



Serial No. N6784

NAFO SCS Doc. 18/05

**SCIENTIFIC COUNCIL MEETING – JUNE 2018****ESTONIAN RESEARCH REPORT FOR 2017**

by

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This Report contains information for Estonian fishing vessels which operated in NAFO RA in 2017. Vessels targeting shrimp were excluded. Fishery took place only in SA 3. Catch, effort and length distribution information in sub-area 3 is from onboard NAFO observers. In Estonia, NAFO observers are employed by the Estonian Marine Institute, and they are also specially trained to collect basic scientific data.

**Sub-area 3****A. Status of the Fishery**

Two vessels were involved in finfish fishery in 2006. There has been mainly one vessel involved in finfish fishery from 2007 to 2012. There were four vessels involved in finfish fishery of which two targeted mainly shrimp and switched to finfish when shrimp catch was poor in 2013. Two vessels were involved in finfish fishery in 2014 but one of them targeted mainly shrimp. In 2015 and 2016 two vessels were fishing only finfish and no fishing for shrimp was carried out. In 2017 there were two vessels targeting finfish as new vessels joined the fishing.

As new vessels took part of the fishing almost the whole year, then the fishing effort increased significantly in 2017. Fishing effort has been fluctuating from 2007 to 2017 (Tables 1-2). According to observer estimated catch and discard data, main target species were RED, COD and GHL, followed by SKA and PLA in 2017 (Table 3).

In addition to effort and discard information, specifically trained NAFO observers collected length, age and sex data. The list of collected data is in Table 4. All lengths are TL and length group (LG) 10 means lengths from 10.0 to 10.9 cm. Mesh size of trawls for finfish fishery in codend was 139-145 mm, for skates 286 mm. Length distributions are presented as sampled number of fish (Tables 5-8, Figs. 1-5).



**Table 1.** Fishing effort (hours) of Estonian fleet targeting finfish in NAFO area in 2017 by division and month.

2017 Month	Division				Grand Total
	3L	3M	3N	3O	
1	64	199	6		269
2	126	331	18		474
3	44	233	92	116	485
4			18	9	27
5	1	277	117	274	669
6	290	458	101	46	895
7	208	333			540
8	61	238			298
9	104	533	221	88	945
10	97	85	289		471
11	30	16	268	28	341
12					
Total effort, hrs	1022	2702	1130	560	5414

**Table 2.** Fishing effort (hours) of Estonian fleet targeting finfish in NAFO area in 2007-2017 by division.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
3L	1705	1527	916	1785	1240	531	1413	1425	980	985	1022
3M	367	324	580	1107	1550	243	2534	1260	816	486	2702
3N	388	230	20	152	98	796	937	856	999	1483	1130
3O	172	8	41	49	50	48	92	423	578	736	560
Total effort, hrs	2652	2089	1556	3093	2938	1619	4976	3965	3373	3690	5414

