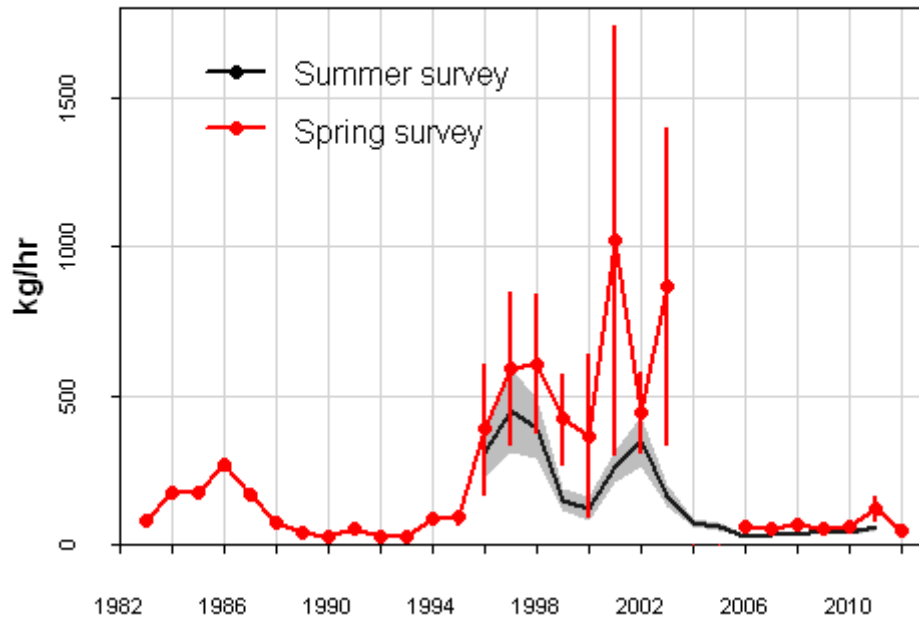


Figure 3.7.2. Faroe Bank (subdivision Vb2) cod. Catch per unit of effort in the spring groundfish survey (1983-2012) and summer survey (1996-2011). Vertical bars and shaded areas show the standard error in the estimation of indexes.

