

3 Faroe Bank cod

3.1 State of the stock

Total nominal catches of the Faroe Bank cod from 2002 to 2018 as officially reported to ICES are given in Table 3.1 and since 1965 in Figure 3.1. 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 5000 t in 1973 and 2003. The trend of landings has been smoother since 1987, declining from about 3500 t in 1987 to only 330 t in 1992 before increasing to 3600 t in 1997. Landings have declined sharply from a peak of almost 6000 t. in 2004 to 31 in 2018. (Figure 3.1). 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 3.1). Since 2005–2007 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 3.2.

Spring survey was initiated in 1983 and discontinued in 1996, 2004 and 2005. Summer survey has been carried out since 1996. The CPUE of spring survey was low during 1988–1995 varying between 73 and 95 kg per tow. Although noisy, the survey suggests higher, possibly increasing biomass during 1995–2003 and in 2013 and 2014 but it decreased rapidly in 2015 and 2016. Survey stock estimates since 2016 do not indicate a substantial change in the perception of the stock status. The summer index was high from 1996 to 2003 but declined substantially in 2004 and it has remained at low levels since then. There are conflicting signals between both indices from 2013 to 2014. The agreement between summer and spring index is good during 1996 to 2001, but they diverged in the 2002–2003 and 2013–2014 periods. Both indices have remained well below average since 2004.

The figure of length distributions (figures 3.3 and 3.5) show in general good recruitment of 1 year old in summer survey from 2000–2002 (lengths 26–45 cm), corresponding to good recruitment of 2 years old in spring surveys from 2001 to 2003 (40–60 cm). The spring index shows poor recruitment from 2006–2019 reflecting the weak year classes observed in summer survey since 2004. Length composition shows relatively high numbers of individuals in the 80–100 cm range. Age-disaggregated indices confirm the pattern observed in the length composition (Figure 3.4 and Figure 3.6)

A way to estimate recruitment strength is by simply counting the number of fish in length groups in the surveys. In spring index, recruitment was estimated as total number of fish below 60 cm (2-year old) and in summer index as number of fish below 45 cm (1-year old). According to the summer index the recruitment of 1 year old was good from 2000 to 2003, while the recruitment has been relatively poor since 2004 (Figure 3.7). Spring recruitment index in 2015 was the highest since 2005. Correlation between spring and summer survey recruitment indices is fairly good ($r = 0.86$). Correlation between numbers of 1-year and 2-years old cod in the age-disaggregated summer and spring surveys respectively is estimated at $r = 0.79$.

Surplus production models have been run from 2014 to 2016. 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 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 3.8). The exploitation ratio has decreased since 2006 but increased in 2011 and 2016 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's assessment. Both spring and summer indices suggest the stock is well below average while there are no indications of incoming recruitment. The spring index suggested an increasing stock biomass from 2013–2014 which it was however not confirmed by the summer index.

3.3 Management plans and evaluations

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 in 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 2016 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

