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**INTERNATIONAL COUNCIL FOR
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**PROGRESS REPORT ON THE NORTH SEA
STOMACH SAMPLING PROJECT 1981**

by

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C.I.E.M.

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Page 4, ligne 18, au lieu de 0.008299 lire 0.998299

Page 5, ligne 7, au lieu de 283 lire 282

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Introduction

The Ad hoc Working Group on Multispecies Assessment Model Testing, which met in Copenhagen in March 1980, recommended (ICES C.M. 1980/G:2) that an intensive stomach sampling programme for cod, whiting, saithe, mackerel and haddock should be implemented in the North Sea in 1981, in order that species interaction can be taken into account in stock assessment in 1982.

During its statutory meeting in Copenhagen in October 1980 ICES endorsed this recommendation by the following resolution (C. Res. 1980/2:22):

- i) an intensive stomach sampling scheme for cod, whiting, saithe, mackerel and haddock should be implemented in the North Sea in 1981, and member counties are urged to make available the research effort to meet the requirements as defined in the report of the former ad hoc Working Group on Multispecies Assessment Model Testing, both in terms of research vessel time and analytical labour;
- ii) Dr. N. Daan should be Coordinator of the sampling, and he should, if necessary, meet with the coordinators for individual fish species for three days in IJmuiden in early 1981;
- iii) the coordinator should report to the Demersal Fish and the Pelagic Fish Committee at the next Statutory Meeting.

Since it appeared to be absolutely essential for the internal consistency of the work of the different species coordinators that the different aspects of standarization in data collection, recording and processing were discussed in detail, a meeting was held in IJmuiden from 13 - 15 January 1981, which was attended by:

Mrs. J. Beaudouin (haddock)	-France
Dr. N. Daan (cod)	-The Netherlands
Mr. H. Gislason (saithe)	-Denmark
Dr. J.R.G. Hislop (whiting)	-UK (Scotland)
Mr. T. Westgard (mackerel)	-Norway

In addition Mr. J.G. Pope (UK; England) and Mr. P. Spasse (Denmark) were invited to the meeting in order to ensure that the results of the programme would in the end meet the requirements for their use within the context of multispecies assessment trials.

During the meeting a detailed Draft Manual for the Stomach Sampling Project was prepared, which was meant to serve as the basis for the work to be done during the process of sampling at sea and during the analysis of the stomachs and the processing of data in the laboratory. This manual has been distributed among the scientists directly and indirectly involved in the project, but a limited number of copies is still available from the Netherlands Institute for Fishery Investigations.

The present report, which meets the request expressed in the third paragraph of the Council Resolution 1980/2:22, does not deal with the methods employed but presents information on the sampling intensity reached during the first two quarters of 1981 and the state of affairs in analysing and processing the samples.

Sampling at sea.

Since sampling at sea is carried out by a variety of countries during a variety of cruises and since the samples are subsequently transported to the different laboratories dealing with individual species, it causes considerable logistical problems of keeping an overview of how many samples and how many stomachs are collected and where they are at any particular point of time. Therefore, at the time this report had to be prepared some information may be lacking and the schemes presented can only be approximate.

Table Ia and b present the number of samples and the total number of stomachs collected by individual countries during the first and second quarter of 1981 respectively with an estimate of the total number of stomachs involved.

In the report of the ad hoc Working Group (ICES C.M. 1980/G:2) it has been tentatively suggested that approximately 1500 stomachs per quarter of the year should be collected in order to give food composition data at a reasonable level of precision. During the first quarter of 1981 when five countries participated in the sampling at sea during the International Young Fish Survey this number was greatly exceeded for cod, haddock and whiting, whereas for saithe and mackerel it has not been possible to reach the target.

During the second quarter sampling intensity for the four roundfish species has been reduced by half but except for saithe the target has still been exceeded. Although 500 mackerel stomachs could be collected in this quarter, this number is still far below the estimated number required.

