

NORWAY REDFISH – LITLI KARFI

Sebastes viviparus

GENERAL INFORMATION

Norway redfish (*Sebastes viviparus*) is the smallest of the three *Sebastes* 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 400 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 and Table 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 annual catches in 2017-2019 were on average around 140 t. Norway redfish in Icelandic waters is caught by demersal trawlers.

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

Norway redfish is mainly caught at depths between 100 and 400 m (Figure 4). Since 2011 there has been a gradual increase in catches at depths between 400 and 600 m.

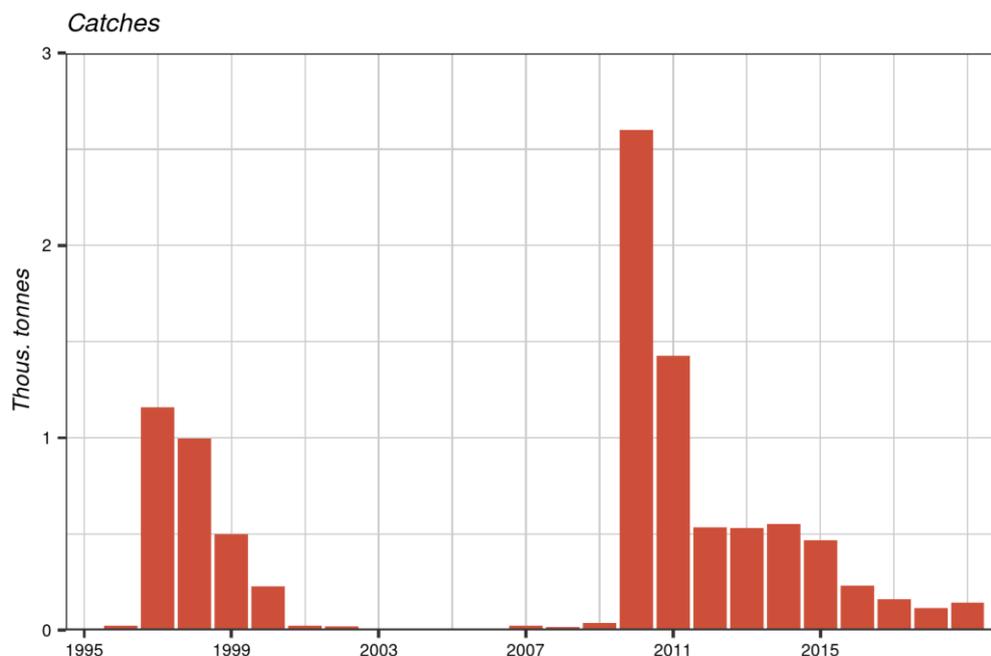


Figure 1. Norway redfish. Landings 1996-2019.

Mynd 1. Litli karfi. Afli 1996-2019.

