

# ATLANTIC HALIBUT – LÚÐA

## *Hippoglossus hippoglossus*

### GENERAL INFORMATION

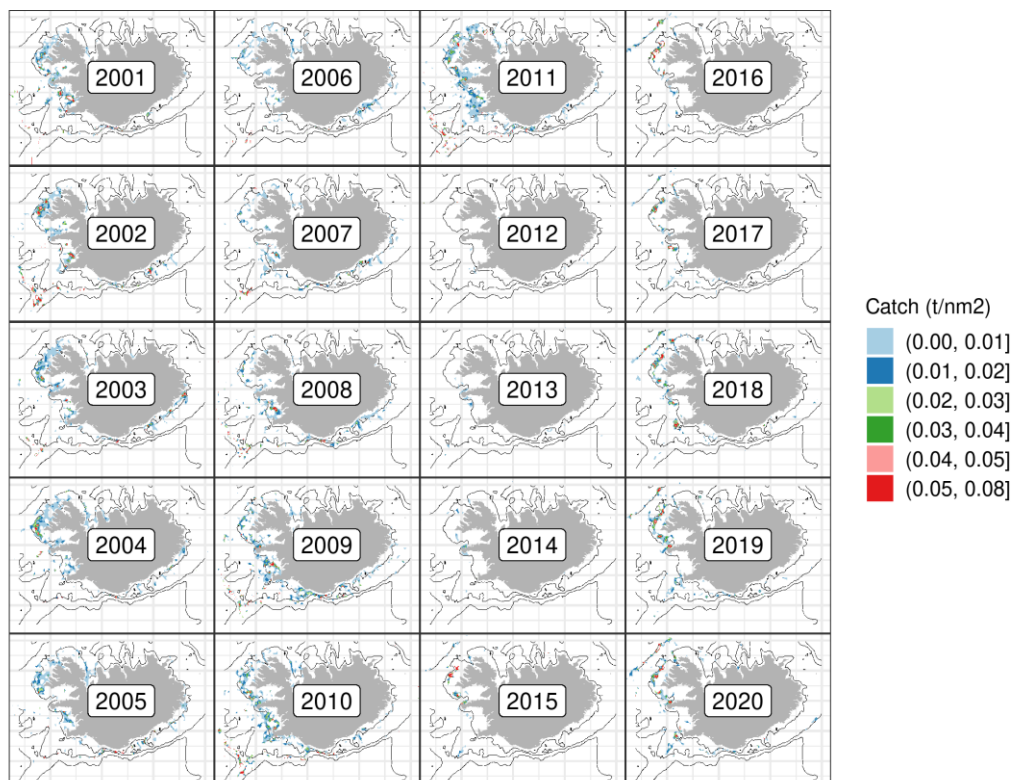
Atlantic halibut is the largest flatfish species in the world's oceans and the largest bony fish in Icelandic waters. The largest recorded measurement in Iceland is from the year 1935, when a 365 cm long halibut was caught off the north coast, weighing 266 kg. It matures slowly; at the length of 80 cm about half of the males have reached maturity, whereas females reach that level at 103 cm.

Atlantic halibut is found all around Iceland but is most common off the west and south coasts. It is a demersal species on muddy, sandy or gravel substrate, and sometimes even on hard bottoms at 20-2000 m depths. The juvenile halibut occupy relatively shallow waters, up to the age of 3-5 years, after which they migrate to deeper waters of the continental shelf and slope.

Atlantic halibut is known for occasional long-distance migrations. Individuals tagged in Icelandic waters have been recaptured off Faroe Islands, East- and West-Greenland, and in the waters off Newfoundland. Recaptures from Iceland include fish tagged in Faroe Islands and Canada.

### THE FISHERY

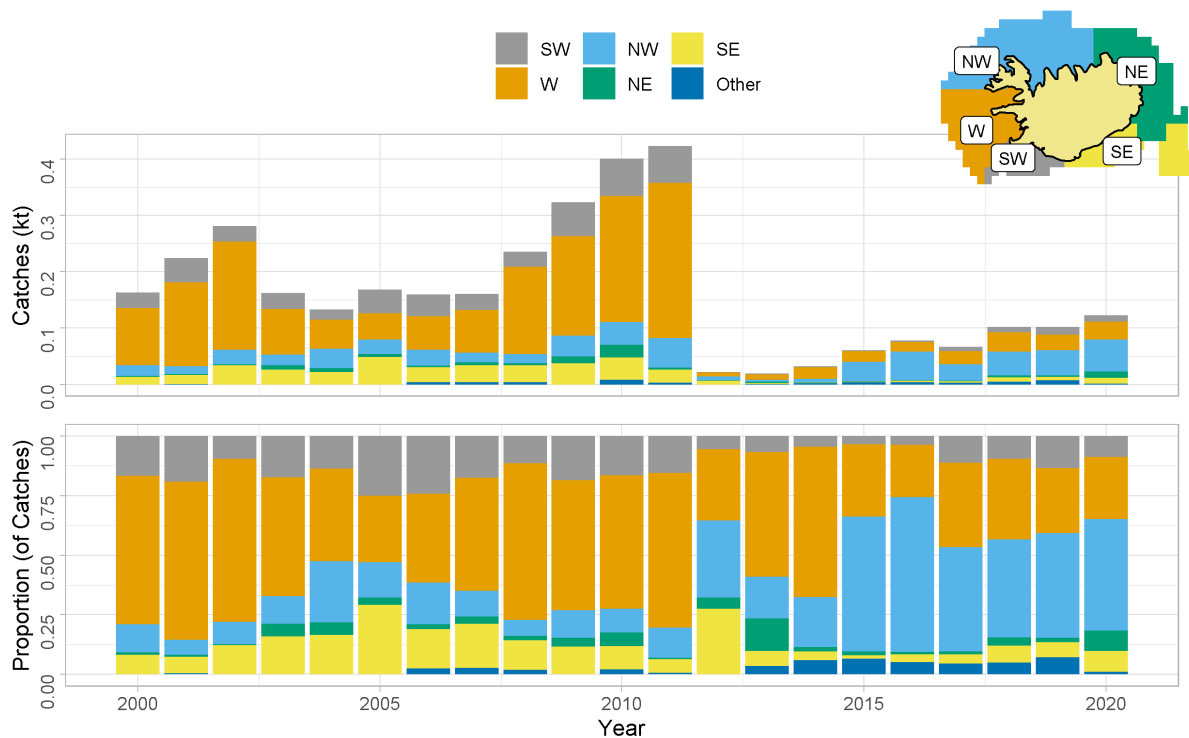
The geographical distribution of the Atlantic halibut fishery has changed since 2011 following a ban on targeted fishing as well as mandatory release of all viable fish (Figure 1).



