

International Council for the
Exploration of the Sea

C.M.1966/N:1c
Hydrographical Committee

ICES Meeting

on

Service Hydrographique

Charlottenlund, 28/3-30/3-1966

Background Documents

2nd Collection

ICES Meeting
on
Service Hydrographique
Charlottenlund, 28/3-30/3-1966

List of hydrographic material on punched cards (01,03,02) delivered
to W.D.C.-A and NODC, Washington

<u>Country</u>	<u>Ships or routes</u>	<u>Year</u>	<u>Month of despatch from Service Hydrographique</u>	
Belgium	Total serial material	1957,1958,1959,1960	1964, VI	
	" surface material	1957,1958,1959,1960	1964, VIII	
	Total material	1961,1962,1963,1964	1966, VI	✕
Denmark	"Dana"	1957,1958,1959	1962, VII	
	"Dana"	1960,1961	1964, VIII	
	"Dana"	1963,1964	1966, VI	✕
	"Biologen"	1957,1958,1959 part	1964, VI	
	"Biologen"	1959 part	1964, VIII	
	"Biologen"	1960, 1961	1966, II	
	"Biologen"	1962,1963,1964	1966, VI	✕
	Danish routes	1957,1958,1959,1960	1964, VI	
	Bornholm Deep	1957,1958,1959,1960,1961	1964, VIII	
	" "	1962,1963,1964	1966, VI	✕
	"Jens Væver"	1957,1958	1964, VIII	
	"Jens Væver"	1964,1965	1966, VI	✕
	Greenland vessels	1957,1958,1959	1964, VIII	
England	" "	1960,1961	1966, II	
	" "	1962,1963,1964	1966, VI	✕
	Part serial material	1957,1958	1962, VII	
	"Sarsia"	1958	1964, VIII	
	Rest serial material	1957,1958	1964, VI	
	Total surface material	1957,1958	1964, VI	
	Overflow material	1960	1964, VIII	
	Total material	1959,1960,1961	1966, VI	✕
	"Discovery" part	1961	1966, VI	✕

<u>Country</u>	<u>Ships or routes</u>	<u>Year</u>	<u>Month of despatch from</u> <u>Service Hydrographique</u>	
Finland	"Aranda", total material	1957,1958	1964,	VI
	Finnish route, surface	1957,1958,1959,1960	1964,	VI
Germany	"Anton Dohrn"	1957	1962,	VII
	"Gauss", "Wattenberg"	1957	1964,	VIII
	German route, surface	1957,1958,1959,1960	1964,	VI
	Rest surface material	1957,1958,1959	1964,	VI and VIII
	Total serial material	1958,1959	1965,	VII
	Overflow Expedition	1960	1964,	VI
	"Gauss" total material	1960,1961,1962	1966,	II
	"Anton Dohrn" total material 1960		1966,	II
Iceland	Total material	1957,1958,1959	1962,	VII
	" " "	1960,1961	1964,	VI
	"Ægir" part	1963	1966,	VI *
Netherlands	O.W.S. "M" material	1958	1962,	VII
	Total material	1957,1958,1959,1960	1966,	VI *
Norway	Total material	1957	1962,	VII
	"Dannevig", "Helland-Hansen")	1958	1962,	VII
	O.W.S. A and M)		1964,	VIII
	Rest material	1958	1965,	VII
	Total material	1959	1964,	VI and VIII
	Overflow	1960	1964,	VI
	"Helland-Hansen" (Gibraltar)	1961	1966,	VI *
	"Helland-Hansen"	1962,1963,1964	1966,	VI *
Poland	"H.U.Sverdrup"	1963	1966,	VI *
	Part material (from PIHM)	1957,1958,1959,1960,1961.	1965,	VII
	" " (Sea Fish.Inst.)	1957,1958,1959	1966,	II
Scotland	" " (" " ")	1960,1961	1966,	VI *
	Total material	1957,1958	1962,	VII
Sweden	" " "	1959,1960	1964,	VI
	Total material	1957,1958,1959,1960	1965,	VII
U.S.S.R.	" " "	1961	1966,	VI *
	"Perseus II" Overflow Exp.	1960	1964,	VI

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List showing Delay in Publication of ICES Oceanographic Data Lists

Country	Data for the year	received	Data Lists publ. and deliv. to WDCs A, B	Stages in Processing of			Outstanding		
				Serial and Surf stations (less Chemistry)	Chemistry	BT	Data Lists	Chemistry	BT
<u>Belgium</u>	1957	1958		on masters	(		1957	1957	
	1958	1959		" "	(
	1959	1960		" "	(screened				
	1960	1961		" "	(and				
	1961	1962		(cards are being	(corrected				
	1962	1963,X		(listed and					
	1963	1964,VII		(copied for					
	1964	1965,IX		(NODC			1964	1964	
	1957	1959,1960	1964,X		(			1957	
	1958	1959,1960	1964,X		(			1957	
<u>Denmark</u>	1959	1960,1961	1964,X		(
	1960	1961,1965		(lists are being	(screened		1960	1961	
	1961	1962/64/65		(printed	(and				
	1962	1964,1965		(cards are being	(corrected				
	1963	1964,1965		(listed and					
	1964	1965		(copied for NODC			1964	1963	1963
	1965 ("Jens	1965			(			1964	1964
	Vaever")								
	1957	1960	1964,X		(screened			1957	
	1958	1961,IX	1964,X		(and corrected				
<u>England</u>	1959	1964/65/66			(
	1960	1965/66		(cards are being	(no MS		1959		
	1961	1965/66		(listed and copied	(as yet				
	1962	1966		(for NODC	(		1962	1962	
	1963	1965(Norway)		screened in part					
				)cards being list.					

