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International Council for the  
Exploration of the Sea

C.M.1983/H:4  
Pelagic Fish Committee  
Ref. Fish Capture Cttee

REPORT OF THE BLUE WHITING PLANNING GROUP FOR THE  
COORDINATED ACOUSTIC SURVEY 1983

Copenhagen, 2-3 March 1983

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REPORT OF THE BLUE WHITING PLANNING GROUP FOR THE COORDINATED  
ACOUSTIC SURVEY 1983

Introduction

The Coordination Group met at ICES Headquarters, Copenhagen on 2 and 3 March 1983. The terms of reference were set by the Council's resolution passed at its 70th Statutory Meeting (C. Res. 1982/2:27 (1)):

"It was decided that:

the Coordinating Group for the Blue Whiting Survey in the Norwegian Sea should meet on 2 and 3 March 1983, after the Saithe Working Group, under the chairmanship of Mr T. Monstad (Norway) at ICES Headquarters to draw up plans for the acoustic survey in 1983".

Participants

H. í Jakupsstovu	Faroe Islands
T. Monstad (Chairman)	Norway
B. Vaske	German Democratic Republic
S. Schopka*	Iceland

\* also attending another Working Group during the same period.

The 1982 Blue Whiting Assessment Survey

In August 1982 the blue whiting feeding area in the Norwegian Sea was surveyed by 8 vessels from five countries. The result of this ICES-coordinated acoustic assessment survey is given in the report to ICES (Anon. 1982). A total of 4.6 million tonnes of blue whiting was estimated. This was considered to represent the major part of the total "northern" stock. It was felt, however, that an unknown component of the stock were still to be found outside the area covered, for example along the Norwegian Deep and to the west of the British Island.

The acoustic instruments were calibrated against a standard target (coppersphere - 60 mm diameter) and the integrated echo-intensity for each vessel connected into standard equivalents and expressed as square meter reflection per square nautical mile. The calculation of the different vessels "calibration constant" is given in the Appendix of the same report (Anon. 1982).

#### Plans for the 1983 survey

Previous to and during the meeting five countries provided informations about participation and survey period:

<u>Country</u>	<u>Vessel</u>	<u>Period (port to port)</u>
Faroes	"Magnus Heinason"	27 July to 24 August
German Dem. Rep.	"Eisbär"	1 - 25 August
Iceland	"Arni Fridriksson"	4 - 31 August
	"Bjarne Sæmundsson"	4 - 31 August
Norway	"Eldjarn"	1 - 20 August
	"G.O. Sars"	1 - 20 August
	"Michael Sars"	1 - 20 August
USSR	"Perseus III"	1 - 20 August

The proposed cruise tracks for all vessels are shown in Figure 1.

Compared to 1982, the surveyed area will be extended to include also the waters to the east, west and south of the Faroes and the Norwegian Deep. In working out the cruise tracks, special attention has been given to areas where the highest concentrations of blue whiting have been found in previous years, i.e. along the polar front from Jan Mayen and northeastward and between Iceland and the Faroes. This year, all vessels will be equipped with an integrator.

The Faroese vessel will cover the areas around the Faroes and the southwestern part of the Norwegian Sea, between 5° and 12°30'W.

The vessel from the German Democratic Republic will mainly cover the central part of the Norwegian Sea, following an open cruise

track from the Bear Island to the Faroes and then into the Norwegian Deep.

The three Norwegian vessels will by systematic northwest-southeast tracks survey the major part of the eastern and central Norwegian Sea and also survey the area west of Jan Mayen. In addition, one of the vessels will survey the Norwegian Deep.

The waters around Iceland and the Dohrn Bank will be covered by the Icelandic vessels. The USSR vessel will mainly survey the northern and central part of the Norwegian sea.

#### Procedures at Sea

During the survey, scattering layers have to be integrated and averaged for each 5 nautical miles sailed. Every day the echorecordings from the previous 24 hours should be scrutinised, and based on frequent trawling, the integrator values allotted on species. Trawling should be performed as often as time permit, and this should always be done whenever the echorecordings are changing. Biological samples of blue whiting should be worked at all stations to include length, weight, age and sex. It is important that the length distribution and the mean weight by length groups is worked out at sea for as many stations as possible. Hydrographic stations will be taken at regular intervals using the equipment available for the various vessels to at least 400 m depth, preferably to 1000 m.