**Figure 1. Atlantic halibut. Geographical distribution of the Icelandic fishery since 2001. Reported catch from logbooks.**

*Mynd 1. Lúða. Útbreiðsla veiða á Íslandsmiðum frá 2001 samkvæmt afladagbókum.*

In 2000-2011, the main fishing grounds for Atlantic halibut were in the western part of the Icelandic shelf (Figure 2) according to logbook entries. After the ban on targeted fishing, most of the landed catch has been taken on demersal trawl fishing grounds in the west and northwest areas (Figure 2).



**Figure 2. Atlantic halibut. Spatial distribution of the Icelandic fishery by fishing area since 2000 according to logbooks. All gears combined.**

*Mynd 2. Lúða. Útbreiðsla veiða á íslensku veiðisvæði frá árinu 2000 samkvæmt afladagbókum.*

Targeted fishing was mainly conducted in waters of more than 300 m (Figure 3). The ban on targeted fishing particularly affected the amount of Atlantic halibut taken in these deeper waters (Figure 3).

Atlantic halibut on Icelandic fishing grounds was mainly caught on longline and in demersal trawl, or approximately 85% of landings in 2006-2011 (Table 1). After the ban on targeted fishing in 2012, most of the landed catch comes from demersal trawlers (Table 1, Figure 4). Close to no catch is landed from longliners after the ban (Table 1) and this fleet segment reports most of the releases of live halibut (Table 2). The reported number of released halibut increased in years 2018-2019 and so has the number of vessels that have reported released fish (Table 2). In 2020 the number of longliners reporting releases of live halibut declined again to previous low numbers, but at the same time the number of live halibut released remained quite stable. This could imply that only few longliners are both efficient at releasing the live halibut and registering the event in the logbooks.

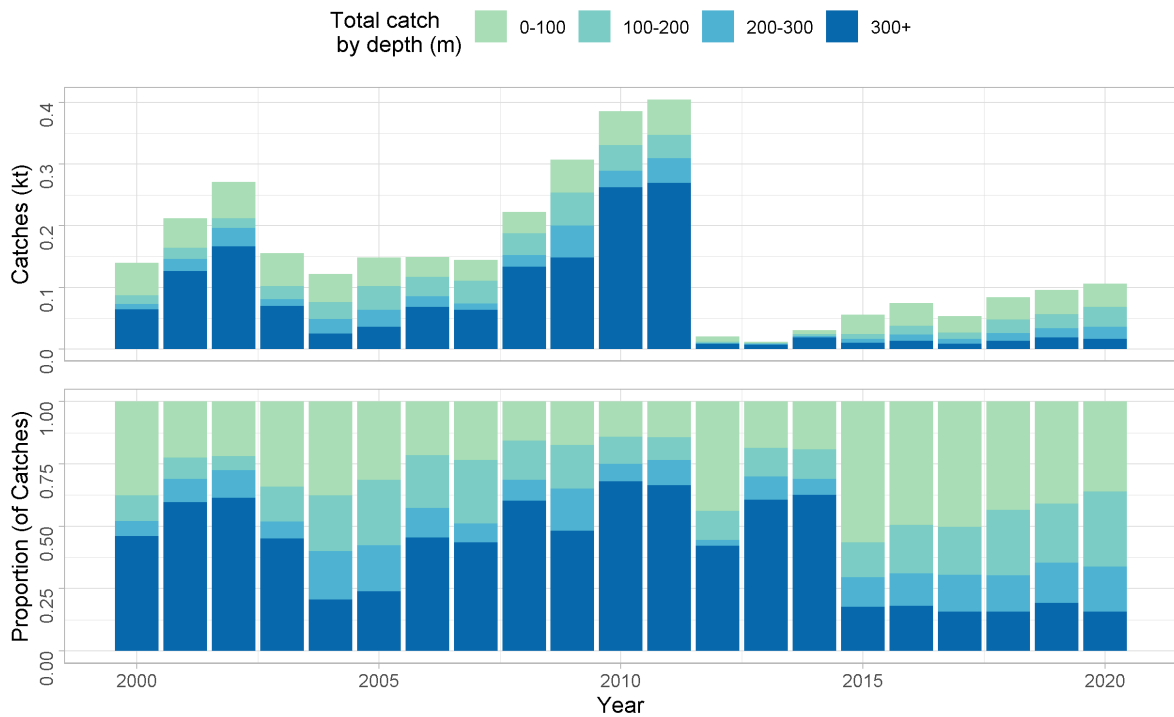


Figure 3. Atlantic halibut. Depth distribution of catch on longline, in demersal seine, and in demersal trawl according to logbooks.