Country	Data for the year	received	Data Lists publ. and deliv. to WDCs A, B	Stages in Processing of			Outstanding		
				Serial and Surf stations (less Chem.)	Chemistry	BT	Data Lists	Chemistry	BT
<u>Finland</u>	1957	1958	1958	(lists are being printed)	(screened)	(screened and corrected)	1957	1957	1958
	1958	1961, 1962	1961, 1962	(cards being listed)	(	(			1959
	1959	1962, 1963	1962, 1963	(and copied f. NODC)	(route corrected)	(route screened)	1961	1961	
<u>France</u>	1960	1962, VI, 1963	1962, VI, 1963	screen.correct.					
	1961	1962, X, 1965	1962, X, 1965	screen.correct.					
	1962, route	1962, X	1962, X						
<u>Germany</u> (Fed. Rep.)	1957	1961	1961						
	1958	1961, 1960	1961, 1960						
	1959	1961, 1963	1961, 1963	screen.in part					
<u>Iceland</u>	1960	1961, 1963	1961, 1963	lists being print.			1960		1958
	1961	1963, XI	1963, XI	(screen.in part)					1961
	1962	1963, XII	1963, XII	(correct., await.)			1963		
<u>Ireland</u>	1963	1964, XII	1964, XII	(further correct.)					
	1964, route	1965, route	1965, route	(screen. and correct.)					
	1965	1965, V from Norway	1965, V from Norway						
<u>Italy</u>	1957	1959	1959		(screened)	(screened)		1957	1957
	1958	1961	1961		"	"		1959	1959
	1959	1961, 1962	1961, 1962						
<u>Italy</u>	1960	1962, XI	1962, XI	(lists are being printed)			1960		1961
	1961	1962, XI	1962, XI	(cards are being listed and copied)			1961		
	1963	1965, V from Norway	1965, V from Norway						
<u>Italy</u>	"Ægir"								
	No data received								
	No data received								

Country	Data for the year	received	Data Lists publ. and deliv. to WDCs A, B	Stages in Processing of			Outstanding		
				Serial and Surf stations (less Chemistry)	Chemistry	BT	Data Lists	Chemistry	BT
<u>Netherlands</u>	1957	1960, 1962		(cards are bei-		screen.correct.	1957		1957
	1958	1959/60/61		(ing listed and		(punched and			
	1959	1959/60/61		(copied for		(verified			
	1960	1961, II, 1962		(NODC		(
<u>Norway</u>	1961	1965		) screened, correct.		(received on			
	1962	1965		) rec. cards to be		(punch cards			
	1963	1965, II		) corrected		(" "			
	1964	1965, XII		) partly screened		(" "	1964		1964
<u>Fish. Board</u>	1957	1960/61/62	1963, X						
	1958	1961, 1962	1965, V, VI	O.W.S. A & M list.					
	1959	) 1st vers. 1962	1965, X, XI						
		) 2nd " 1964							
<u>Geof. Inst.</u>	(1960	MS 1963, IX		MS screen.correct.			1960		
	(	Cards 1966		"H-H" on punch cards					
	(	1964		MS screen.correct.					
	(1961	MS 1964 VI		"H-H" on punch cards					
<u>Fish. Board</u>	(1962	MS 1965		MS screen.correct.					
	(	1964		"H-H" on punch cards					
	(1963	1965, III		("H-H", "H.U.Sverdrup"					
	(	1964, IX		(on punch cards					
<u>Geof. Inst.</u>	(1964			("Sars" screened					
	(			("H-H" on punch cards					
	(			(screen.					
	(1957	(1960, IV	1966, IV	(and				1957	
<u>Poland</u>	(1958	(1964, X		(converted					
	(1959	(1960, IV	1966, IV	("					
	(1960	(1964, X		("					
	(1961	(1961, II	1966, IV	("					
<u>Sea Fish</u>	(1962	(1964, X		("					
	(1963	(1961, IX		("					
	(1964	(1966, II		("					
	(1965	(1966, II		("			1960		1960

Country	Data for the year	received	Data Lists publ. and deliv. to WDCs A, B	Stages in Processing of			Outstanding		
				Serial and Surf stations (less Chemistry)	Chemistry	BT	Data Lists	Chemistry	BT
<u>Poland</u>	(contin.)								
<u>PIHM</u>	(1961)	(1st vers. 1963 (2nd " 1964 1966, II		lists ready being listed, copied	(screened, (converted		1961	1961	
<u>Sea Fish</u>	No data	received							
<u>Portugal</u>		1960	1963, III						
<u>Scotland</u>	1957	1960	1963, IX					1957	
	1958	1960	1965, IV						
	1959	1962, X							
	1960	1963		being printed			1960		
	1961	1964, XII		screen. plot.) replies			1962		
	1962	1965, I		" ") out-	screened				
	1963	1965, VIII		"Clupea" ") stand-	"				
				ing					
<u>Spain</u>	No data	received							
<u>Sweden</u>									
	1957	1958/62, IX	1966, IV					1957	
	1958	1959/60/62	1966, IV						
	1959	1960/1962	1966, IV						
	1960	1961		lists are ready			1960		
	1961	1962, XI		(cards are being					
				(listed, copied					
	1962	1964, II		(screened			1962	1962	
				(on cards					

Country	Data for the year	received	Data Lists publ. and deliv. to WDCs A, B	Stages in Processing of			Outstanding		
				Serial and Surf stations (less Chemistry)	Chemistry	BT	Data Lists	Chemistry	BT
U.S.S.R.									
Baltic)									
Barentz)	1957	1958, IX		(screened, plotted			1957		
Atlantic)		1961, VIII		(corrected				1957	
Azores )				) answers to queries					
Greenl. B)		1961 VIII		) outstanding					
Baltic)	1958	) 1961, VII							
Atlantic )		) on film							
Barentz)		1962, II		screened	screened				
Baltic)	1959	1960, XI)				
Barentz)		1962, II		screened, plotted)				
Baltic)	1960	1962, IV		punched, verified)				
Barentz)				screen. plotted)				
Overflow)				ready to print)				
Baltic)	1961	1962, VII		) screened,)				
Barentz)		1963, VIII		) corrected)				
Baltic)	1962	1963, VIII))				
Barentz)				screened)				
Baltic)	1963	1964, X		corrected)				
Barentz)				screened	)		1963	1963	
Baltic)	1964	1965, VII)				
Barentz)		1965, VII		screened)				
Rec.									