**Table 3.** Observer estimated catch and discard (tonnes) of Estonia in NAFO areas in 2017 by division.

2017			3L			3M			3N			3O			All areas
3-Alpha Code	English name	Latin name	kept	disc	total	kept	disc	total	kept	disc	total	kept	disc	total	total
COD	Atlantic Cod	<i>Gadus morhua</i>	7.0	0.1	7.1	1289.3	3.6	1292.9	18.2	0.4	18.6	16.5	0.1	16.6	1335.1
GHL	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	364.6	0.4	365.0	107.0	0.1	107.1	145.6	0.3	146.0	0	0	0	618.1
PLA	Amer. plaice(=Long rough dab)	<i>Hippoglossoides platessoides</i>	5.7	0.1	5.8	29.1	0.1	29.2	28.9	1.0	29.9	17.7	0.2	17.9	82.9
YEL	Yellowtail flounder	<i>Limanda ferruginea</i>	0	0	0	0	0	0	39.0	0.5	39.5	2.2	0.0	2.2	41.7
WIT	Witch flounder	<i>Glyptocephalus cynoglossus</i>	2.3	0	2.3	17.5	0.1	17.6	22.6	0.2	22.8	25.2	0.1	25.3	68.0
RED	Atlantic redfishes nei	<i>Sebastes</i> spp	426.2	0.8	427.0	722.9	2.7	725.6	445.0	1.3	446.4	628.3	1.0	629.3	2228.3
RHG	Roughhead grenadier	<i>Macrourus berglax</i>	8.8	1.9	10.7	6.4	3.1	9.5	7.6	1.1	8.7	0	0	0	28.9
SKA	Raja rays nei	<i>Raja</i> spp	6.3	0.1	6.3	5.2	0.0	5.2	301.7	1.0	302.7	3.3	0.0	3.3	317.6
HAD	Haddock	<i>Melanogrammus aeglefinus</i>	0	0	0	0	0	0	0	0	0	7.5	0.0	7.5	7.5
HKW	White hake	<i>Urophycis tenuis</i>	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.2
HKS	Silver hake	<i>Merluccius bilinearis</i>	0	0	0	0	0	0	0	0	0	54.2	0.4	54.6	54.6
SQI	Short-finned squid ( <i>Illex</i> )	<i>Illex illecebrosus</i>	0	0	0	0	0	0	0	0	0	0.1	0	0.1	0.1
HAL	Atlantic halibut	<i>Hippoglossus hippoglossus</i>	6.5	0	6.5	13.1	0	13.1	9.8	0	9.8	12.3	0	12.3	41.7
ANG	American angler (=Goosefish)	<i>Lophius americanus</i>	0	0	0	0	0	0	0.2	0	0.2	0.6	0	0.6	0.8
GSK	Boreal (Greenland) shark	<i>Somnonusus microcephalus</i>	0	6	6	0	2.0	2.0	0	14.5	14.5	0	2.5	2.5	25.0
SHX	Large sharks (NS)	<i>Squaliformes</i>	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0.1
SQI	Short-finned squid ( <i>Illex</i> )	<i>Illex illecebrosus</i>	0	0	0	0	0.1	0.1	0	0	0	0	0	0	0.1
MZZ	Marine fishes nei	<i>Osteichthyes</i>	0	1.9	1.9	0	3.7	3.7	0	2.6	2.6	0	1.8	1.8	9.9

**Table 4.** Biological sampling list for Estonia in 2017. \*Number of sexed fish; \*\*Only age structures collected, fish not aged yet.

Country	Species Code	NAFO Division	Gear	Month	Type of Sample	Directed/ Bycatch/ Discard	No. of samples	No. Measured	No. Sexed*	No. Aged**	No. Weighed
EST	CAB	3M	OTB	2	OC	Kept	1	1		1	1
EST	COD	3L	OTB	6	OC	Kept	1	50			50
EST	COD	3M	OTB	2	OC	Kept	10	156	156	156	54
EST	COD	3M	OTB	5	OC	Kept	6	156	156	50	50
EST	COD	3M	OTB	6	OC	Kept	9	319	319	168	319
EST	COD	3M	OTB	7	OC	Kept	4	75	75	65	75
EST	COD	3M	OTB	8	OC	Discarded	1	16		4	
EST	COD	3M	OTB	8	OC	Kept	8	237	237	114	237
EST	COD	3M	OTB	9	OC	Discarded	1	2		2	
EST	COD	3M	OTB	9	OC	Kept	3	86	72	6	72
EST	GHL	3L	OTB	1	OC	Kept	3	60	60	60	60
EST	GHL	3L	OTB	2	OC	Kept	2	213	213	63	213
EST	GHL	3L	OTB	6	OC	Kept	6	339	295	16	259
EST	GHL	3L	OTB	7	OC	Kept	4	110	108	22	110
EST	GHL	3L	OTB	9	OC	Kept	1	57	57	42	57
EST	GHL	3M	OTB	2	OC	Kept	5	80	80	80	80
EST	GHL	3M	OTB	3	OC	Kept	2	3	3	3	3
EST	GHL	3M	OTB	7	OC	Kept	1	30	27	10	10
EST	GHL	3M	OTB	10	OC	Kept	1	41	41	41	41
EST	GHL	3N	OTB	5	OC	Kept	3	277	153	11	272
EST	GHL	3N	OTB	6	OC	Kept	2	90	79		30
EST	GHL	3N	OTB	9	OC	Kept	4	242	242	168	242
EST	GHL	3N	OTB	10	OC	Kept	1	58	58	21	58
EST	GHL	3O	OTB	6	OC	Kept	1	29	29	6	30
EST	PLA	3N	OTB	5	OC	Kept	1	2		2	2
EST	RED	3L	OTB	5	OC	Kept	1	334	334	46	46
EST	RED	3L	OTB	6	OC	Kept	18	1120	1119	74	224
EST	RED	3L	OTB	7	OC	Kept	3	130	130		30
EST	RED	3L	OTB	8	OC	Kept	3	173	173	96	129
EST	RED	3L	OTB	9	OC	Kept	1	157	157	42	42
EST	RED	3L	OTB	10	OC	Kept	1	134	134		134
EST	RED	3M	OTB	1	OC	Kept	4	200	200	75	200
EST	RED	3M	OTB	2	OC	Kept	13	125	125	125	125
EST	RED	3M	OTB	3	OC	Kept	9	76	75	76	76
EST	RED	3M	OTB	5	OC	Kept	4	201	201	75	201
EST	RED	3M	OTB	6	OC	Kept	7	235	235	121	158
EST	RED	3M	OTB	7	OC	Kept	10	398	398	39	289
EST	RED	3M	OTB	8	OC	Discarded	1	22	22	18	22
EST	RED	3M	OTB	9	OC	Discarded	5	123	123	110	123
EST	RED	3N	OTB	2	OC	Kept	5	185	185	185	92

