

# THE INTERNATIONAL SCHEME OF MEDIUM AND LARGE SCALE CHARTS OF THE NORTH-EASTERN ATLANTIC AREA

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1. The ideas behind Technical Resolution B 10.1, which entrusted the North Sea International Chart Commission (NSICC) with a pilot study of international nautical charts at medium and large scales in order to establish principles of worldwide application, were explained in a paper by the UK Hydrographic Department in the July 1974 *International Hydrographic Review*. The present paper, by the Chairman and Secretary of the NSICC, describes the scheme of charts drawn up as part of the study. The scheme is designed to conform to the overall aim stated in TR B 10.1, namely, to allow "the production of a set of charts suitable for the needs of international shipping". Progress with it was referred to briefly in the report on the first meeting of the NSICC in the *International Hydrographic Bulletin* of December 1973.

2. Examination of the chart catalogues of NSICC nations shows that Hydrographic Offices usually do not need to chart other countries' waters as intensively as their own national waters. As explained in the paper already mentioned, which makes particular reference to the British, French and German chart covers of the south coast of England, national chart series have to combine the functions both of navigational documents and of information sources, whereas the needs of visiting foreign shipping are mainly confined to coastal navigation and gaining access to international trading ports. Starting from this basic fact, detailed principles were identified for compiling the NSICC scheme, and they are set out later in this paper.

3. The result of applying these principles may be seen in figures 3-10, which show the draft limits of selected parts of a series of medium and large scale international charts to cover the NSICC study area, and the names and locations of ports to which the charts are designed to give access in the most economical way. Altogether, 181 medium and large scale charts on scales of 1/500 000 or larger are proposed in the full scheme. In comparison, to give the equivalent cover for approaching and entering the chosen ports, no less than 363 charts would have to be selected, making



international scheme therefore shows a reduction of chart numbers of fractionally more than 50 per cent, despite the above-average concentration of major ports and the high density of shipping in the southern part of the area, and the great intricacy of the approaches to many of the ports in its northern part. Figure 2 completes the picture: it shows mainly the sheets of the small scale international chart series, now in production, and also the intermediate scale sheets already published by member offices of the North Sea Hydrographic Commission (NSHC).

### SELECTION OF PORTS

4. Members of the NSICC were asked to select the ports — both in their own waters and elsewhere in the study area — which were considered to warrant inclusion in the scheme. They are shown on figures 3-10. At the same time, statistical data were sought from the relevant maritime authorities in each country, in order to allow an objective comparison to be made of the various ports chosen.

5. A slight complication was introduced by variations in the statistical criteria which could be used. However, for ports in most countries (Belgium, France, Netherlands, Norway, Sweden) it was possible to list for each port the net registered tonnage (nrt) of ships arriving in a year, and how much of this consisted of vessels flying foreign flags. Other data, close enough to be comparable, existed for Denmark, Germany, Iceland, and UK. As examples of extremes in port size may be quoted the largest, Rotterdam including Europoort, with 125 045 000 nrt total arrivals in 1971, including 116 998 000 nrt foreign ships; and at the other extreme, to give just two instances, Groningen (Netherlands) with 41 000 and 11 000 nrt respectively, and Harstad (Norway) with 71 000 and 44 000.

6. It was helpful to distinguish major international ports from minor ports throughout, and examination of the data for the whole area indicated that a natural dividing line was either the figure of 700 000 nrt total traffic per annum, including foreign traffic of at least 200 000 nrt, or the figure 400 000 nrt foreign traffic where the total traffic was less than 700 000 nrt. In the southern part of the area (UK, France, Belgium, Netherlands, Germany) rather more than half of the chosen ports — 56 out of 104 — fell into the major category, but only 20 out of 81, or about one quarter, did so in the northern part (Denmark, Sweden, Norway, Iceland). Of all the harbours named on the diagrams, the following belong to the category of major ports, using these criteria:

#### UNITED KINGDOM (south and east coasts)

Par, Fowey, Plymouth, Teignmouth, Southampton, Shoreham, Newhaven, Folkestone, Dover, Thames, Medway, Harwich, Felixstowe, Ipswich, Gt. Yarmouth, Kings Lynn, Boston, Immingham, Grimsby, Hull, Goole, Tees and Hartlepool, Sunderland, Tyne, Forth, Dundee, Aberdeen.

