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Results of the longline survey on NAFO Division 3M

by

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Abstract

This paper presents the results of the Faroese longline survey carried out in NAFO 3M in May 2023. The 703 GRT longline vessel “Stapin” (LOA 42.0 m) conducted the survey. The goal was primarily to provide information about the stock status of the cod (*Gadus morhua*) stock on Flemish Cap.

Introduction

The objective of the survey was to cover as much as possible of area 3M with longline fishing gear and contrasts the results with those of the EU groundfish survey and the potential inclusion in the assessment of 3M cod in the future. The survey covered mainly the stock distribution of cod at depths ranging from 140 m to 630 m on the Flemish Cap with 28 longline sets of 3600 hooks each (Figure 1).

Results

Cod dominated the catch and the overall catch rate of cod was extremely high, 1000 grams per hook (Table 1). In addition to cod other fish species such as tusk, ling and redfish were caught in the survey. The high catch rates of cod were apparent at all depths and areas on the Flemish Cap (Figure 1). A histogram of the catch rates showed that the catch rates were reasonably bell shaped around the mean value of 1000 grams per hook (Figure 2). Hence, the overall cpue of cod was well defined since the effect of outliers was very limited in contrast to what is frequently observed in trawl surveys. Biological samples of cod were also taken. A total of 280 individuals were measured in length, weight, sex and age-readings Length composition data and weight-length relationship are displayed in table 2 and figure 3. Average length of cod is estimated at 72.4 cm and weight at 3.558 kg. Around 38% of all individuals sampled were greater than 80 cm. The largest individual observed was 1.140 m and it weighted 12.9 kg. Length distribution split by sex is shown in figure 4. The observed size difference between females and males is around 7 cm (females=75.3 cm, males=68.6 cm). Age-length composition data are displayed in table 3. Age groups dominant in the samples range from 3 to 11-years old individuals (Figure 4). Individuals aged 1year old were not observed in the survey. The mean bottom temperature measured in the 28 stations was 4.24 °C.



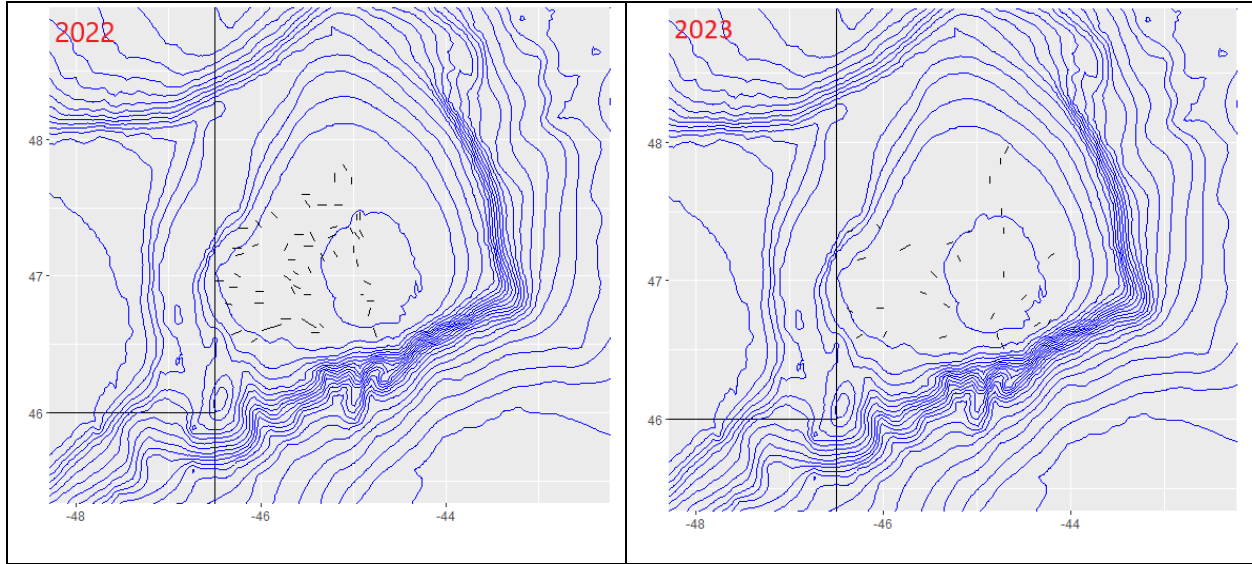


Figure 1. Spatial distribution of Faroese longline survey in SA3 in 2022 (left) and 2023 (right). A total of 54 and 28 stations were sampled in 2022 and 2023 respectively.

