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International Council for
the Exploration of the Sea

C.M. 1973/C:15
Hydrography Committee

A third preliminary report of the Working Group on Permanent
Moored Current Meter Stations in the North Sea

MEMBERS

J. W. Ramster (Chairman)

H. D. Dooley

K. P. Koltermann (Dr H. Neumann retired from DHI during the year)

Dr R. Ljoen

A. Svansson

Dr K. van der Veen (now resigned from KNMI)

TERMS OF REFERENCE

The Working Group should investigate the possibility of establishing and maintaining a permanent network of recording current meters etc. in the North Sea (Hydrography Committee C. Res. 1969/5:4 and Res. 1970/2:15).

REPORT

The Working Group met in Aberdeen in December 1972 and discussed in detail the nature of the final report. The plan formed from these discussions is shown as Annex 1 of this text.

The rest of the year has been spent in putting the plan into operation. Some sections of it have involved either further data preparation or the contacting of agencies external to the Group for background data, and this has resulted in slower progress than was envisaged last December. However, prototype copies of the final report should be in the hands of the Chairman of the Hydrographic Committee and the ICES Hydrographer by the time this report reaches the members of the Hydrography Committee. It is intended that the first full draft version will be with ICES by the end of January 1974. Since the Working Group has now been asked by the members of JONSIS to suggest sites for a long-term network of moored stations in the North Sea (minutes of Hamburg meeting, para. 10.3), it is likely that its members will be allowed by their respective Governments to attend the JONSIS meeting scheduled for late March 1974 in Lowestoft. The Group considers that this would be an ideal opportunity to discuss and hopefully approve

the final draft of its report, and therefore seeks the approval of the Hydrography Committee for this plan.

After the last ICES meeting it was pointed out to the Chairman that the basic information needed for the production of the charts of fishing effort by statistical rectangle suggested by the Group in last year's report was, in fact, already published by ICES. He, therefore, commissioned the compilation of quarterly charts on behalf of the Group and these, together with an explanatory text, have been presented to the Hydrography Committee and referred to various Statistical and Biological Committees as Paper C:16.

The Working Group has now considered this paper and is very aware that the general characters of the charts might well be radically changed if and when more data became available. Consequently it would like to endorse the conclusions of the authors in recommending to the Hydrographic Committee that the ICES Statistician should be asked if:

- (i) moves could be made towards the rationalization of the collection of fishery statistics among ICES members, so that at least a common base for such charts becomes more readily identifiable;
- (ii) more members could be asked to supply at least quarterly data by statistical rectangle of "hours fished";
- (iii) fishing intensity charts could be produced on a routine basis as part of the ICES Statistical Newsletters.

Finally, on behalf of the remainder of the Working Group, I would like to thank Dr Neumann and Dr van der Veen for the work they have done over the past three years in the cause of introducing ICES on the one hand and the fishermen of the North Sea on the other to the idea of permanent moored current meter stations.

J. W. Ramster

10 July 1973

ANNEX 1

Outline of the proposed data report of the Working Group on
Permanent Moored Current Meter Stations in the North Sea

1 INTRODUCTION

- (i) Terms of reference.
- (ii) Membership.
- (iii) Meetings.

2 DETAILS OF THE MOORED CURRENT METER STATIONS

- (i) Chart of North Sea showing station positions.
- (ii) Bar diagrams of September 1970-September 1971 inclusive showing periods of time that each station was occupied.
 - (a) Type of instruments used in each case to be shown.
- (iii) Tabulation of losses and causes of loss - to follow JONSIS format.
- (iv) Tabulation of success rate under the following headings.
 - *(a) Duration (days, hours) of time instruments are in a working position, i.e. launched and recovered from one spot.
 - *(b) Duration (days, hours) of time good data achieved and also this figure expressed as percentage of (a).
[* Hence an estimate of actual instrument performance.]
 - *(c) Duration (days, hours) of time stations are in position in theory (i.e. may be lost, but as far as owner knows station is in being).
 - *(d) Percentage of (c) that (b) forms.
 - *(e) Duration (days, hours) of time lost via actual meter loss and also this figure expressed as percentage of (c).
 - *(f) Duration (days, hours) of time lost via discarded data and also this figure expressed as percentage of (c).
[* Hence an estimate of gross success rate with comparison of data loss from actual loss of instruments and instrument performance respectively.]