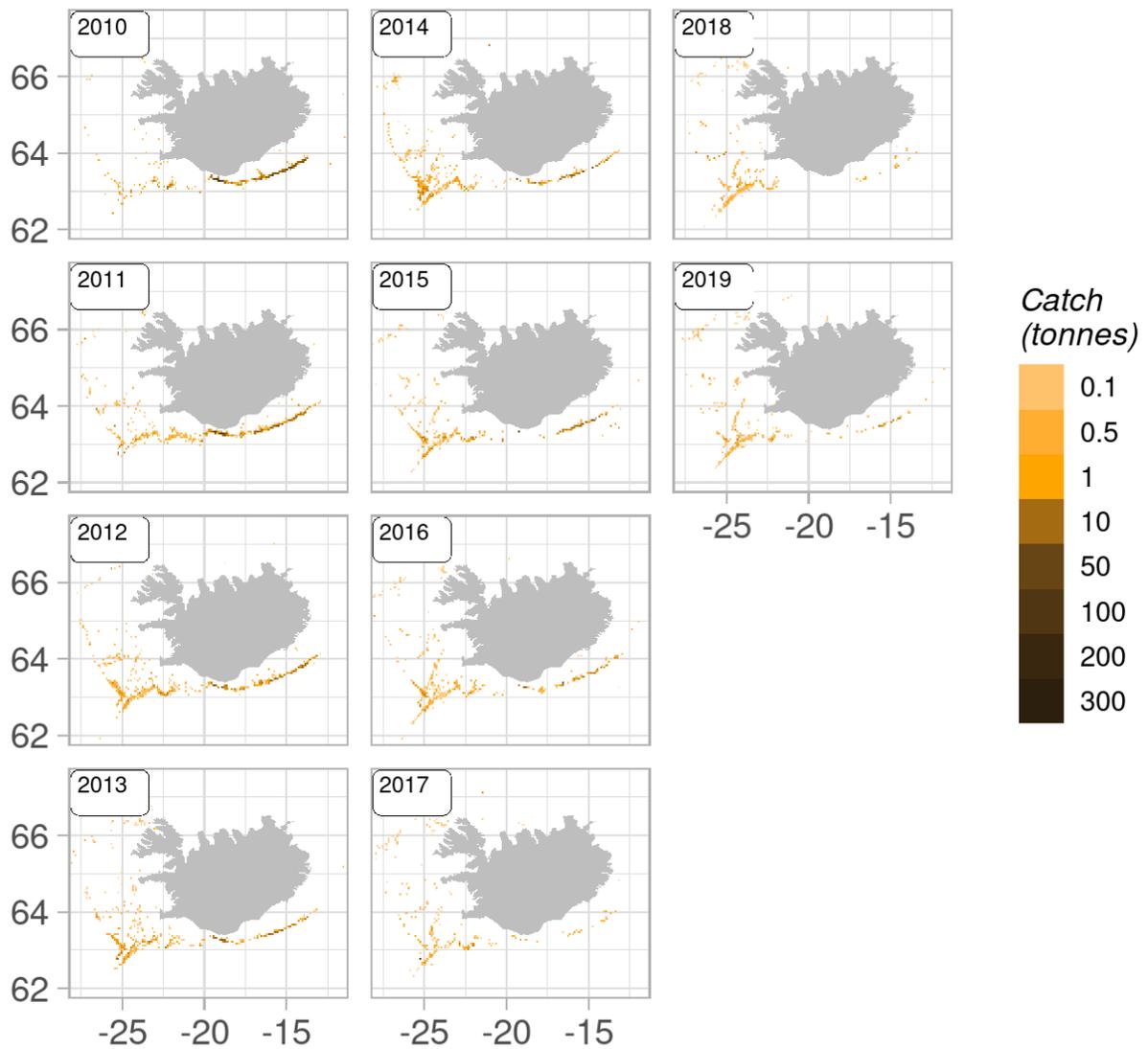


Figure 2. Norway redfish. Geographical distribution of the Icelandic fishery 2010-2019. Reported catch from logbooks.
Mynd 2. Litli karfi. Útbreiðsla veiða á Íslandsmiðum 2010-2019 samkvæmt afladagbókum.