Table 1. Faroese longline survey on Flemish Cap in May 2023. Catch composition and the number of sets of cod.

Fish species	Total catch (tons)	Number of sets	Hooks per set
Atlantic cod	99.98	28	3600

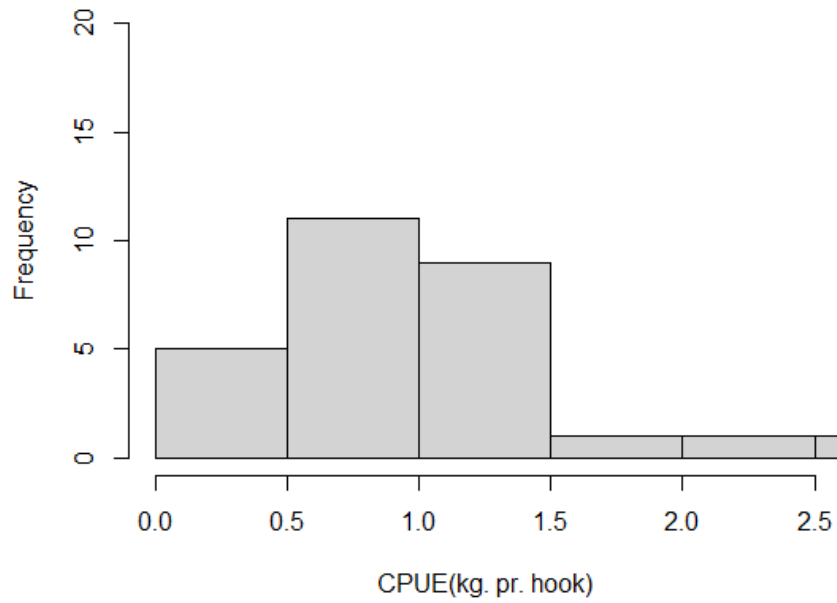


Figure 2. Catch rates of cod (kg per hook) in the Faroese longline survey in SA3 (2023).

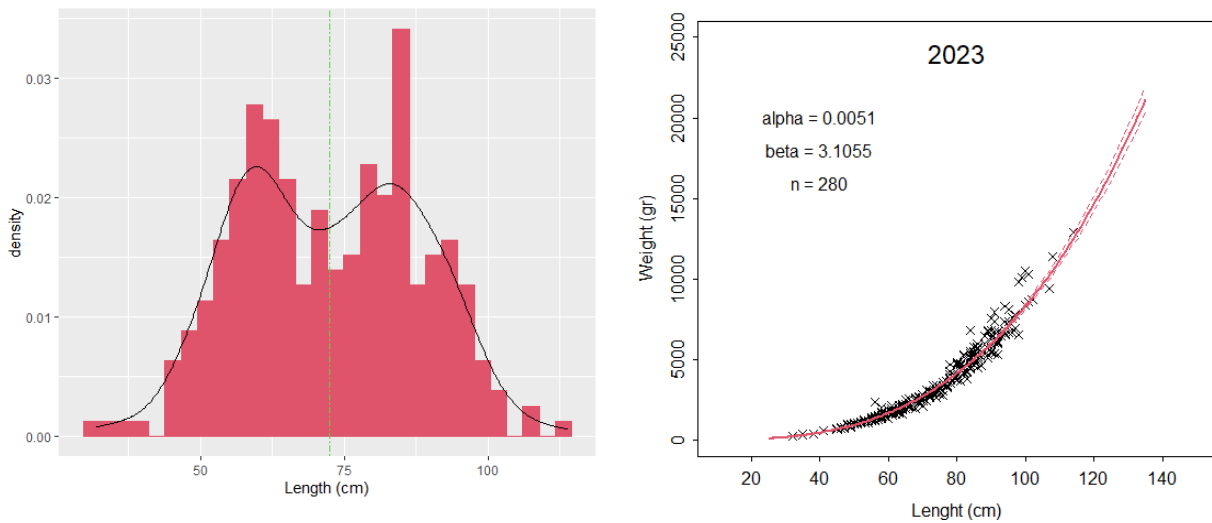


Figure 3. Length composition data (left) and length-weight relationship (right) of cod in the Faroese longline survey in SA3 (2023). Green vertical line (left) shows average length. Length measured in cm and weight in gr. Estimated parameters of the weight-length equation are shown.