**FRANCE (north coast)**

Cherbourg, Caen, Le Havre, Rouen, Dieppe, Boulogne, Calais, Dunkerque.

**BELGIUM**

Zeebrugge, Ghent, Antwerp.

**NETHERLANDS**

Terneuzen, Vlissingen, Hook, Vlaardingen, Rotterdam (including Euro-poort), Dordrecht, IJmuiden and Velsen, Amsterdam, Delfzijl.

**GERMANY (North Sea coast)**

Emden, Wilhelmshaven, Nordenham, Bremerhaven, Brake, Bremen, Cuxhaven, Brunsbuetel, Hamburg.

**DENMARK (North Sea and Kattegat coasts)**

Esbjerg, Frederikshavn, Aalborg, Grenaa, Aarhus.

**SWEDEN (Kattegat coast)**

Helsingborg, Halmstad, Goteborg, Uddevalla.

**NORWAY**

Oslo, Drammen, Tonsberg, Larvik, Porsgrunn, Kristiansand, Stavanger, Bergen, Trondheim, Narvik, Kirkenes.

**SCHEMING PRINCIPLES**

7. The general principles applied in compiling the draft scheme have been mentioned above. The detailed principles arrived at are as follows:

(a) The standard neat-line dimensions are  $980 \times 630$  mm, the maximum size  $1100 \times 650$  mm. The standard dimensions are the same as determined by the Commission on the International Chart at Small Scales, following a questionnaire circulated to all members of the IHO. The maximum length has, however, been increased from the 1020 mm agreed for small scale international charts, as a result of a further enquiry of members of the IHO as to their printing capabilities and their intentions to print charts of the NSICC area. Circular letter 2/1974 invited IHO members to comment on a possible increase of the maximum neat-line size to  $1070 \times 750$  mm, which would result from the use of international AO size chart paper.

(b) Whenever possible, sheet limits and scales are made to conform to those of charts in national chart series, so as to facilitate the preparation of the international sheets by minimising the work involved.

(c) Insets are used throughout, as appropriate, in order to reduce the total number of charts.

(d) The scales used by foreign hydrographic offices when charting other countries' waters are used for guidance in the choice of scales for the international series. There are differences in treatment between the southern and the northern parts of the area, as already defined in connexion with port size, in both national and international schemes, reflecting the different hydrographic circumstances.

### THE SCHEME IN DETAIL

8. Reference to figures 2-10 will show the following structural features of the scheme. The sheet numbers used on these figures, and quoted in parentheses hereafter, are — except for the numbers prefixed INT — for reference only; the devising of a numbering system for medium and large scale international charts will form a later part of the NSICC's study.

- (i) *Continuous small scale cover* (figure 2) is provided by the 1/3 500 000 small scale international scheme (INT 100-102, 112, 113) — the true scale in these latitudes varies between 1/1 600 000 and 1/1 170 000. Additionally, two sheets on a scale of 1/1 500 000 extend the scheme over the North Sea (NSHC INT 140) and the British Isles (700).