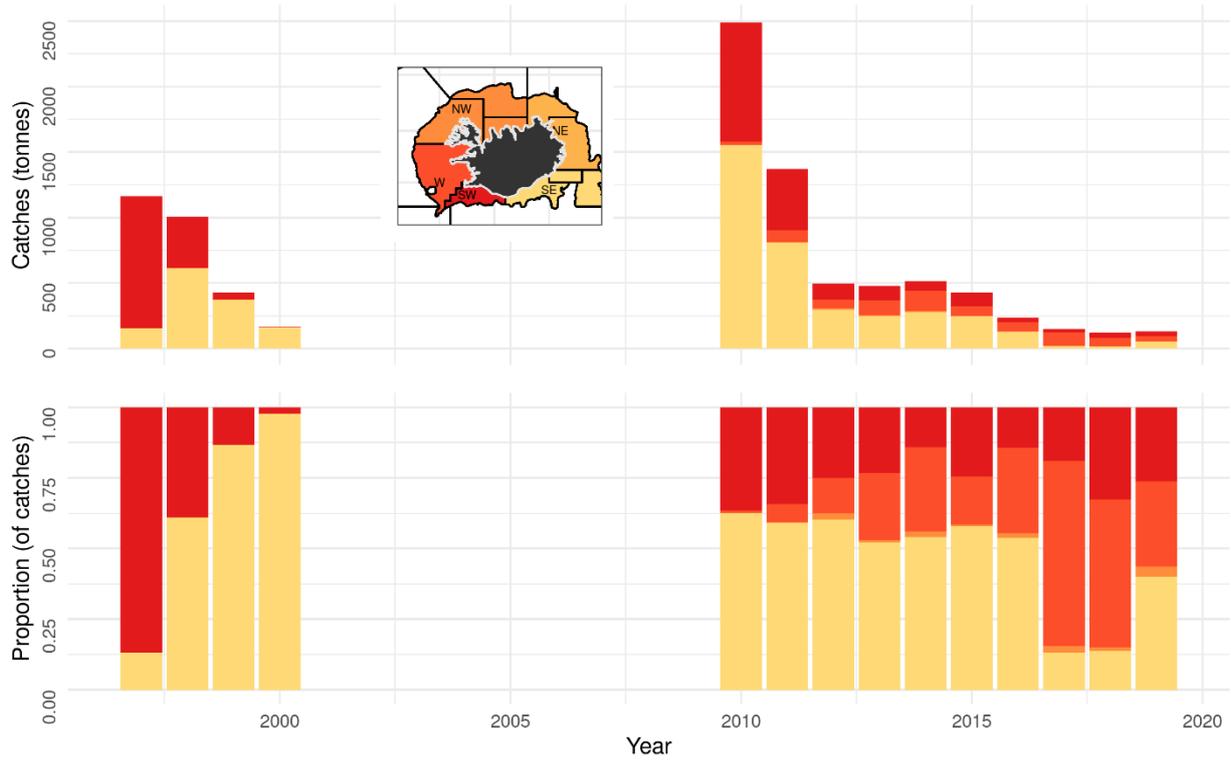


Figure 3. Norway redfish. Spatial distribution of the Icelandic fishery by fishing area from 1997-2019.

Mynd 3. Litli karfi. Útbreiðsla veiða á íslensku veiðisvæði árin 1997-2019.

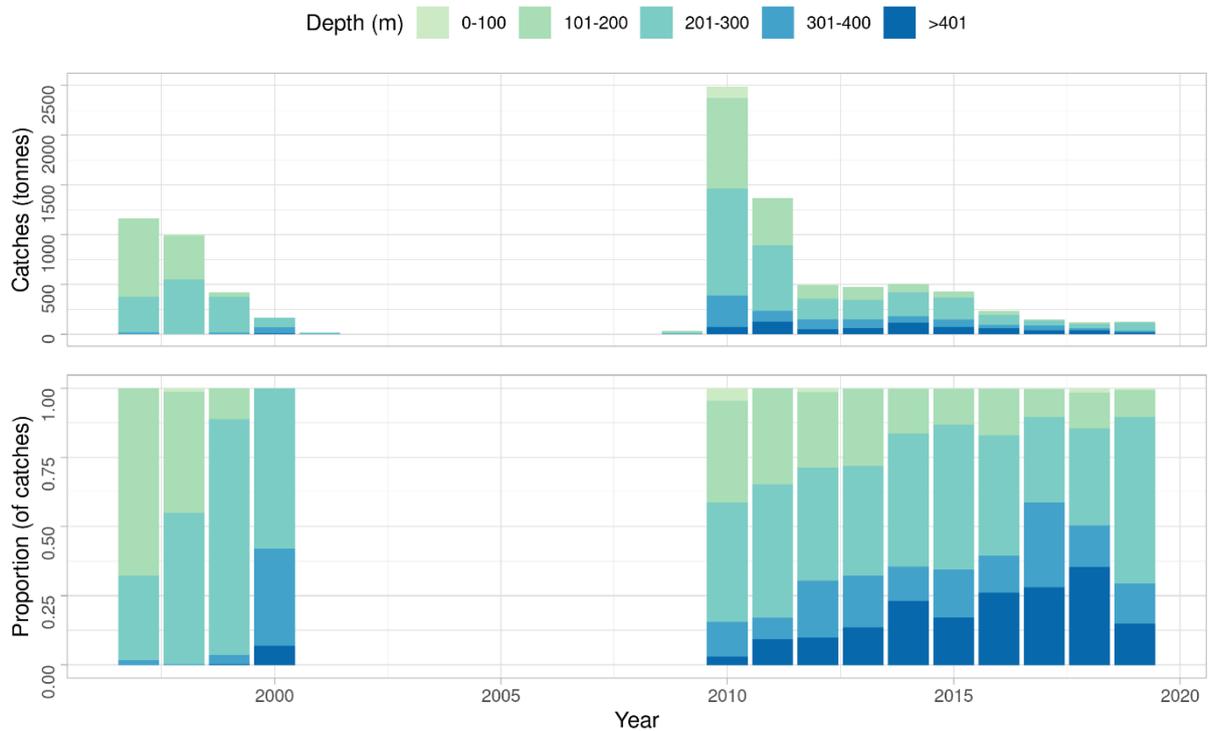


Figure 4. Norway redfish. Depth distribution of demersal trawl catches according to logbooks 1997-2019.

