IHB File No. S3/2620/A

CIRCULAR LETTER 60/1999
6 December 1999

DEEP OCEAN MAPPING

Dear Sir,

A number of issues related to GEBCO and other deep ocean mapping are brought to the attention of the Member States here below.

General Bathymetric Chart of the Oceans (GEBCO) (Scale 1: 10,000,000)

1) Member States are kindly requested to report to the IHB the status of the GEBCO plotting sheets for which they have assumed responsibility as Volunteering Hydrographic Offices (VHO). In Circular Letter 20/1996 the IHB advised the VHOs that these sheets would be digitized and that, in the future, only the track data and records would need forwarding to the IHO Data Center for Digital Bathymetry (DCDB) in Boulder, Colorado, USA. The sheets then no longer need maintaining. Unfortunately, the IHB is unaware of the current state of the digitization of these sheets: Member States are therefore requested to advise the IHB as to the number of sheets that have been digitized, how many remain to be done, and when it is anticipated that the outstanding digitization could be completed. The IHB is investigating possible assistance for those Member States who are not in a position to complete this task and it would be appreciated if Member States would advise the IHB of any assistance needed. A summary of the Member States' replies to IHB CL 20/1996 is attached as Annex A.

2) Circular Letter 43/1998 requested Member States to indicate whether they would be prepared to make continental shelf data available for inclusion in the GEBCO Digital Atlas. 67% of those Member States who replied advised the IHB that they would be prepared to make the data available either as bathymetric data or as 0, 10, 20 or 25, 50, 100 and 200 metres contours. One of these Member States indicated that it would make its data available in a gridded format. The rest of the Member States said they would consider the release of data on request. Member States who have indicated that they would release their data are requested to forward it (info IHB), in the preferred format, to Ms Pauline WEATHERALL, IHO/IOC GEBCO Digital Atlas Manager, c/o British Oceanographic Data Centre (BODC), Proudman Oceanographic Laboratory, Bidston Observatory, Birkenhead, Merseyside, L43 7RA, United Kingdom, as soon as possible (E-mail: <paw@unixa.nerc-bidston.ac.uk> or <bodcmail@pol.ac.uk>). The IHB will also communicate to the GDA Manager the list of those Member States who have indicated that they would consider the release of data on request. A summary of the Member States' replies to IHB CL43/1998 is attached as Annex B.

3) The Terms of Reference of GEBCO/VHOs and Non-VHOs, as contained in paragraphs 2A.1, 2A.2, 2B.2 and 2B.3 of IHO-IOC Bathymetric Publication B-7, "GEBCO Guidelines", are attached as Annex C. The attention of GEBCO/VHOs is drawn to these TORs. On completion of Part 4 of the GEBCO Guidelines (see section 5 below), the IHB will commence the preparation of a draft of a new Part 2. As the plotting sheets have been phased out, it is intended to delete Section 2A. Member States are requested to consider the remainder of Part 2, i.e. existing Part 2 B, and to indicate any changes that should be considered (A significant portion of Part 2B is contained in Annex C). Member States, who are not at present participating in the programme, are encouraged to volunteer to do so. The current list of GEBCO/VHOs is attached as Annex D.

4) As maintenance of the GEBCO plotting sheets is no longer a requirement, the responsibilities of GEBCO/VHOs for specific areas is not critical. It is now, therefore, proposed that the GEBCO areas of responsibility should coincide with the INT Chart regions. It is anticipated that Member States will establish databases in support of their INT Chart and ENC programmes. These databases, which will include bathymetry, could also be used to support ocean-mapping programmes. The existing GEBCO areas of responsibility are at Annex E (also shown on IHO-IOC Publication B-2 "Catalogue of Bathymetric Plotting Sheets"), and the current INT Chart regions at Annex F. It should be noted that, in several areas, International Bathymetric Charts (IBC) projects have been established, e.g. IBCM in the Mediterranean area (see section 6 below). These IBC projects at scale 1:1 Million take precedence over GEBCO and the move to INT regions, as described above, would also be valid for IBC projects. It is suggested that, within INT Chart regions, the new areas of responsibility for ocean mapping be based on agreed INT schemes for medium scales, e.g. between 1:500,000 and 1:1,500,000, and that INT regions coordinators be tasked to elaborate an arrangement between all concerned parties. INT Chart schemes are described in IHO Publication M-11 "Catalogue of International Charts". Member States are requested to indicate whether they support the proposed change.

