

WHITING - LÝSA

Merlangius merlangus

GENERAL INFORMATION

Whiting is a gadoid species related to cod and haddock. It is a demersal species found at depths between 10 and 300 meters, though most commonly between 50 and 250 meters. It is smaller than its previously mentioned relatives with a maximum length of 70 cm, males and females being similar in size. In Icelandic waters, sexual maturity is reached at around 30 cm.

THE FISHERY

In 2018, whiting was caught as bycatch all around Iceland, but mostly around south and west of Iceland (Figures 1 and 2). Annual catches have been between 500 and 1000 tonnes except for 2008-2012 when catches peaked in 2011 and were 2602 tonnes (Figure 2). Increased catches in 2007-2012 occurred almost exclusively in the southwest (Figure 2). Whiting is caught at depths of 100-250 m (Figure 3).

Whiting is mainly caught in demersal trawls but to some extent in *Nephrops* trawls, longline and demersal seine (Table 1, Figure 4). The number of boats reporting whiting catches increased with increased catches between 2007 and 2012 but have since then decreased (Figures 2 and 4 and Table 1).

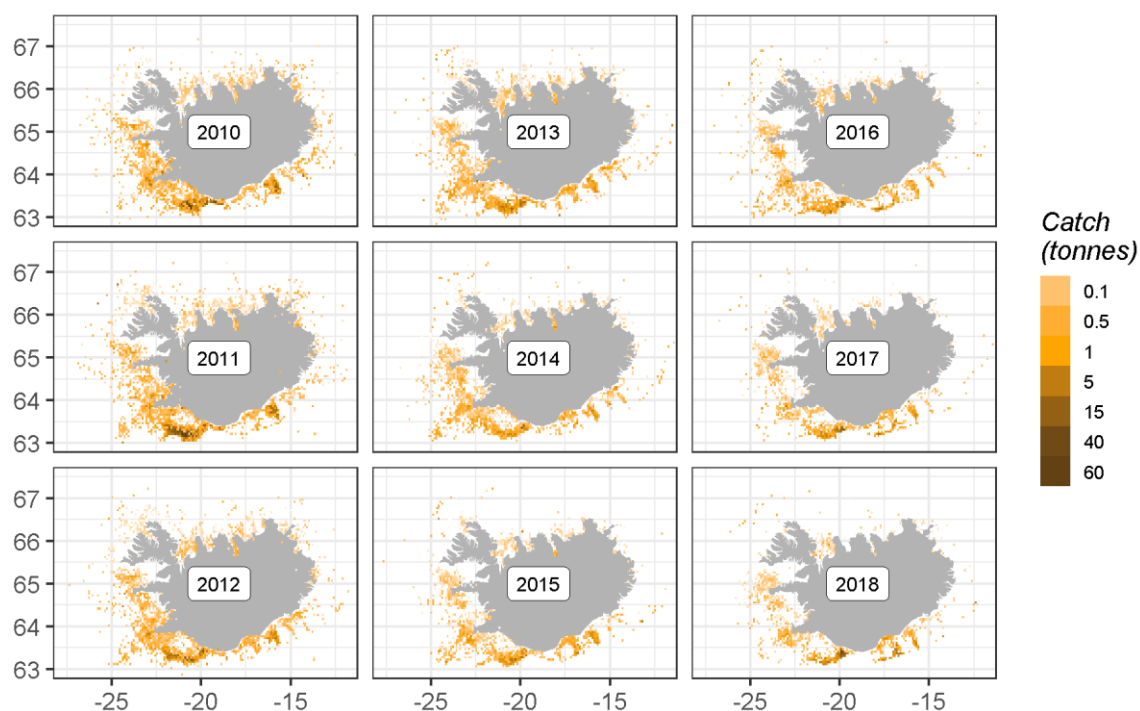


Figure 1. Whiting. Geographic distribution of the Icelandic fishery since 2010 as reported in logbooks.

Mynd 1. Lýsa. Útbreiðsla á Íslandsmiðum frá árinu 2010 samkvæmt afladagbókum.