Mynd 4. Litli karfi. Afli í botnvörpu samkvæmt afladagbókum, skipt eftir dýpi 1997-2019.

Table 1. Norway redfish. Number of Icelandic trawlers landing catch of 1000 kg or more of Norway redfish, and all landed catch 1997-2019.

Tafla 1. Litla karfi. Fjöldi íslenskra togara sem landað hafa meira en 1000 kg af litla karfa og allur landaður afli 1997-2019.

YEAR	NUMBER OF VESSELS	CATCHES (TONNES)
	<i>Demersal trawlers</i>	<i>Total</i>
1996		22
1997		1159
1998		994
1999		498
2000	3	227
2001	2	21
2002	2	20
2003	-	3
2004	-	2
2005	-	4
2006	-	9
2007	-	24
2008	1	15
2009	4	37
2010	23	2602
2011	21	1427
2012	21	535
2013	18	532
2014	14	550
2015	13	468
2016	12	234
2017	10	161
2018	7	117
2019	6	143

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, and technical improvements have not been accounted for when estimating CPUE.

Non-standardized 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 nine years fluctuated between 500-1000 kg/h. Total fishing effort (number of towing hours decreased between 1997 and 2000 but increased rapidly in 2010 when target fishery started again. Since 2010, fishing effort has steadily decreased and was in 2017-2019 lowest in the time series (Figure 5). The decrease in effort is due to decrease in the targeted fishery towards Norway redfish.

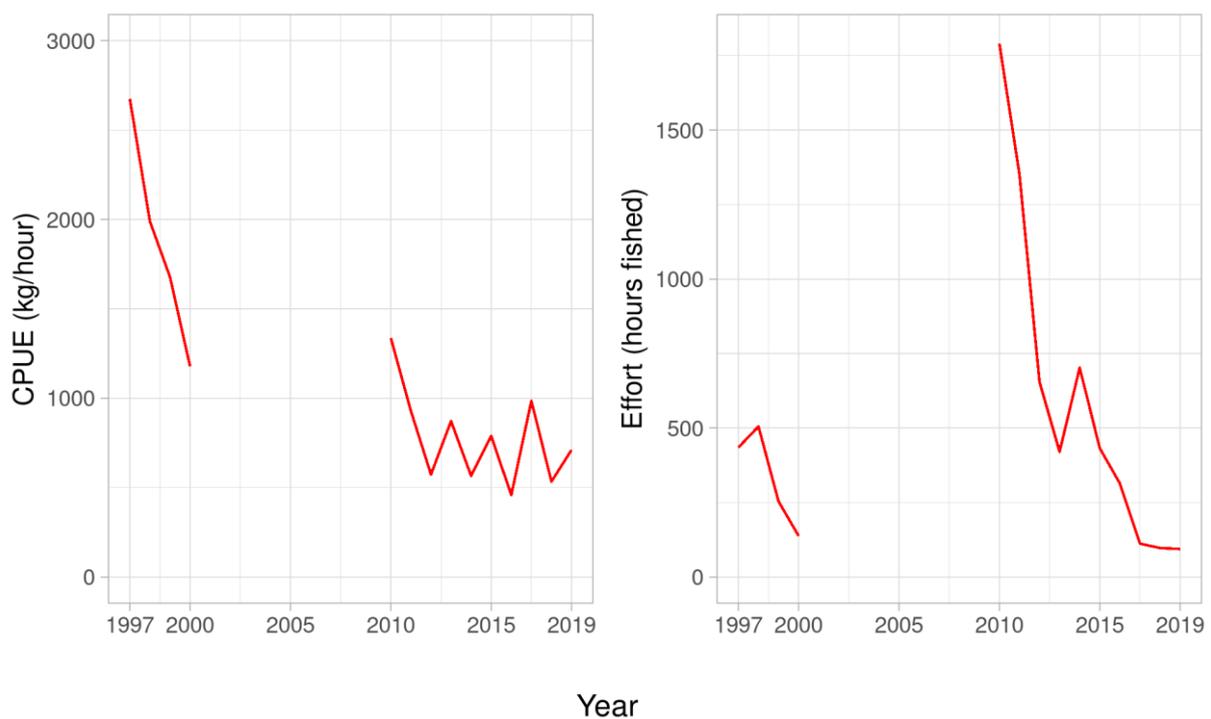


Figure 5. Norway redfish. Non-standardised estimates of CPUE (kg/hour, left) and fishing effort (right, hours fished) from demersal trawl.