Mynd 3. Lúða. Afli á línu, dragnót og í botnvörpu samkvæmt afladagbókum, skipt eftir dýpi.

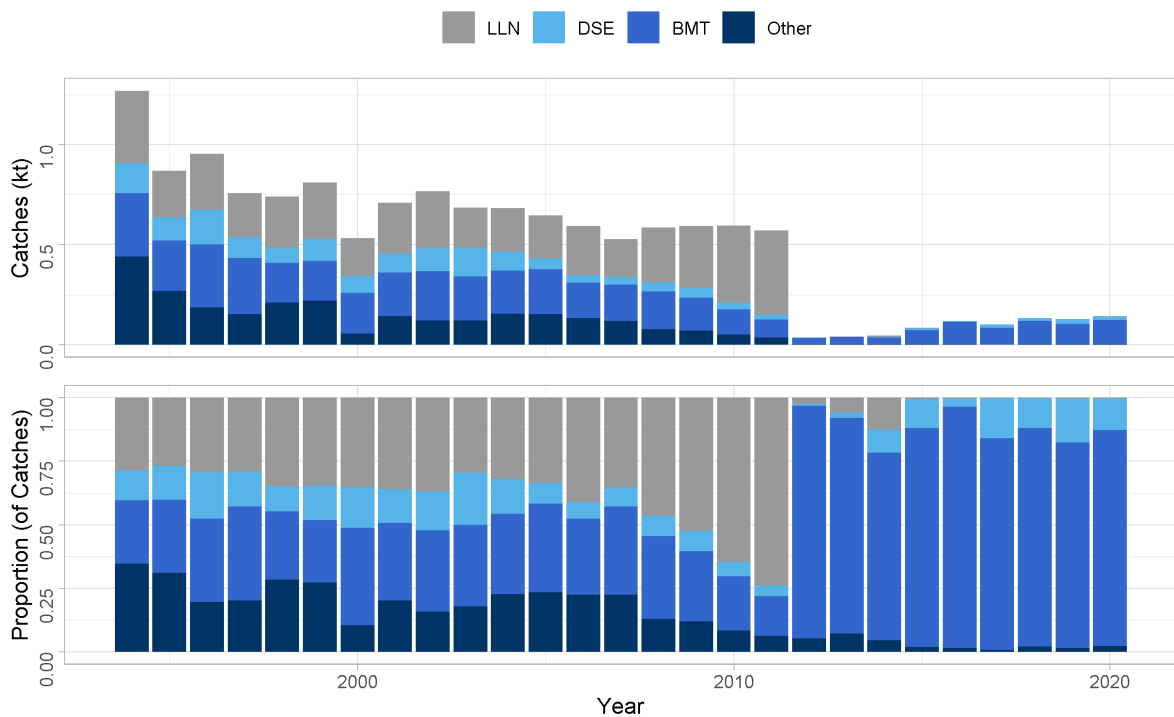


Figure 4. Atlantic halibut. Total catch (landings) by fishing gear since 1994, according to statistics from the Directorate of Fisheries. LLN = longline, DSE = demersal seine, BMT = demersal trawl.

Mynd 4. Lúða. Landaður afli eftir veiðarfærum frá árinu 1994, samkvæmt aflaskráningarkerfi Fiskistofu. LLN = lína, DSE = dragnót, BMT = botnvarpa.

**Table 1. Atlantic halibut. Number of Icelandic vessels landing 1000 kg or more of Atlantic halibut, and all landed catch divided by gear type.**

*Tafla 1. Lúða. Fjöldi íslenskra skipa sem landað hafa 1000 kg eða meira og allur landaður afli eftir veiðarfærum.*

YEAR	NUMBER OF VESSELS			CATCHES (TONNES)			
	<i>Longliners</i>	<i>Trawlers</i>	<i>Other</i>	<i>Longline</i>	<i>Demersal trawl</i>	<i>Other</i>	<i>Sum</i>
2000	21	67	35	164	201	129	494
2001	28	62	51	229	184	174	587
2002	27	68	51	265	220	197	682
2003	31	64	63	204	180	252	636
2004	36	65	48	198	191	167	556
2005	41	59	35	197	194	122	513
2006	43	59	25	204	160	77	441
2007	44	60	22	172	177	71	420
2008	36	55	24	206	183	83	472
2009	38	54	29	265	151	82	498
2010	38	44	22	349	118	61	528
2011	34	25	14	405	82	46	533
2012	0	9	1	1	30	4	35
2013	0	11	3	2	30	7	39
2014	2	11	1	6	32	8	46
2015	0	20	2	0	75	15	91
2016	0	32	4	0	106	12	118
2017	0	23	14	0	68	34	102
2018	0	31	13	0	90	43	133
2019	0	32	11	0	96	32	128
2020	0	36	12	0.5	120	18	139



Figure 5. Atlantic halibut. Fishing grounds in 2020 as reported in logbooks and length samples taken in bottom trawl (x).