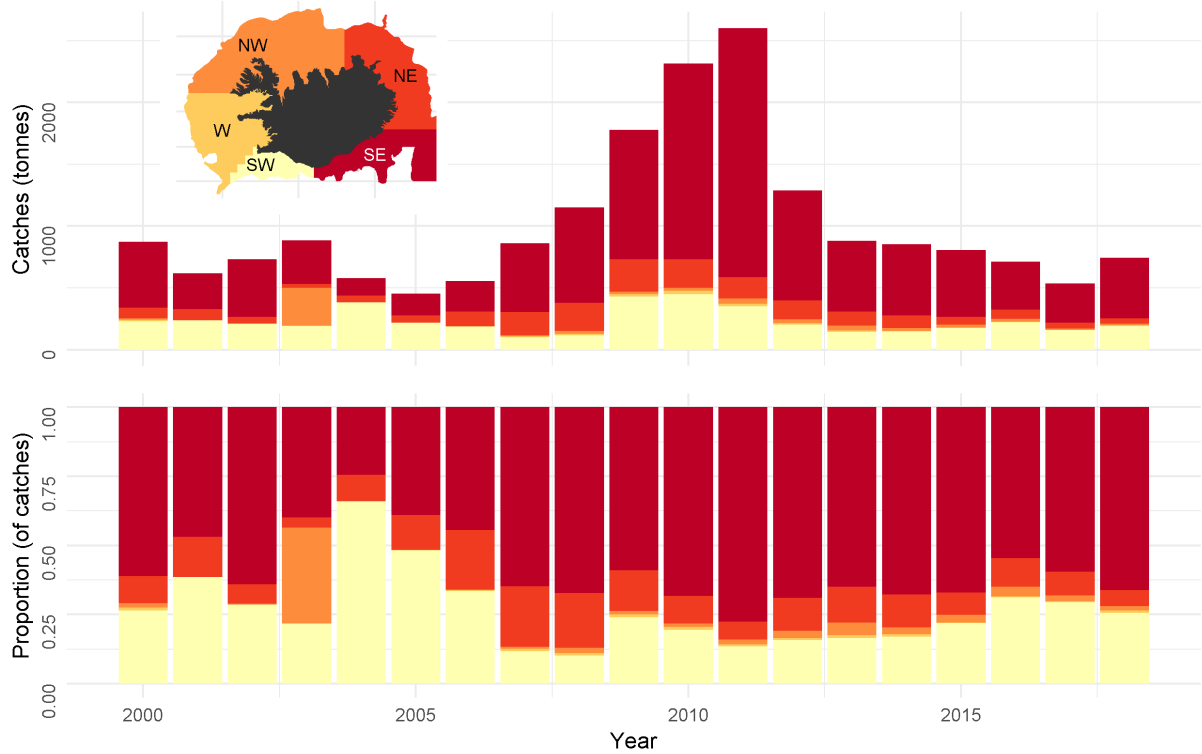


Figure 2. Whiting. Catch distribution and proportions by area from 2000 according to logbooks.

Mynd 2. Lýsa. Afli eftir svæðum ásamt hlutfalli innan hvers svæðis frá árinu 2000 samkvæmt afladagbókum.

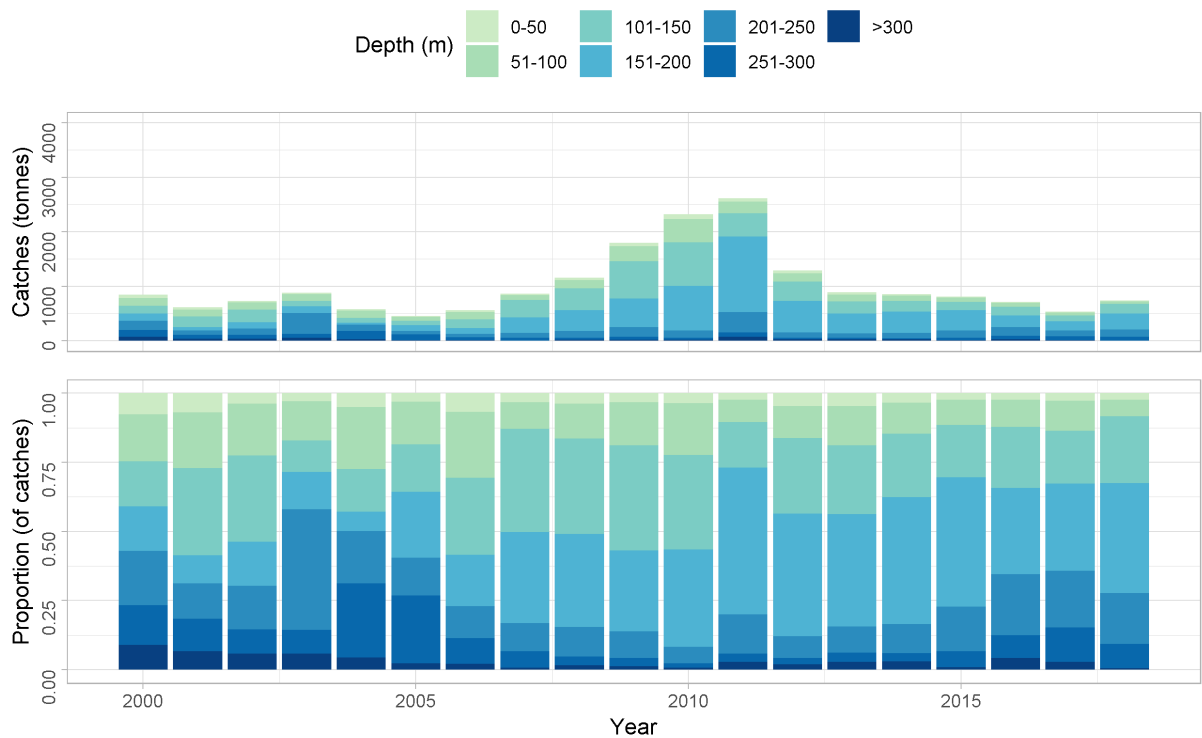


Figure 3. Whiting. Depth distribution of catches from 2000 according to logbooks.

Mynd 3. Lýsa. Afli eftir dýpi frá árinu 2000 samkvæmt afladagbókum.