14 films of not yet identified data

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Summary showing expected publication of Data Lists

Nearing issue

Sweden and Poland	1957, 1958, 1959	3	volumes
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Being printed

Denmark and Iceland	1960, 1961	2	"
Germany (Federal Republic)	1960	1	"
Finland	1957, 1958	2	"
Scotland	1960	1	"

Ready for printing

Overflow Expedition	1960	2	"
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Being listed for next printing

England	1959, 1960, 1961	probably 6	"
Netherlands	1957, 1958, 1959, 1960	"	"
(together with Belgium already listed)		8	"
Sweden	1961)		
Poland (Sea Fish.Inst.)	1960, 1961)		
(together with already available lists)	1960, 1961	2	"
Finland	1959	1	"
Denmark	1962, 1963, 1964		
(will await Icelandic material for these years)		3	"
Belgium	1961-1964		
(will wait for Netherlands)			

31 vols.

Awaiting corrections, but otherwise ready for listing

and subsequent printing

Conjoint Herring Surveys	1960, 1961	2	"
Scotland	1961	1	"
Germany (Federal Republic)	1961, 1962, 1963	3	"
(part of lists ready)			
Norway	1960	probably 2	"
Netherlands	1961, 1962	"	4
(with Belgium being listed)			

12 vols.

Remaining material in less advanced stages

of preparation

England	1962 (cards and MS received)	)	only screened
Netherlands	1963, 1964 (cards and print-out received)	)	in part
Sweden	1962 (cards received) to be corrected, will await Polish material.		
Scotland	1962, 1963 corrections missing (to be punched)		
Norway	1961, 1962 cards to be received; MS corrected		

will probably make 13 vols.

Baltic Expedition 1964

MS from Poland))	
Sweden	)	main part)
Finland	)	screened and corrected	) 5 vols.
Germany (Federal Republic)))
" (Dem. ")))
U.S.S.R.	)	not yet received)

U.S.S.R. Ship code nos. for material are required.

1957	Baltic, Sect. Barentz, Atlantic (BH format)	screened, corrected, plotted
1958	" " Greenland Banks	" "
1959	" (BHform.) "	" " "
1960	" " punched	" " "
1961	" " "	" "
1962	" " "	" "
1963	" " "	" "
1964	" " "	" "
1958	IGY - Atlantic material received on film, abt. 40.000 cards punched from projected film and proof-read film with cards.	
1958	Baltic received on film	
1959-1962	14 microfilms received	

Of the above the 1957 and 1959-1963 volumes may be prepared within a not too distant future.

6 small vols

1958 will require considerable time yet.

probably 2 large vols

Outstanding

All chemistry volumes
all BT volumes

In the table below is indicated for each of the member countries the number of BT stations from which readings have been received.

Belgium	0	Netherlands	abt. 4500
Denmark	abt. 30	Norway	0
England	2	Poland	0
Finland	abt. 400	Portugal	0
France	0	Scotland	0
Germany (Fed.Rep.)	abt.1500	Spain	0
Iceland	abt.3000	Sweden	0
Ireland	0	U.S.S.R.	0
Italy	0		

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Proposal for Staff of the ICES Service Hydrographique

- | | | |
|--------|--|-----------------------|
| I.a) | Registration of data | 1 person |
| b) | Supervision of punching work, listings and drawings | (Mrs. Holm) |
| c) | Arrangement of the lists for printing | |
| d) | Responsibility for introduction of data corrections | |
| e) | Working out of catalogues on the content of the punched card collections | |
| f) | Secretarial work. | |
| II.a) | Clerical work | 1 person |
| b) | Assistance in any odd jobs | (Mrs. Larsen) |
| III.a) | Punching from lists | 1/2 person |
| b) | Replacement of wrongly punched cards | |
| c) | Assistance in calculation (anomalies etc.) | |
| IV.a) | Assistance in screening of data | 1 person |
| b) | Conversion of chemical data | (Mrs. Knudsen) |
| c) | Assistance in calculations (monthly means etc.) | |
| V.a) | Plotting of data | 2/3 person |
| b) | Drawing work | (Mrs. Bondorff) |
| VI.a) | Calculation of monthly means of surface t and S for areas of the north-eastern North Atlantic | 1/2 person |
| b) | Calculation of anomalies of surface temperature for regions of the northern North Atlantic | (Mrs. Funch Petersen) |
| c) | Other calculation work of minor extent | |
| VII.a) | Off-set printing of Data Lists | 1 person |
| b) | Off-set printing of hydrographic meeting papers, documents of the Service Hydrographique, etc. | |
| c) | Verifying of punched cards. | |

- VIII.a) Keeping of the punched cards archives 1 person
1. Keeping of the cards used for the Data Lists
 2. Sorting according to 1°-squares of the copies of these cards
 3. Sorting in the same way of the cards received from the U.S. NODC, covering the years 1902-1956
 4. Furnishing of copies of data on request
- IX.a) Correspondence of the Service Hydrographique, including secretarial work for the Hydrographic Committee and its Sub-Committees 1 person
(the Hydrographer)
- b) Screening of data, preparation of lists of queries and checking of replies to these
 - c) Technical work in connection with printing of hydrographic publications of the Council
 - d) Supervision of work in Service Hydrographique.