5) GEBCO Letter 37/1995 requested Member States to comment on the draft of Part 4 of the GEBCO Guidelines dealing with "Digital Bathymetric Data (Multibeam Echo Sounders)". These comments were taken into consideration in preparing a revised draft of Part 4 that was considered at the June 1999 Meeting of the GEBCO Guiding Committee. The draft was supported and it was forwarded to the Director of the IHO DCDB in Boulder, Colorado, USA, for final drafting. This Part will then be published by the IHB.

International Bathymetric Chart (IBC) Projects of the Intergovernmental Oceanographic Commission (IOC) (Scale 1: 1,000, 000)

6) Some Hydrographic Offices are participating in IBC projects as Volunteering Hydrographic Offices (IBC/VHO). There are six IOC programmes for the various IBCs, namely IBCM, IBCCA, IBEA, IBWP, IBAO and IBCWIO. These IBC/VHOs have different Terms of Reference to those of the GEBCO/VHOs. The IHB considers that it is appropriate to approach the IOC to formalize the relationship of the IHO with the IOC concerning the IHO participation in these ocean charts. Member States are requested to indicate whether the IHB should make such an approach to IOC in this regard and whether they would be prepared to participate in the IBC programmes, if they are not already involved. A list of the IBC/VHOs that are reputedly participating in one or more IBC projects is attached as Annex G.

Member States are kindly requested to comment on the above issues, and to fill the Response Form at Annex H, by **29 February 2000.**

On behalf of the Directing Committee,
Yours sincerely,

Rear Admiral Neil GUY
Director

Copy to: Intergovernmental Oceanographic Commission (IOC).

Encls: Annexes A to H

- Annex A = Summary of Member States' replies to IHB CL 20/1996
- Annex B = Summary of Member States' replies to IHB CL43/1998
- Annex C = Terms of Reference of GEBCO/VHOs and Non-VHOs, as contained in B-7
- Annex D = List of GEBCO/VHOs
- Annex E = GEBCO plotting sheet areas

- Annex F = INT Chart areas
- Annex G = List of the IBC/VHOs participating in one or more IBC projects
- Annex H = Response Form.

Status of IHO Bathymetric Plotting Sheets at 1:1 Million Scale
(Summary of Responses to CL 20/1996)

M.S.	Argentina	Australia	Brazil	Chile	France	Japan	Netherlands	New Zealand	South Africa	Russia	Spain	Sweden	Turkey	United Kingdom
Number of 1:1M sheets?	116	68	29	16	80 + 10 at 1:250K	46	6	60	20	25	10 at 1:250K	2	4	81
Sheets up-to-date?	Yes	No, since 1992	No, since 1988	No	Yes	No	No, since 1982	Yes	No, since 1991	Yes, 14	Yes	Yes	Yes	No, since 1990
If not, how many need revision?	N/A	Indeterminate	Indeterminate	17	N/A	Not stated	All	N/A	Indeterminate	5	N/A	N/A	N/A	Not stated
Plan to continue archival?	Yes	Yes	Yes	Yes	Yes	Yes, as historical data only	Yes	Yes	Yes	Yes	Yes	Not stated	Yes	Yes, as historical data only
Plan to update sheets?	Yes	No	Yes	Yes	Yes	No	No (**)	Yes	No	Yes, for 19 sheets	No	When required	No	No
Plan to digitize sheets?	Yes, no schedule	Yes, by YR2000	Yes, done	Yes, no schedule	Yes, done	Yes, by 1997	No	Yes, no schedule	Yes, by end 1996	Yes, 15 sheets (1997)	Not stated	No	No	No, new cruise data only
If yes, what method?	Hand digitized	Vector	Vector	Vector	Raster/ Vector (*)	Vector	N/A	Not yet defined (1996)	Hand digitized	Vector	Not stated	N/A	N/A	Vector
If yes, in-house or commercial?	In-house	N/A	Commercial	In-house	In-house & commercial	Commercial	N/A	N/A	In-house	In-house	In-house	In-house	N/A	In-house
If yes, interested in assistance from DCDB?	Yes, info on method to digitize	No	Yes, info on GEODAS + conversion to DCDB format	No	N/A	No	Yes, 5 survey data sheets sent to DCDB	Yes, DCDB has been contacted	Not stated	Yes, info on digitizing software	No	No (***)	No	Digitized UK cruise data are routinely sent to DCDB
Digitized sheets provided to DCDB	None, only digital data from Antarctic expedi-	N/A	None in 1996	N° 365, 395, 424 sent to BODC	N° 4411, 4414, 4415, 6104, 6112, 6116, 6201,	None in 1996	None (but see above)	None, only digital data obtained since 1993	None in 1996	N° 590, 591, 592, 593, 594	N° 6103, 6107, 6108, 6110, 6111, 6113,	N/A	N/A	GEODAS includes all UK data sent to DCDB

M.S.	Argentina	Australia	Brazil	Chile	France	Japan	Netherlands	New Zealand	South Africa	Russia	Spain	Sweden	Turkey	United Kingdom
	tions				6205, 6209, 6213 (all at 1:250K)						6114, 6115, 8103, 8104 (all at 1:250K)			
Comments					(*) see IH Review, march 1996	Ocean mapping program around Japan, at 1:1M, since 1994	(**) replaced with IBCCA sheets at 1:250K					(***) ready to send sheets to DCDB, for them to digitize		

Note: Peru also informed that they only hold data from France's plotting sheets covering area off Peru.

