

NORWAY REDFISH – LITLI KARFI

Sebastes viviparus

GENERAL INFORMATION

Norway redfish (*Sebastes viviparus*) is the smallest of the three redfish species found in Icelandic waters, rarely reaching length over 30 cm. Norway redfish is distributed around Iceland with the highest densities along the south and southwest coast of Iceland at depths ranging from 40 to 300 m. Little is known about the biology of the species but as with other redfish species in Icelandic waters, the Norway redfish is slow-growing and long-lived.

THE FISHERY

A directed fishery for Norway redfish started in 1997 with a catch of 1200 t (Figure 1). The catches declined rapidly until 2000, and between 2001 and 2009 only a few tonnes were landed. In 2010, a directed fishery started again with total landings of 2600 t. Landings have since then declined and were in 2016 the lowest since 2010. Norway redfish in Icelandic waters is caught by demersal trawls.

The main fishing grounds for Norway redfish are south-east and south of Iceland, and small portion is taken along the Reykjanes-ridge (Figures 2 and 3).

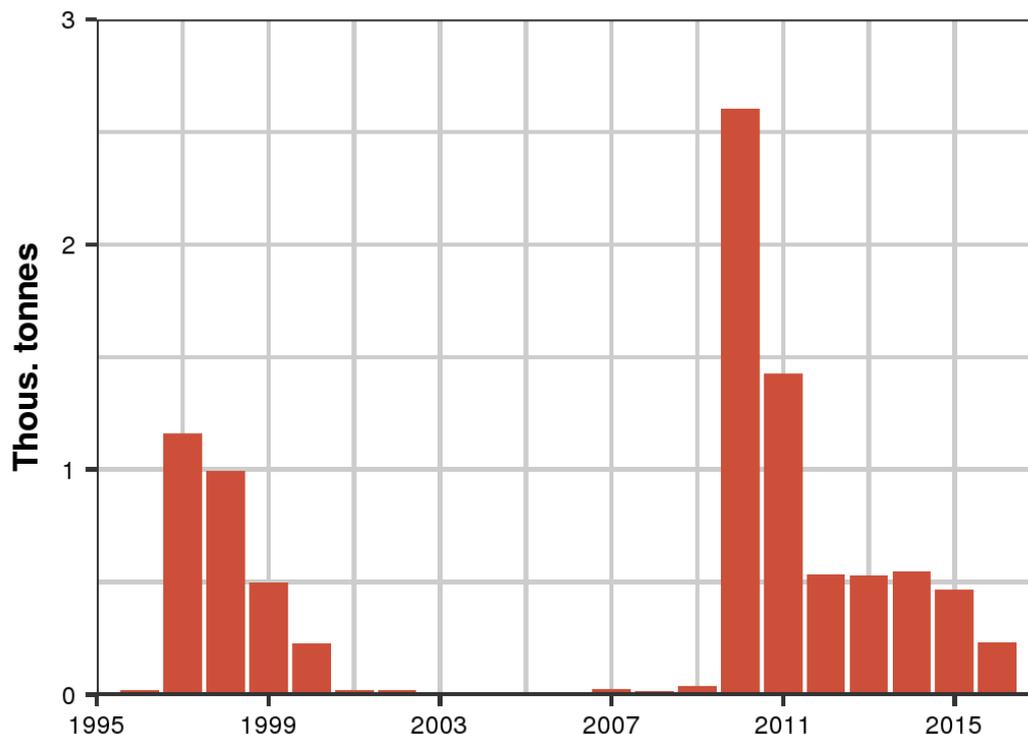


Figure 1. Norway redfish. Landings 1996-2016.
Mynd 1. Litli karfi. Afli 1996-2016.