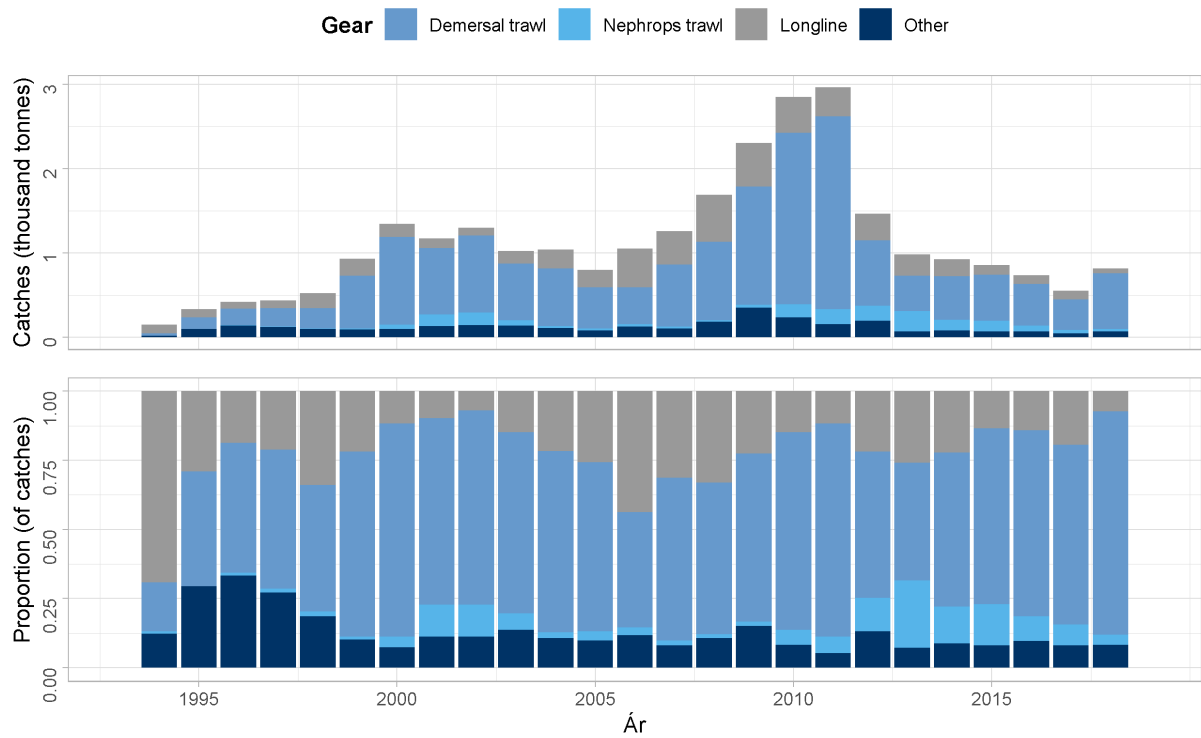


Figure 4. Whiting. Total catch (landings) of whiting by fishing gear since 1994 according to statistics from the Directorate of Fisheries.

Mynd 4. Lýsa. Landaður afli eftir veiðarfærum frá árinu 1994, samkvæmt aflaskráningarkerfi Fiskistofu.

Table 1. Whiting. Number of Icelandic boats reporting catches of whiting, landings by fishing gear and yearly reported landings according to the Directorate of Fisheries.

Tafla 1. Lýsa. Fjöldi íslenskra skipa sem veitt hafa lýsu ásamt lönduðum afla eftir veiðarfærum ásamt heildarafla hvers árs samkvæmt aflaskráningarkerfi Fiskistofu.

YEAR	NUMBER OF VESSELS				CATCHES (TONNES)				
	<i>Demersal trawl</i>	<i>Nephrops trawl</i>	<i>Longline</i>	<i>Other</i>	<i>Demersal trawl</i>	<i>Nephrops trawl</i>	<i>Longline</i>	<i>Other</i>	<i>Sum</i>
2000	76	13	131	79	1037	51	157	99	1344
2001	59	15	111	102	792	136	114	131	1173
2002	62	23	81	92	913	150	90	145	1298
2003	54	22	100	94	671	62	153	139	1025
2004	51	18	116	76	682	22	224	110	1038
2005	54	13	115	77	488	26	205	79	798
2006	50	15	144	83	439	29	460	124	1052
2007	53	7	181	90	741	22	394	102	1259
2008	58	12	190	84	928	21	557	182	1688
2009	56	13	201	151	1404	35	520	349	2308
2010	52	17	186	133	2036	155	425	234	2850
2011	52	15	187	120	2288	176	345	156	2965
2012	46	15	174	102	777	178	320	194	1469
2013	37	15	172	70	417	240	255	70	982
2014	33	15	154	69	518	124	205	81	928
2015	32	13	130	41	546	129	115	69	859
2016	36	11	127	33	494	65	103	71	733
2017	27	8	95	23	360	41	107	44	552
2018	32	8	72	28	659	30	60	68	817

LENGTH DISTRIBUTIONS FROM COMMERCIAL CATCHES OF WHITING

Length measurements of whiting from commercial catches are scarce and missing for some years. Most whiting caught in the commercial fishery are 38-55 cm (Figure 5).