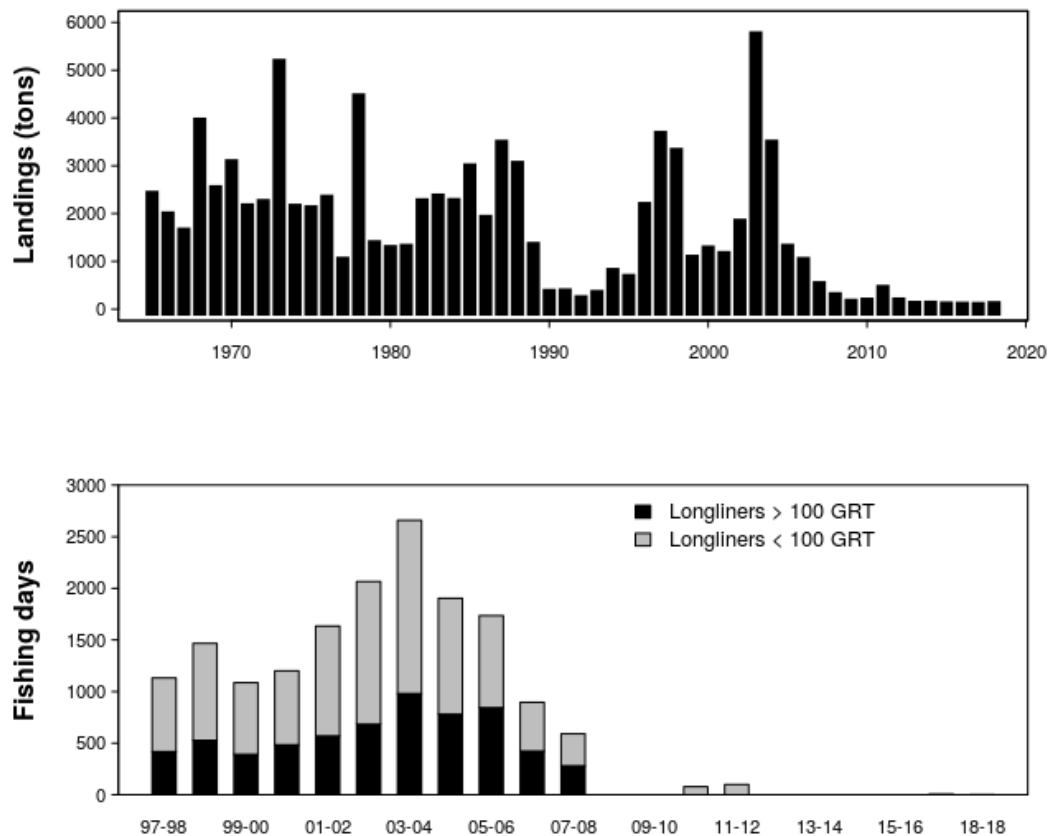
In 1990, the decreasing trends in cod landings from Faroe Bank lead ACFM to advise the Faroese authorities to close the bank to all fishing. This advice was followed for depths shallower than 200 meters. In 1992 and 1993, longliners and jiggers were allowed to participate in an experimental fishery inside the 200 meters depth contour. For the quota year 1 September 1995 to 31 August 1996 a fixed quota of 1050 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–1 May) has been enforced since 2005. In 2009, fishing was restricted to all fishing gears from 1 January–31 August. However, in the 2010/2011 and 2011/2012 fishing years a total of 61 and 100 fishing-days were allocated to the Bank to jiggers in the shallow waters of the Bank. Since 2009 the number of fishing days allocated to the Bank has been negligible.

Table 3.1. Faroe Bank (subdivision Vb2) cod. Nominal catches (tonnes) by countries 2002–2018 as officially reported to ICES. From 1992 the catches by Faroe Islands and Norway are used in the assessment.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Faroe Islands	1840	5957	3607	1270	1005	471	231	81	111	393	115	40	40	26	19	14	33 [*]
Norway	25	72	18	37	10	7	1	4	1		0		1	0	1	1	
France															3		
Greenland	-	-	-	-	-	-	-	-	5		1						
UK (E/W/NI)	42 ⁵	15 ⁵	15 ⁵	24 ⁵	1 ⁵												
UK (Scotland)	218 ⁵	254 ⁵	244 ⁵	1129 ⁵	278 ⁵	53	32	38	54				45 ⁴	16 ⁴	60 ⁴	404 ^{3,4}	
Total	2125	6298	3884	2460	1294	531	264	123	171	393	116	40	86	42	83	419	33
Correction of Faroese catches in Vb2	-109	-353	-214	-75	-60	-28	-14	-5	-7	-23	-7	-2	-2	-2	-1	-1	-2
Used in assessment	1756	5676	3411	1232	955	450	218	80	105	370	108	38	39	24	19	14	31