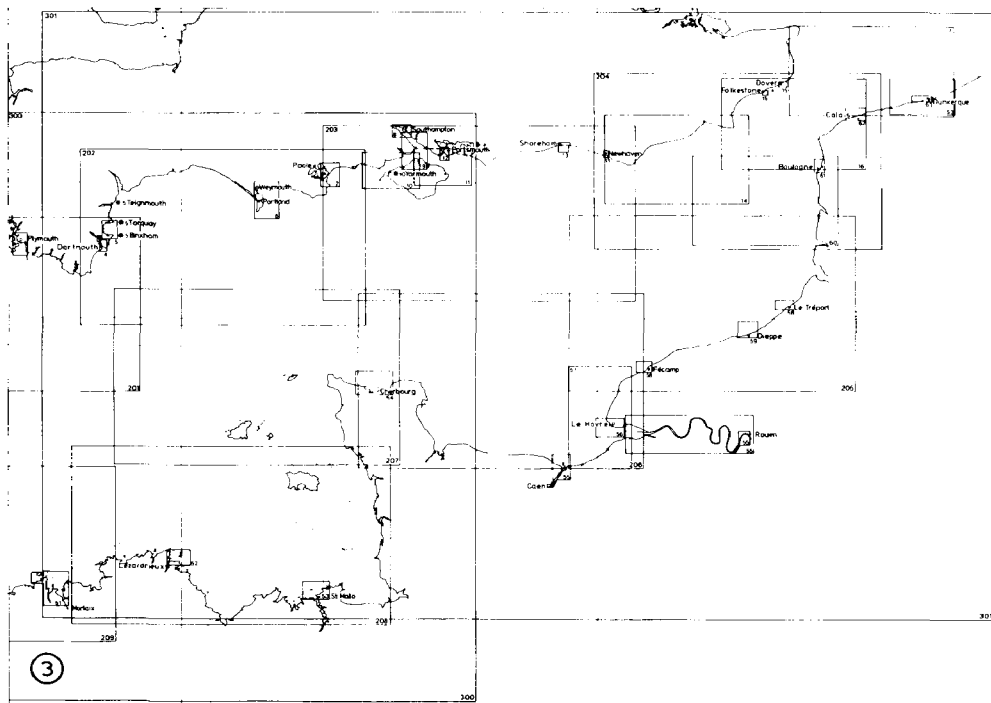


FIG. 3. — Eastern and central parts of the English Channel.



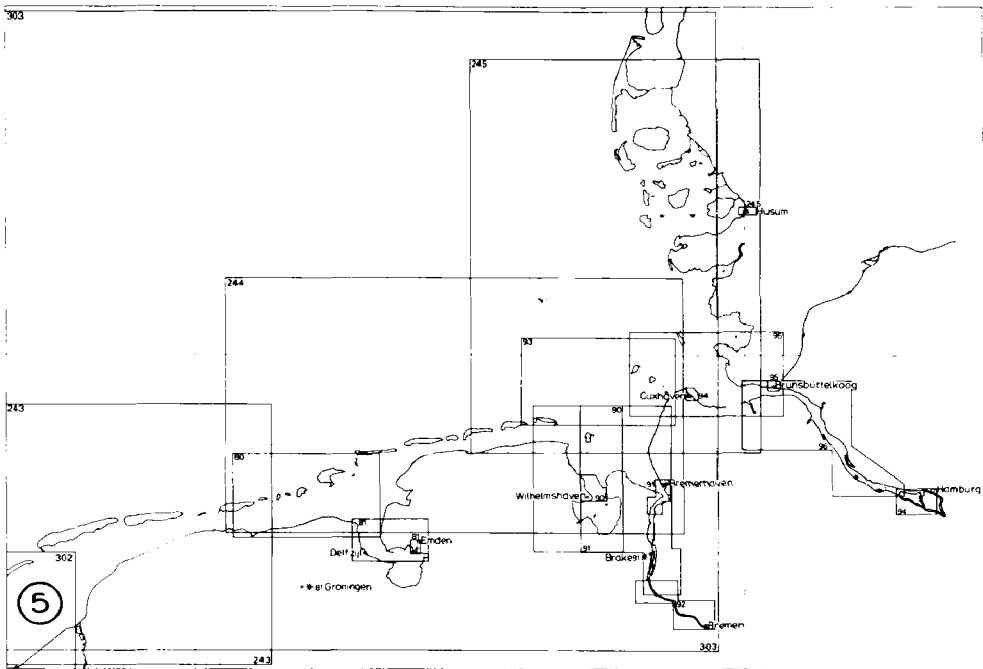


FIG. 5. — North Sea coast of Germany.

