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COMPARISON OF NORWEGIAN AND RUSSIAN TRAWL PERFORMANCE

Preliminary analysis of cod data

by Sigbjørn Mehl
Institute of Marine Research
Bergen, Norway

The annual Norwegian survey for demersal fish in the Barents Sea was performed 3-24 February 1998. Due to restrictions the survey only covered the Norwegian EEZ and parts of the Svalbard Area. In the end of February and beginning of March the Russian research vessel "Fridtjof Nansen" conducted a bottom trawl survey including parts of the "grey zone" where the Norwegian research vessels "Johan Hjort", "G.O. Sars" and "Jan Mayen" operated 2-3 weeks earlier. In order to compare the trawl performance 50 trawl hauls were taken in approximately the same positions as Norwegian ones. This could give a basis for, if possible, combining the abundance estimates for the Norwegian and Russian EEZ or to evaluate the goodness of the Norwegian area adjusted indices for the total area. The basic data (date, position, time of day, duration, depth, course, catch in weight and numbers and length frequencies by 1 cm groups for cod and haddock) were exchanged at the joint meeting of PINRO and IMR in Kirkenes 30 March - 1 April.

The catch data for cod have later been aggregated in 5-cm lengthgroups and normalised to catch per hour trawling. Norwegian and Russian trawl stations where than joined into one file, sorted by position and grouped into pairs. This resulted in 47 pairs of station with approximately the same positions. The stations with length frequencies by 5 cm groups are given in the appendix.

Figure 1 presents the total sum of catches by 5 cm lengthgroups and country and Table 1 gives the IMR/PINRO catch ratios for the total sum of catches by 5 cm groups. The Norwegian catches were much larger than the Russian for lengthgroups smaller than 25 cm and somewhat larger for lengths above 60 cm, while the Russian catches dominated between 35 and 55 cm. The latter was mainly due to one very large Russian catch, more than 10 times higher than the average catch. Extracting this station (No. 15, pair 36) from the calculations, gave almost similar total catches and ratios for lengthgroups between 30 and 55 cm (Figure 2, Table 1).

The average of ratios station by station was also calculated. To avoid division by zero all "0" were replaced by "1". This gave biased results, mainly in the smallest length-groups where there were several Russian "0-catches". The result are given in Table 1 and Figure 3. The trend is the same as in the two other series of ratios, but here the Norwegian catch rates came out as the dominating in all lenthgroups.
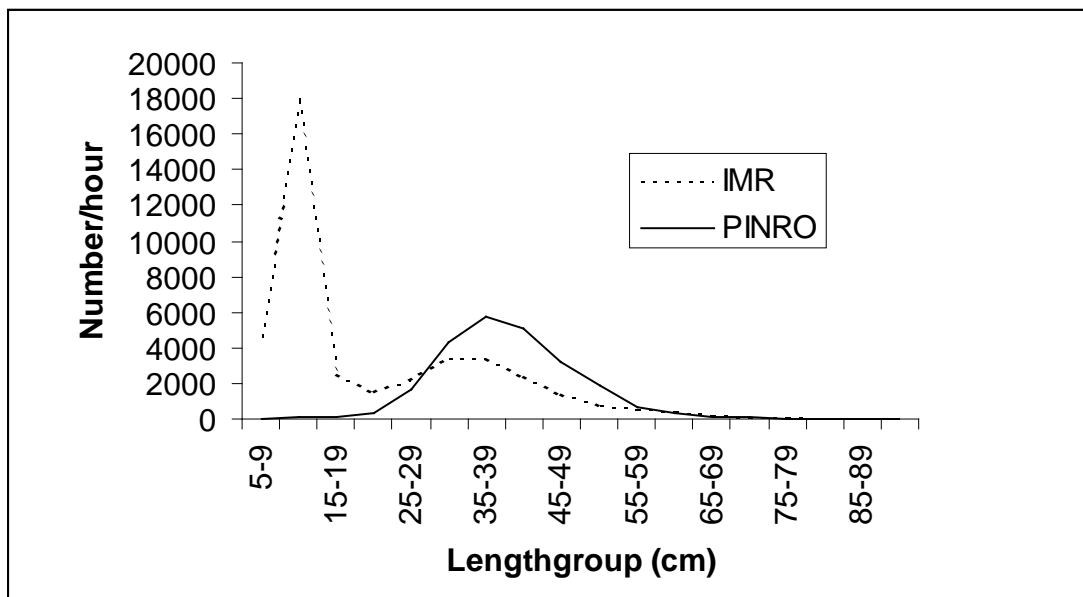
Figure 1. Total number of cod caught per hour trawling for 47 paired stations

Table 1. Ratios between Norwegian (N) and Russian (R) catches of cod.