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

SURVEY DATA

The Icelandic spring groundfish survey (IS-SMB), which has been conducted annually in March 1985-2020, covers the main distribution 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. The total biomass index has increased rapidly since 2011 and was in 2016-2018 the highest recorded and more than three times higher than in 2000. The index decreased by almost 50% in 2019 compared to the 2018 and was similar as in 2015. The index 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 spring survey indicates stronger recruitment in 2003-2012 compared to other years (Figure 6).

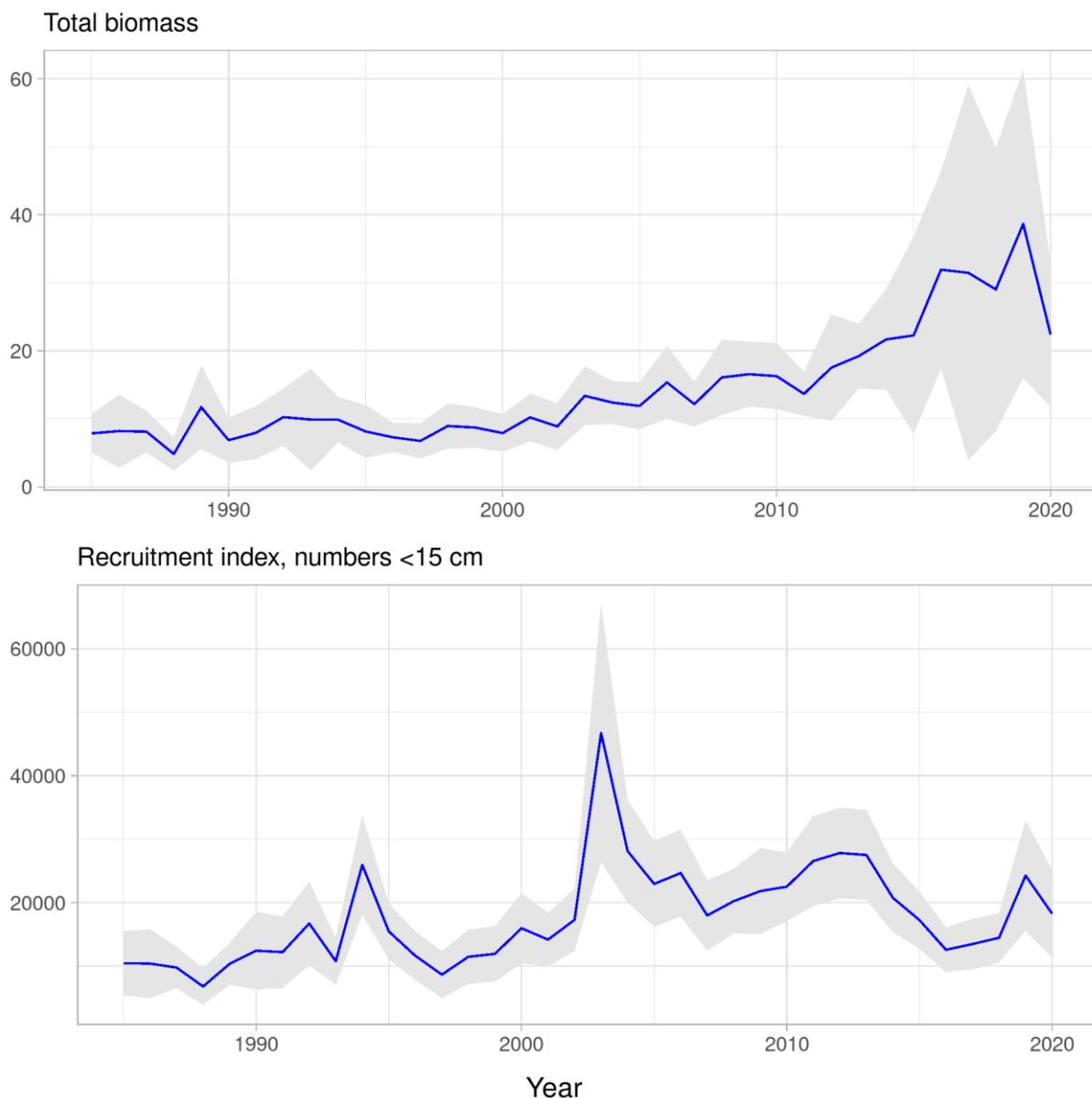


Figure 6. Norway redfish. Total biomass index (upper) and juvenile abundance indices (<15 cm) (lower) from the spring survey from 1985-2020. The grey area represents 95% CI.