^{*} Preliminary
⁵ Included in Vb1.
³ Reported as Vb.
⁴ Reported as GB



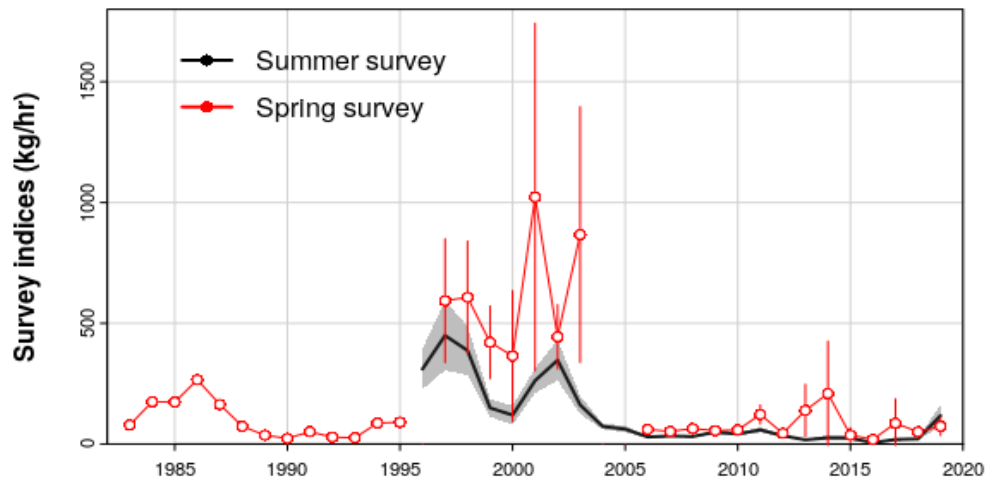


Figure 3.2. Faroe Bank (subdivision Vb2) cod. Catch per unit of effort in spring groundfish survey (1983–2019)(red line) and summer survey (1996–2019)(black line). Vertical bars and shaded areas show the standard error in the estimation of indices.