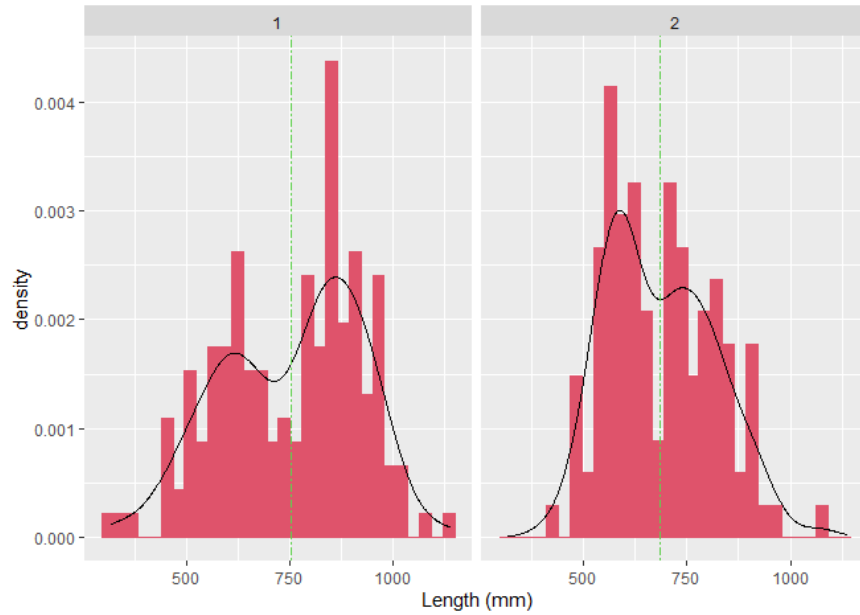


Figure 4. Length composition data split by sex (female=1, male=2) of cod in the Faroese longline survey in SA3 (2023). Green vertical line (left) shows average length in each gender group.

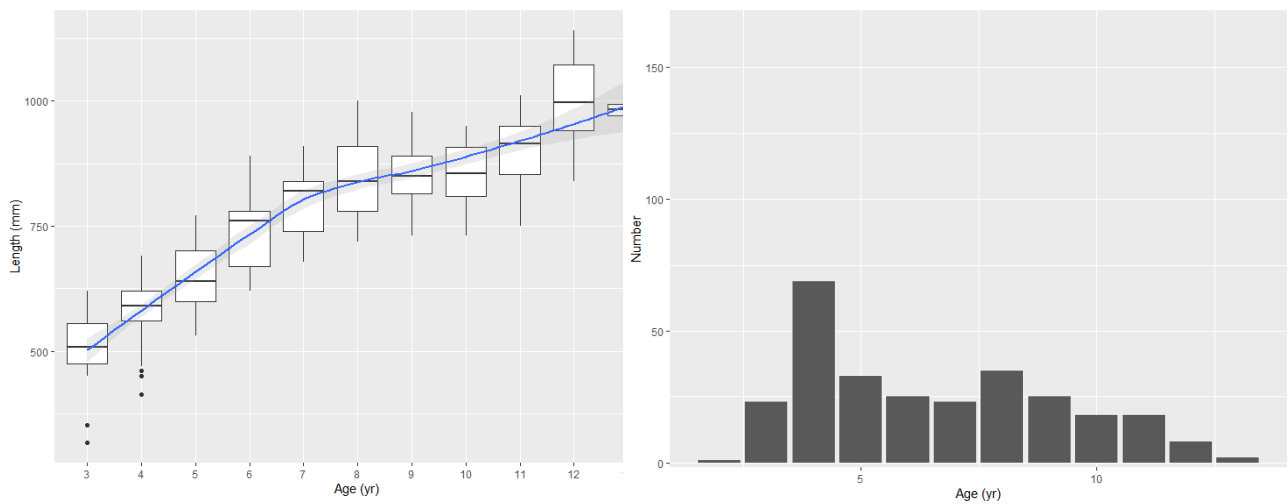


Figure 5. Length distribution disaggregated by age (left) and number of individuals in each age group (right) of cod in the Faroese longline survey in SA3 (2023). Length measured in mm and age in years.