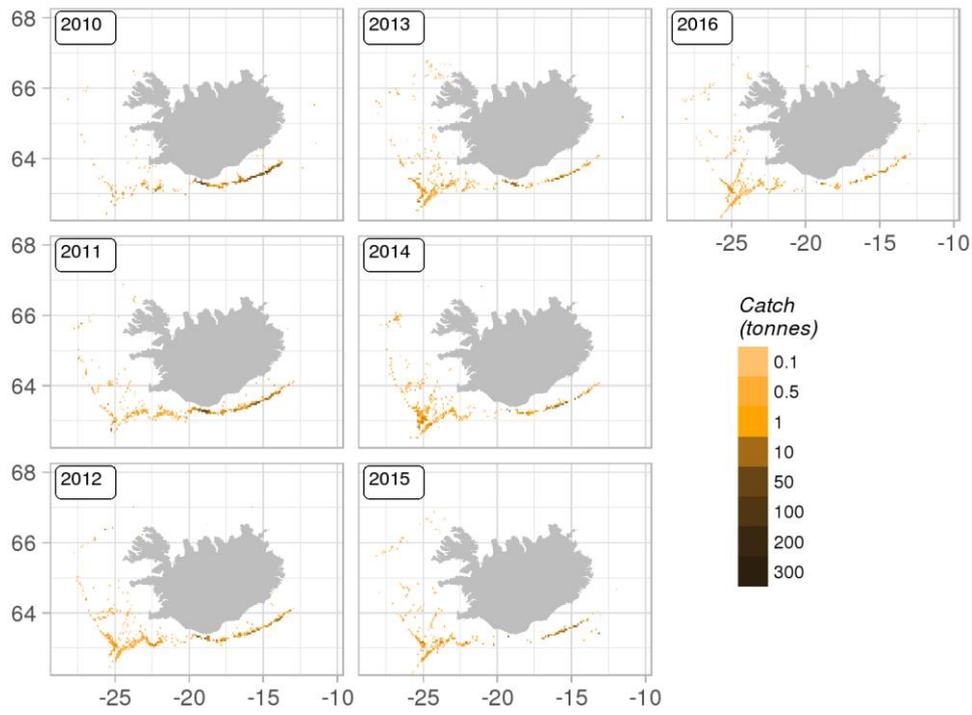


Figure 2. Norway redfish. Geographical distribution of the Icelandic fishery 2010-2016. Reported catch from logbooks.
Mynd 2. Litli karfi. Útbreiðsla veiða á Íslandsmiðum frá 2010 samkvæmt afladagbókum.