EST	RED	3N	OTB	3	OC	Kept	8	600	600	50	50
EST	RED	3N	OTB	6	OC	Kept	1	40	40		40
EST	RED	3N	OTB	9	OC	Kept	2	432	432	85	85
EST	RED	3N	OTB	10	OC	Kept	2	245	245	63	132
EST	RED	3N	OTB	11	OC	Kept	2	265	265		
EST	RED	3O	OTB	3	OC	Kept	4	554	554	154	154
EST	RED	3O	OTB	5	OC	Kept	16	1165	1108	215	615
EST	RED	3O	OTB	6	OC	Kept	4	220	220		218
EST	RED	3O	OTB	9	OC	Kept	4	1021	1021	152	152
EST	YEL	3N	OTB	5	OC	Discarded	2	6	6		6
EST	YEL	3N	OTB	5	OC	Kept	2	96	96	6	96
EST	YEL	3N	OTB	6	OC	Discarded	1	5	5		5
EST	YEL	3N	OTB	6	OC	Kept	2	75	75		75
EST	YEL	3N	OTB	9	OC	Kept	2	167	167	84	167
EST	YEL	3N	OTB	10	OC	Kept	1	75	75	42	75
EST	YEL	3N	OTB	11	OC	Kept	1	81	81	28	81
EST	YEL	3O	OTB	5	OC	Discarded	1	1	1		1
EST	YEL	3O	OTB	5	OC	Kept	1	30	30	5	30

**Table 5.** Length distribution (sampled number of fish) of cod in 2017 Estonian fisheries in NAFO area. 0- female, 1-male and ind-unsexed.

LG, cm	3L			3L Total	3M			3M Total
	0	1	ind		0	1	ind	
22							1	1
23								
24							1	1
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35						1		1
36						4	1	5
37							2	2
38						6	3	9
39					6		3	9
40						4	5	9
41					7	10	3	20
42					4		2	6
43					4	3	1	8
44					4		2	6
45					8	3	2	13
46					11	10	2	23
47					8	3	2	13
48					7	7	1	15
49			1	1	8	7		15
50					4	3		7
51					7	7		14
52			1	1	5	6	1	12
53					4	3		7
54			1	1	11	10		21
55					17	13		30
56			1	1	26	25		51
57			4	4	28	9		37
58			2	2	27	31		58
59			5	5	31	18		49
60			4	4	22	28		50
61			7	7	33	33		66
62			4	4	26	35		61
63			3	3	24	23		47
64			3	3	11	15		26
65			2	2	24	31		55
66			5	5	32	20		52
67			2	2	12	16		28
68			2	2	17	21		38
69			1	1	15	18		33
70			1	1	16	13		29
71					13	9		22
72					11	4		15
73					5	12		17
74					7	13		20

75					9	2		11
76					5			5
77								
78					1	5		6
79						3		3
80					4			4
81						2		2
82					2	3		5
83								
84						2		2
85								
86		1		1		1		1
87					1			1
88					1			1
89								
90								
91						1		1
92						1		1
93						1		1
94								
95					2			2
Total	0	0	50	50	520	495	32	1047

**Table 6.** Length distribution (sampled number of fish) of Greenland halibut in 2017 Estonian fisheries in NAFO area. 0-female, 1-male and ind-unsexed.