Release to GEBCO of Continental Margin Data
(Responses to CL 43/1998)

1. Synopsis of Responses

Option	Number	Percentage
(a) All continental shelf bathymetric data to be provided.	None	0%
(b) Only contours 0, 10, 20, 25, 100, 200 to be provided.	22	71%
(c) Contours retained by HO's but made available on request.	2	6%
Release of bathymetric data under review	3	10%
No Comment (not willing to commit)	4	13%

Two MS indicated that they either had provided, or were in a position to provide data.

2. Summary of responses

Member State	Option	Comment
Argentina	B	-
Australia	B	Only 0, 50, 100 and 200 meters contours to be provided.
Bahrain	b	No objection to this option.
Brazil	b	No digital contours available yet. They are presently being digitized.
Chile	b	Only 100 and 200 meters contours can be made available.
Cyprus	b	Yes.
Estonia		No comments.
France		More careful consideration needed.

Iceland	b	Not all contours available in digital form yet.
Italy	b	Updated GDA will benefit Italian Scientific Community.
Japan		- The TORs for GEBCO state that depths of 200 m and deeper should be handled by GEBCO; - Shallow water depths are mostly subject to the jurisdiction of, and sometimes closely connected to, the national security of littoral countries; - The need for shallow water contours should be assessed scientifically and approached individually.
Monaco		No comments.
New Zealand	b	Only 0, 10, 20 or 25, 50, 100, 150 and 200 m contours to be provided.
Netherlands	b	No digital data yet available. Suggest that IHB propose an exchange format.
Norway	b	Prepared to provide contours extracted from fisheries database. Would like to know media format etc..
Oman	b	
Pakistan	b	
Philippines	b	Copyright protection must be assured.
Portugal	c	Contours retained by HOs but made available on request.
Rep. of South Africa	b	Supports provision of contour. Has already supplied some digital contour data for inclusion in GDA.
Spain	b	Although data is depicted in existing chart, not all is available in digital form.
Sweden	b	GEBCO Plotting Sheets of Baltic Sea (Sweden) already fulfilling option (b).
Tonga	b	No digital data available yet.
Turkey	b	
UK		Release of Bathymetry on Continental Shelf still under review and presently unable to release.
USA		Still have to develop digital bathymetric contours database for navigation. When available, policy with regard to their distribution will have to be

formulated before their release. Until then, the digital data held at NGDC should provide adequate support.

Awaiting policy discussion regarding the release of digital bathymetric contours. Until then, the digital data held at NGDC should provide adequate support.

(Excerpts from IHO-IOC Publication B-7 "GEBCO Guidelines")

Section 2A - Analogue Bathymetric Data

2A.1 ROLE OF THE IHO VOLUNTEERING HYDROGRAPHIC OFFICES (VHOs)

2A.1.1 Any Hydrographic Office which has accepted the responsibility for centralizing oceanic soundings on bathymetric plotting sheets, on behalf of the IHO, shall, in the first place, endeavour to acquire all available bathymetric data and ascertain, by every means in its power, so that none have been overlooked.

2A.1.2 In this connection, Volunteering Hydrographic Offices (VHOs) shall normally :-

(1) collect all data from its own national sources;

(2) receive from other Hydrographic Offices - either directly or through the IHB - the data held by these Offices;

(3) receive, in accordance with agreements with the IOC which has recognized, by an IOC Resolution, the role of the IHO as the "World Data Centre for Bathymetry" - either directly, or through the IHB - all available bathymetric data from oceanographic missions carried out in accordance with declared national or international programmes;

(4) receive, each year, a copy of IHO publication B-4 (formerly BP-0004) "Information concerning recent bathymetric data" published by the IHB in accordance with IHO Technical Resolution A5.3. This list contains information on the existence of the most recent data collected on a worldwide basis either by the IHO Hydrographic Offices or by other national institutions. The VHOs must contact the originators of the data reported on these lists in order to include it in the bathymetric plotting sheets under their responsibility.