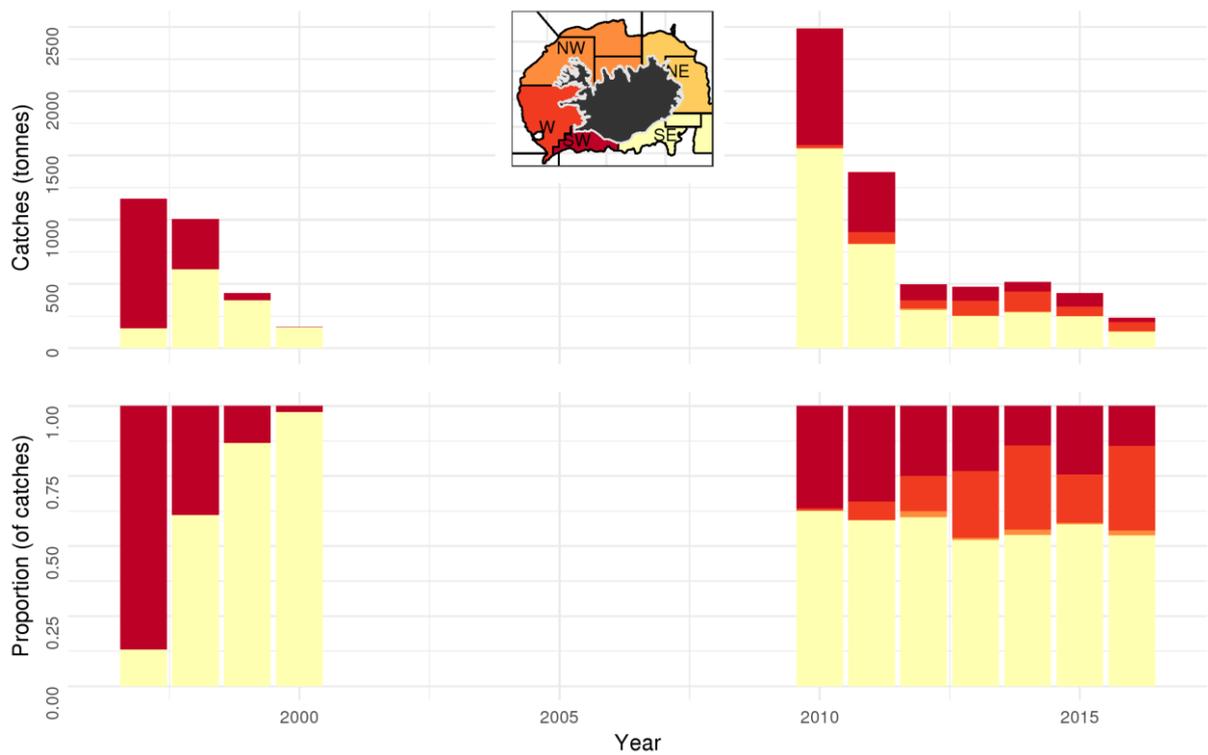


Figure 3. Norway redfish. Spatial distribution of the Icelandic fishery by fishing area from 1997-2016. All gears combined.
Mynd 3. Litli karfi. Útbreiðsla veiða á íslensku veiðisvæði árin 1997-2016. Öll veiðarfæri samanlagt.

