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Conversion Factor for Cod
caught off the Coast of Labrador in 1953

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(Translated from: "O Factor de Conversão
Para o bacalhau das águas da Costa do Labrador, em 1953".)

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In a previous paper* we have stated the aims of the research work concerning conversion factors and described the methods of investigations which have been used by Portugal in the year 1953. That paper was finished on the 11th of January this year. Like the present one, it was based on weighing values entered on forms distributed to the captains of the Portuguese cod fleet, and returned to the author after completion. The former paper dealt with cod from Greenland waters and from the Grand Bank of Newfoundland only. The present paper contains material from off the coast of Labrador. Consequently it constitutes a continuation of the study already mentioned.

The forms were issued to the captains at the same time of the year for all three areas, and it was therefore expected that the material collected would come more or less from the same season for all the areas. This coincidence between the three areas did however not take place, as the vessels operating off Labrador were fishing later in the season, and were landing catches in Portugal much later than the vessels from the two other areas. On account of this, the present paper was prepared separately from that dealing with the two other regions.

There are 11 forms available up to date (February 1954) concerning cod caught in the waters off the coast of Labrador and adjacent waters (Hamilton Bank, Belle Isle Area, etc.) These forms do not deal with 11 samples of each 100 kg. as planned, but with 10 samples of 100 kg. each and one sample of 434 kg. Thus the total weight of cod investigated from the waters off Labrador in the fishing season of the year 1953 amounts to 1,434 kg. The form dealing with 434 kg. cod is in this paper only considered according to its percentage value. The amount of cod investigated from the Newfoundland Bank (1,900 kg.) and that from Greenland (1,700 kg.) is a little higher than the amount of cod investigated from Labrador, but the difference in size of the three samples is not so big that it impaires a comparison between the three areas.

* "Results of experiments on Conversion Factors made by Portuguese cod fishing vessels during the season of 1953" (see Document No. 3).

In the arrangement of the table giving the numerical values and in the figures we have used the same methods as those in the paper cited above. However, this time is indicated in the table the date of fishing and the date of landing for each vessel. This was found necessary to enable the determination of the number of days kept in the hold until salting, and to make possible the calculation of the loss per day.

The main results of the investigations are shown in figure 1 which gives the frequency distribution of the conversion factor. Details as to extraction rates and losses are shown in figure 2.

By analysing figure 2 it is seen that the cod from the waters off Labrador differ from the cod from the two other areas by a somewhat smaller individual size. The numbers of cod necessary to make up 100 kg. are 33.3 for Labrador, for West Greenland waters 25.2 and for the Grand Bank of Newfoundland 24.9. The series of figures for "Cheeks and Tongues" from the subareas 1 and 3 has no corresponding figures for Labrador, as in this last case only the whole heads were weighed. The results referring to livers show that the livers make up practically double the weight of that found for the cod from the Grand Bank of Newfoundland and from West Greenland. This is obviously due to the fact that the fish from the coast of Labrador were captured during the months of October and November, i.e. in a period much more remote from the spawning-period than the period of capture of the cod from the two other subareas. In the other series of weighings it is only in the "Loss until body ready for salting" that a small disagreement is found between the figures from Labrador and those from the two other areas. This fact seems to be in correlation with the small disagreement which also is found in the series "Difference from landed to round fresh fish", in which case there is also found figures a little higher for Labrador than for the two other areas. As regards the "Total Recoverable" which represents the sum of the values for livers, airbladders, 1/3 of backbone, and body ready for salting, a considerable decrease for Labrador is found, compared with the Newfoundland Banks and the West Greenland waters. But this disparity finds its explanation if we remember that in the present study the values for cheeks and tongues were not determined. Thus these values could not be added to the "Total Recoverable" for Labrador as was the case for West Greenland and the Grand Bank of Newfoundland. A smaller average quantity of salt was used for the fishes in Labrador, namely only 13% against 22 and 18% in the other subareas. We cannot fully explain this difference, but it may be due to variations in the quality of the salt used, or it may be caused by the fact that the salting of the Labrador cod took place in a colder season of the year than the salting of the cod from the Grand Bank and West Greenland.

Summary of Results. The author presents the data on which is based the study of the conversion factor for cod caught by Portuguese fishing vessels in Subarea 2, the waters off Labrador.

The study is based on 1,434 kg. of cod weighed as they come from the sea, and has been carried out according to the same plans as for the earlier described researches from Newfoundland and Greenland.

With exception of the values referring to livers, there is a general coincidence in values arrived at for the cod from the three subareas.

The highest frequencies of the values for the conversion factor was found for the fish from Labrador in the group 2.75 - 2.99 just as for cod from Newfoundland and from West Greenland. However, considering the arithmetic means a difference in the conversion factors for the three areas can be established. The highest conversion factor, 3.01, was found for Labrador, a slightly lower conversion factor, 2.92, for Newfoundland. The conversion factor for West Greenland cod was still lower, namely 2.62. The general average for the conversion factor for cod caught by the Portuguese fishermen in all three areas taken together is 2.84.