- (iii) *The continuous coastal series*, usually equivalent to the second largest scale continuous national series, is on the scale of 1/150 000 throughout most of the *southern part* of the area (201-9, 220-3, 241-5). Variations are due to differences in the corresponding national scales, such as the north-eastern coast of England on 1/200 000

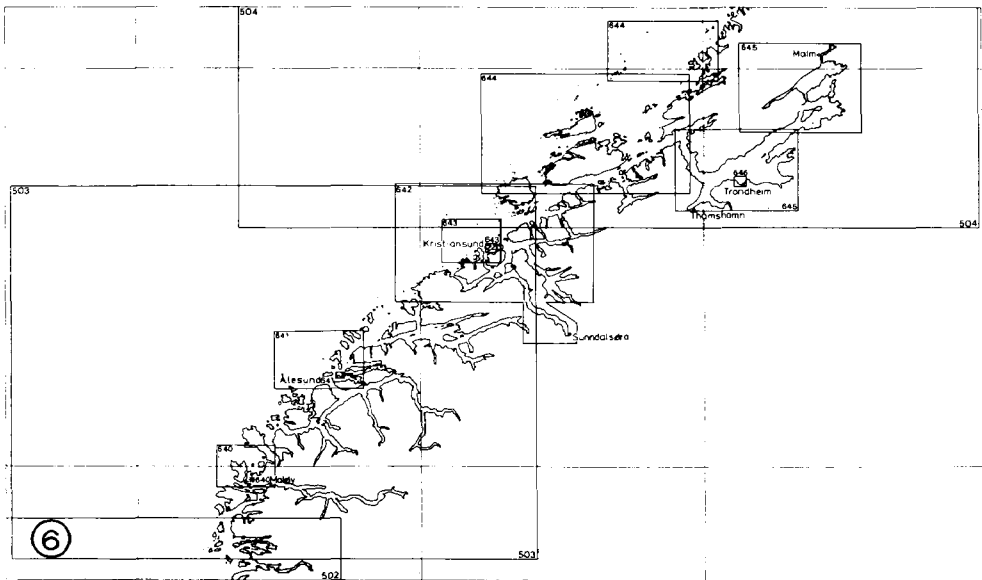


FIG. 6. — Central Norway.