Norway redfish is mainly caught at depths between 100-300 m, but in some years it is caught at depths greater than 300 m (Figure 4).

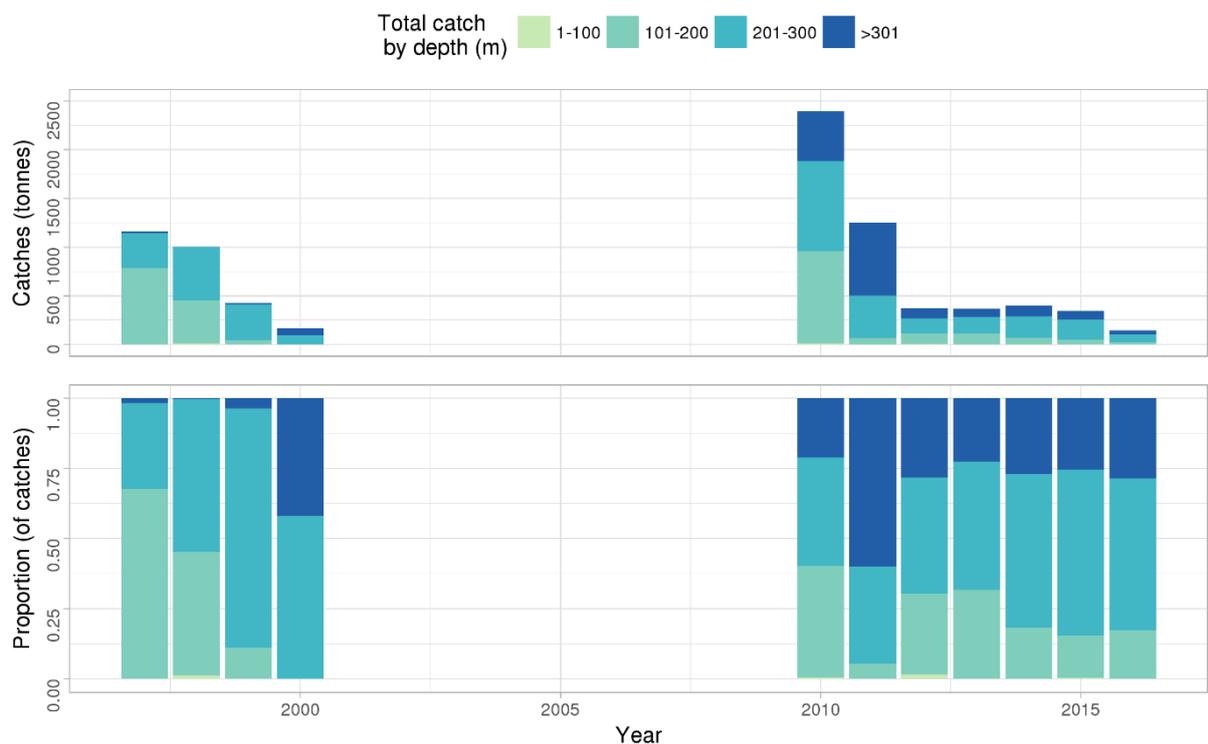


Figure 4. Norway redfish. Depth distribution of demersal trawl catches according to logbooks.