Example

	Station 22	Station 23	Station 21
	Top	Bottom	
(a)	300 days		
(b)	{ 200 days 66%		
(c)	360 days	etc.	etc.
(d)	55.6%	etc.	etc.
(e)	{ 60 days 16.2%		
(f)	{ 100 days 27.8%		

N.B. Percentage at d + e + f = 100%.

3 BASIC PROCESSING AND CALIBRATION PROCEDURES

Description in general terms of the cleaning up of recorded Direction and Revs to give acceptable D and V - as given on Data Exchange Group Report 1972?

4 INTERCALIBRATION EXERCISE

- (i) Draft (with figures) to be circulated as soon as possible and used, once generally accepted en bloc in first instance.
- *(ii) Text of KNMI exercise comparing Bergen and Plessey in rough seas to be circulated and, once generally accepted, to become a distinct sub-section.

[* Mr van der Veen to prepare and circulate.]

5 THE CALCULATED DAILY (24 hours 50 minutes) MEAN CURRENT AT EACH STATION

- *(i) Tabulated values. As format below.

JONSIS STATION NUMBER
POSITION
WATER DEPTH (SOUNDING IN METRES)
DISTANCE OF INSTRUMENT ABOVE BOTTOM (METRES)
TYPE OF INSTRUMENT

Year	Month	Date	Depth	Depth
(Beginning of each month only)	(Numeral)		NEDV t°C	NED etc.

(Entries under NEDV to be 24 hour 50 minute mean balance about 1200 GMT.)

[* Will need precise definition of space between headings so that all consistent OR Mr Koltermann to punch existing exchanged data and output again to suit above agreed format.]

(ii) Example of the character of the daily mean drift at each station.

Plots of daily mean N, E, D V for

- *(a) all data;
- *(b) winter, summer at each station; or
- *(c) one set of data not less than 14 days in length common to all stations.

[* Mr Koltermann to provide examples of scales necessary to put each of these, for all stations, on double unfolded page.]

*(iii) Example of the character of the hourly development of the tidal streams at each station.

Plot of N and E hourly values over common 14-day period (could be the same period as in ii).

[* Mr Koltermann to identify period and produce plots for Group comment.]

(iv) Comparison of trends over 7-day periods grouped in calendar months found from station to station.

Monthly charts as shown by Mr Ramster at Aberdeen to be used as basis of comparison, but

- *(a) present emphasis on neap-spring periodicity to be toned down - put over merely as 7-day periods within a calendar month.

[* No mention at all of neap-spring links?]

(b) Warning on each chart that PVDs do not provide trajectory of drift.

(c) September 1970-71 to be the period in question.

(d) Scales to be re-examined.

(e) Textual note - no lightship data because of very different time-step in data collection at lightships compared with recording meter stations.

- *(f) Mean gradient winds and selected coast station mean winds over the same periods as current means to be computed and both put on to the charts in turn.

[* Mr Koltermann to contact Dr Schott to see if gradient calculations possible.]

6 SOME NOTES ON THE INTERPRETATION OF THE DAILY MEAN VALUES

(i) Stratification - evidence of stratification in mean residual trends to be linked with

*(a) ICES charts for 1971;

*(b) Tomczak Atlas;

*(c) recorded values.

[* If possible some indication to be given on monthly charts?]

*(ii) Wind as forcing function on residual water movements.

Note on general links shown in charts - development of detailed links during a particular gale that apparently affected more than one of the stations?

[* If agreed in principle Mr Dooley to hunt out such an example?]

(iii) Mass transport aspects.

(a) Origin of Stokes' correction.

(b) Observation that progressive tidal waves could give one component of such a correction, but that this could be overwhelmed by locally derived factors? Mr Otto to prepare North Sea chart showing typical vectors for various areas of mass transport correction derived from characteristics of the progressive tidal wave.

*(c) Reference to DAFS and MAFF papers dealing with possible magnitude and character of correction factor required.

7 CONCLUSIONS AND RECOMMENDATIONS

To be discussed once a first draft report available?