Mynd 5. Lúða. Veiðisvæði við Ísland árið 2020 samkvæmt afladagbókum ásamt staðsetningum lengdarsýna tekna í botnvörpu (x).

Table 2. Atlantic halibut. Number of released Atlantic halibut by year and fishing gear, and number of Icelandic vessels that reported released halibut.

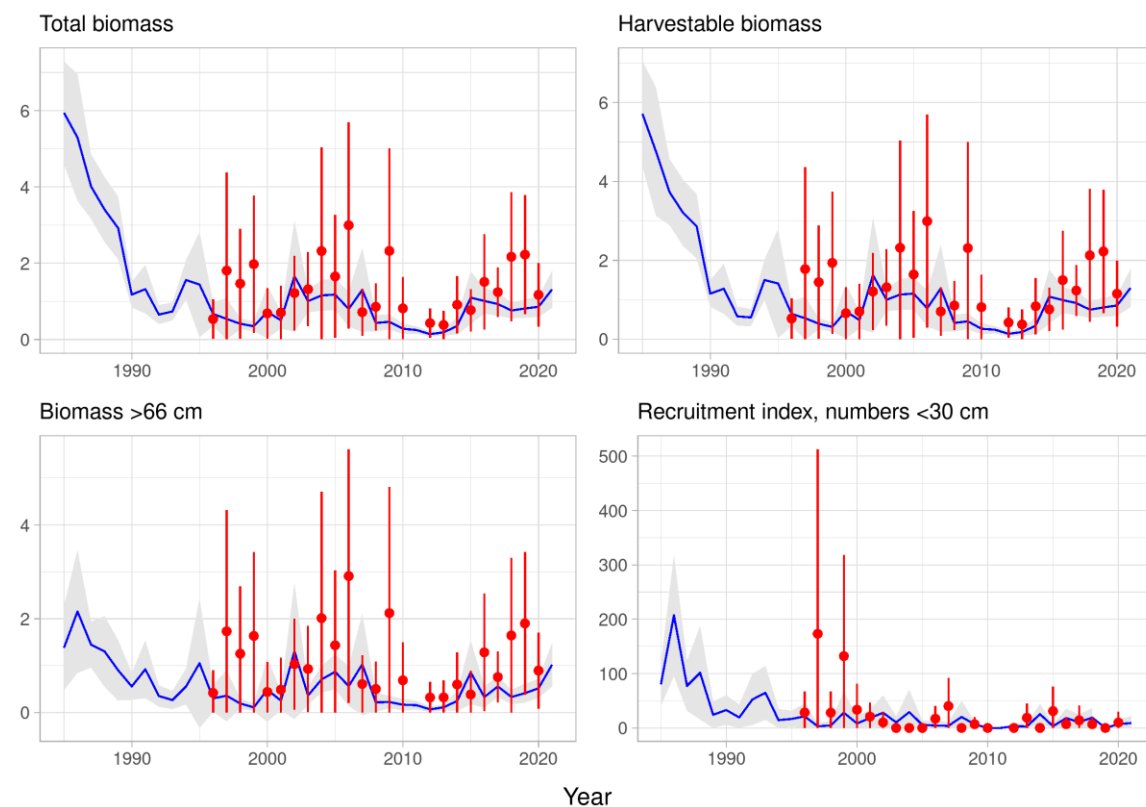
Tafla 2. Lúða. Fjöldi slepptra lúða eftir árum og veiðarfærum, og fjöldi íslenskra skipa sem hafa skráð slepptar lúður.

YEAR	GEAR							
	Longline		Demersal trawl		Demersal seine		Gillnets	
	Nr of vessels	Nr of A. halibut	Nr of vessels	Nr of A. halibut	Nr of vessels	Nr of A. halibut	Nr of vessels	Nr of A. halibut
2017	7	472	1	1	0	0	0	0
2018	13	2044	0	0	0	0	3	7
2019	12	2214	1	3	1	95	0	0
2020	5	1883	2	1	0	0	1	1

## SURVEY DATA

The Icelandic spring groundfish survey (hereafter spring survey), which has been conducted annually in March since 1985, covers the most important area of the Atlantic halibut fishery on the continental shelf. It does, however, not cover the habitats of mature fish in deeper waters further offshore. In addition, the Icelandic autumn groundfish survey (hereafter autumn survey) was commenced in 1996. The autumn survey was not conducted in 2011. The spring survey is considered to measure changes in abundance/biomass of immature halibut better than the autumn survey, but both surveys are inadequate at estimating spawning stock biomass.