Mynd 4. Litli karfi. Afli í botnvörpu samkvæmt aflagabókum, skipt eftir dýpi.

Table 1. Norway redfish. Number of Icelandic trawlers landing catch of 1000 kg or more of redfish, and all landed catch.

Tafla 1. Litli karfi. Fjöldi íslenskra togara sem landað hafa yfir 1000 kg af karfa og allur landaður afli.

YEAR	NUMBER OF VESSELS	CATCHES (TONNES)
	<i>Demersal trawlers</i>	<i>Demersal trawl</i>
2000	3	165
2001	2	16
2002	2	4
2003	-	-
2004	-	-
2005	-	-
2006	-	-
2007	-	-
2008	1	2
2009	4	35
2010	23	2487
2011	21	1376
2012	21	497
2013	18	479
2014	14	514
2015	13	429
2016	12	236

CATCH PER UNIT EFFORT (CPUE) AND EFFORT.

CPUE estimates of Norway redfish in Icelandic waters are not considered representative of stock abundance as changes in fleet composition, technical improvements and differences in gear setup among other things have not been accounted for when estimating CPUE.

Non-standardised estimates of CPUE in demersal trawl (kg/h), in hauls where redfish was more than 10% of the catch decreased from about 2700 kg/h to 1200 kg/h in 1997-2000 (Figure 5). In 2010, when the fishery commenced again, CPUE was about 1300 kg/h but decreased and has in recent five years fluctuated between 500-800 kg/h.

Total fishing effort (number of towing hours where redfish was 10% or more of total catch) in demersal trawl decreased between 1997 and 2000, but increased rapidly in 2010 when target fishery started again. In the last five years fishing effort has steadily decreases (Figure 5).

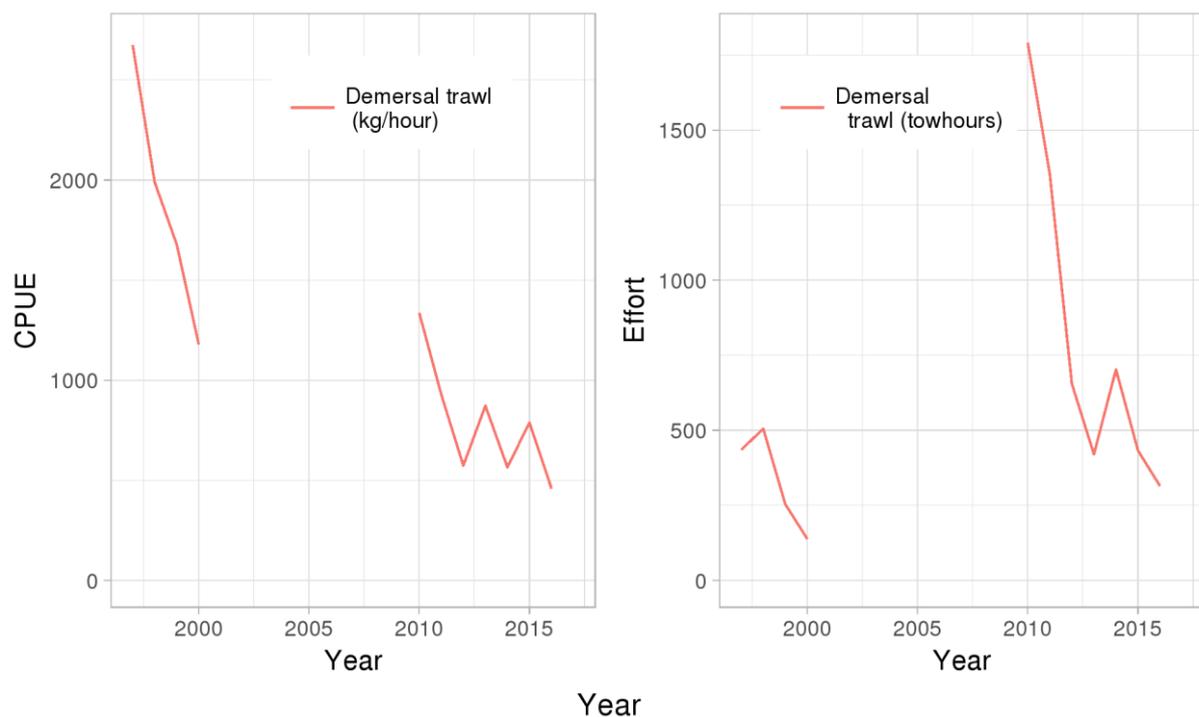


Figure 5. Norway redfish. Non-standardised estimates of CPUE (left) and fishing effort (right) from demersal trawl (kg/hour or towhours).