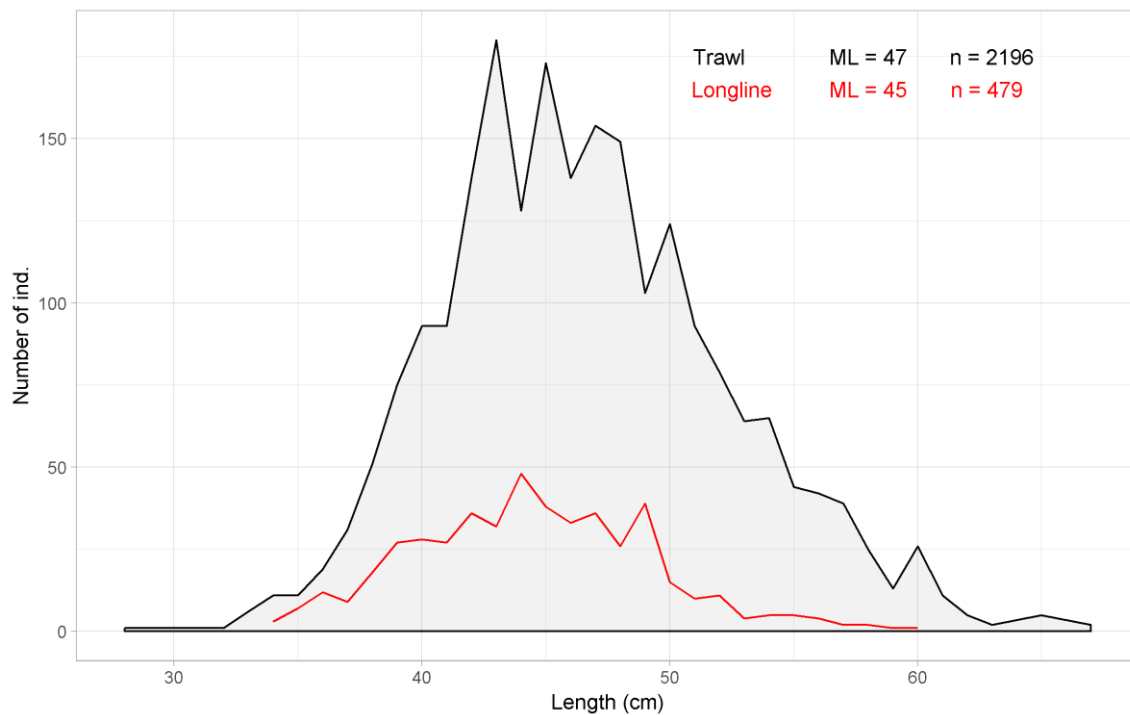


Figure 5. Whiting. Mean length distribution from commercial catches in 1996-2018.

Mynd 5. Meðal lengdardreifing lýsu úr aflu árin 1996-2018.

SURVEY DATA

Annual Icelandic groundfish surveys have been conducted in March (IS-SMB) since 1985 and October (IS-SMH) since 1996. Both surveys cover the distribution area of whiting on Icelandic grounds. For monitoring, harvestable biomass and recruitment index were estimated for both surveys (Figure 6). The harvestable biomass index is calculated as the biomass of individuals 40 cm and larger. The recruitment index is defined as whiting smaller than 20 cm.

Both the total biomass index and harvestable biomass index in IS-SMB increased from 2003 to a maximum in the time series in 2009 but decreased to low level in 2015 (Figure 6). Since then, both indices have increased and are now well above the mean of the time series (1985-2019). The biomass indices from IS-SMH are much more variable but show similar trends in the last decade. Recruitment indices show similar trends in both surveys (Figures 6). Strong recruitment was observed in 2003 and 2007 in IS-SMH and in 2004 and 2008 in IS-SMB. These peaks can be seen in the length distributions (Figures 7 and 8) and reached the harvestable biomass 2-3 years later. In the past five years, a slight increase in recruitment was observed, followed by the increase in total- and harvestable biomass in IS-SMB 2019.

Spatial distribution of whiting from the spring survey is similar to what is observed in the commercial catches, that is, mostly in the southwest of Iceland (Figures 1, 2, 9 and 10). The autumn survey however shows the highest indices in the southwest and west (Figures 11 and 12).