Only a systematic continuation of studies of this nature, to be made on a bigger scale and under the same conditions from year to year, can solve the various doubtful points which have appeared in the comparison of the results from the various subareas.

- THE END -

Figure 1.

PORTUGAL 1953

Summary of the results of the preliminary studies on the Conversion Factor carried out on board 47 cod fishing vessels

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Frequency-distribution of Conversion Factor

Subarea 1, Greenland, mean 2.62
(1,700 kgs of cod from 17 vessels)

2.00 a 2.24	████████	17.64 %
2.25 a 2.49	██████	11.76 %
2.50 a 2.74	████████	17.64 %
<u>2.75 a 2.99</u>	████████████████	<u>47.04 %</u>
3.00 a 3.24	████	5.88 %
3.25 a 3.49	----	----
3.50 a 3.74	----	----

Subarea 2, Labrador, mean 3.01
(1,434 kgs of cod from 11 vessels)

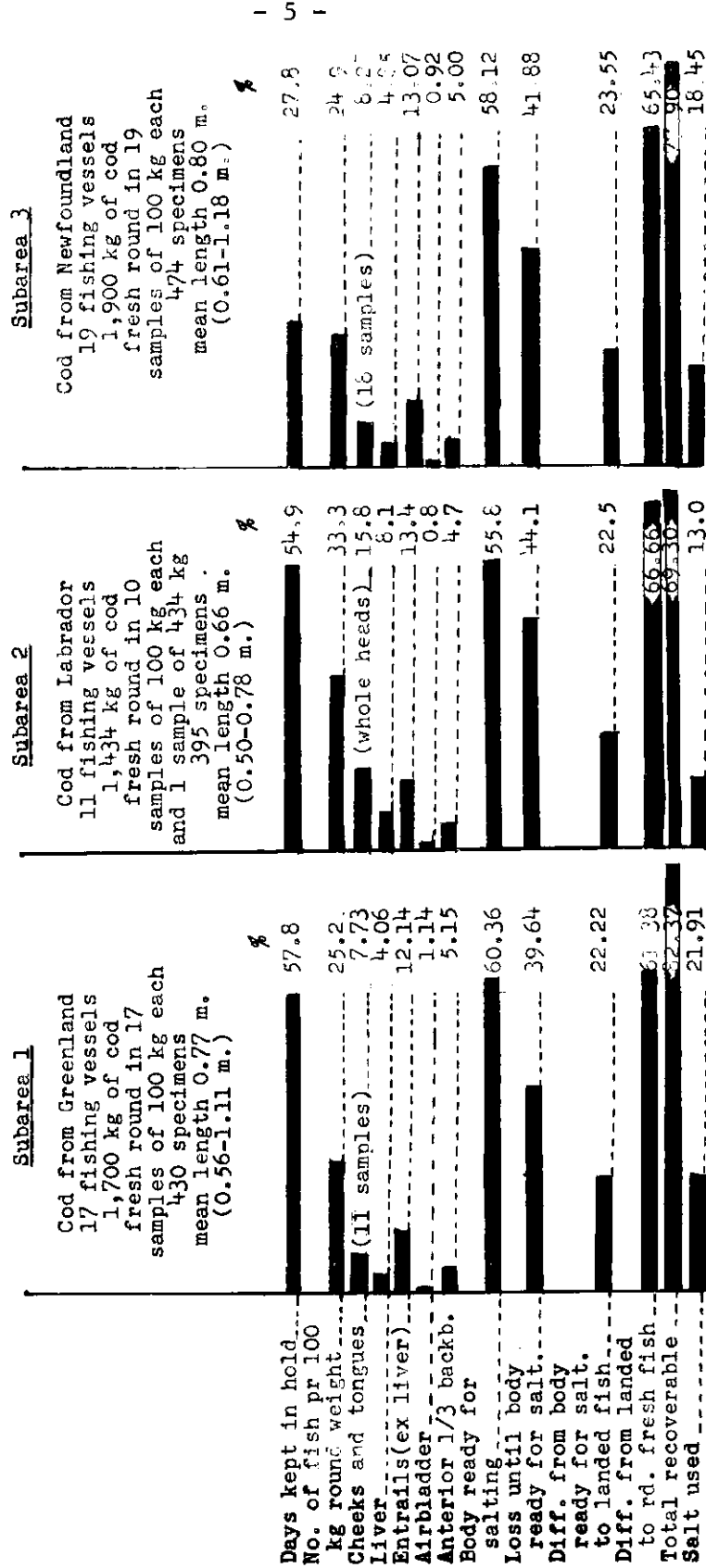
2.00 a 2.24	----	----
2.25 a 2.49	----	----
2.50 a 2.74	████	9.09 %
<u>2.75 a 2.99</u>	████████████████	<u>45.45 %</u>
3.00 a 3.24	██████████	27.27 %
3.25 a 3.49	████████	18.18 %
3.50 a 3.74	----	----