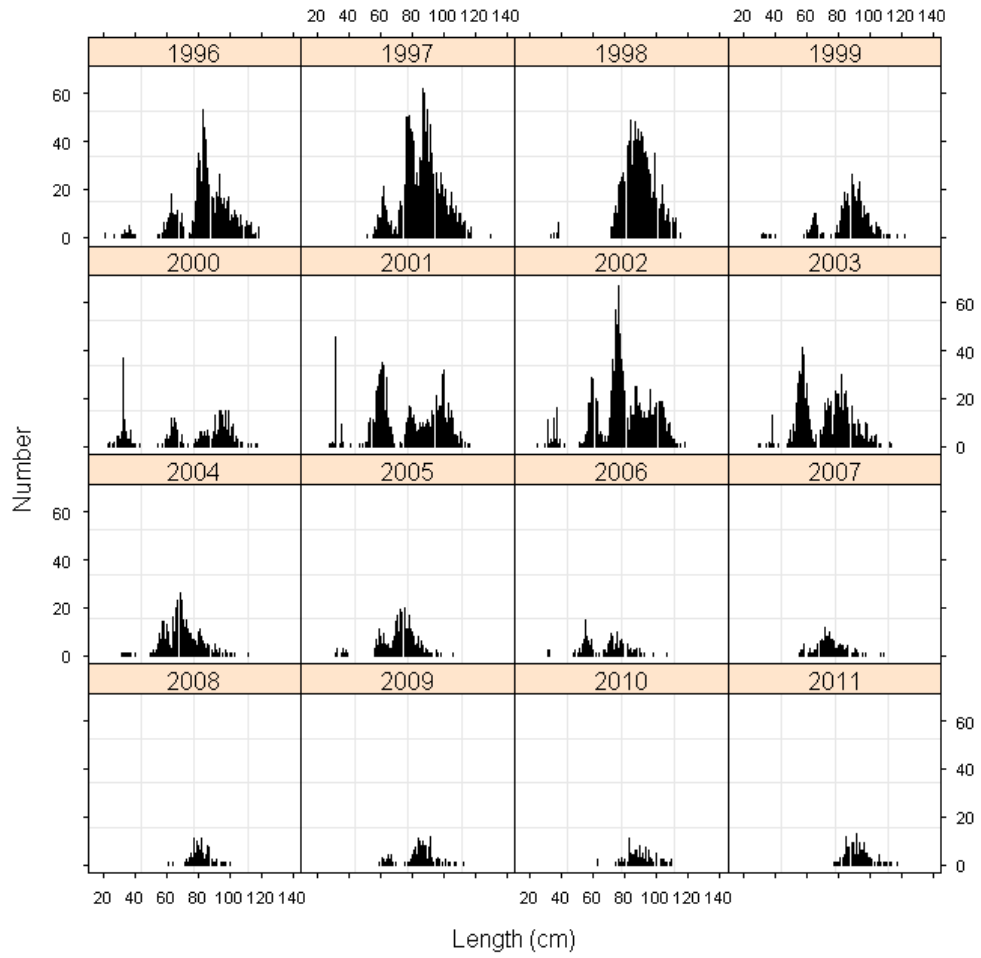


Figure 3.7.3. Faroe Bank (sub-division Vb2) cod. Length distributions in summer survey (1996-2011)

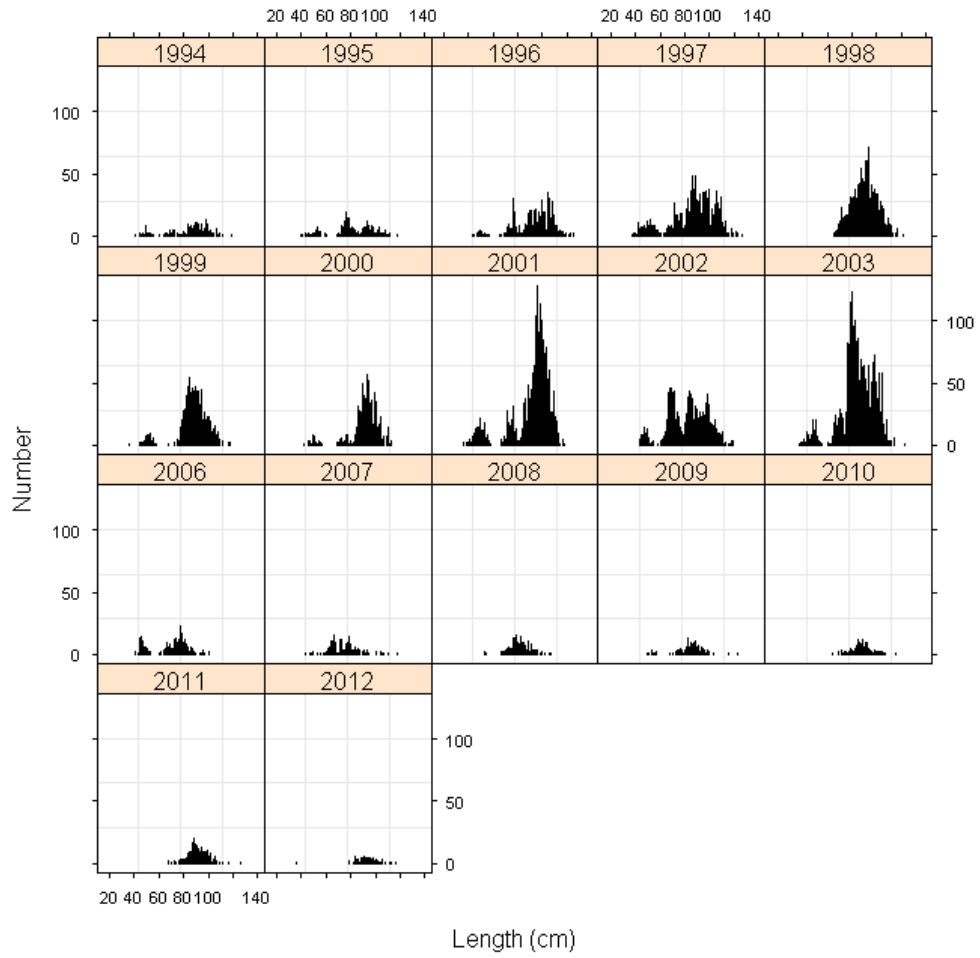


Figure 3.7.4. Faroe Bank (sub-division Vb2) cod. Length distributions in spring survey (1994-2003, 2006-2012)