Mynd 6. Litli karfi. Stofnvísitala (efri mynd) og nýliðunarvísitala (15 cm og minni, neðri mynd) úr stofnmælingu botnfiska að vori 1985-2020. Grátt svæði sýnir 95% öryggismörk.

Length distributions from IS-SMB show 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.

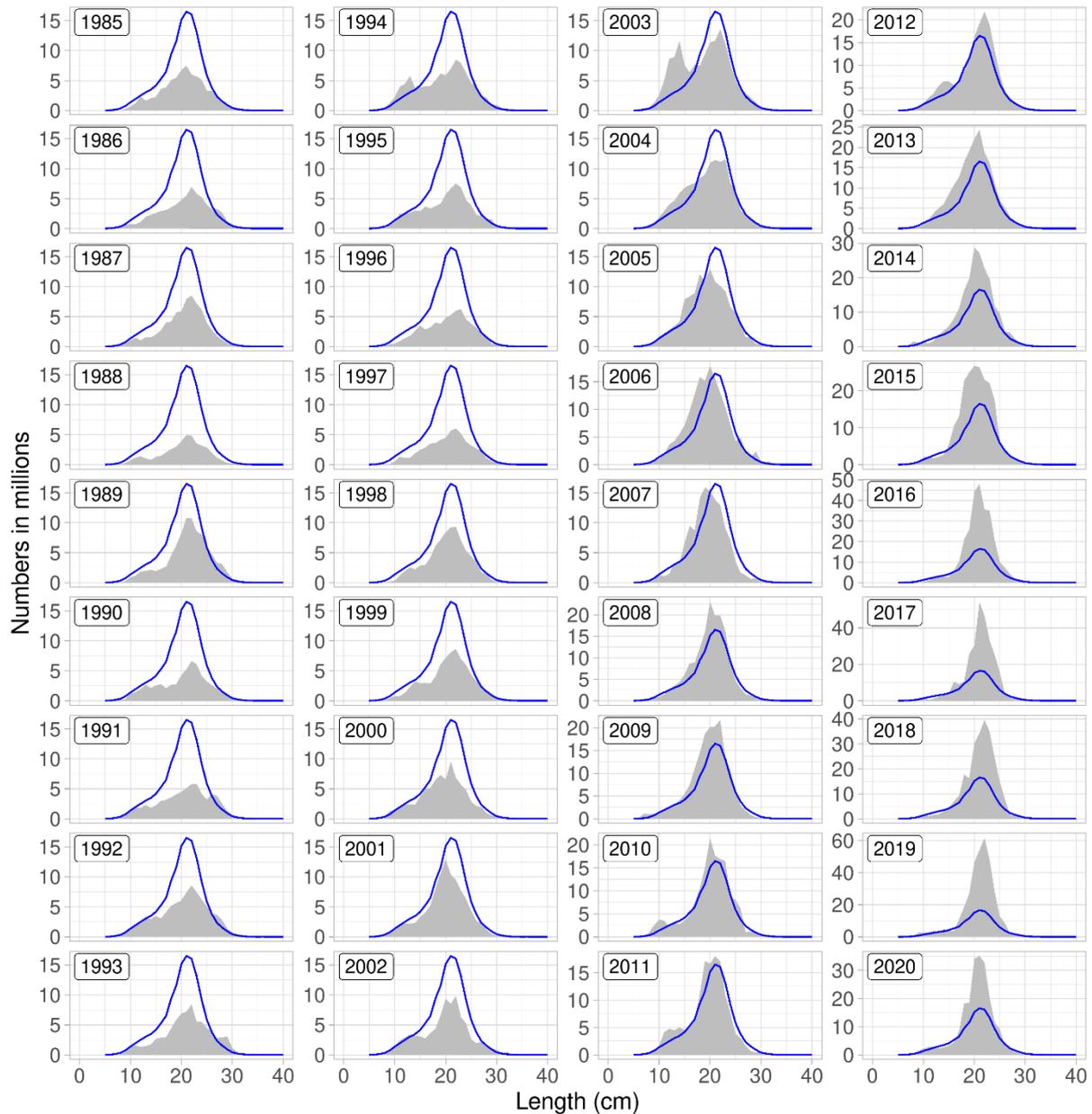


Figure 7. Norway redfish. Length disaggregated abundance indices from the spring survey 1985-2020. The blue line shows the mean for all years. Note that the y-axis is not the same on the figures.

Mynd 7. Litli karfi. Lengdarskiptar vísitölur úr stofnmælingu botnfiska að vori 1985-2020 ásamt meðaltali allra ára (blá lína). Skalin á y-ás er ekki sá sami á myndunum.