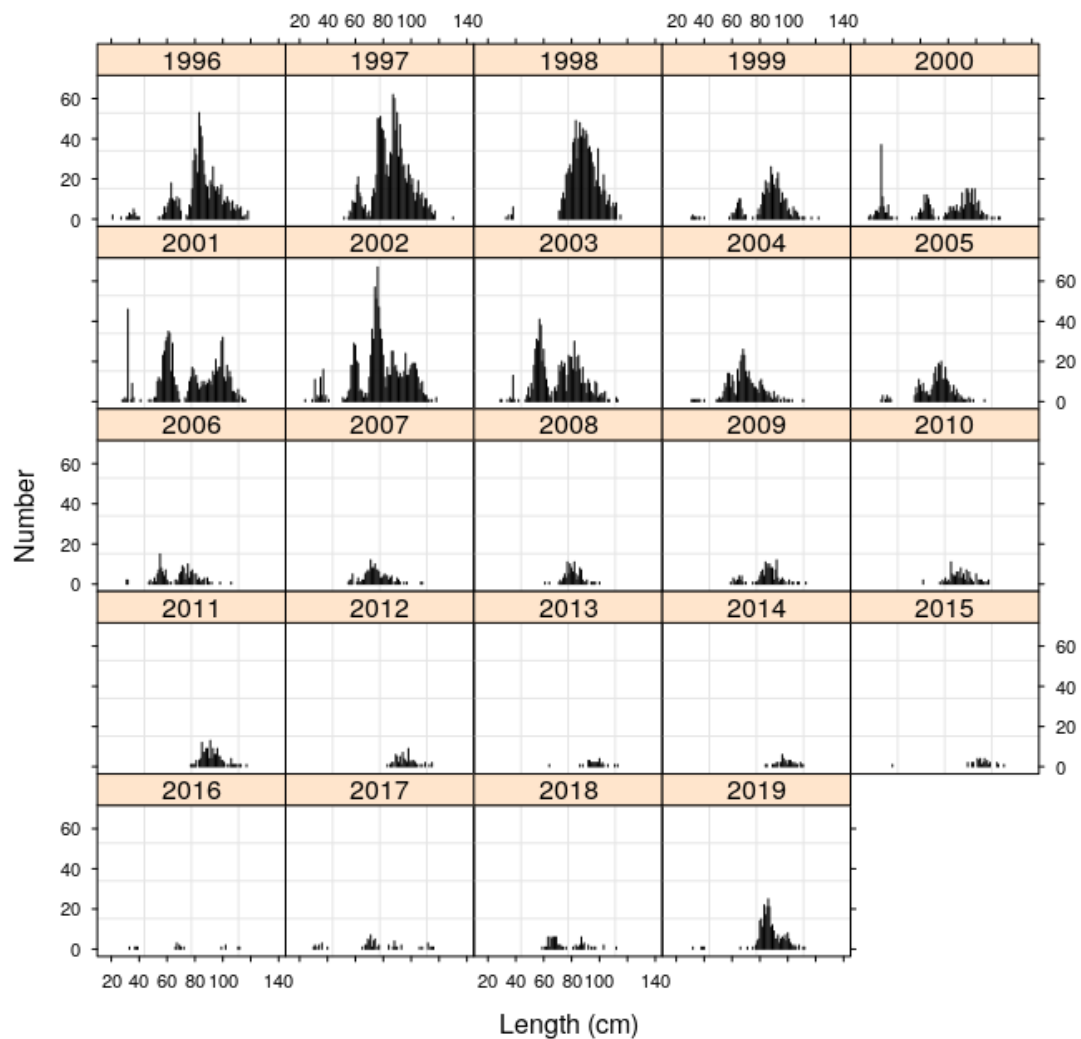


Figure 3.3. Faroe Bank (subdivision Vb2) cod. Length distributions in summer survey (1996–2019)