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Additional rooms and facilities for

the ICES Service Hydrographique

If additional staff be appointed at the Service Hydrographique the necessary additional rooms must be made available, as the rooms now at disposal are already too crowded. In this connection it might be mentioned that two of these rooms are too small and never were intended as working rooms; after an inspection some years ago there is reason to believe that they cannot be accepted as such by Danish authorities.

Furthermore it is absolutely necessary to have a room to be used as an archive for the punched cards; the room should at the same time serve as working room for a member of the staff.

The Service Hydrographique has at present about 500,000 punched cards from the years 1957-1965; when all recent (i.e. post-1956) data at present available here have been processed the above figure is estimated to have risen to 800,000. At the moment these cards are arranged as received and published, i.e. according to cruises. ¹⁾ This arrangement should be preserved. In our opinion, however, it is necessary to have the cards also in a geographical arrangement, i.e., according to 1°-squares. If this is agreed the cards should, therefore be copied, and the copies should be sorted and arranged geographically. Data or information requested might then be extracted from the easiest accessible card-set.

This would mean 1,600,000 cards of recent origin. Hereto should be added the cards covering the contents of the series Bulletin Hydrographique (1902-1956). This collection is estimated to 1,200,000 cards. Copies of these cards are being furnished us by the U.S. NODC; an amount of 500,000 cards have already been received. These cards are being delivered arranged according to country. It would not seem convenient for our use of the cards to keep them in this order. They should be sorted here (without copying) according to 1°-squares and arranged geographically.

It appears from the above that space for 2,800,000 cards is required at present. With the cards stored in boxes containing 2,000 cards this means 160 shelf metres (height of shelf 45 cm).

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- 1) At present serial stations, surface stations and BT-stations are kept as separate collections. This division should be kept up. Furthermore, for the sake of listing the data it shall probably be necessary to keep the Hydro Chemistry Card as a separate collection, with a Hydro Master Card intercalated for each station.

The annual accession of recent cards is estimated to at least 100,000. Kept in two copies as explained above, they would require about 12 shelf metres.

The shelves used at present are deep enough to carry two rows of boxes. This arrangement has no essential drawback, and adherence to it means that the above figures of shelf metres needed may be halved.

A room with shelves of the above capacity would thus be necessary. The room should keep a suitable heat and humidity, be reasonably fire-proof, and regard should be taken that the floor can carry the steel-shelves filled with the boxes of cards. It would seem necessary to have the room in the same building as the rest of the Service Hydrographique.

Although the old handwritten card-index is in the main being covered by the punch cards furnished by U.S. NODC it is proposed to keep also this index. This is a must until the whole index has been covered by NODC. Furthermore, the old index will have some data from other sources than the Bulletin. Fortunately, this index does not require much room. It is at present stored in three big tables and might partly be kept there, in as far as one or two of these tables should be moved to the archive room; the rest of the cards should be stored in cardboard boxes on the shelves of the archive.

- It appears from the above that in addition to have as now a punching machine (at a monthly rent of 381 D. kr.) and a verifier (311 D. kr. a month) it would in future be necessary to have also a sorter permanently. A common type of this machine, sorting 650 cards per minute, may be hired at 381 D. kr. a month. It would probably be advisable to have the sorter fitted with a card counting unit (208 D. kr. a month) and other minor devices, so that a monthly rent of 6-700 D. kr. for the complete machine should be budgeted.

In case more machinery should be deemed necessary the following information on monthly rents for common types of machines is given: Reproducer 865 D. kr. Interpreter and Collator 692 D. kr. each. Tabulator (Accounting Machine) 1500-2000 D. kr. The machines can also be bought; the prices amount to about 5 years' rent, but then maintenance is not included.

The sorter as well as additional machines, if any, should be placed in the archive room.

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Proposal for an annual catalogue of the data published in
the ICES Oceanographic Data Lists.

After all the data, that may be expected for one year have been published a catalogue consisting of the track charts from the Data Lists may be issued.

The charts would be arranged after regions of the sea in chronological order as far as possible.

Each chart would have a note giving information on name of ship, station numbers, period of observation, and where to find the relevant data.

Pending the issue of such a catalogue a provisional version covering parts of several years may be sent out. It would consist of a collection of loose-leaf charts as printed in the data lists hitherto published (but on one side of the paper only) and every new volume of the data lists might in the future be accompanied by an extra set of the charts to go in the collection.

Some of the plotting charts that have been used for the Data Lists may not satisfy this new purpose, in time more suitable standard charts will be found.

The expenses involved would be in reproduction on multilith masters of the drawings that have been cut up and pasted together so as to satisfy the requirements regarding region and chronology, and addition of a new note to designate the chart.

The charts may be reproduced from these masters in the Service Hydrographique.

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Proposal for Arrangement of the Punched Card Holdings
in the Archives.

Cards from 1902 to 1956.

The punched cards received from NODC in exchange for the ICES cards from 1957 onwards are the serial stations which have been published in the Bulletins Hydrographiques; they will eventually cover the years 1902-1956.

The cards are converted to the ICES system but differ from it in that they do not indicate ship code number or station number but use an auxiliary 4-digit number (in cols. 5-8 for each station. For each country this auxiliary number is consecutive in the order of the Bulletin Hydrographique. Where information is missing columns are left blank.

The cards contain: country, position, date, depth to bottom, observation depth, t , S , σ_t , O_2 and card code numbers. Also interpolated values for standard depths of t , S , O_2 , and computed specific volume anomaly and dynamic depth anomaly for these depths are given; order of a serial station is depth sequence.