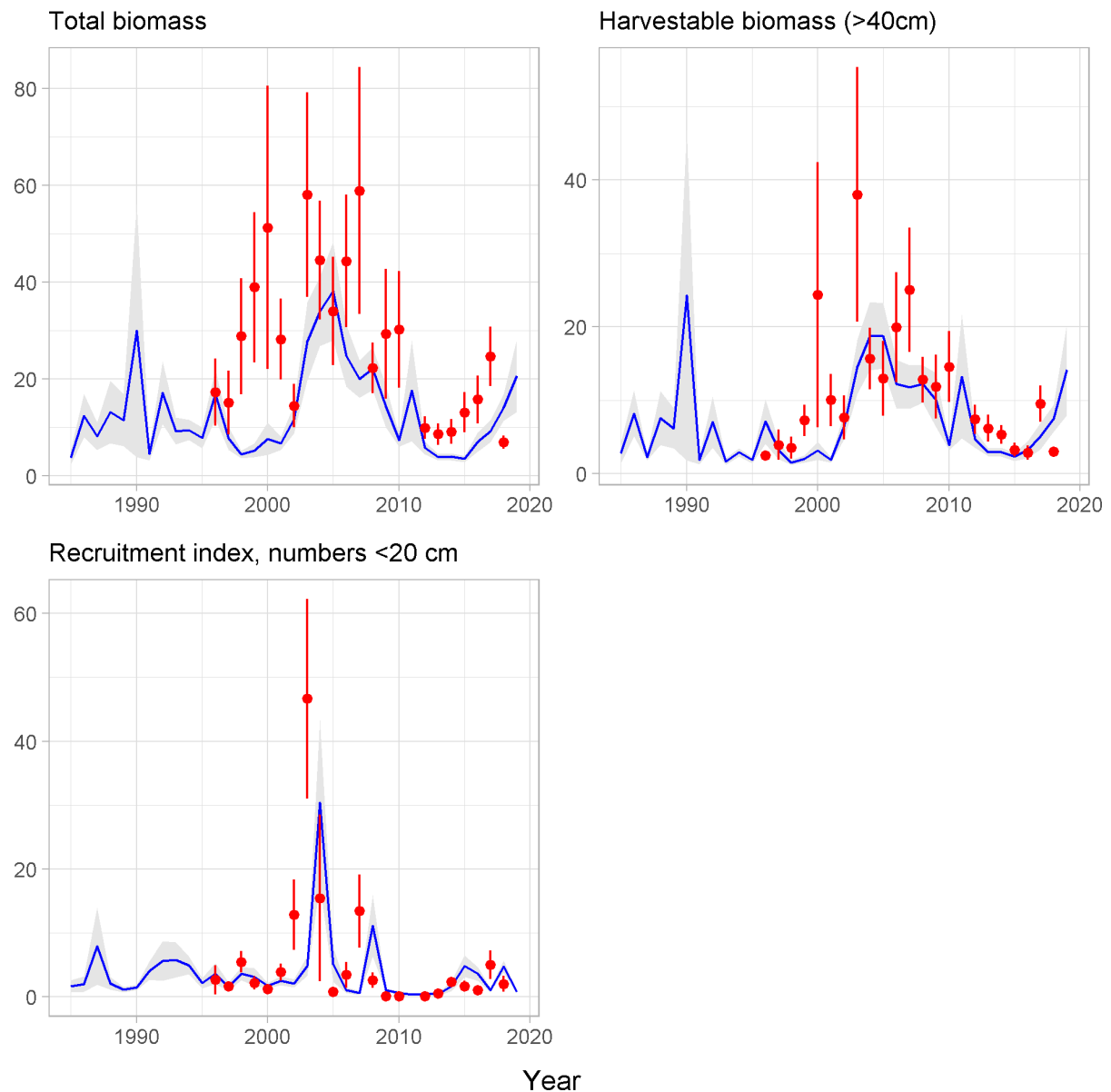


Figure 6. Whiting. Total biomass indices (upper left) and harvestable biomass indices (>40 cm, upper right), and juvenile abundance indices (<20 cm, lower) from the spring survey (blue) from 1985 and autumn survey (red) from 1996, along with the standard deviation.

Mynd 6. Lýsa. Stofnvísitala (efri til vinstri), vísitala veiðistofns (40 cm og stærri, efri til hægri) og nýliðunarvísitala (<20 cm, neðri), úr stofnmælingu botnfiska að vori (blátt) frá árinu 1985 og hausti (rautt) frá árinu 1996, ásamt staðalfrávik.

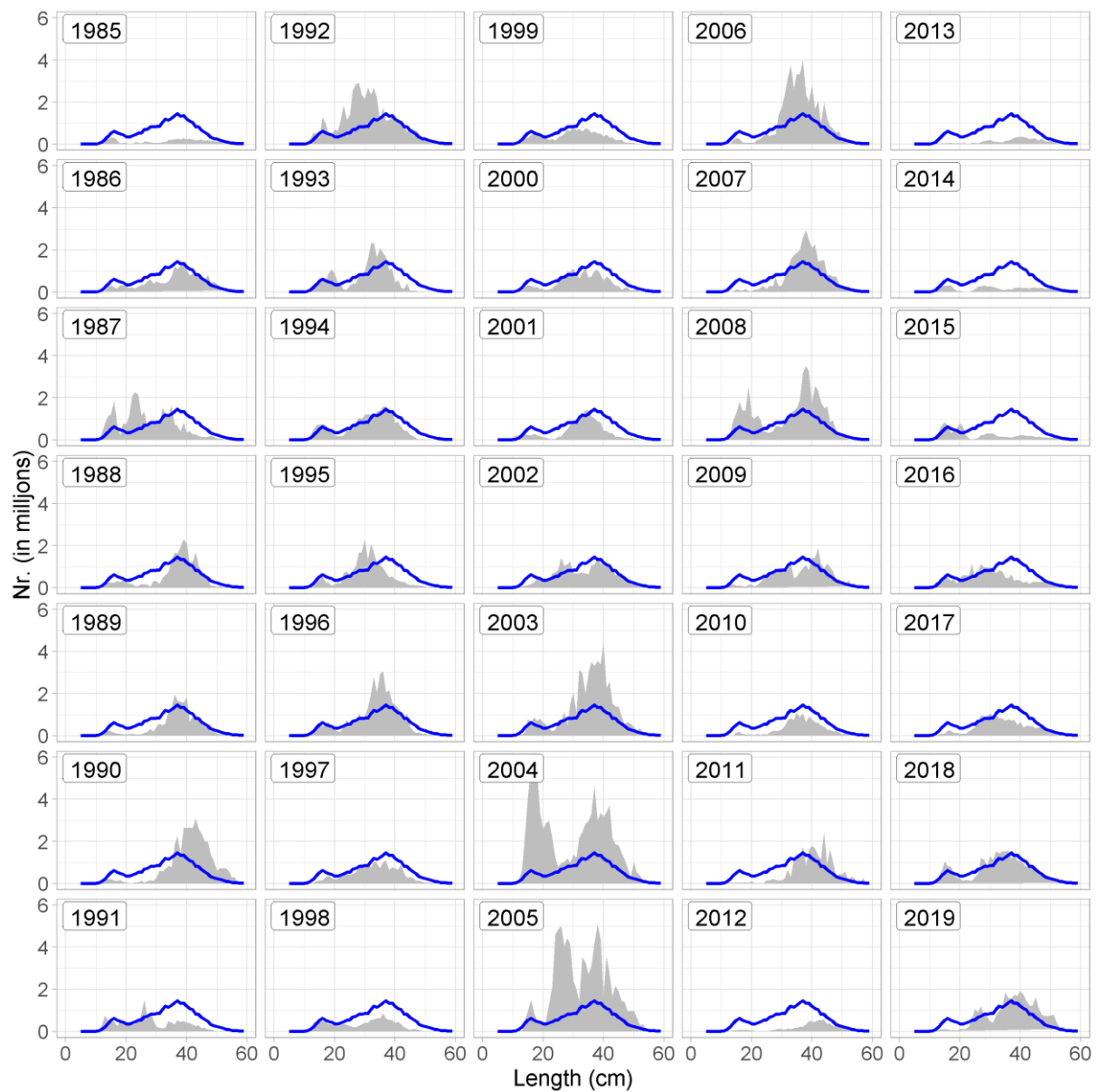


Figure 7. Whiting. Whiting. Length disaggregated abundance indices from the spring survey. The blue line indicates mean abundance for all years.