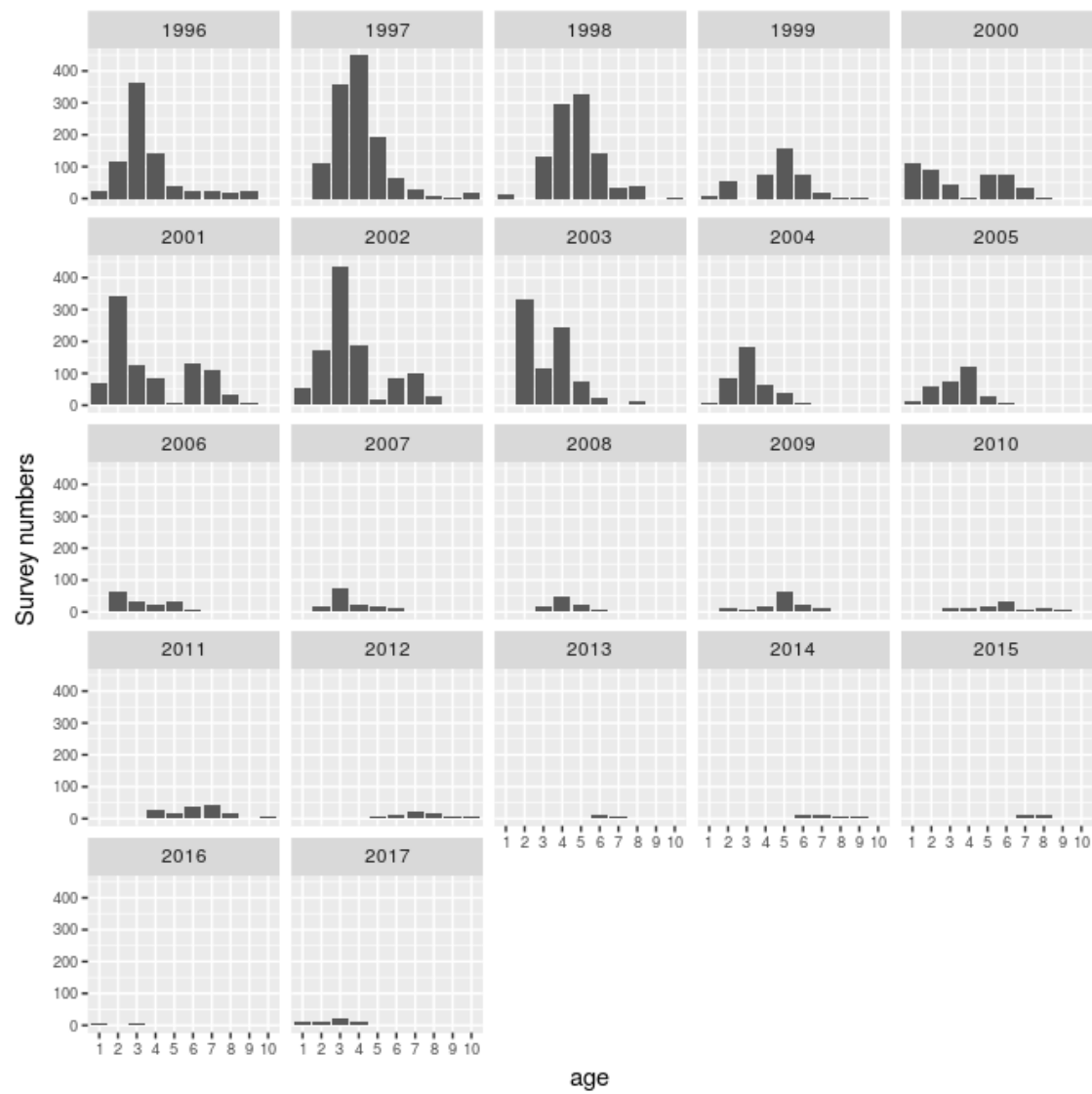


Figure 3.4. Faroe Bank (subdivision Vb2) cod. Age-disaggregated indices in summer survey (ages 1–10)(1996–2017)