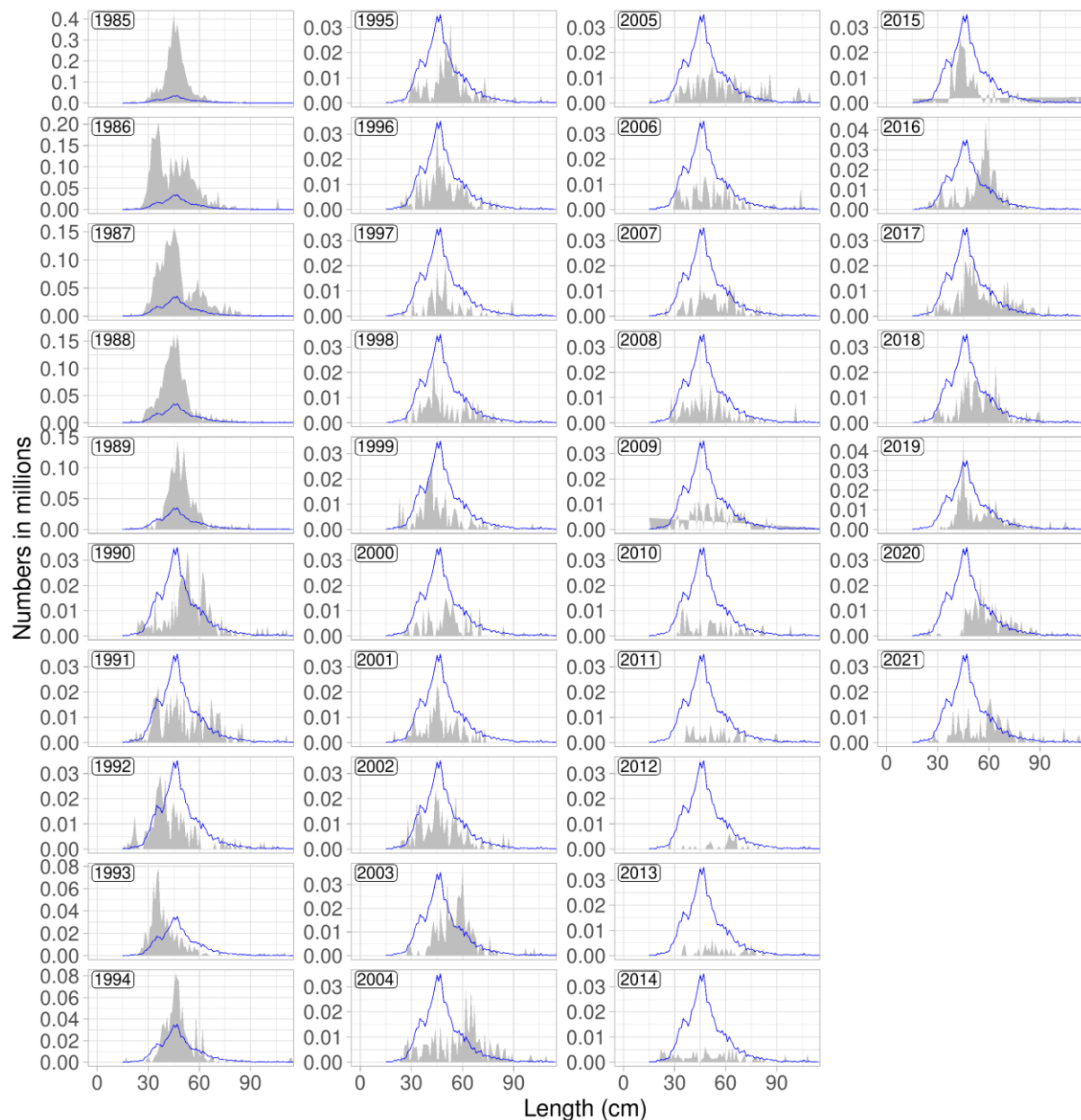
Figure 6 shows trends in various biomass indices and a recruitment index based on abundance of Atlantic halibut 30 cm and smaller. Survey length disaggregated abundance indices are shown in Figures 7 and 8, and abundance and changes in spatial distribution in Figures 9-12.



**Figure 6. Atlantic halibut. Total biomass indices (upper left), harvestable biomass indices ( $\geq 40$  cm, upper, right), biomass index of larger individuals ( $\geq 66$  cm, lower left), and juvenile abundance indices ( $\leq 30$  cm, lower right), from the spring survey (blue) 1985-2021 and autumn survey (red) from 1996-2020, along with the standard deviation.**