Norway redfish in the spring survey is found all around Iceland but is most abundant along the south and southwest of Iceland (Figures 8). In recent years, however, the abundance in the West area has increased and majority of the Norway redfish biomass in the last five years was measured in that area.

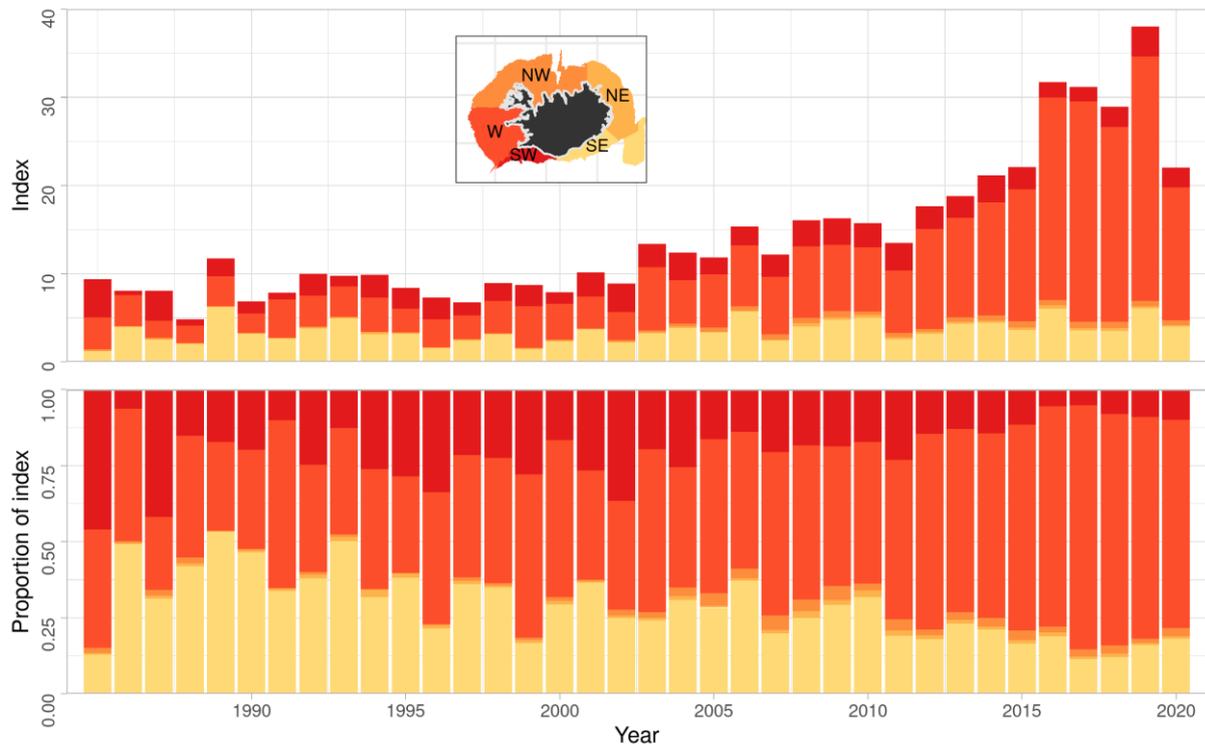


Figure 8. Norway redfish. Spatial distribution of the index from the spring survey 1985-2020.

Mynd 8. Litli karfi. Dreifing vísitölu í stofnmælingu botnfiska að vori 1985-2020.

MANAGEMENT

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