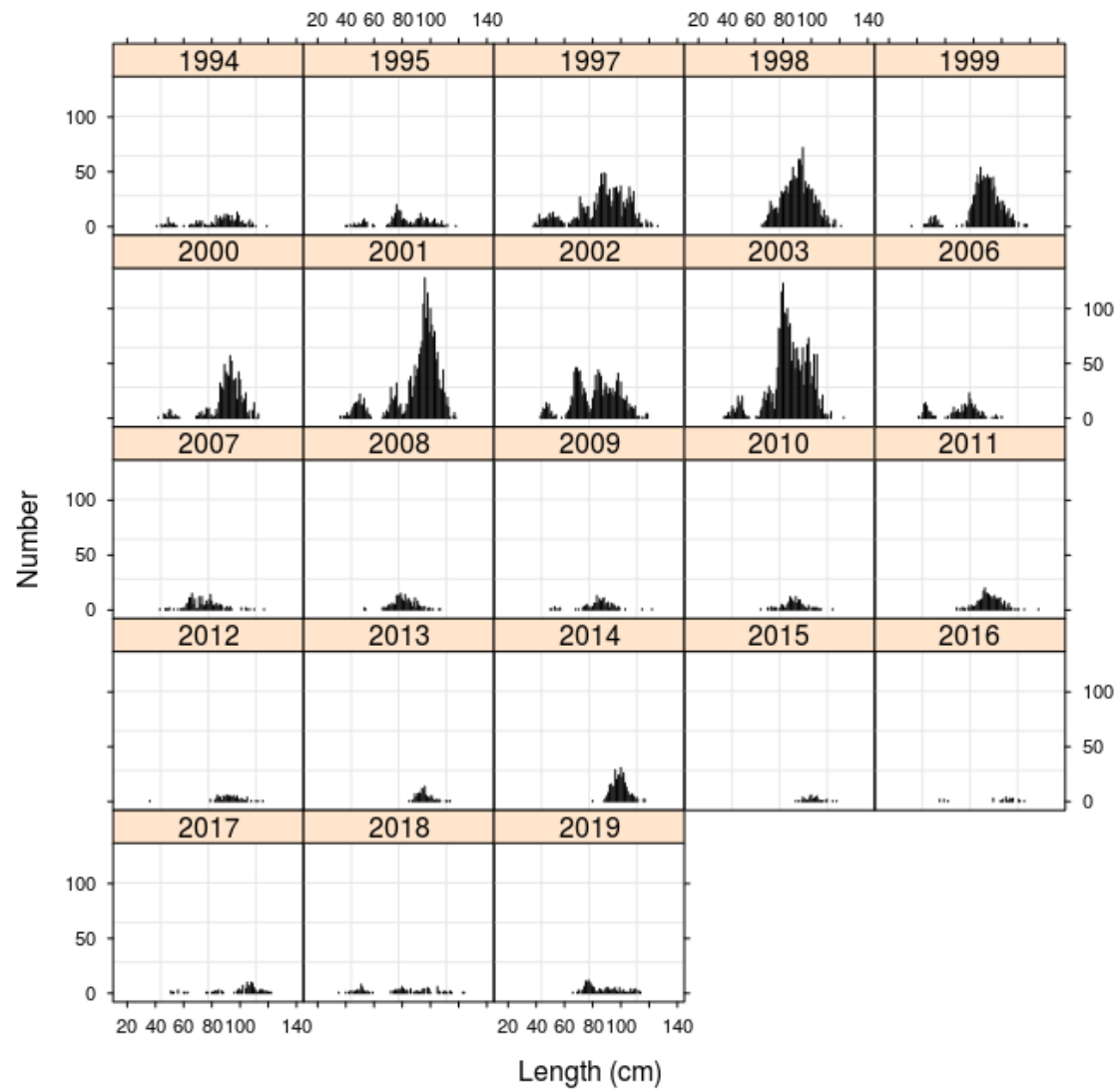


Figure 3.5. Faroe Bank (subdivision Vb2) cod. Length distributions in spring survey (1994–2018). No surveys were conducted in 1996, 2004 and 2005.

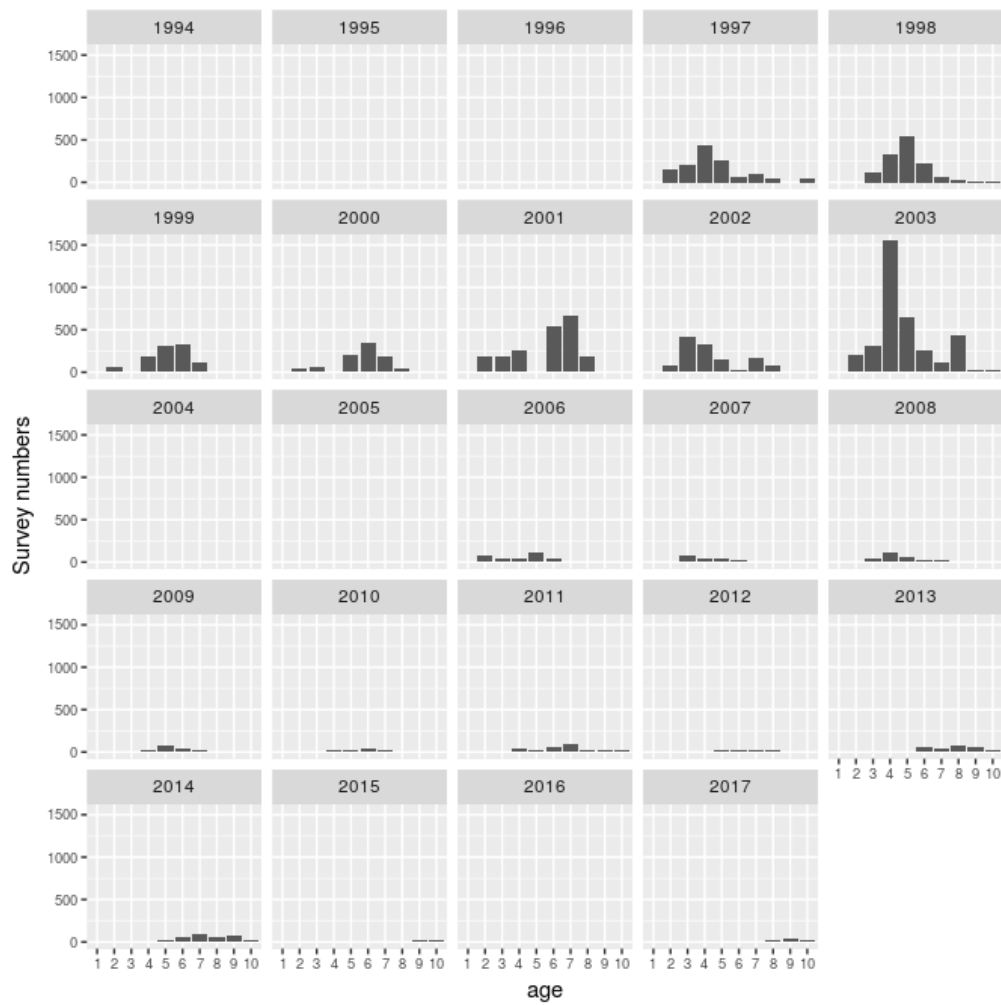


Figure 3.6. Faroe Bank (subdivision Vb2) cod. Age-disaggregated indices in spring survey (ages 1–10) (1994–2015). No surveys were conducted in 1996, 2004 and 2005.