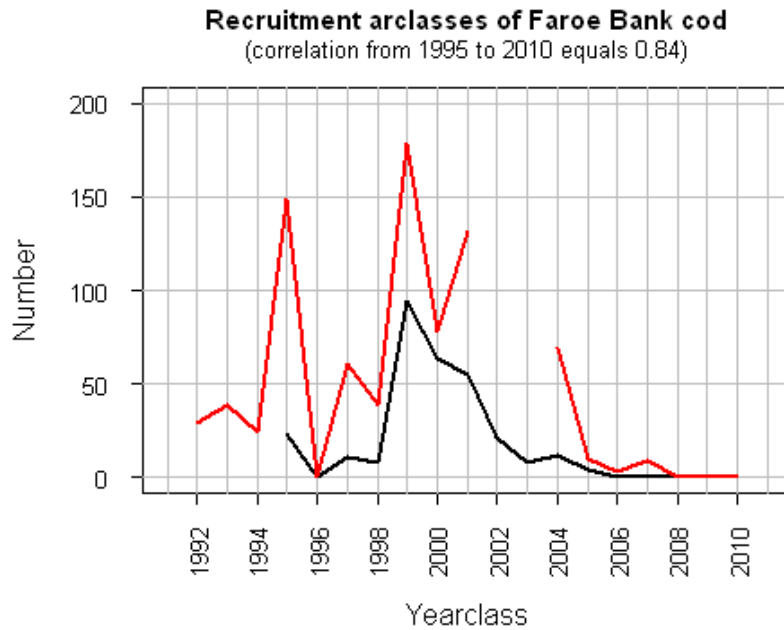


Figure 3.7.5. Faroe Bank (sub-division Vb2) cod. Correlation between recruitment year classes.

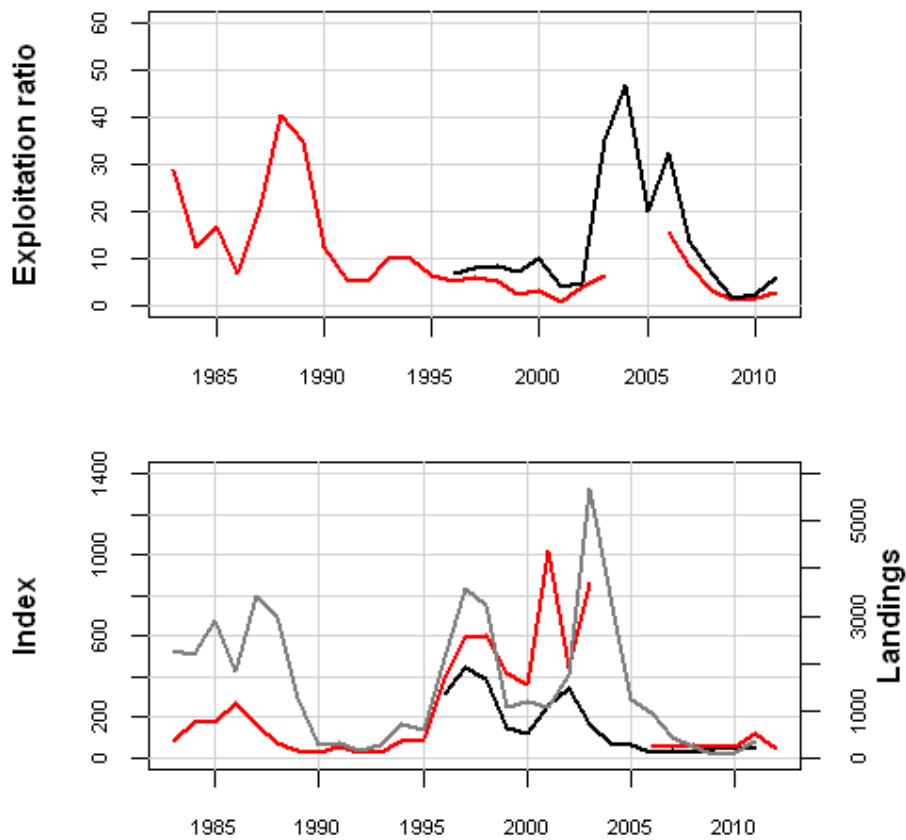


Figure 3.7.6. Faroe Bank (Subdivision Vb2) cod. Exploitation ratio (ratio of landings to survey interpreted as an index of exploitation rate). Lower plot: Landings and cpue (kg/hr) in spring and summer survey.