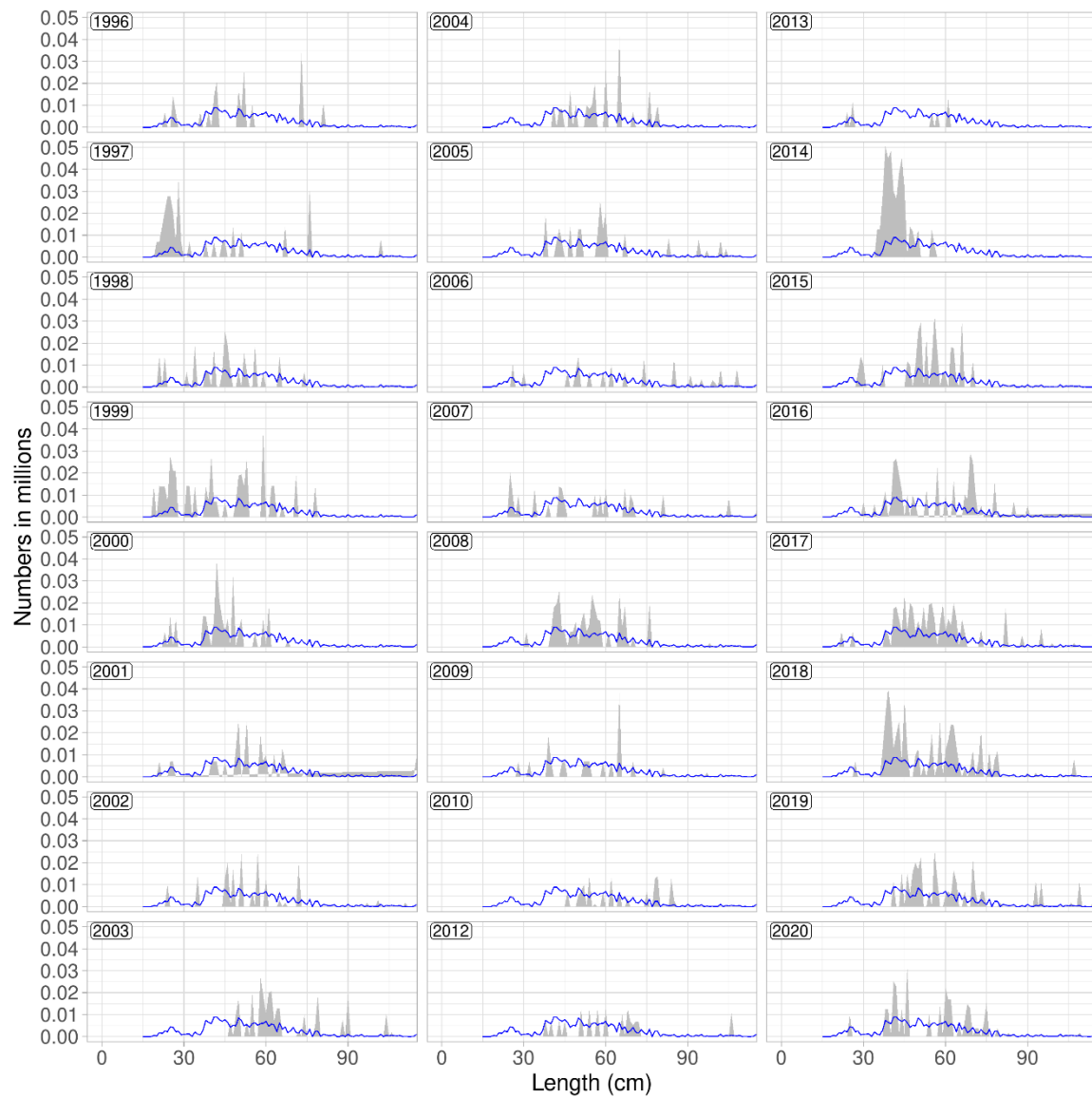
*Mynd 6. Stofnviðitala lúðu (efri til vinstri), viðitala veiðistofns ( $\geq 40$  cm, efri til hægri), viðitala stærri einstaklinga ( $\geq 66$  cm, neðri til vinstri) og nýliðunarviðitala ( $\leq 30$  cm, neðri til hægri) úr stofnmælingu botnfiska að vori (blátt) 1985-2021 og hausti (rautt) 1996-2020, ásamt staðalfrávik.*

Small Atlantic halibut (30-60 cm) are most common in the spring survey (Figure 7), while the length distribution in the autumn survey is more distributed without any noticeable peaks (Figure 8).



**Figure 7. Atlantic halibut. Length disaggregated abundance indices from the spring survey 1985-2021. The blue line shows the mean for all years. Note different scales on y-axes.**

**Mynd 7. Lúða. Lengdarskiptar vísitölur úr stofnmælingu botnfiska að vori 1985-2021 ásamt meðaltali allra ára (blá lína). Athugið mismunandi skali á y-ás milli ára.**

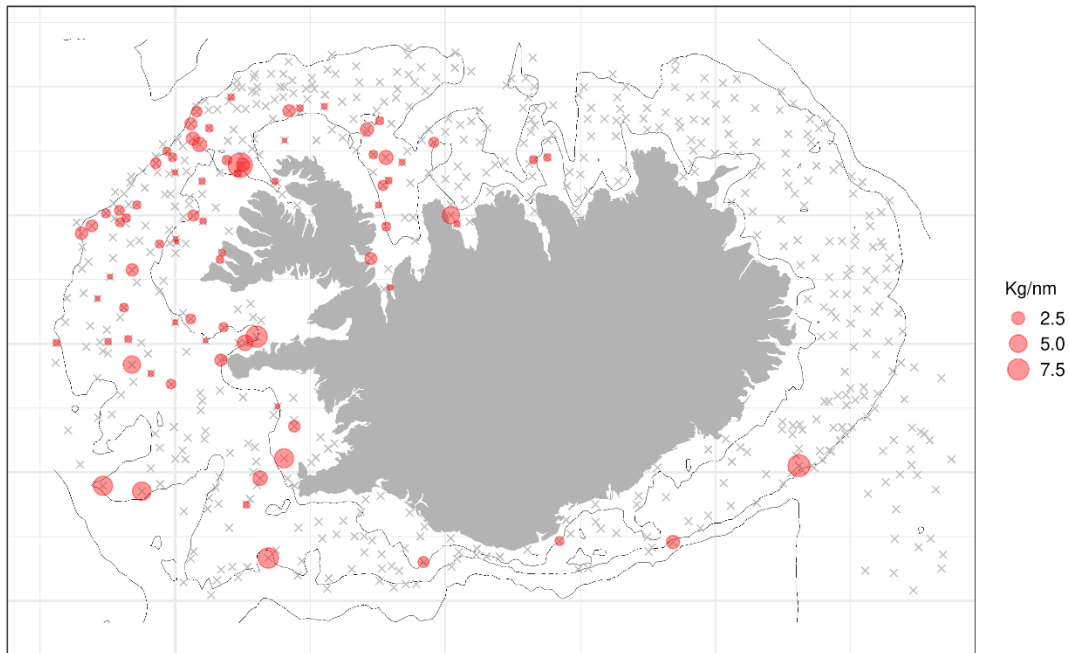


**Figure 8. Atlantic halibut. Length disaggregated abundance indices from the autumn survey 1996-2020. The blue line shows the mean for all years.**