Mynd 7. Lýsa. Lengdarskiptar fjöldavísitölur úr stofnmælingu botnfiska að vori frá 1996 ásamt meðalfjölda allra ára (blá lína).

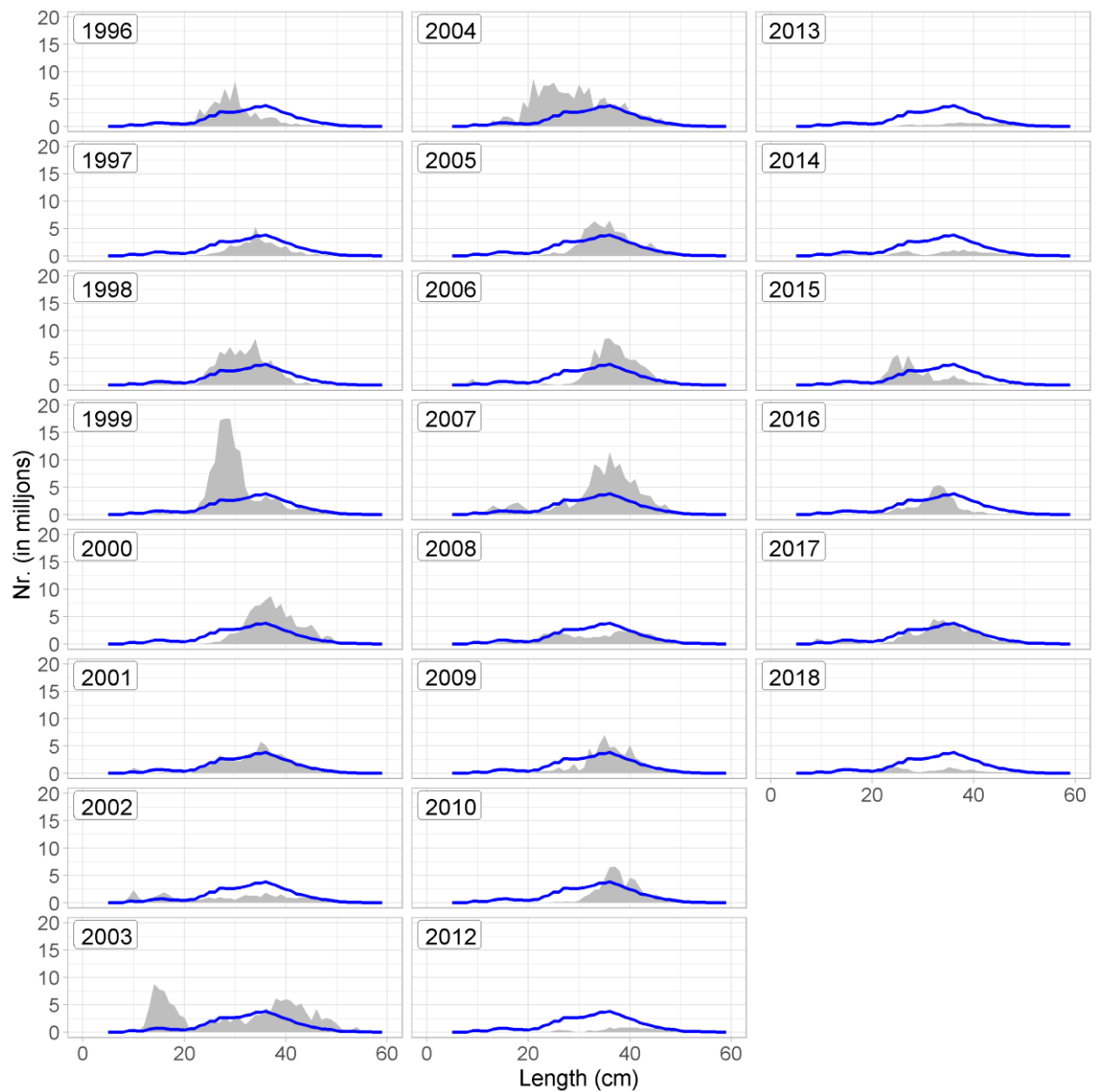


Figure 8. Whiting. Length disaggregated abundance indices from the autumn survey. The blue line indicates mean abundance for all years.

Mynd 8. Lýsa. Lengdarskiptar fjöldavísitölur úr stofnmælingu botnfiska að hausti frá 1996 ásamt meðalfjölda allra ára (blá lína).