LG, cm	3L			3L Total	3M			3M Total	3N			3N Total	3O			3O Total
	0	1	ind		0	1	ind		0	1	ind		0	1	ind	
30																
31																
32			1	1												
33	2		1	3						1	1	2				
34		1	1	2							2	2				
35	1	1		2												
36		1	1	2										1		1
37	1		4	5					1		2	3				
38	3	3	1	7	1	1		2	2	1	3	6				
39		2	7	9	1			1	3	2	2	7			1	1
40	9	4	10	23	1		1	2	3	2	10	15	1	1		2
41	7	5	8	20	3		1	4	2	3	2	7				
42	10	7	2	19	3	5		8	5	3	10	18				
43	19	9	12	40	3	3		6	9	5	23	37				
44	23	12	5	40	4	1	1	6	23	7	13	43	1			1
45	25	11		36	3	3		6	20	3	9	32				
46	24	20		44	5	3		8	22	6	5	33	4			4
47	31	16		47	8	3		11	37	11	8	56	1			1
48	46	18		64	15	5		20	35	4	8	47	3			3
49	32	18		50	5	1		6	42	7	8	57	1	1		2
50	47	19		66	7	4		11	23	9	10	42	7			7
51	46	15		61	6			6	16	9	6	31	1			1
52	39	15		54		3		3	20	12	7	39	1	1		2
53	24	20		44	5	1		6	12	11	2	25				
54	24	6		30	5	2		7	21	2	2	25	2	1		3
55	22	5		27	7			7	26	8		34		1		1
56	21	2		23	5	3		8	19	2	1	22	1			1
57	16	3		19	2			2	19	1	1	21				
58	8	3		11	5			5	18	1		19				
59	4	1		5	5			5	12	1		13				
60	2			2	2			2	9			9				
61	6			6	1			1	3			3				
62	3	1		4	3			3	6			6				
63					1			1	2	1		3				
64	1			1	1			1	2			2				
65	4			4	2			2	3	1		4				
66	1			1					1	1		2				
67	1	1		2						1		1				
68	2			2	1			1								
69									1			1				
70	1			1	1			1								
71																
72	1			1	1			1								
73	1			1	1			1								
74																
75																
Total	507	219	53	779	113	38	3	154	417	115	135	667	23	6	1	30

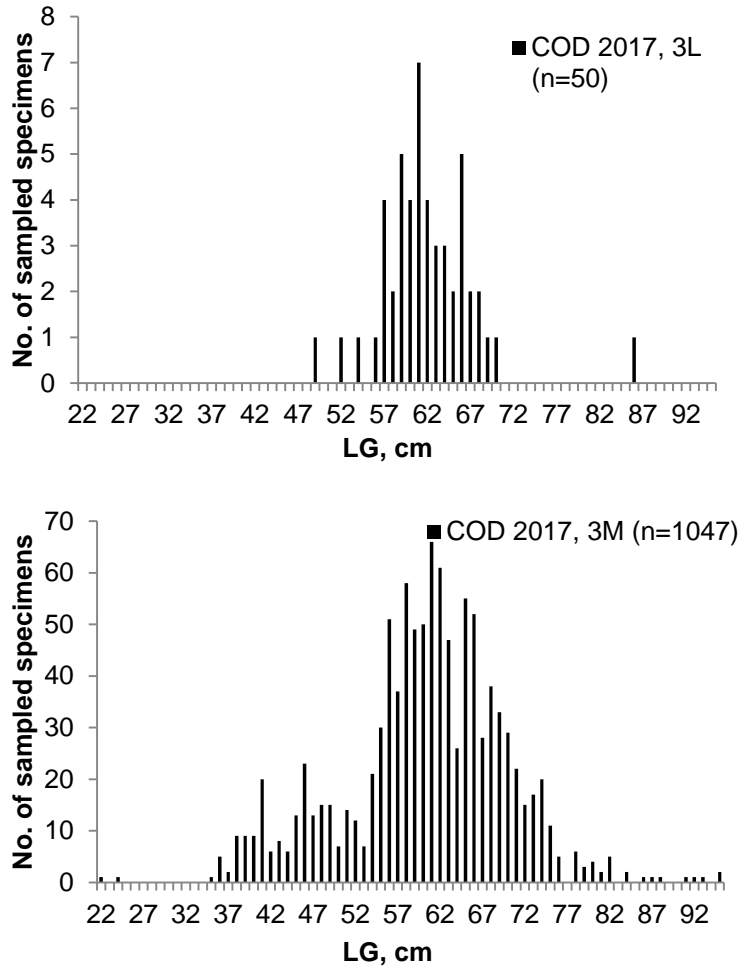


**Table 7.** Length distribution (sampled number of fish) of redfish in 2017 Estonian fisheries in NAFO area. 0- female, 1-male and ind-unsexed.