Table 2. Length distribution (cm) of cod in the Faroese longline survey in SA3 (2023).

Length	n	Length	n
32	1	74	6
35	1	75	3
38	1	76	4
41	1	77	5
45	3	78	9
46	2	79	2
47	2	80	7
48	2	81	7
49	3	82	6
50	2	83	3
51	3	84	11
52	4	85	8
53	6	86	8
54	2	87	3
55	5	88	2
56	11	89	5
57	6	90	7
58	7	91	5
59	10	92	6
60	5	93	2
61	7	94	5
62	5	95	6
63	9	96	2
64	9	97	2
65	3	98	2
66	5	99	1
67	1	100	2
68	4	101	2
69	5	102	1
70	6	107	1
71	2	108	1
72	7	114	1
73	5		

Table 3. Age-length composition of cod in the Faroese longline survey in SA3 (2023). Length measured in cm and age in years.

Length (cm)	Age								
	2	3	4	5	6	7	8	9	10+
<35	0	2	0	0	0	0	0	0	0
38	1	0	0	0	0	0	0	0	0
41	0	0	1	0	0	0	0	0	0
45	0	2	1	0	0	0	0	0	0
46	0	1	1	0	0	0	0	0	0
47	0	1	1	0	0	0	0	0	0
48	0	2	0	0	0	0	0	0	0
49	0	2	1	0	0	0	0	0	0
50	0	1	1	0	0	0	0	0	0
51	0	2	1	0	0	0	0	0	0
52	0	3	1	0	0	0	0	0	0
53	0	0	5	1	0	0	0	0	0
54	0	0	1	1	0	0	0	0	0
55	0	1	3	1	0	0	0	0	0
56	0	1	9	1	0	0	0	0	0
57	0	2	4	0	0	0	0	0	0
58	0	1	4	2	0	0	0	0	0
59	0	1	7	2	0	0	0	0	0
60	0	0	4	1	0	0	0	0	0
61	0	0	6	1	0	0	0	0	0
62	0	1	2	1	1	0	0	0	0
63	0	0	5	3	1	0	0	0	0
64	0	0	2	4	3	0	0	0	0
65	0	0	2	1	0	0	0	0	0
66	0	0	2	2	1	0	0	0	0
67	0	0	0	0	1	0	0	0	0
68	0	0	2	1	0	1	0	0	0
69	0	0	3	1	1	0	0	0	0
70	0	0	0	6	0	0	0	0	0
71	0	0	0	1	1	0	0	0	0
72	0	0	0	0	1	4	2	0	0
73	0	0	0	0	1	0	2	1	1
74	0	0	0	0	1	2	3	0	0
75	0	0	0	2	0	0	0	0	1
76	0	0	0	0	1	1	1	0	1
77	0	0	0	1	1	1	0	1	1
78	0	0	0	0	5	0	2	1	1
79	0	0	0	0	0	1	0	0	1
80	0	0	0	0	1	1	4	0	1
81	0	0	0	0	2	0	1	3	1
82	0	0	0	0	0	2	1	2	1
83	0	0	0	0	0	0	1	2	0
84	0	0	0	0	0	5	2	0	4
85	0	0	0	0	0	0	2	4	2
86	0	0	0	0	2	1	1	2	2
87	0	0	0	0	0	1	1	0	1
88	0	0	0	0	0	0	1	1	0
89	0	0	0	0	1	1	0	3	0
90	0	0	0	0	0	1	2	0	4
91	0	0	0	0	0	1	0	1	3
92	0	0	0	0	0	0	1	2	3
93	0	0	0	0	0	0	1	0	1
94	0	0	0	0	0	0	3	0	2
95	0	0	0	0	0	0	1	1	4
96	0	0	0	0	0	0	0	0	2
97	0	0	0	0	0	0	2	0	0
98	0	0	0	0	0	0	0	1	1
99	0	0	0	0	0	0	0	0	1
100+	0	0	0	0	0	0	1	0	7
Total	1	23	69	33	25	23	35	25	46

References

scwp 21-012. Preliminary results from the scientific Faroese longline survey on Flemish Cap 2021. NAFO SC Working Paper 21/012

SCR Doc. 23/004. Survey results of the longline survey on NAFO Division 3M.

SCR Doc. 22/012. Survey results of the longline survey on NAFO Division 3M.