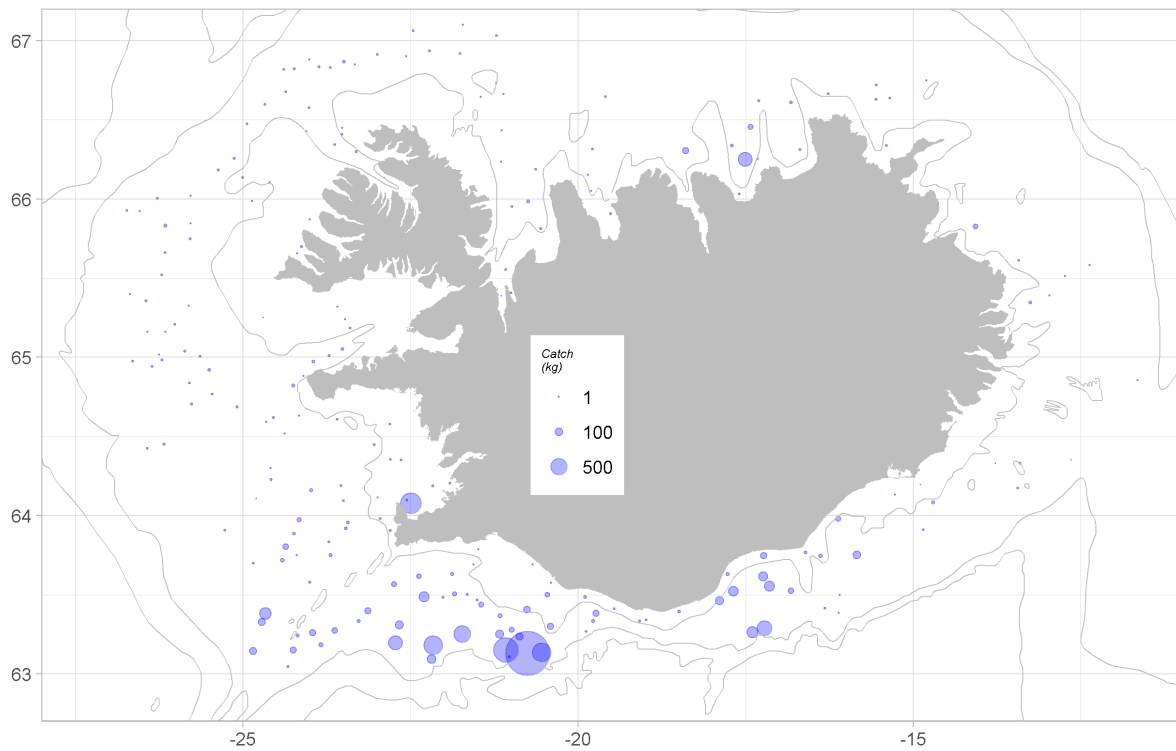


Figure 9. Whiting. Spatial distribution from the spring groundfish survey in 2019.

Mynd 9. Lýsa. Útbreiðsla í stofnmælingu botnfiska að vori árið 2019.

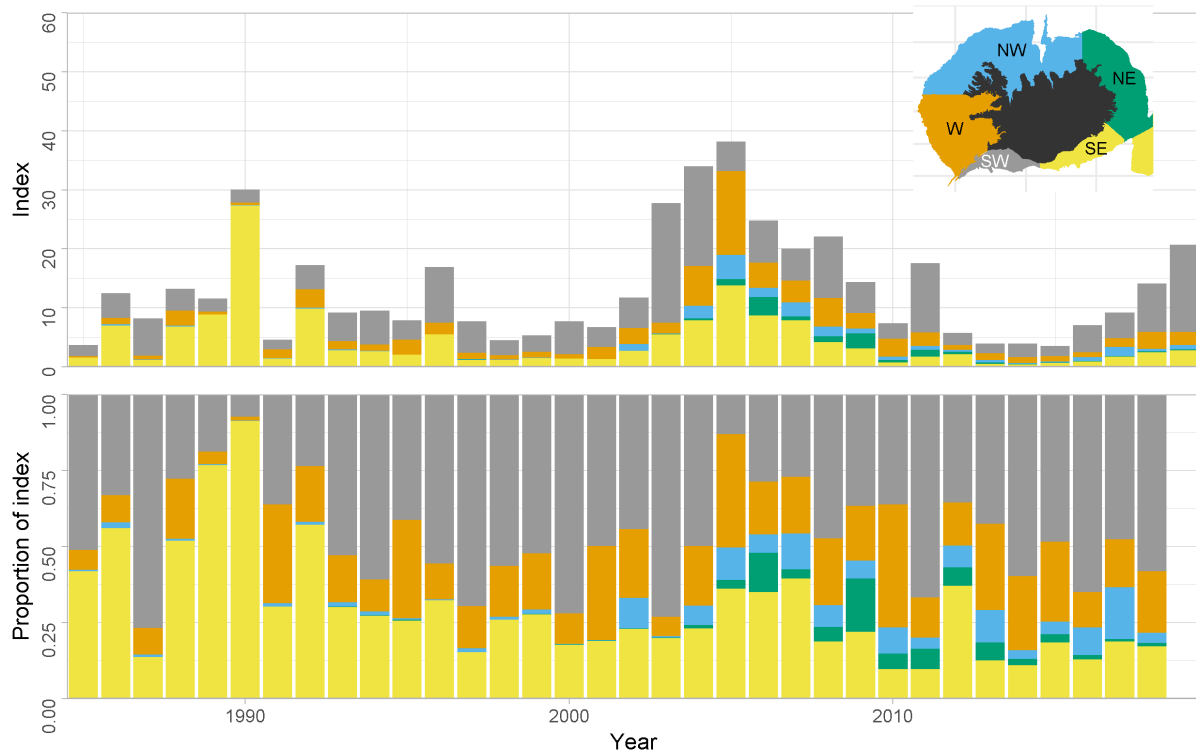


Figure 10. Whiting. Spatial distribution of biomass index from the spring groundfish survey.