So far delivered are serial stations from the Bulletins Hydrographiques for the years 1920-1923, 1938, 1939, 1947, 1949-1953, 1955. It seems that data punched at NODC from other sources, but also included in the Bulletins Hydrographiques will be delivered separately. For identification of ship and station number one will be obliged to consult the relevant Bulletin Hydrographique.

It is intended to keep this collection of cards separate until delivery of cards is completed.

Cards from 1957 onwards.

As it is suggested in the document Agenda item 6b, two card sets - one in cruise order, the other in geographical order - should be kept of these data.

For the latter card collection is suggested a grouping in the following order: Marsden number sequence; within each Marsden number in 1°-squares in the order of growing latitude and longitude; within each 1°-square a grouping according to month, year, date and perhaps latitudinal minutes.

The order suggested for the grouping of the serial stations should also be followed for the separate collections of chemistry, surface and BT stations.

Though it is desirable to have the chemistry cards sorted into the serial station in which they belong it is clear that it will not be possible to include them in a print-out. As it seems likely that not only copies of punched cards for a certain region but also a print-out might be requested it would be an advantage to keep the chemistry cards separately.

It is suggested to store separately the card collections from each regional sea: the Baltic Sea, Transition Area, the North Sea, the English Channel, the Mediterranean, the Atlantic northern area, and the Atlantic southern area. The limits of the regional seas are those decided for the Bulletin Hydrographique:-

Baltic Sea: Gulf of Bothnia and Baltic Sea westwards to 15°E.

Transition Area: Belts, Kattegat, Skagerrack westwards to 10°E.

North Sea: western limit: to the English Channel 0°, and to the North of Scotland 5°W. northern limit: 60°N.

English Channel: between 0° and 5°W, north of 48°N.

Mediterranean: western limit 6°W.

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Proposal for a Catalogue over the ICES punched card holdings.

This catalogue presupposes the geographically arranged set of punched cards (ref. Agenda item 7). When all data available on punched cards have been included in the archive a catalogue over the holdings should be published giving information on the available number of cards containing the several items of observations within a certain field.

The catalogue would be divided in information from the regional seas, (Baltic Sea, Transition Area, North Sea, English Channel, Mediterranean) and from the Atlantic northern and southern areas.

The order of arrangement in each region will be: Marsden number sequence, but areas north of 80°N (nos. 901 etc.) preceding southern latitudes. Within each Marsden number an order of 1°-squares for the regional seas - in 5°-squares for the Atlantic after growing latitude and longitude. Within each square according to month and year.

Basis for the catalogue is an index (on punched cards) of the ICES holdings of serial, chemistry, surface and BT cards. From this index sum-cards may be produced for each square, month and year. The sum-cards may be machine listed on Multilith-masters and reproduced by the off-set method in the Service Hydrographique.

The information for the index of the holdings is obtained when the cards are sorted for the archive. While sorting, a punching form should be filled in giving the content of the sorted cards. This applies to the separate sortings of the serial, chemistry, surface and BT cards. The data from the forms should be punched on cards and should eventually result in an index card for each ship (or group of ships) giving the amount of data of the four categories within a 1°-square, year and month.

Attached is a suggestion for an index card and a sample of a supposed print-out for a catalogue.

The number counted for phosphorus and nitrogen observations would mean of cards containing P and N irrespective of the form from which they are derived. It might be discussed whether meteorological observations from BT stations should be included in the catalogue.

Punch card for Catalogue Index

[illegible]

Example of print-out for Catalogue

Regional seas

Latitude	Longitude	N+E, N+W, etc.	Month	Year	number of stations	number of depth cards	number of interpolated cards	O ₂	P	N	Si	other chem. const.	Surface stations	wind	weather + cloud	sea	ice	BT stations
50	01	W	06	1910	2	10		10					14					
50	01	W	06	1928	5	14												
50	01	W	06	1960	27	104		14	14		10	4	84	49	49	10		209
50	01	W	06	1965	14	80							35	14	14	14		
50	01	W	08	1923	10	60		10					40					
50	01	W	08	1948	14	56												
50	01	W	08	1963	10	60		14	14		14		65	70	70	70		
50	02	W	06	1915	3	15		15					40					

Atlantic

[illegible]

ICES Meeting
on
Service Hydrographique
Charlottenlund, 28/3 - 30/3-1966

Proposal for lay-out of a sheet of
information on data accessions

If it is deemed useful we could easily circulate information about data accessions a short time after receiving such data. This would make it possible for interested laboratories to order copies of the data although the data should at this stage be considered provisional.

A proposal for the lay-out of such an information sheet is attached. A track chart on the back of the sheet is supposed to be a useful measure.

Data received in the ICES Service Hydrographique No.

Stage: P R O V I S I O N A L

Date received:

Country:

Institution:

Ship's no. and name:

Region:

Period:

Number of stations, serial:

" " " , surface :

" " " , BT:

Oceanographic observations: Depth to bottom, t , S , O_2 , Mixed Layer Depth, chemical constituents (t to be specified), transparency, extinction, currents, etc.

Meteorological observations: Wind (dir., speed), t (dry bulb, wet bulb), weather, cloud, sea, ice.

Computed values: σ_t , $\Delta\alpha$, ΔD , O_2 saturation, chlorosity; values for standard depths.

Max. observation depth:

Remarks:

NB. Track chart on the back of the sheet.

ICES Meeting

on

Service Hydrographique

Charlottenlund, 28/3-30/3-1966

Proposal for Introduction of ICES Standard Punch Cards
for Exchange of Data

At present the following types of punch cards are used in the ICES Service Hydrographique for observed data:-

Hydro Master Card	Code figure 01
(Hydro Surface Card	" " 02)
Hydro Depth Card	" " 03
BT Master Card	" " 04
BT Detail Card	" " 05
Hydro Chemistry Card	" " 06

In the punched card archives a serial hydrographic station is represented by one Hydro Master Card and a number of Hydro Depth Cards and Hydro Chemistry Cards. These cards for one station should be kept together, at any rate the Master Card and the Depth Cards. This gives rise to difficulties in copying the cards, however, if it is desirable to copy them on cards of the corresponding types. This requires that the cards are to be sorted out in categories, each category to be copied separately, and then to be sorted together again, as should also the card copies.