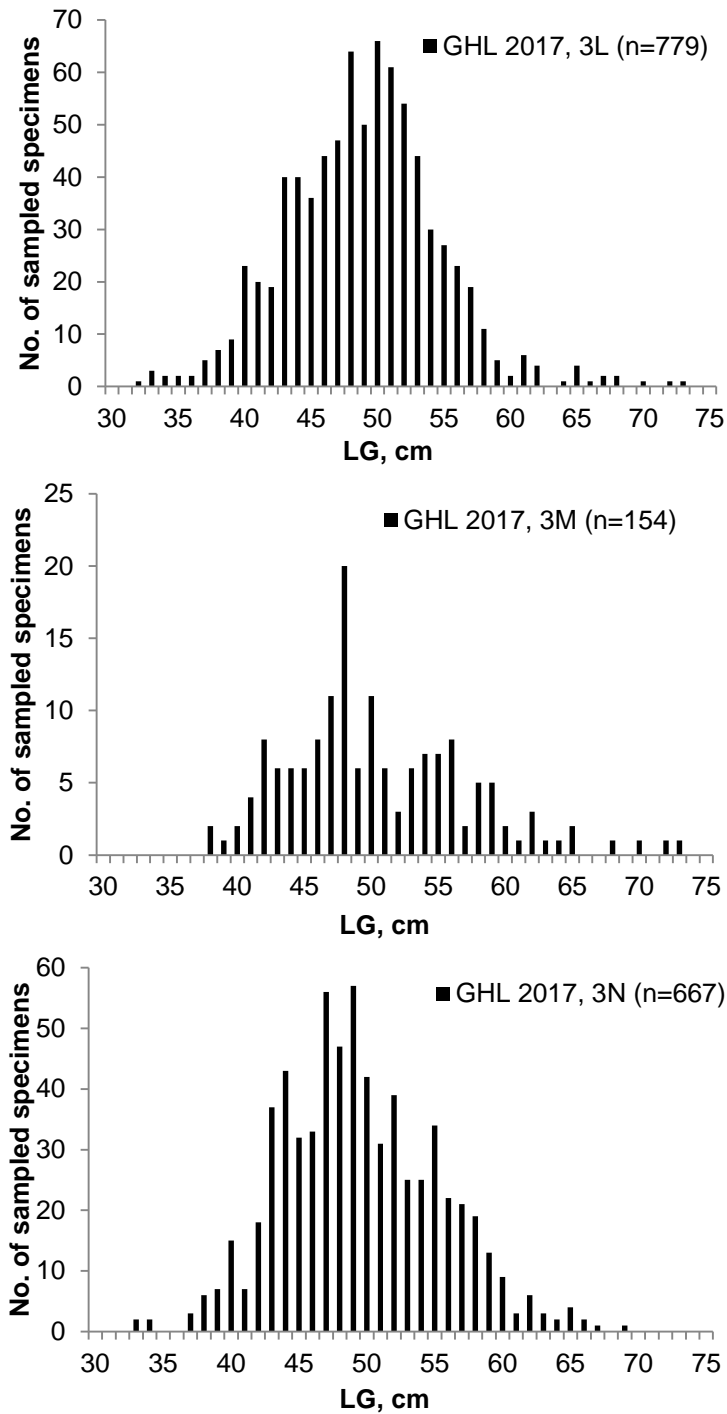
LG, cm	3L			3L Total	3M			3M Total	3N			3N Total	3O			3O Total
	0	1	ind		0	1	ind		0	1	ind		0	1	ind	
13			1	1											0	
14			4	4									2	2	4	
15													1	3	4	
16														1	1	
17													1	4	5	
18	1			1							1	1	9	2	12	
19		1		1							1	1	4	0	5	
20	1	1		2	1			1		4	4	4	4	6	3	13
21	4	10	1	15		3		3	4	23	27	24	24	55	4	83
22	16	14		30		2		2	30	127	157	50	50	173	8	231
23	18	36		54		2		2	56	208	264	143	143	335	24	502
24	33	55		88	2	2		4	103	271	374	309	309	336	19	664
25	37	89		126	10	16		26	121	159	280	361	361	201	4	566
26	64	106		170	12	20		32	154	110	264	293	293	119	1	413
27	68	77		145	5	26		31	97	52	149	204	204	38	0	242
28	68	61		129	11	34		45	78	19	97	117	117	25	1	143
29	89	85		174	30	60		90	53	12	65	36	36	7	0	43
30	135	67		202	41	74		115	24	5	29	11	11	1	1	13
31	83	43		126	44	64		108	11		11	9	9		0	9
32	137	25		162	64	64		128	14		14	2	2			2
33	158	42		200	87	65		152	9		9	1	1			1
34	105	15		120	79	39		118	4		4	1	1			1
35	93	15		108	59	18	1	78	7		7					
36	70	10		80	39	32		71	2		2	1	1			1
37	30	6		36	28	38		66	4	3	7					
38	20	5		25	23	33		56	2		2					
39	9	4		13	27	32		59				1	1			1
40	9	2		11	25	28		53								
41	2	1		3	11	26		37				1	1			1
42	3	2		5	15	12		27								
43	1	2		3	7	6		13								
44		1		1	10	4		14								
45	1			1	11	1		12								
46	1			1	8			8								
47	2			2	12			12								
48	1			1	7	1		8								
49	1			1	3			3								
50	2			2	2			2								
51	2			2	1			1								
52	1			1	2			2								
53	1			1												
54					1			1								
55	1			1												
56																
57																
58																
59									1	1						
Total	1267	775	6	2048	677	702	1	1380	773	994	1767	1570	1570	1313	77	2960