Mynd 10. Lýsa. Dreifing lífmassavísitölu í stofnmælingum botnfiska að vori.

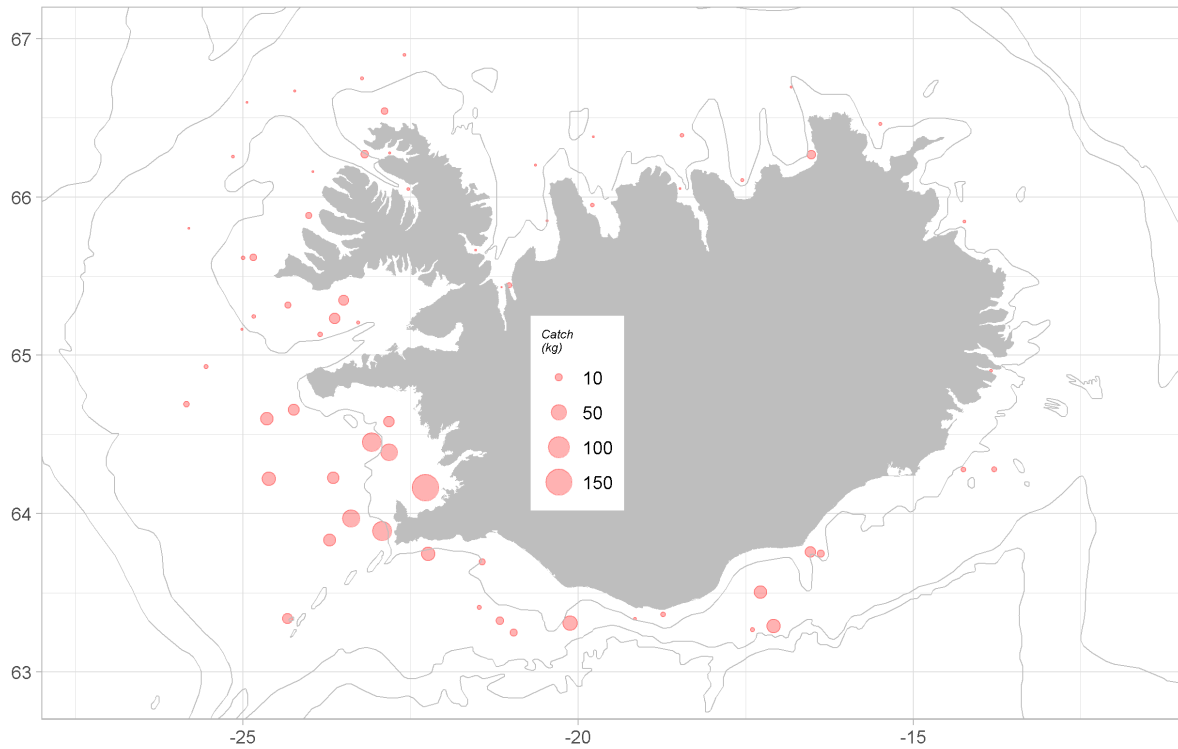


Figure 11. Whiting. Spatial distribution of catches from the autumn groundfish survey 2018.

Mynd 11. Lýsa. Útbreiðsla í stofnmælingu botnfiska að hausti árið 2018.



Figure 12. Whiting. Spatial distribution of biomass index from the autumn groundfish survey.

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

MANAGEMENT

Whiting has not been subject to management such as TAC limitations and hence, catch advice has not been given by the Marine and Freshwater Research Institute before 2019.

Table 2. Whiting. Recommended TAC, national TAC set by the Ministry, and landings (tonnes).

Tafla 2. Lýsa. Tillögur Hafrannsóknastofnunar um hámarksafla, ákvörðun stjórnvalda um aflamark og landaður afli (tonn).

Fishing year	Rec. Tac	National TAC	Catch
2001/02	-	-	1192
2002/03	-	-	1309
2003/04	-	-	1001
2004/05	-	-	964
2005/06	-	-	895
2006/07	-	-	1030
2007/08	-	-	1812
2008/09	-	-	1984
2009/10	-	-	2835
2010/11	-	-	3249
2011/12	-	-	1601
2012/13	-	-	1060
2013/14	-	-	1034
2014/15	-	-	877
2015/16	-	-	690
2016/17	-	-	642
2017/18	-	-	844
2018/19	-	-	
2019/20	836		

ADVICE

Suggested advice is given based on the ICES framework for category 3 stocks (ICES, 2012) where reliable stock biomass indices are available but without the possibility of analytical age-length based assessments. Spring survey biomass (IS-SMB) is used as an estimate of stock development. The advice is based on the ratio of the mean of the last two index values (index A) and the mean of the three preceding values (index B) multiplied by the mean catches in the last three calendar years. The difference between these ratios is more than 305% and thus the uncertainty cap was applied limiting the change to +20%. The result is a TAC for 2019/20 set at 836 tonnes ($1.2 \times 697 = 836$ t, Table 3).

Table 3. Whiting. Advice calculations.**Tafla 3. Lýsa. Útreikningur ráðgjafar.**

Vísitala A (2017-2018) – Index A (2018-2019)		10863
Vísitala B (2014-2016) – Index A (2015-2017)		3558
Vísitölulutfall (A/B) – Index ratio (A/B)		3.1
Sveiflujöfnun – Uncertainty cap	Beitt – Applied	1.2
Meðalafli 2016-2018 – Average catches 2016-2018		697
Varúðarlækkun – Precautionary buffer	Ekki beitt – Not applied	-
Ráðgjöf – Catch advice		$697 \times 1.2 = 836$ t