During the survey, the coordinating vessel will be "Eldjarn" (Norway) and all the other vessels should be in daily contact with this, either directly or via one of the other vessels participating in the survey. The radio contacts will be on 2056 Khz and will start each morning at 9.00 hrs GMT by "Eldjarn" calling all the vessels in succession. At this time, the participants should be prepared to give the following information to the Coordinator vessel for the previous 24 hours: cruise track, trawl stations, hydrographic stations, integrator values from blue whiting every 5th nautical mile, temperatures at 0, 200 and 400 m depth and the length and weight distribution of the blue whiting sampled. In

order to standardise and speed up the exchange of information, the participants are urged to use the forms attached to this report (Appendix A.B.C. and D).

### Calibration

Before the survey starts, or immediately after the survey is completed the acoustic instruments should be calibrated against a standard target copper spheres (Foote et al. 1982). If possible, ship to ship calibration of the instruments should in addition be performed during the survey. The conditions for doing this, however, is that two vessels can meet each other in an area where significant scattering layer can be recorded. The procedures for a ship to ship calibration is described in Anon. 1980.

### Data Handling

Based on the information received at sea the cruise tracks, temperature charts and integrator values will be plotted continuously during the survey. Further, if calibration data are given for each vessel, the biomass by statistical rectangles will be estimated using the formulas given in the appendix of the report from the 1982 surveys (Anon. 1982).

Immediately after the survey is completed, the original data should be transmitted to T. Monstad, Institute of Marine Research, Bergen, Norway on the data forms (appendix A, B, C, D), in order that the various charts and calculations can be completed before the meeting in Copenhagen 13-14 September 1983.

### References

- Anon., 1980. Report of the Blue Whiting Assessment Working Group, Bergen, 5-10 May 1982. ICES C.M.1980/H:5.
- Anon., 1982. Report of the International Acoustic Survey on Blue Whiting in the Norwegian Sea, July/August 1982. ICES C.M.1982/H:5.

Foote, K. G., Knudsen, H.P. and Vestnes, G., 1982. Standard calibration of Echo-Sounders and Integrators with optimal copper spheres. Symposium on Fisheries Acoustics, Bergen 21-24 June 1982, Contribution No. 40.