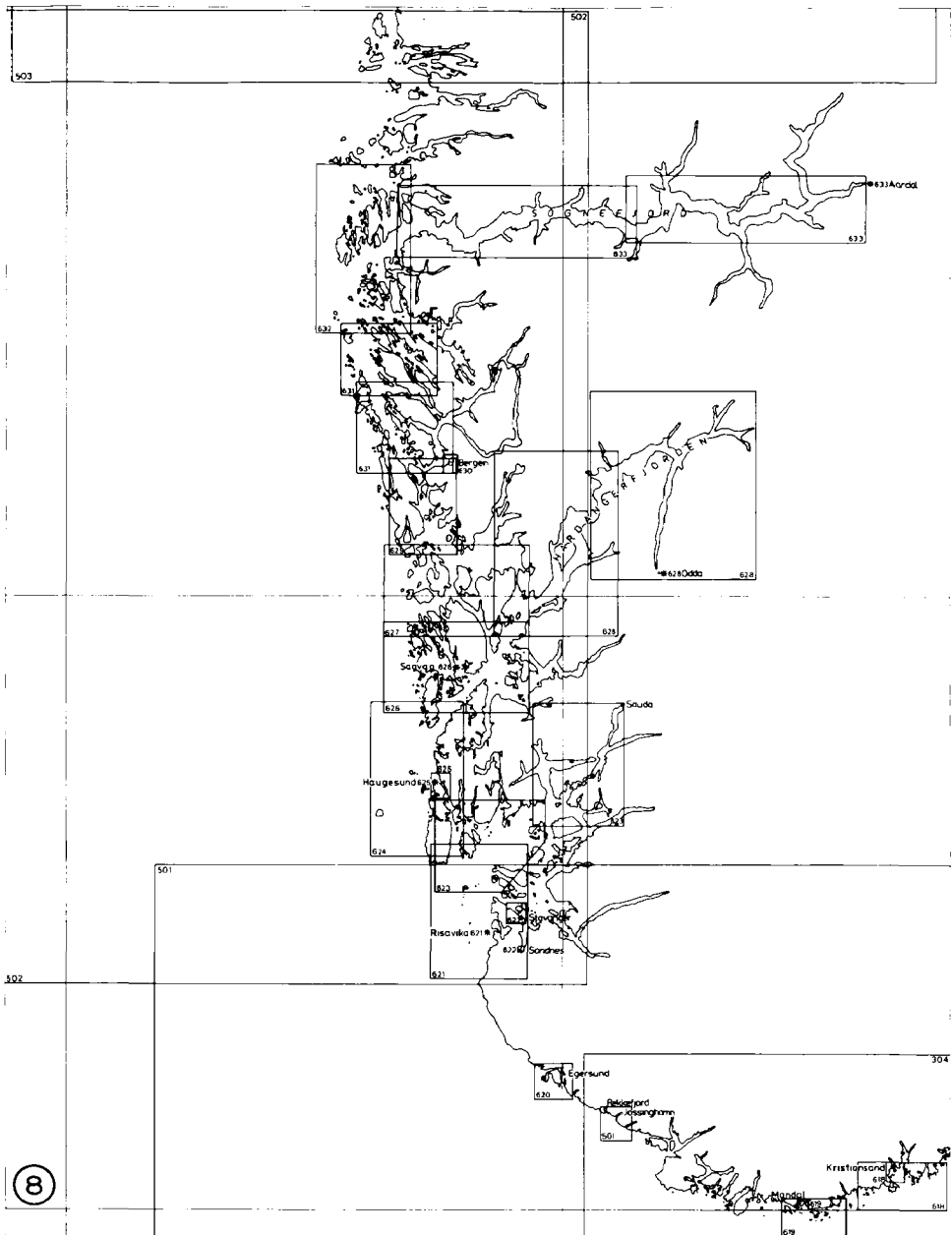


Fig. 8. — South-western Norway.

- (iv) In the southern part of the area (figures 3-5) *complex offshore areas which are also port approaches* — sandbanks or mouths of major rivers — are charted on 1/50 000 or comparable scales: examples are the Seine (57), the Thames (19, 24, 26), the Schelde and Maas (71, 74, 75), and the German rivers (80, 93, 95). The Strait of Dover area with its very high traffic density is charted on 1/75 000 (14, 16, 17, 60). In Scandinavia, complex *rocky coasts*