**Mynd 8. Lúða. Lengdarskiptar vísitölur úr stofnmælingu botnfiska að hausti 1996-2020 ásamt meðaltali allra ára (blá lína).**

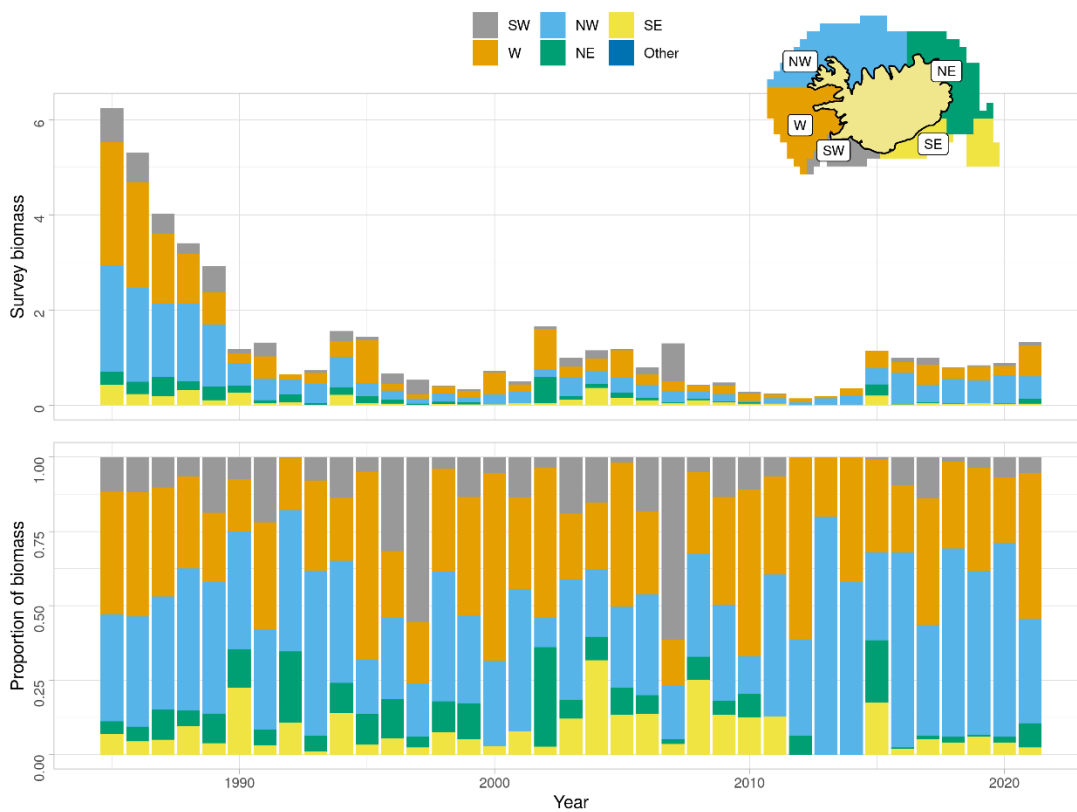


Atlantic halibut is mainly caught in the NW and W areas in the spring survey (Figures 9 and 10), although a considerable proportion of the biomass index in 2002–2010 comes from the SE area (Figure 10).



**Figure 9. Atlantic halibut. Spatial distribution in the spring survey in 2021.**

*Mynd 9. Lúða. Útbreiðsla í stofnmælingu botnfiska að vori 2021.*



**Figure 10. Atlantic halibut. Spatial distribution of biomass index from the spring survey.**

*Mynd 10. Lúða. Dreifing lífmassavísitölu í stofnmælingu botnfiska að vori.*

Catches of Atlantic halibut in the autumn survey are rather sporadic events with no clear pattern in distribution (Figures 11 and 12). However, most halibut are usually caught in the W and NW areas.