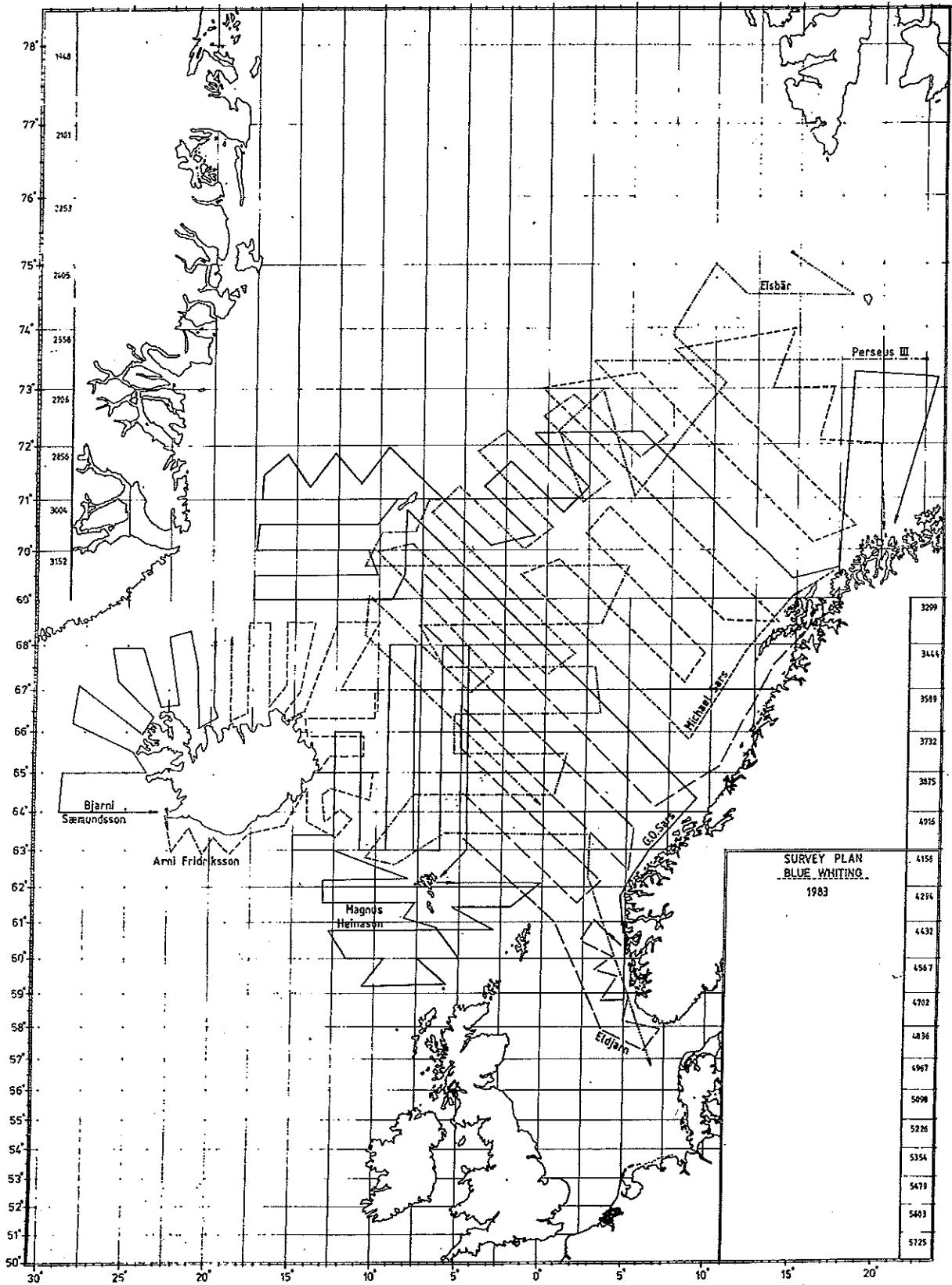


Fig. 1. Planned cruise track of the different vessels, August 1983.

Appendix A-D:

Standard forms to be used for reporting daily information between the vessels.



A

Blue Whiting - SAILING DIARY

Sheet no.: \_\_\_\_\_

Ship: \_\_\_\_\_

Year: \_\_\_\_\_

Month: \_\_\_\_\_ Date: \_\_\_\_\_

Date	Position	Log	St.no.	Type of station/remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
( )				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
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25				
26				
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28				
29				
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31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				

B

Blue Whiting - INTEGRATOR VALUES

Sheet no.: \_\_\_\_\_

Ship: \_\_\_\_\_

Year: \_\_\_\_\_ Month: \_\_\_\_\_ Date: \_\_\_\_\_

Log	Int.	Log	Int.	Log	Int.	Log	Int.	Log	Int.
000		200		400		600		800	
05		05		05		05		05	
010		210		410		610		810	
15		15		15		15		15	
020		220		420		620		820	
25		25		25		25		25	
030		230		430		630		830	
35		35		35		35		35	
040		240		440		640		840	
45		45		45		45		45	
050		250		450		650		850	
55		55		55		55		55	
060		260		460		660		860	
65		65		65		65		65	
070		270		470		670		870	
75		75		75		75		75	
080		280		480		680		880	
85		85		85		85		85	
090		290		490		690		890	
95		95		95		95		95	
100		300		500		700		900	
05		05		05		05		05	
110		310		510		710		910	
15		15		15		15		15	
120		320		520		720		920	
25		25		25		25		25	
130		330		530		730		930	
35		35		35		35		35	
140		340		540		740		940	
45		45		45		45		45	
150		350		550		750		950	
55		55		55		55		55	
160		360		560		760		960	
65		65		65		65		65	
170		370		570		770		970	
75		75		75		75		75	
180		380		580		780		980	
85		85		85		85		85	
190		390		590		790		990	
95		95		95		95		95	

Blue Whiting - TRAWL STATIONS

Sheet no.: \_\_\_\_\_

Ship: \_\_\_\_\_

Year: \_\_\_\_\_ Month: \_\_\_\_\_ Date: \_\_\_\_\_

Tr. st. no.								
Depth								
Catch								
Distance								
Length in cm	No.	$\bar{W}$	No.	$\bar{W}$	No.	$\bar{W}$	No.	$\bar{W}$
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
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38								
39								
40								
41								
42								
43								
Tot.								