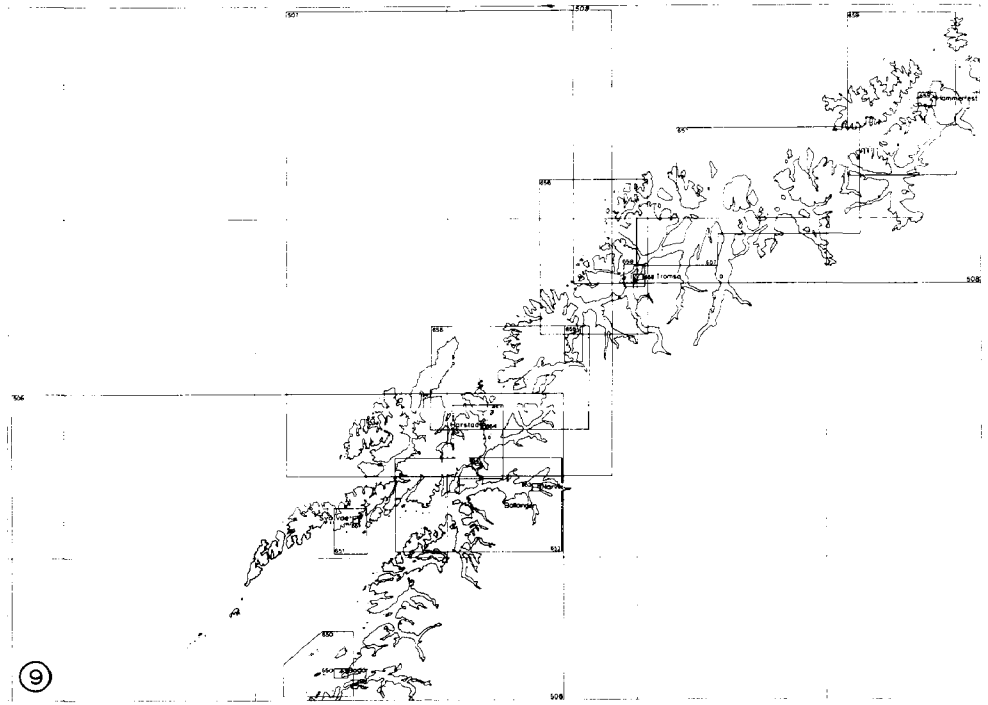


FIG. 9. — North-western Norway.

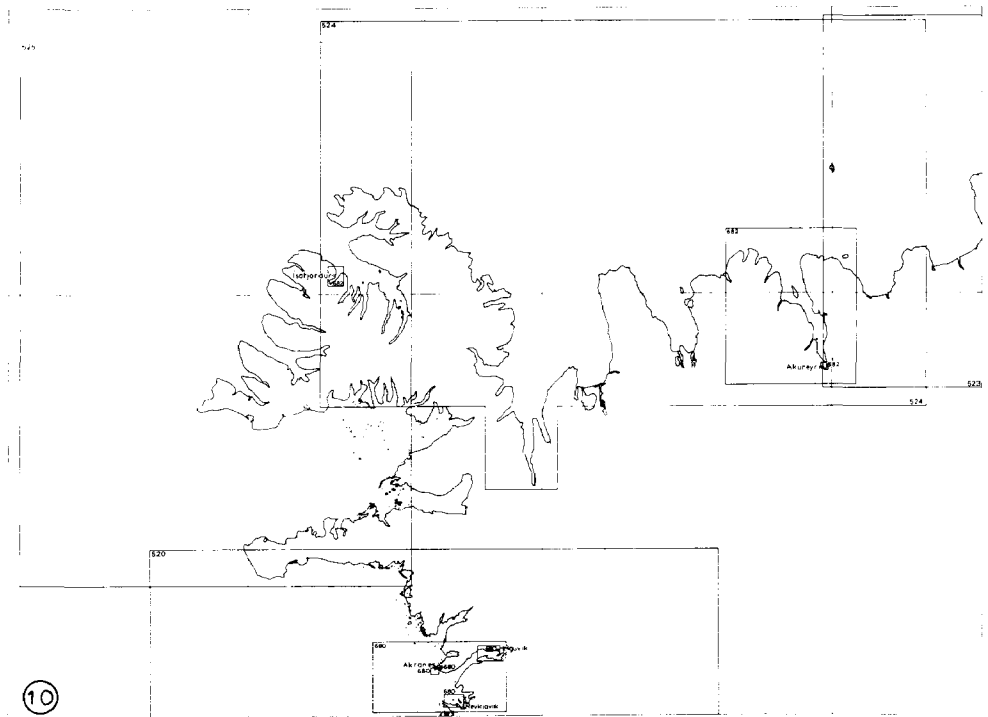


FIG. 10. -- North-western Iceland.