**Table 8.** Length distribution (sampled number of fish) of yellowtail flounder in 2016 Estonian fisheries in NAFO area 0-female, 1-male, ind-unsexed and juv-juvemile.

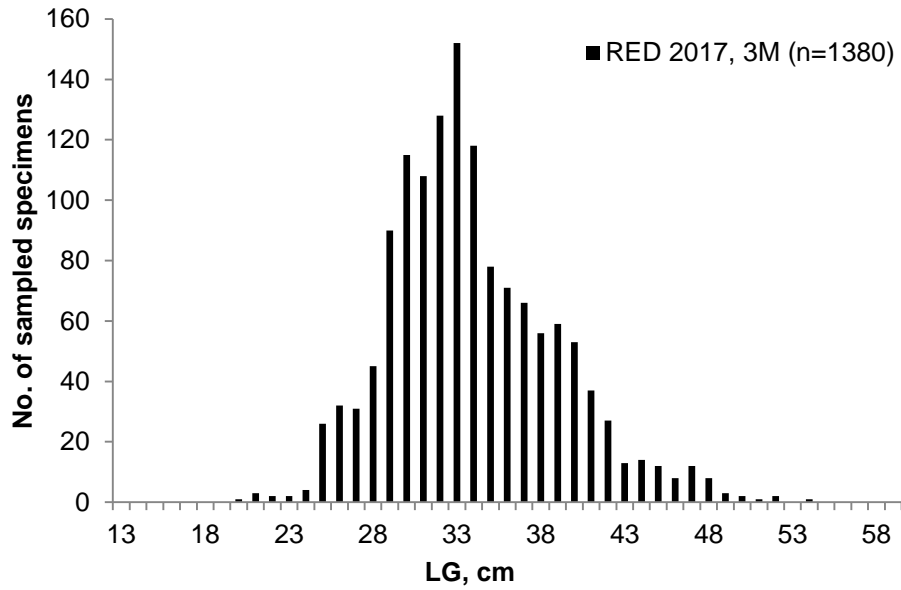
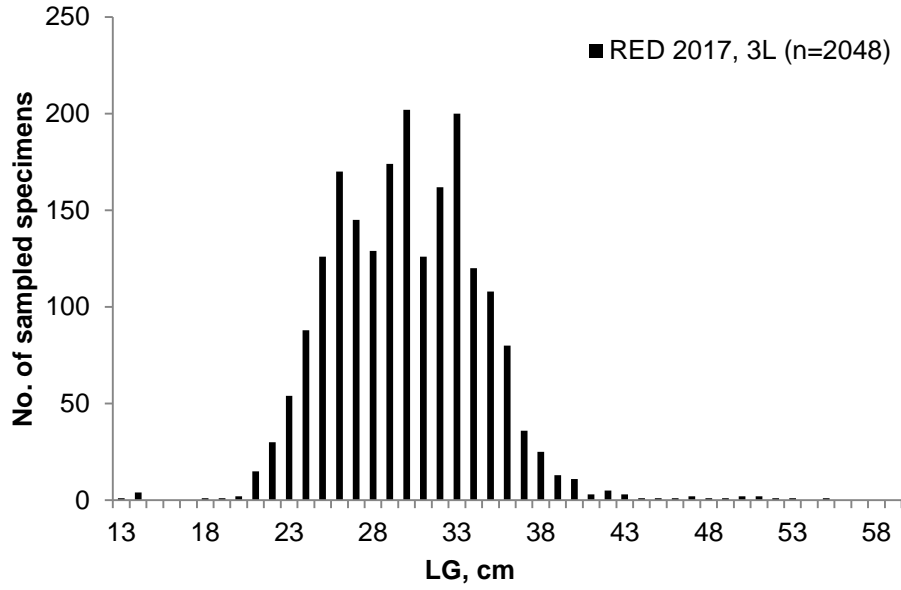
LG, cm	3N			3N Total	3O			3O Total
	0	1	ind		0	1	ind	
15				0				
16				0				
17				0				
18				0				
19				0				
20				0				
21				0				
22				0				
23				0				
24				0				
25			2	2			1	1
26		4		4				
27		3		3				
28		1		1				
29				0				
30	1	5		6				
31	4	13		17				
32	6	27		33		1		1
33	11	40		51		1		1
34	20	23		43	4	1		5
35	42	26		68	3	2		5
36	31	16		47	2	1		3
37	50	5		55	1			1
38	52	1		53	3	1		4
39	31			31	2			2
40	31			31	1			1
41	14			14				
42	16	1		17	3			3
43	8	1		9	1			1
44	6			6				
45	3			3	1			1
46	7			7	1			1
47				0				
48	4			4	1			1
49	1			1				
Total	338	166	2	506	23	7	1	31