Subarea 3, Newfoundland, mean 2.92
(1,900 kgs of cod from 19 vessels)

2.00 a 2.24	----	----
2.25 a 2.49	----	----
2.50 a 2.74	██████████	26.31 %
<u>2.75 a 2.99</u>	████████████████	<u>42.10 %</u>
3.00 a 3.24	██████████	21.05 %
3.25 a 3.49	----	----
3.50 a 3.74	████	10.52 %

Mean of conversion factor for the three subareas together: 2.84

Summary of the preliminary studies of the Conversion Factor and of the extraction rates carried out on board 47 codfishing vessels.



1953 - TRAWL FISHERY OFF THE COAST OF LABRADOR

	Vessel no. 1	Vessel no. 2	Vessel no. 3	Vessel no. 4	Vessel no. 5	Vessel no. 6	Vessel no. 7
Date of fishing	8/11/53	26/10/53	16/11/53	5/12/53	20/10/53	12/11/53	5/10/53
Date of landing	6/1/54	28/12/53	12/12/53	23/12/53	13/1/54	15/1/54	24/12/53
No. of days in hold	60	64	27	19	86	35	81
No. of fish per 100 kg.	32	44	39	22	26	56	31
Mean length of specimens	0.72	0.60	0.60	0.77	0.78	0.60	0.78
Landed weight	30.4	30.0	34.0	37.0	33.0	32.0	33.5
Weight of whole heads	15.2	15.0	16.0	16.3	-	15.5	-
Weight of cheeks and tongues	6.6	9.0	8.5	8.3	7.8	8.3	6.0
Weight of livers	8.8	12.0	13.0	14.4	9.1	13.0	12.0
Weight of entrails	0.7	0.5	0.7	0.9	0.8	-	1.0
Weight of anterior third of backbone	3.4	4.5	4.0	3.8	5.6	5.3	5.0
Weight of body ready for salting	62.0	55.0	53.0	55.0	58.7	58.0	59.1
Loss until salting	38.0	45.0	47.0	45.0	41.3	42.0	40.9
Loss from salting to landing	31.6	25.0	19.0	18.0	25.7	26.0	25.6
Diff. from round fresh to landed fish	69.6	70.0	66.0	63.0	67.0	68.0	66.5
Total recoverable	72.7	69.0	66.2	68.0	72.9	71.6	71.1
Loss per day in hold	0.527	0.390	0.704	0.947	0.299	0.743	0.316
Conversion factor	3.29	3.33	2.94	2.70	3.03	3.13	2.98
Conv. fact. of fish for salting	1.61	1.82	1.88	1.82	1.70	1.72	1.69
Kg. of salt used in sample	18.0	8.0	13.0	11.3	20.0	8.5	12.0

1953 - TRAWL FISHERY OFF THE COAST OF LABRADOR (Continued)

	Vessel no. 8	Vessel no. 9	Vessel no. 10	Vessel no. 11	No. of samples	Maximum value	Minimum value
Date of fishing	24/10/53	26/10/53	28/10/53	26/10/53			
Date of landing	16/12/53	12/1/54	2/1/54	26/11/53			
No. of days in hold	54	79	67	32	11	86.0	54.9
No. of fish per 100 kg.	33	38	31	43	11	56.0	35.9
Mean length of specimens	0.68	0.50	0.67	0.61	11	78.0	66.4
Landed weight	34.0	32.0	35.0	36.0	11	37.0	33.3
Weight of whole heads	15.0	17.5	-	16.3	8	17.5	15.8
Weight of cheeks and tongues	9.0	9.7	8.0	7.7	11	9.7	8.1
Weight of livers	11.0	17.2	26.0	11.4	11	26.0	13.4
Weight of entrails	0.5	1.6	0.5	0.7	10	1.6	0.8
Weight of anterior third of backbone	4.0	7.7	4.0	4.2	11	7.7	4.7
Weight of body ready for salting	58.5	46.0	53.5	55.5	11	62.0	55.8
Loss until salting	41.5	54.0	46.5	44.5	11	54.0	44.1
Loss from salting to landing	24.5	14.0	18.5	19.5	11	31.6	22.5
Diff. from round fresh to landed fish	66.0	68.0	65.0	64.0	11	70.0	66.6
Total recoverable	72.0	65.0	66.0	66.1	11	72.9	69.3
Loss per day in hold	0.454	0.177	0.276	0.609	11	0.947	0.495
Conversion factor	2.94	3.13	2.86	2.78	11	3.33	3.01
Conv. fact. of fish for salting	1.71	2.17	1.87	1.80	11	2.17	1.80
Kg. of salt used in sample	18.0	12.0	10.0	13.0	11	20.0	13.0