This sorting together is a troublesome process, in any case if no machinery is available for the purpose. Consequently we receive in the Service Hydrographique a lot of punched cards of which the Master Cards are held in one batch, the depth cards in another.

One way to solve the problem is to copy the cards, irrespective of type, on plain cards, i.e. cards of one standard colour and without any heading. As the card type is indicated by the card code the machines will, of course, deal with these cards as with those of different color and heading. However, the manual handling is impeded.

We think that it would be a considerable help in manual handling if instead of the plain card is used a standard card in which the various headings are indicated. A standard card made out according to this principle has already been used for some years by the U.S. National Oceanographic Data Center.

The format of the multiple-headed standard cards (Hydro, BT and Chemistry) suggested for use by ICES is shown attached. The latter of them is included because in our card collections it may be necessary for the sake of listing to keep the Hydro Chemistry Cards separately, with a Hydro Master Card intercalated for each station.

Standard Hydro Card

COUNTRY	SHIP	STATION NO.	LAT.		LONG.		N S E W	DATE			STATION TIME	DEPTH TO BOTTOM	SURFACE			MAX. OBS. DEPTH	MIXED LAYER DEPTH	WIND DIR.	WIND SPEED KN.	TEMPERATURE		WEATHER	CLOUD AMOUNT	STATE OF SEA	ICE	SIL. METHOD	EXTRA INFO.	CODE NO.
			°	'	°	'		YR.	MO.	DAY			TEMP.	SAL.	σ_t					DRY BULB	WET BULB							
00	00	0000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
11	11	1111	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
22	22	2222	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
33	33	3333	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
44	44	4444	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
55	55	5555	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
66	66	6666	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
77	77	7777	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77
88	88	8888	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
99	99	9999	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
1	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80												

ICES

Standard BT Card

COUNTRY	SHIP	SLIDE NO.	LAT.		LONG.		N S E W	DATE			HR.	DEPTH TO BOTTOM	SURF. TEMP.	MIXED LAYER DEPTH	WIND DIR.	WIND SPEED KN.	TEMPERATURE		WEATHER	CLOUD AMOUNT	STATE OF SEA	MAX. TEMP. °C	MIN. TEMP. °C	TEMP. °C	DEPTH	ICE	SIL. METHOD	EXTRA INFO.	CODE NO.
			°	'	°	'		YR.	MO.	DAY							DRY BULB	WET BULB											
00	00	0000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
11	11	1111	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
22	22	2222	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
33	33	3333	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	
44	44	4444	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
55	55	5555	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	
66	66	6666	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	
77	77	7777	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	
88	88	8888	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	
99	99	9999	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	
1	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80													

ICES

Standard Chemistry Card

COUNTRY	SHIP	STATION NO.	LAT.		LONG.		N S E W	DATE			STATION TIME	DEPTH TO BOTTOM	SURFACE			MAX. OBS. DEPTH	MIXED LAYER DEPTH	WIND DIR.	WIND SPEED KN.	TEMPERATURE		WEATHER	CLOUD AMOUNT	STATE OF SEA	ICE	SIL. METHOD	EXTRA INFO.	CODE NO.
			°	'	°	'		YR.	MO.	DAY			TEMP.	SAL.	σ_t					DRY BULB	WET BULB							
00	00	0000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
11	11	1111	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
22	22	2222	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
33	33	3333	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	
44	44	4444	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	
55	55	5555	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	
66	66	6666	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	
77	77	7777	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	77	
88	88	8888	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	
99	99	9999	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	
1	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80												

ICES

ICES Meeting

on

Service Hydrographique

Charlottenlund, 28/3 - 30/3-1966

ICES Service Hydrographique 1949-1966

In another document, reprinted for this meeting, the history and development of the Service Hydrographique up to the year 1949 were given. In the following this description is carried up to the present.

Activities

Hydrographic Card Index. During the first years of the period here under consideration the data received at the Service Hydrographique were recorded by hand on cards which served as an index of the observations and were used in the preparation of the Bulletin Hydrographique.

With the ever increasing annual amount of data received it became necessary to find a less troublesome method of handling the data and thus making the employment of the data collections less time-consuming.

R.&P.-V.
145 (1), 48

In 1957 a sub-committee proposed therefore, that the Council's index of hydrographic data should be mechanized and that IBM punch cards should be used for the purpose.

R.&P.-V.
146 (1), 49

Another sub-committee worked out the punching system in detail and reported to the meeting in 1958 at which the scheme was adopted. For details the reader is referred to the document "The ICES Service Hydrographique, its Development as a Regional Data Center and its Relation to the World Data Centres", presented at the present meeting.

In accordance with this scheme the data for 1957 onwards have been punched into IBM cards. Furthermore, a considerable part of the data from before 1957 are also available here on punched cards, thanks to an exchange arrangement with the U.S. National Oceanographic Data Center. For further details on the processing of data after the introduction of the punching scheme reference is made to the document mentioned above.

R.&P.-V.
127 (1), 45

Publication of data. In 1949 the Hydrographical Committee was asked by the Bureau to discuss the possibility of reducing expenditure in connexion with the publication of the Bulletin Hydrographique. At this instigation the Service Hydrographique considered various cheaper processes for reproducing the Bulletin, and from the 1947 issue onwards the Bulletin was printed by an off-set method, the complete manuscript being typed in the Service Hydrographique.