Fig. 1 a and b present information on the global distribution of sampling effort over the North Sea during the first two quarters of 1981. As could be expected from the nature of the IYFS the North Sea has been extremely well covered by the sampling effort during the first quarter. Since several squares have been sampled more than once it would seem appropriate to cut down the number of stomachs to be analysed for haddock and whiting by making a selection out of the available samples if the work load for these species interferes with the technical labour available for analysis.

During the second quarter the coverage has been less good which is partly due to the fact that the stomach sampling cruise of DANA was cancelled

because of gear problems. Both the Scottish waters and the Southern North Sea have been adequately sampled but in the Central North Sea there is a big gap.

Processing

Due to the logistical problems in the exchange of samples some delay was caused in the processing of samples in the laboratory. However, the majority of the samples taken so far seem to have arrived at their place of destination and the analysis is in progress. In order to indicate the present state of affairs tabel II provides information on the number of stomachs analysed by the end of July 1981. Punching of data for computer processing is lagging behind even more, but computer programmes have been developed at the institutes in Aberdeen, Bergen and IJmuiden to take account of the further analysis.

Results

Obviously it is too early to present any definite results here. However, some general observations can be made. Firstly, it appears that for cod, haddock and whiting the level of sampling intensity reached so far should result in reliable information on the food composition of the North Sea stocks of these species, although the coverage in the second quarter has been less good. This is particularly unfortunate since 1981 has turned out to be an extremely interesting year because of the extremely high abundance of 0-group cod throughout large areas of the North Sea (ICES C.M. 1981/G:46). This 0-group cod has been noted to turn up in both cod and whiting stomachs from the second quarter.

For saithe and mackerel the present sampling scheme does not seem adequate for the ultimate purpose. It can only be hoped for that some very general information on the food composition of these two species will be produced on the basis of the limited number of samples available. The few mackerel stomachs collected during the first quarter were all almost empty except for a few containing enphausids. The mackerel stomachs from the second quarter indicate relatively more fish, mostly sandeels, to be consumed in the Southern North Sea than along the Norwegian deeps.

General comment

In view of the unavoidable delay in the exchange of samples after collection and of the time required in analysis and computer processing it has turned out to be unrealistic to expect the data to be worked up to a stage that they can be used in multispecies assessment trials before the next round of assessment Working Group meetings. In fact, before that stage will be reached it would seem necessary to convene a meeting of the species coordinators in order to put the results of the programme together in a form that is suitable for further handling in multispecies assessment trials. It is recommended that such a meeting is planned as late as possible in 1982 but in time to report to the Council Meeting in that year.

Table I - Level of stomach sampling intensity by species and countries
(n = number of samples; N = number of stomachs).

Country	Source	Cod n/N	Haddock n/N	Whiting n/N	Saithe n/N	Mackerel n/N
A. 1st Quarter of 1981						
ENGL	IYFS	122/465	?/+250	?/543	-	-
	G.A.Reay	?/1280
GERM	IYFS	92/324	?/1398	?/796	?/49	-
	Solea	16/97				
NETH	IYFS	278/1600	212/1378	347/2304	12/22	8/8
	Commercial vessels	15/261	-	-	-	-
NORW	IYFS	92/343	188/1228	157/+805	17/?	3/3
SCOT	IYFS	88/254	96/606	114/568	1/1	-
Total Nr of stomachs		3344	+5000	+6300	+100	11
B. 2nd Quarter of 1981						
NETH	GOV-Survey	195/1190	76/408	217/1659	2/7	32/205
	Waddensea progr.	57/458	-	-	-	-
SCOT	Bottom Trawl Survey	79/185	192/1540	155/1061	2/2	
NORW	Herring Survey	?/77	?/364	?/180	?/36	?/35
	Commercial vessels	-	-	-	-	?/290
Total Nr of stomachs		1910	2312	2900	45	530

Tabel II - Nr of stomachs analysed by the end of july 1981.

	Cod	Haddock	Whiting	Saithe	Mackerel
1st Quarter 1981	3090	?	3627	?	11
2nd Quarter 1981	1648	-	966	?	169



