

Serial No. 386Document No. 26ANNUAL MEETING - JUNE 1956Conversion Factor for Haddock

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During the preparation of the salted haddock, which is the form in which haddock is mostly consumed in Spain, the fish loses in weight through the different operations to which it is subjected, heading, eviscerating, splitting and salting.

One is interested to know the loss of weight which the fish suffers from fishing and until it is placed in the hold of the vessels. For this first reduction in weight, the factor is called conversion factor I. It is with this factor that one has to multiply the weight of the cleaned fish to obtain the weight of the fresh fish.

$$P = F \times p$$

P = Live weight
p = Weight of split fish

During the time the salted fish is stored in the hold it loses weight from dehydration down to a certain stage, which appears to be reached in the course of one month to one and a half month.

This second loss of weight, when added to the previous and converted into a factor, is called conversion factor II. It is logical that it must be larger than the first. It serves for calculating the exact quantity of usable fish to be landed.

In the statistical surveys concerning the production of the sea, the conversion factor plays an important role because from it and based on the landings one can estimate the production in a certain area of fishing.

$$P = F' \times p'$$

P = Live weight
p' = Weight of salted and dehydrated fish

The result of these researches of the conversion factor are summarized in tables inserted at the end of this paper.

The investigations were carried out on board the cod vessels "Mistral" (June 1954), "Santa Ines" and "Santa Eugenia" (April and May 1955) and "Bochorno" (July and August 1955).

The specimens were weighed on board with the highest possible exactitude by means of a roman scale. In order to avoid errors, the small specimens were weighed in groups.

The conversion factors given in this paper were obtained from a material of 137 specimens (34 from spring and 103 from summer). The results are summarized in the following table:

	<u>Spring</u>		<u>Summer</u>	
	<u>I</u>	<u>II</u>	<u>I</u>	<u>II</u>
1953	1.60	3.10		
1954			1.49	2.82
1955	1.50	3.03	1.58	3.10

...../2.

The results vary a little; in spring of 1955 they were somewhat lower and in the summer of that year somewhat higher than in 1953 and 1954.

It is probable that the haddock each year, depending upon the varying size of the different year-classes, is subjected to competition from other haddock, to a larger degree than is the case with the cod.

The development of the individual fish may vary more from one year to another and this could influence the conversion factor.

Conclusions

1a. The conversion factor is different (larger) in spring than in summer. This means that in spring the fish lose more weight in spite of the fact that in this season it is as a rule fished with an empty stomach. Thus the loss is not due to the food contained in the stomach, but to another more interior factor. This factor no doubt is the volume of the sexual glands and the fat content of the meat during the reproduction period.

2a. The conversion factor does not depend on the place of the fish in the hold of the vessel. The larger loss of weight in spring has been attributed to the placing of the specimens for study in the bottom of the hold and to their staying there for four months or more.

This time the samples were placed separately without being exposed to any extra pressure, and in spite of that the size of the loss has been the same. As one sees from this, the pressure has not been able to change the weight of the fish but only its form. Therefore the place in the hold has no influence on the conversion factor.

3a. Neither the time which the fish are kept in the hold has any influence on the conversion factor when once the dehydration has taken place. The time necessary for dehydration is between one month and one month and a half. The specimens examined in 1953 were four months in the hold, those which were the object of study in 1955 only one month. The results were the same.

4a. It has not yet been ascertained with sufficient clarity if there exists a correlation between the size of the fish and the loss suffered. The results obtained do not agree, neither do the opinions of the various biologists who have made the investigations.

In 1953 there seems to have been a correlation with the size in the sense that a larger size corresponds to a larger loss. We have not found such an agreement for the conversion factor II, but for the conversion factor I.

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DATE	CMS.	NO.	WEIGHT OF FISH			PERCENTAGE OF LOSS THROUGH			CONVERSION FACTOR			
			whole	head off	split salted	viscerating	saltin	total	I	II	III	
June 1954	40-55	32	46,000	37,000	29,000	15,800	36.9	45.6	65.7	1.59	2.92	1.83
	45-60	26	39,000	30,000	28,000	14,600	28.2	48.7	63.2	1.39	2.72	1.91
	Total	58										
Average			1,465	1,155	982	524	32.5	47.15	64.45	1.49	2.82	1.87
April 1955	45-49	9	9,200	8,000	6,000	3,000	34.7	50	67.3	1.5	3	2
	45-49	17	17,500	14,000	10,750	5,750	38.5	46.5	67.1	1.6	3	1.86
	61-65	7	22,000	19,000	15,000	7,000	29.5	54.8	68.1	1.4	3.1	2.21
	70	1	5,300	3,800	1,500	900	71.68	40	83	3.58	5.88	1.66
	Total	34										
Average			1,588	1,317	992	489	34.23	50.4	67.5	1.50	3.03	2.02
August 1955	46-50	15	17,550	14,750	10,450	6,433	40.4	38.4	63.3	1.6	2.7	1.62
	51-55	10	17,250	14,050	10,000	5,781	42	42.2	66.4	1.7	2.9	1.72
	56-60	3	6,850	5,750	4,500	1,728	34.3	61.6	74.7	1.5	3.9	2.60
	56-60	4	8,100	6,750	5,100	2,720	37	46.6	66.4	1.5	2.9	1.87
	56-60	5	10,500	8,750	5,850	3,570	44.2	38.9	65.9	1.7	2.9	1.63
	59	2	5,850	5,000	3,750	1,700	35.8	54.6	70.9	1.5	3.4	2.20
	61-65	4	10,250	8,000	6,000	3,539	41.4	41	65.4	1.7	2.8	1.69
	61-65	2	6,400	5,500	4,050	1,898	36.7	53.1	67	1.5	3.3	2.13
	Total	45										
Average			1,839	1,523	1,104	608	38.9	47	67.5	1.58	3.10	1.93
GRAND TOTAL		137										
GRAND AVERAGE			1,618	1,316	1,025	543	36.89	47.84	67.03	1.55	3.04	1.94

* This figure is not considered, as it is excessively high.