Mynd 5. Litli karfi. Afli á sóknareiningu (vinstri) og sókn (hægri) með botnvörpu (kg/klst eða tog tímar).

SURVEY DATA

The Icelandic spring groundfish survey (IS-SMB), which has been conducted annually in March since 1985, covers the entire fishing grounds of Norway redfish in Icelandic waters.

Figure 6 shows the total biomass and recruitment indices (fish smaller than 15 cm) of Norway redfish in the spring survey with ± 1 standard deviation in the estimate (68% confidence interval).

The IS-SMB index has increased rapidly since 2011 and was in 2016 and 2017 the highest recorded and more than three times higher than in 2000. The survey indices in recent years are often largely dominated by few large hauls, causing high variance in the survey indices.

The juvenile abundance index for individuals smaller than 15 cm in the IS-SMB indicates stronger recruitment in 2003-2012 compared to other years (Figure 6).

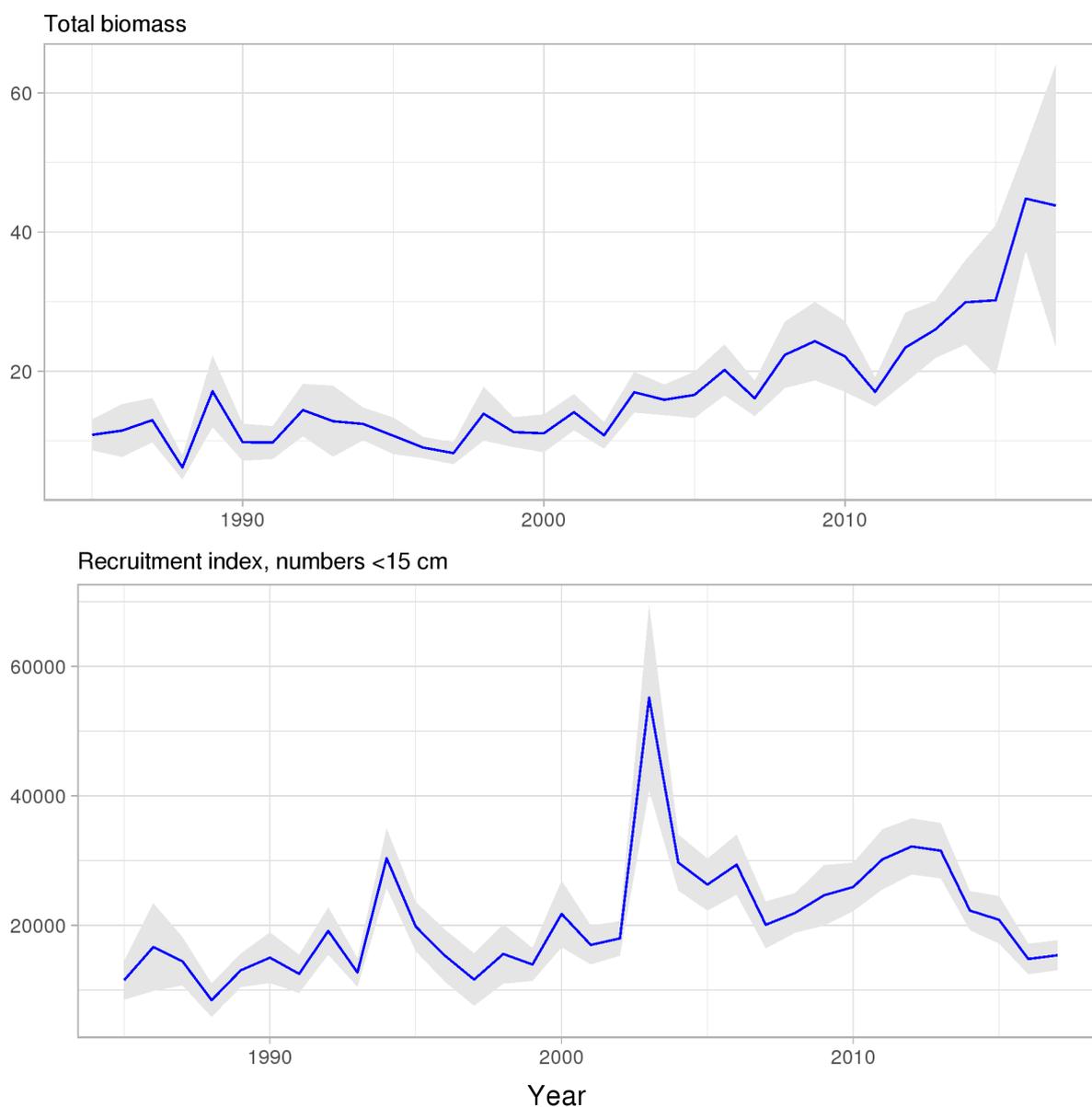


Figure 6. Norway redfish total biomass indices (above) and juvenile abundance indices (<15cm) (lower) from the spring survey (blue) from 1985, along with the standard deviation.

Mynd 6. Stofnvísitala litla karfa (efri) and nýliðunarvísitala (15 cm og minni, neðri) úr stofnmælingu botnfiska að vori (blátt) frá árinu 1985, ásamt staðalfráviki.

Length distributions from IS-SMB shows that the modes are between 20 and 25 cm (Figure 7). The increased abundance of fish smaller than 15 cm can be observed in 2003–2012 in the IS-SMB (Figure 7) and this fish has contributed to increased stocks size of Norway redfish since 2008.