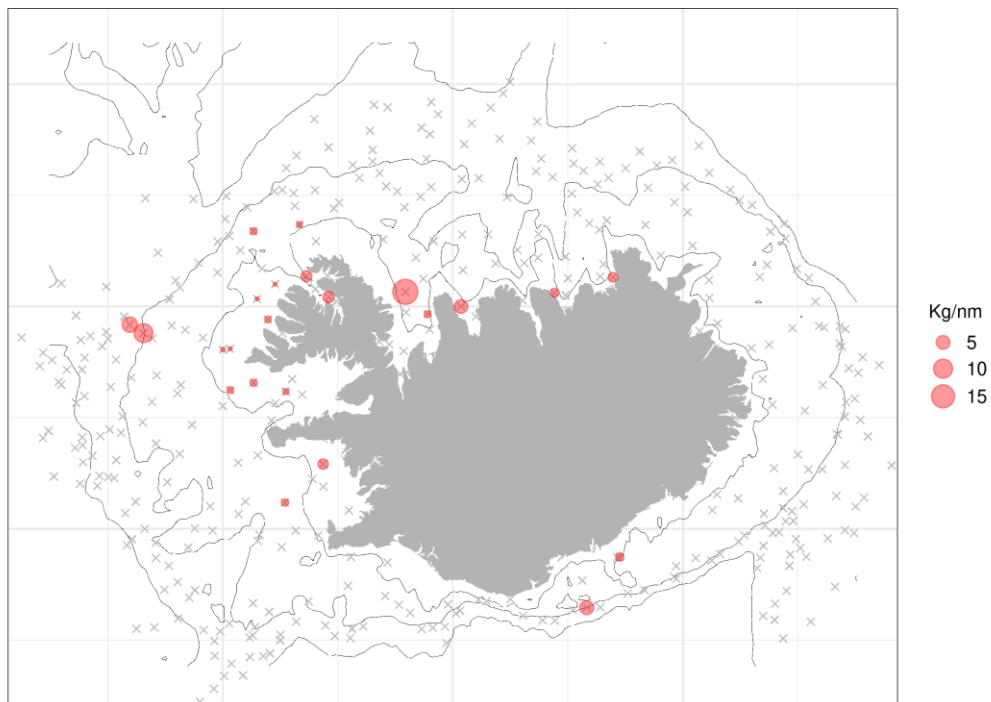


Figure 11. Atlantic halibut. Spatial distribution in the autumn survey 2020.

Mynd 11. Lúða. Útbreiðsla í stofnmælingu botnfiska að hausti árið 2020.

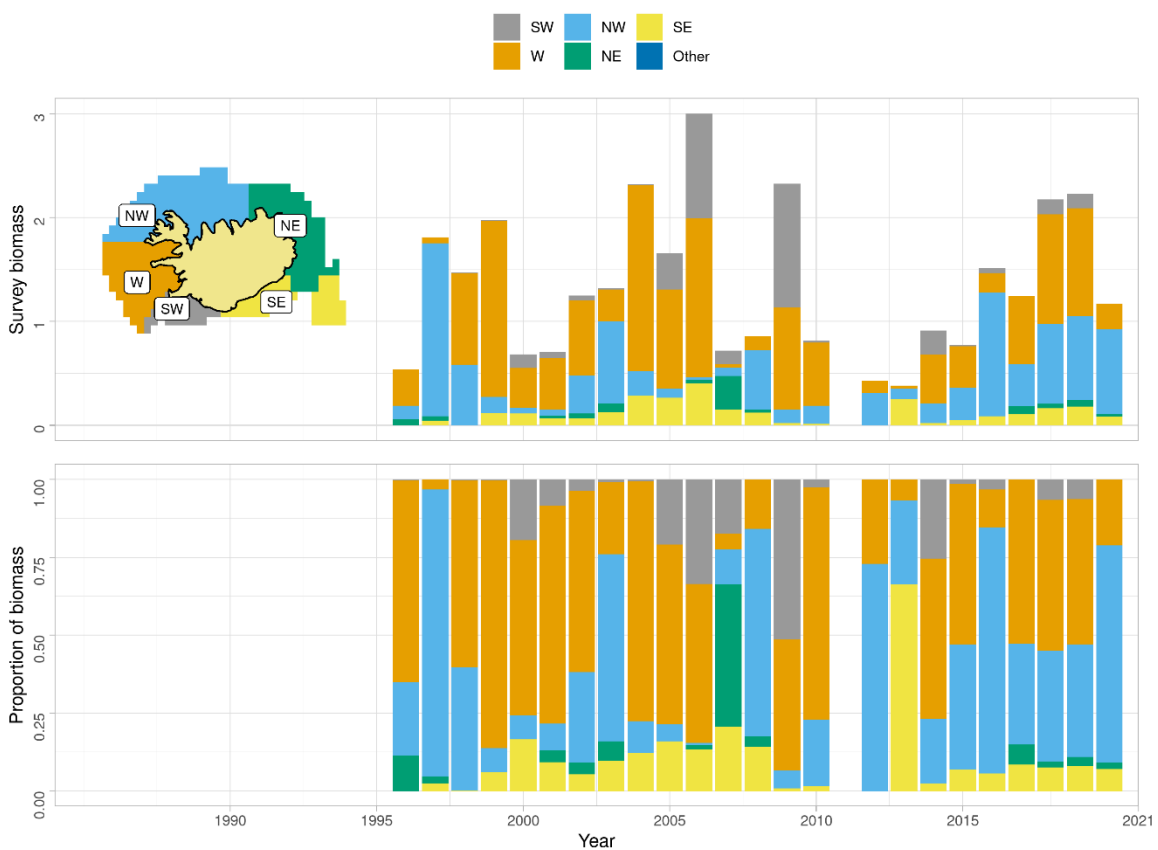


Figure 12. Atlantic halibut. Spatial distribution of biomass index from the autumn survey.

Mynd 12. Lúða. Dreifing lífmassavísitölu í stofnmælingu botnfiska að hausti.

## MANAGEMENT

The Ministry of Industries and Innovation is responsible for management of the Icelandic fisheries and implementation of legislation. In 2012, a regulation was issued to ban all targeted fishing for Atlantic halibut and stipulating that all viable halibut must be released in other fisheries. TAC is not issued for this stock.