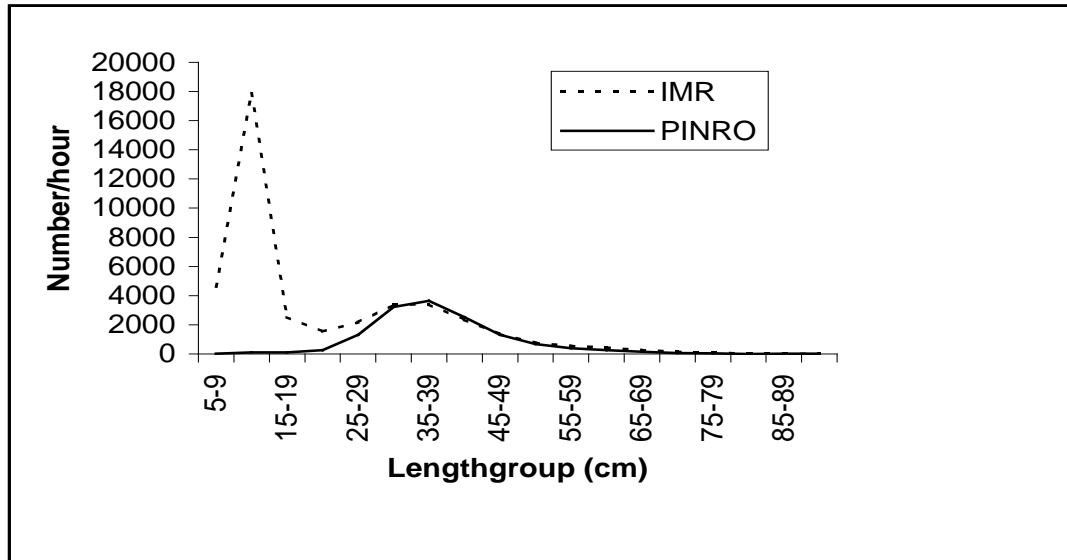| Length group (cm)	Ratio N/R Total sum	Ratio N/R - pair 36	Average Ratio N/R
5-9	353.8	353.8	96.5
10-14	173.0	172.4	259.0
15-19	25.4	25.3	40.5
20-24	5.3	5.8	10.4
25-29	1.3	1.7	3.2
30-34	0.8	1.1	5.1
35-39	0.6	0.9	4.3
40-44	0.5	0.9	3.1
45-49	0.4	1.0	2.7
50-54	0.4	1.2	2.9
55-59	0.8	1.4	2.6
60-64	1.2	1.6	2.9
65-69	1.6	1.6	3.4
70-74	1.8	2.6	3.1
75-79	1.8	1.8	2.1
80-84	3.6	3.6	1.5
85-89	0.5	0.5	1.0
> 90	2.4	2.1	1.3

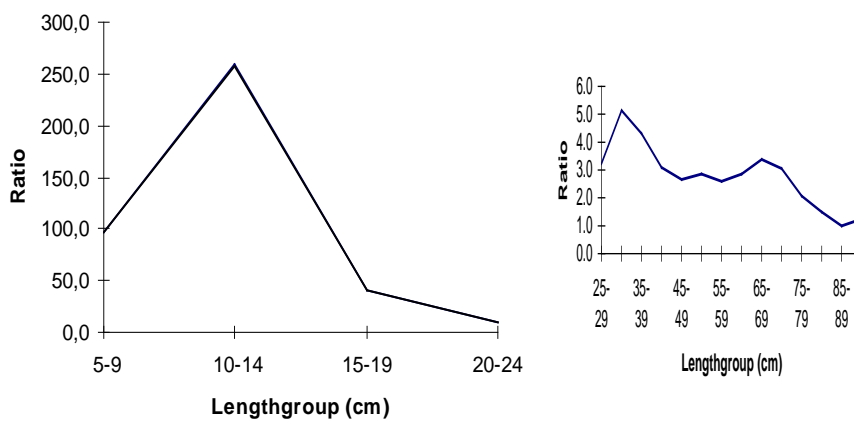Figure 2. Total number of cod caught per hour trawling for 46 paired stations.

Figure 3. Average ratio between Norwegian and Russian catches of cod by 5 cm lengthgroups from 47 paired stations.

This preliminary comparison of Norwegian and Russian trawl performance show that it is not straight forward to combine survey indices made by the two countries to obtain indices for the whole Barents Sea. The very low Russian catch rates in the smallest lengthgroups also makes a correction of the catch rates difficult and uncertain (how to correct "0-catches" ?). For lengths above 30 cm the catch rates are, however, more similar and it should be possible to find correction factors where this is needed. Combined total indices for cod of age 3-4 and older could than be obtained and the area adjusted Norwegian indices for these age groups could also be evaluated.