The introduction of the punch card system gave new possibilities, however. The data in these cards may be printed mechanically from the cards on off-set masters from which the necessary number of copies may then be run by means of an off-set machine. This method is the one used here for the data from 1957 onwards. The listing is carried out by a service bureau as we do not have the necessary machinery. The off-set printing, however, is undertaken by the staff of the Service Hydrographique.

The data are now published as a collection becomes ready, whereas before 1957 the data from one year were held up until all data for that year had been received and made ready. This new procedure makes it less convenient to arrange the published data according to 1°-squares as in the Bulletin Hydrographique. The data are therefore published according to cruise. The volumes are bound so that they may easily be arranged in loose-leaf files.

Because of these various changes it was felt that the name "Bulletin Hydrographique" should be abandoned. The new series was named "ICES Oceanographic Data Lists". Hitherto 19 volumes have been published. A further 20 volumes will be issued before the end of the present year.

Other Dissemination of Data. During the whole period the Service Hydrographique has furnished copies of data on request. In some cases also monthly means have been calculated and furnished. An example are the charts of monthly means of surface temperature and salinity in 1° x 2° areas of the North Sea and the eastern North Atlantic, made out at request of Oceanographic Laboratory, Edinburgh for each of the years 1957-1961 (incl.).

R.&P.-V.
129 (1), 41

Monthly Hydrographic Charts. At the meeting of the Hydrographical Committee in 1950 a discussion took place on ways and means to make hydrographical investigations more useful to biologists. As one outcome of this discussion it was agreed that special consideration should be given to the preparation and publication of charts of surface temperature and salinity and wind conditions in the North Sea and adjacent waters as soon as possible after the data were available.

R.&P.-V.
134 (1), 45

In accordance with this agreement monthly charts were for the period June 1950 - June 1952 prepared and published by Cdr. Lumby, of the Fisheries Laboratory, Lowestoft. After this trial period the preparation and publishing of the charts were taken over by the Service Hydrographique, starting with the charts for July 1952.

R.&P.-V.
135 (1), 35

The charts were apparently well received, also by marine biologists. Thus, at the meeting in 1953 the Plankton Committee expressly wished "to convey to the Hydrographical Committee their appreciation of the value of the Synoptic Hydrographic Charts which they find most useful".

R.&P.-V.
141 (1), 48

In 1955, however, the Chairman of the Consultative Committee asked the chairmen of the various committees to procure more specific statements on the value of the charts than had been available hitherto. The Hydrographical Committee, in its reply, stressed that the prime purpose of the Synoptic Charts was to supply marine biologists with information for them to use in their studies. In this connexion the Committee pointed out that a long series of such charts can be expected to be of particular value in the future

when various relationships between hydrography and marine biology suggest themselves for examination. The effort made now to produce the charts would in all probability obviate costly expenditure of labour when such situations arose. The Committee furthermore, expressed the opinion that a long series of the Synoptic Charts would provide a unique material for the examination of questions pertaining to the interrelation between the atmosphere and the sea. Thus they would have a value to branches of science beyond the scope of activity of the ICES.

R.&P.-V.
142 (1), 36

In accordance with a decision of the meeting in 1956 the Synoptic Hydrographic Charts were now extended to include the area of Kattegat, the Belts, and the western Baltic, whereas the number of observations for an extension towards north and west were found to be insufficient.

P.-V. 1961,
p. 90

The interest in the Monthly Synoptic Charts appeared to decline, and in 1961 the Hydrographical Committee, with some reluctance, recommended cessation of the production and publication of the charts, because of the apparently limited use to which they had hitherto been put, and with a view to the impracticability of producing and distributing the charts in less than four months after the month to which they related. The charts were then stopped after publication of those covering the month of December 1958.

R.&P.-V.
135 (1), 35

Surface Mean Charts. At the meeting in 1953 of the Hydrographical Committee the Chairman drew attention to the lack of monthly mean charts of temperature and salinity for the area covered by the Synoptic Hydrographic Charts. Cdr. Lumby intended to pull together into a set of Provisional Mean Charts the information given in existing charts. This would, however, mean a temporary help only. The Committee recommended therefore that charts of mean monthly distribution of temperature and salinity for the region covered by the monthly charts should be prepared.

R.&P.-V.
138 (1), 35

It was realized, however, that this work could not be undertaken at the Service Hydrographique without increase of staff. In 1954 a sub-committee was set up to direct the preparation of the charts.

Later on the Service Hydrographique made its data collections from the area in question ready for punching. This was carried out by the German Hydrographic Institute. The print-outs were screened in detail by the Service Hydrographique whereafter the preparation of the charts were carried out by Professor Dietrich and his staff in Kiel, as the Service Hydrographique did not have the necessary staff or facilities for the work.

Other Charts. During the first years of the period under consideration the Service Hydrographique carried out a considerable work in extracting and interpolating data of temperature and salinity for a number of depths levels in the North Sea. The intention was to prepare and publish mean charts on the basis of the material. The work had to be given up, however, when the preparation of the Synoptic Charts was taken over by the Service Hydrographique without sufficient increase of staff.

P.-V.
1964, p. 114

A decade later temperature charts as those mentioned above were published by the German Hydrographic Institute. Salinity charts were also planned, and as the Service Hydrographique

already had some material prepared for such charts the German Hydrographic Institute kindly suggested that the charts might be prepared and published as a joint project. The Service Hydrographique has therefore, worked up the material for the period 1902-1939 which has been delivered to the German Hydrographic Institute, and joint meetings have been held for discussion of the further working up of the total material.