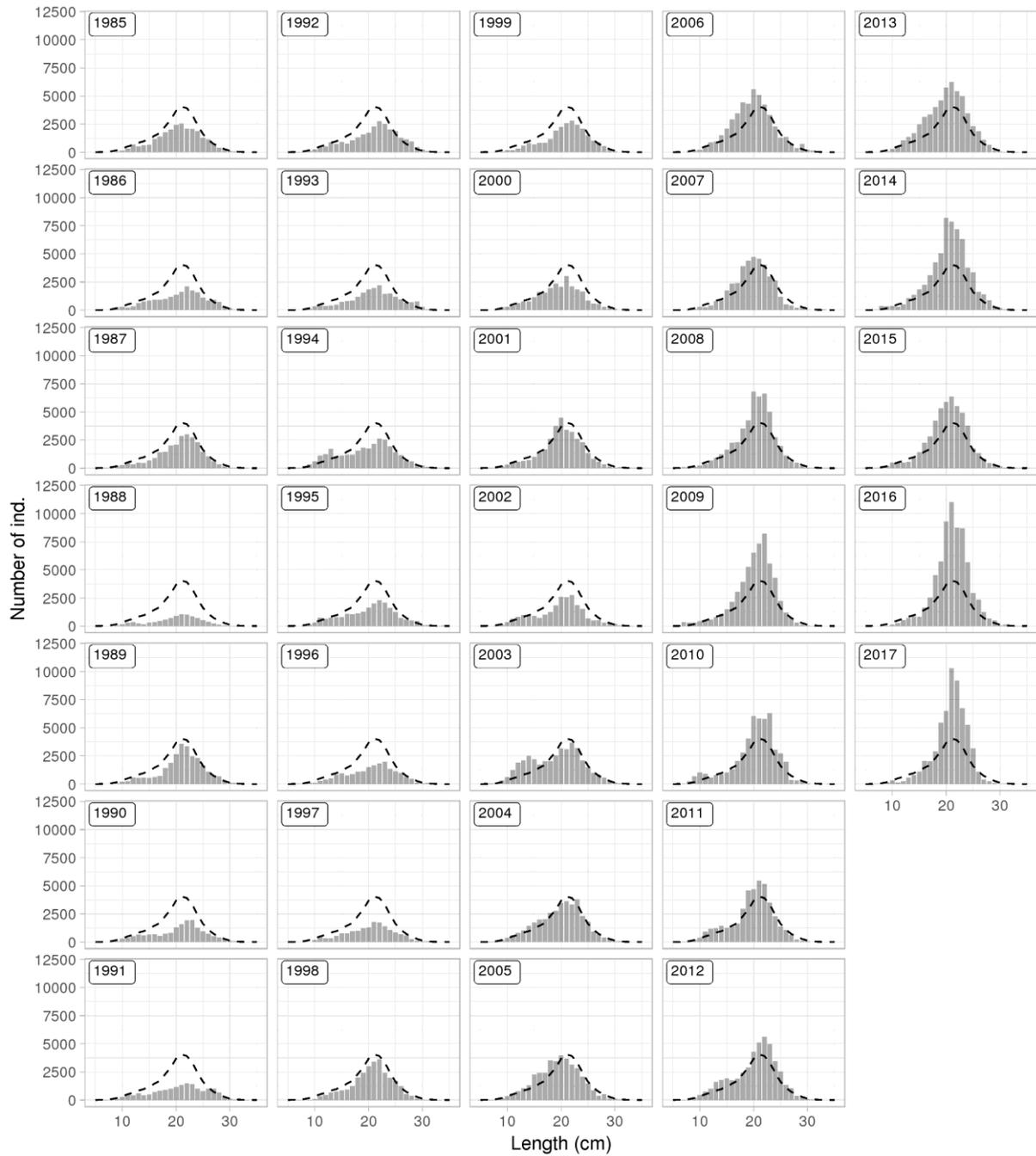


Figure 7. Norway redfish. Length distribution from the spring survey. The dotted line shows mean length for all years combined.

Mynd 7. Litli karfi. Lengdardreifing úr stofnmælingu botnfiska að vori frá 1985 ásamt meðallengd allra ára (punktalína).

Norway redfish in IS-SMB is found all around Iceland but is most abundant along the south and south-west of Iceland (Figures 8 and 9). In recent years, however, the abundance in the W area has increased gradually and majority of the Norway redfish biomass in the last two years was in this particular area.