and fjords are also charted on 1/50 000 where they constitute the approaches to ports (figures 6-8) as in the case of the Kattegat ports of Sweden (604, 606, 607, 608) and most of the Norwegian ports — including those in the Skagerrak (609, 611, 612, 614, 616-19), the ports between Risavika and Sognefjord (621, 624, 626, 627, 629, 631, 632), Alesund and Kristiansund (641, 642). Less complicated and wider fjords can be charted on 1/100 000 (figures 6 and 9), e.g. the approaches to Trondheim, Bodo, Narvik, Tromso, and Hammerfest (644, 645, 650, 652, 656, 657, 659). This scale distinction also is seen in the Norwegian national series, which sometimes uses both scales, sometimes only one of them.

- (v) *Where port approaches are uncomplicated*, no approach charts are provided additionally to the coastal series; in such cases the port charts are schemed with sufficient room offshore to permit safe transfer from the continuous coastal series charts. As might be expected, this arrangement is seldom possible along the highly indented fjord coasts of Sweden, Norway and Iceland — instances are mainly confined to the Channel, the North Sea, and the Kattegat coast of Denmark. On the south coast of England (figure 3) Plymouth, Dartmouth and Shoreham are examples (3, 4, 13). On the other hand, *additional approach sheets* or insets, apart from those already described in (iv) above, are included in the scheme where they are indispensable to safe navigation: along the same coast, the approaches to Tor Bay ports, Southampton, and Portsmouth (5, 9-11) are treated in this way. In the case of the Swedish port of Göteborg (figure 7) two charts of its complex approaches are schemed, on both 1/50 000 and 1/25 000 (606, 605), in parallel with the national series.
- (vi) Charts and plans of *ports, rivers and other inland waterways* sometimes use the full scale of the equivalent publications of the national hydrographic office, sometimes a smaller scale — as where an unnecessary number of charts would be involved, or when the national chart exceeds the maximum international size. Relevant factors are that these are usually pilotage waters, and that it is often in harbour plans that the information document role of national charts is to be seen most clearly. On the one hand, the economical scales used in the Danish national chart series for port plans are well adapted to the needs of international shipping, and are followed throughout in the international scheme (figure 7). On the other hand, Plymouth, for example (figure 3), appears on a single sheet on 1/12 500 (3) — as in the German series of the south coast of England — compared with three British charts on 1/7 500 and 1/5 000.

## CONCLUSIONS

9. Most of the international sheets in the scheme have the same sheet lines as charts in the national series of the majority of NSICC members. Therefore, subject to suitable changes in the national specifications, the other main aim of TR B 10.1 could be satisfied, without too much difficulty, in the case of the Hydrographic Offices concerned — namely, to “enable these IHO member states who provide, or wish to provide, charts outside their own waters, to print by facsimile, with minimum modification, selected modern charts”. In only a few cases would specially produced international sheets be necessary. However, in the case of Germany, Sweden and Norway, which regularly use national sheet sizes larger than the maximum international chart dimensions so far determined, viz 1100 × 650 mm, either national standards would have to be changed, or separate international medium and large scale series produced. As another example of the impact of international on national charting may be mentioned the decision of the UK Hydrographic Department to adopt the scale of 1/150 000 for its new metric charts of the south coasts of England, instead of 1/200 000 as originally planned, so as to conform to the requirements of the international scheme.

10. At the time of writing, some members of the NSICC have still to comment on the draft scheme drawn up by UK and described in this paper. Each Hydrographic Office has been asked to state the year by which it would be prepared to produce any appropriate sheet, and also the year by which it would like to be able to print any sheet of its choice. In this way, it is hoped to be able to determine the viability of the scheme in practice.

## ACKNOWLEDGEMENTS

11. The authors would like to record their appreciation of the encouragement given by the members of the North Sea International Chart Commission, and of the assistance afforded in the preparation of parts of the scheme by their colleagues at Taunton.