R.&P.-V.
135,(1),35

In 1953 the Service Hydrographique prepared, at the instigation of fisheries biologists, a considerable number of "herring-hydrographical charts". These charts, of which some were circulated, gave the distribution of temperature and salinity at a number of levels in areas of the Norwegian Sea for certain periods. Because of lack of sufficient interest in the charts from the biologists - probably because it proved difficult to obtain information on occurrence of fish which information according to the plans should have been included in the charts - the undertaking was not followed up.

Publications. During the period a number of minor papers, mainly on anomalies of surface temperature and salinity, have been prepared and published. A list of these contributions is given below.

Furthermore, the Service Hydrographique has had the technical sponsorship of the hydrographic volumes published by the Council in the period.

Secretarial Work. The Service Hydrographique has functioned as secretariat of the Hydrographical Committee and its sub-committees. Especially in connexion with the meetings this has given considerable work.

Staff.

At the beginning of the period under consideration the staff of the Service Hydrographique consisted of one full-time clerical assistant, one working part-time and the Hydrographer. In the budgetary year 1948/49 the total salaries paid to the staff of the Service Hydrographique, including the Hydrographer, amounted to 18,293 D.kr. only (i.e., about 2,700 Dollars).

R.&P.-V.
127 (1),45

None the less the Bureau in 1949 requested the Hydrographical Committee to discuss the possibility of reducing the costs of running the Service Hydrographique. The Hydrographical Committee, however, considered that the activities of the Service Hydrographique as defined by the relevant resolutions earlier passed by the Council were absolutely essential to the proper function of the hydrographical work of the Council, and that the staff of the Service Hydrographique was the absolute minimum with which these activities could be maintained. It was deemed necessary that the staff should include a scientist, not only for scrutinizing the data published in the Bulletin Hydrographique, but also for carrying out hydrographical studies.

R.&P.-V.
135 (1),35

At the meeting in 1953 the Chairman of the Hydrographical Committee stressed the desirability of having more assistance in the Service Hydrographique, as the work to be carried out had increased much in recent years. He was of the opinion that hydrographical data lent themselves more easily to treatment at a central office than the biological data.

A recommendation to the effect that the staff of the Service Hydrographique be increased by the addition of one assistant was endorsed by the Council. The recommendation was based on the fact that increased routine work, due to the great expansion of the data to be published in the Bulletin Hydrographique and to be entered on cards, as well as to the preparations of the monthly surface charts, demanded the full attention of the Hydrographer and his staff. Thus, no time could be devoted to the consideration of special problems and special requests, nor could special assignments be dealt with. One more clerical assistant was then engaged. Most of her time was taken up by the additional work which the preparation in the Service Hydrographique of the manuscript for off-set printing of the Bulletin Hydrographique gave rise to.

Since then no further full-time assistants have been appointed in the Service Hydrographique, in spite of the great increase in the material to be dealt with, and in spite of other work imposed on the Service Hydrographique. But minor amounts have been made available for engaging part-time assistance. Thus the full-time staff, in addition to the Hydrographer, still consists of two girls only. The annual grant for part-time assistance is at present 30,000 D.kr. (abt. 4,500 Dollars).

List of Contributions

1950. Monthly Anomalies of the Surface Temperature in Areas of the northern North Atlantic during the Years 1876-1939 and 1945-1949. - Ann. Biol., VI, pp. 18-27.
1951. Monthly Anomalies of the Surface Temperature in Areas of the northern North Atlantic during the Years 1945-1950 and at Icelandic Coastal Stations during 1943-1945. - Ann. Biol., VII, pp. 9-13.
1951. Monthly Anomalies of the Surface Salinity in an Area of the Southern North Sea during the Years 1902-1939 and 1946-1950. - Ann. Biol., VII, pp. 85-88.
1952. Monthly Anomalies of the Surface Temperature in Areas of the northern North Atlantic in 1951 (1952 1963).
1966. - Ann. Biol., VIII-XVII and XIX-XXI.
1952. Variation of the Temperature of the Surface Water at Station Myggenæs (Faroes) during the Years 1914-1951. - Ann. Biol., VIII, pp. 20-21.
1952. Monthly Anomalies of the Surface Temperature in the Celtic Sea during the years 1903-1939 and 1946-1950. - Ann. Biol., VIII, pp. 58-62.
1953. Variation of the Surface Temperature in the northern North Atlantic during 1876-1952. - Ann. Biol., IX, pp. 19-21.
1953. Monthly Anomalies of the Surface Temperature in an Area off the Eastern Coast of Scotland in the period 1876-1952. - Ann. Biol., IX, pp. 95-97.
1954. Monthly Anomalies of the Surface Temperature in an Area off the Eastern Coast of Scotland in 1953 (1954 1963). - Ann. Biol., X-XVII and
1966 XIX-XXI.

1954. On the Homogeneity of the Water Column in the Southern North Sea. - Ann. Biol., X, pp. 75-80.
1959. Monthly Anomalies of the Surface Temperature of the Sea West of South Greenland 1876-1956. - Ann. Biol., XIV, pp. 11-13.
1963. Monthly Anomalies of the Sea Surface Temperature in Areas of the North Sea during 1902-1958. - Ann. Biol., XVIII, pp. 34-42.
1963. Monthly Anomalies of the Surface Temperature in the Celtic Sea during the Period 1948-1958. - Ann. Biol., XVIII, pp. 57-58.
1964. Monthly Anomalies of the Surface Salinity in an Area of the southern North Sea during the Years 1951-1958. - Ann. Biol., XIX, pp. 36-37.
1964. Monthly Anomalies of the Surface Salinity in the Celtic Sea during 1903-1958. - Ann. Biol., XIX, pp. 50-53.
1966. Variation of the Temperature of the Surface Water in Areas of the northern North Atlantic. - ICNAF Environmental Symposium (Rome, 1964), Contrib. No. H-5. (in the press.)

Jens Smed