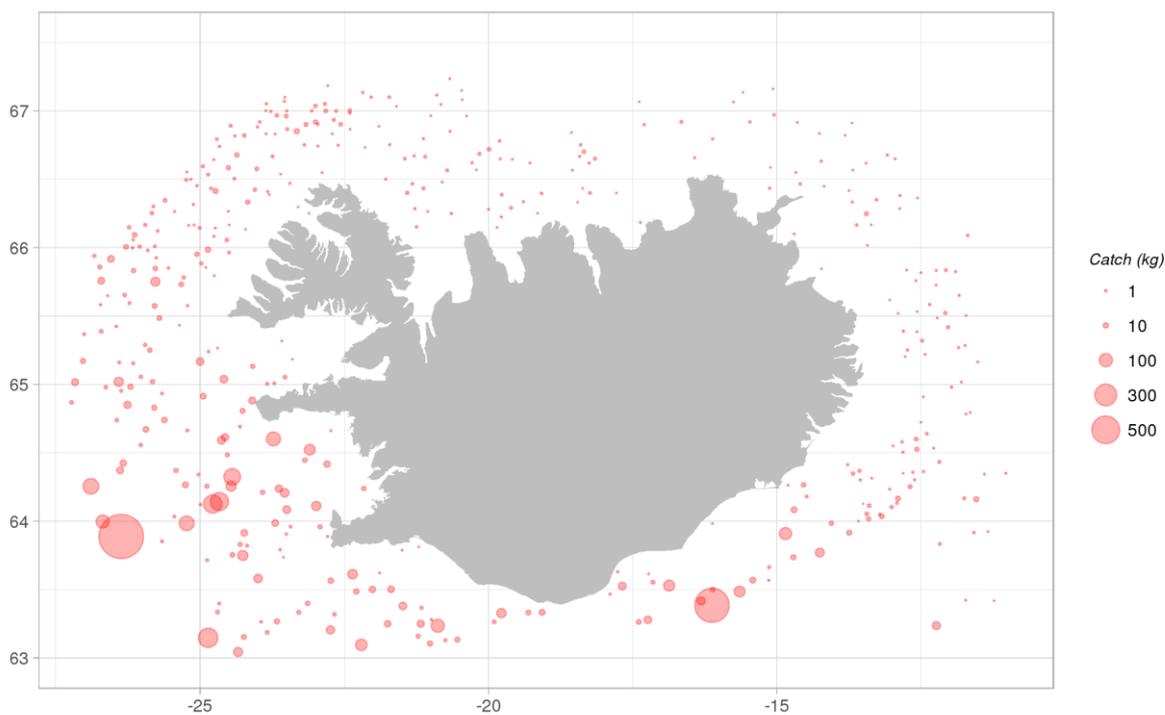


Figure 8. Norway redfish. Spatial distribution in the spring survey in 2017.
Mynd 8. Litli karfi. Útbreiðsla í stofnmælingu botnfiska að vori 2017.

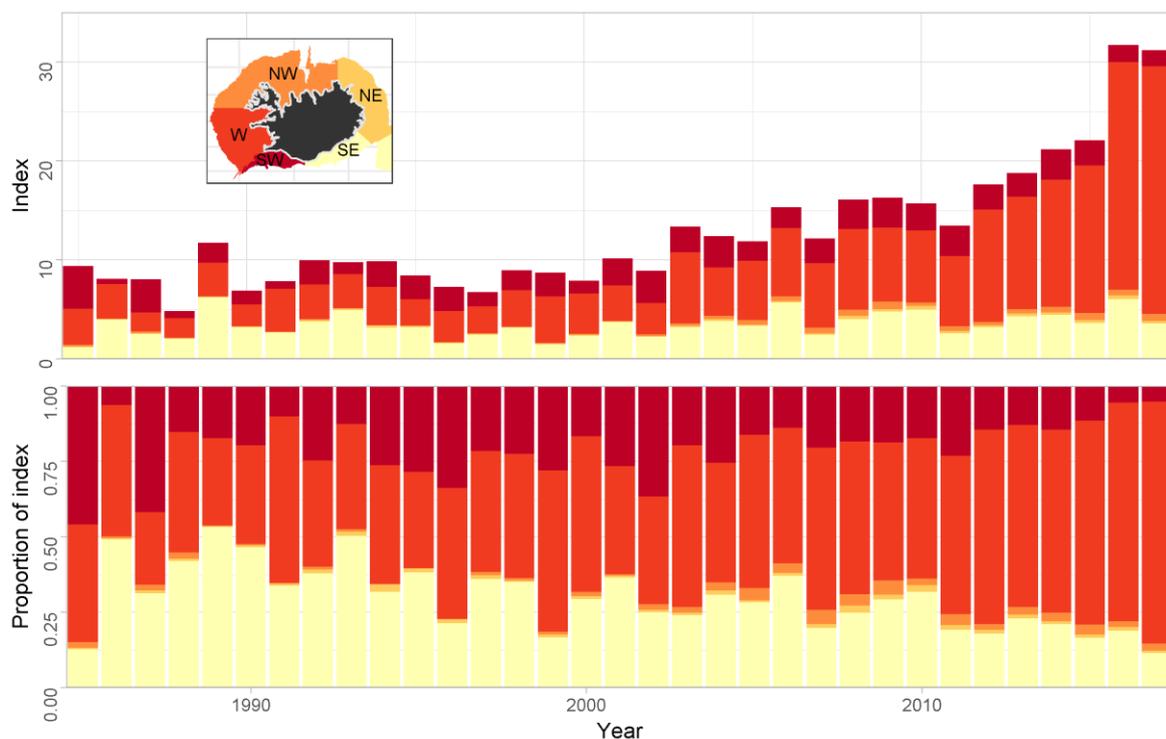


Figure 9. Norway redfish. Spatial distribution of the index from the spring survey in 1985-2017.
Mynd 9. Litli karfi. Dreifing vísitölu í stofnmælingu botnfiska að vori, árin 1985-2017.

MANAGEMENT

There is no management plan for Norway redfish in Icelandic waters.

ADVICE

MFRI advises that when the precautionary approach is applied, catches in the fishing year 2017/2018 should be no more than 1500 tonnes.