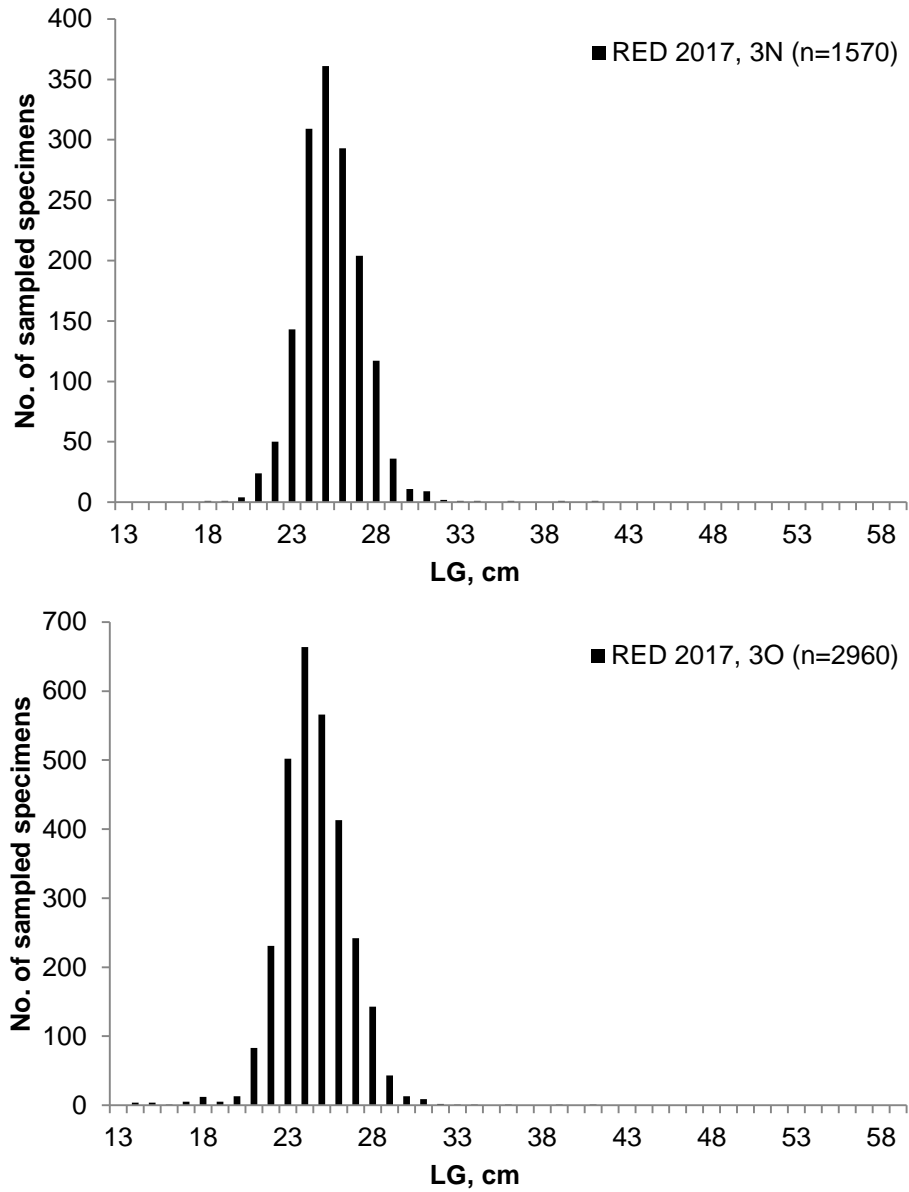


**Fig. 1.** Length distribution (number of sampled specimens) of cod in Div. 3L and 3M Estonian fisheries in 2017.

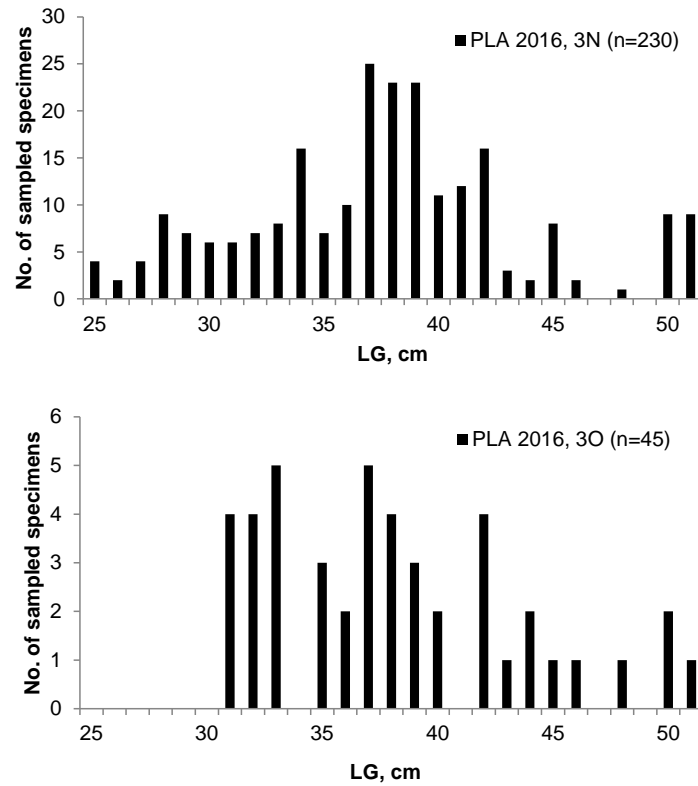


**Fig. 2.** Length distribution (number of sampled specimens) of Greenland halibut in Div. 3L 3M and 3N Estonian fisheries in 2017.

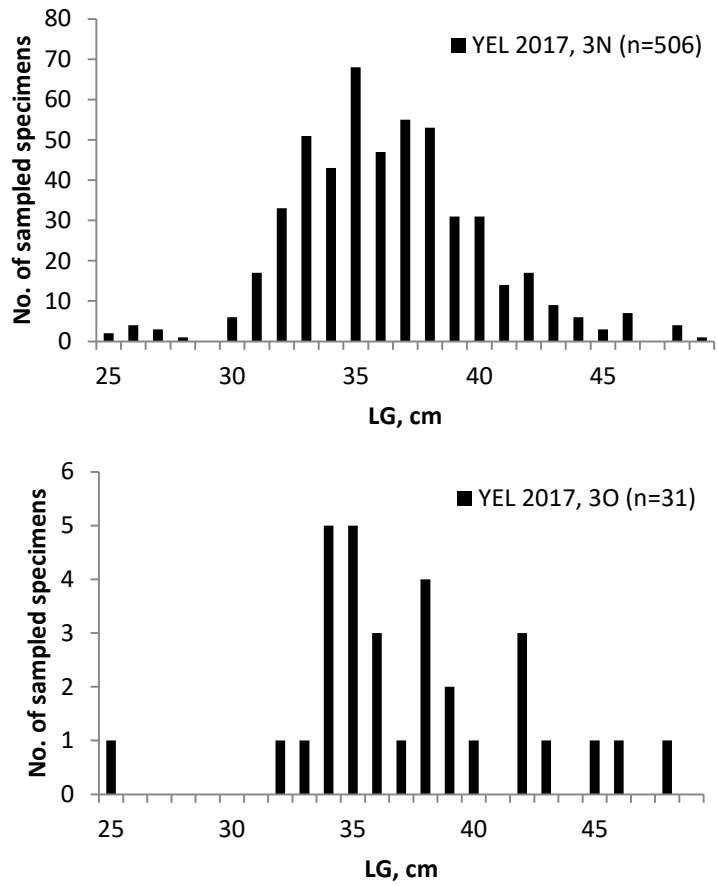




**Fig. 3.** Length distribution (number of sampled specimens) of redfish in Div. 3L, 3M, 3N and 3O Estonian fisheries in 2017.



**Fig. 4.** Length distribution (sampled number of fish) of American plaice in Div. 3N and 3O Estonian fisheries in 2016.



**Fig. 5.** Length distribution (sampled number of fish) of yellowtail flounder in Div. 3N and 3O Estonian fisheries in 2017.