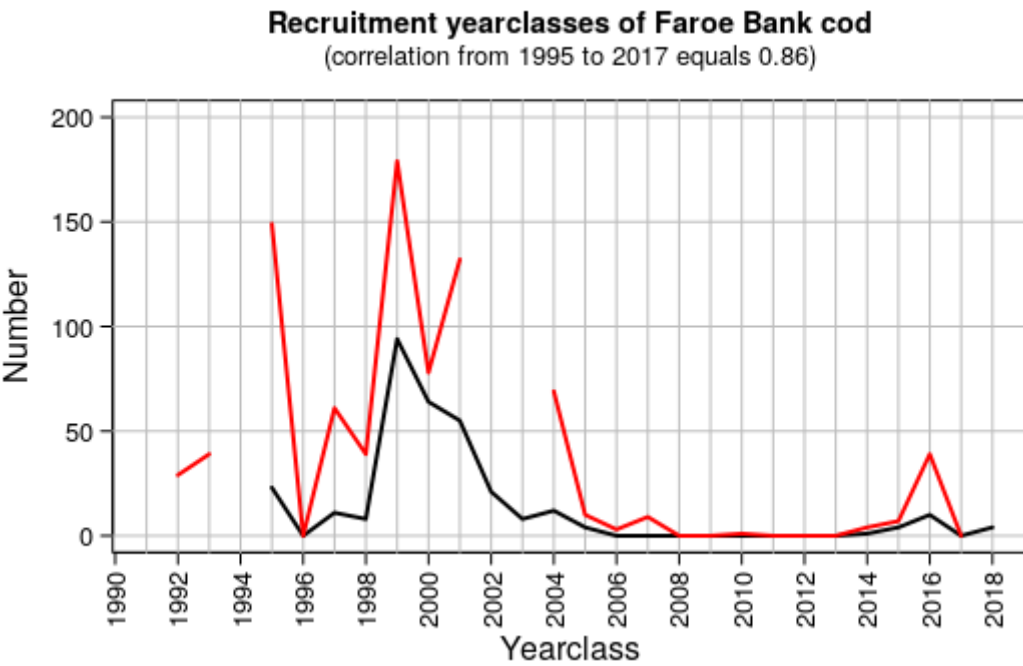


Figure 3.7. Faroe Bank (subdivision Vb2) cod. Correlation between recruitment year classes in both survey indices.

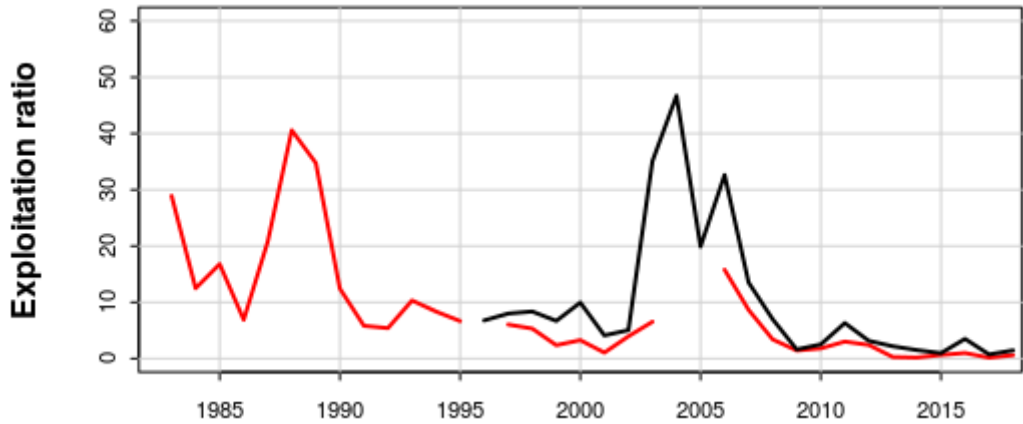


Figure 3.8. Faroe Bank (subdivision Vb2) cod. Exploitation ratios, ratio of spring index to landings (red line) and ratio of summer index to landings (black line).