2A.1.3 The exchange of bathymetric data between IHO Hydrographic Offices is defined in IHO T.R. A5.2.

2A.1.4 VHOs shall exercise the greatest care in the choice of the soundings shown on their plotting sheets. It shall be the responsibility of each office to discern any abnormal soundings among the data available and to exclude them from the plotting sheets for which it is responsible. Soundings the positions of which are doubtful (PD) or approximate (PA), or the existence of which is doubtful (ED), or where no bottom has been found, shall not be included.

2A.1.5 Any Hydrographic Office compiling a particular plotting sheet is advised not to lose sight of the fact that it may be useful, with a view to avoiding omissions, to consult the standard navigational charts, particularly the INT charts at small scale, published by other Offices for the region to which the plotting sheets

corresponds, and to enquire of such Offices, where deemed necessary, the origin and the reliability of any soundings on the charts that are considered to be of possible value.

2A.1.6 It is recommended that VHOs should not proceed with indiscriminate elimination of those soundings which can be referred to as "vintage". These shall normally be eliminated and replaced, where possible, by more recent soundings. For regions where they are the only bathymetric information known, however, it is advisable to take them into account, after elimination by the Hydrographic Office concerned of any particular doubtful or abnormal soundings. Experience has shown that the number of soundings eliminated in this way represents a very low percentage of the "vintage" soundings.

2A.1.7 It is recommended that each responsible Hydrographic Office keep up to date its own plotting sheets in as regular a way as possible, but at least once a year, in order to avoid an accumulation of unexploited data which it would subsequently be difficult to include in the plotting sheets, should there be an unforeseen demand by users for copies.

2A.1.8 When a plotting sheet and its annexed document(s) are published or brought up to date, the responsible Hydrographic Office shall forward at regular intervals one copy of each document to the IHB.

2A.1.9 The Hydrographic Office responsible for the preparation of a particular plotting sheet should supply users, upon request either directly or through the IHB, with copies of that plotting sheet at cost price.

2A.1.10 Details concerning the supply of copies of plotting sheets to the IHB by each Hydrographic Office concerned when a new edition of the GEBCO is due, are given in paragraph 2A.7.

2A.1.11 It is recommended that each VHO include in its catalogue of charts an index of the plotting sheets for which it is responsible, along with the relevant information (particularly dates of bringing up to date) and the price of copies.

2A.1.12 It is strongly recommended that each VHO notify the IHB of any comments it may wish to make concerning the documents for whose preparation it is responsible.

2A.2 ROLE OF THE IHO's REMAINING (NON-VOLUNTEERING) HYDROGRAPHIC OFFICES

2A.2.1 All non-Volunteering Hydrographic Offices should :-

(1) bear in mind the IHO's role as a "World Data Centre for Bathymetry"

(2) send to the appropriate volunteering Hydrographic Offices (VHOs) - either directly or through the IHB - all releasable data in their possession.

(3) liaise closely with their other national institutions or bodies in order to obtain the data which they may have collected, and send it to the relevant VHOs.

2A.2.2 By Decision 42, the XIIth I.H. Conference recommended that when ships are operating in areas where data densification is required in order to improve the interpretation of the ocean bottom topography, they should be urged to arrange their tracks so as to improve the density of data.

Section 2B - Digital Bathymetric Data

2B.2 ROLE OF THE IHO HYDROGRAPHIC OFFICES - (DIGITAL DATA)

2B.2.1 **Collection of Data**

2B.2.2 Each Hydrographic Office shall normally:

(1) collect digital data from its own national sources, and whenever possible send a copy to the DCDB;

(2) actively encourage other national collectors of digital data to send a copy to it or directly to the DCDB;

(3) convert to digital form, incoming analogue data on a cruise basis; (see Annex A)

(4) take into account the data listings provided in the IHO publication B-4 (formerly BP-0004) "Information concerning Recent Bathymetric Data" published by the IHB in accordance with IHO Technical Resolution A5.3. Part 2 of B-4 will list digital data forwarded to the DCDB in the preceding 12 months;

(5) ensure that it has the capability to read the MGD77 format used by and available from the DCDB for data distribution.

2B.2.3 **Quality Control of Data**

2B.2.4 The organisation, formatting and documenting of digital data should conform with the guidelines given in Part 3, and checks should be undertaken to ensure that the data appear reasonable. In particular, the time variation of the ship's speed and course, as derived from the ship's position, should be checked and any major discontinuities or anomalous characteristics should be carefully examined. Similarly, major discontinuities in the depth profile should be investigated and, wherever possible, the depths should be checked against other soundings available for the area. Where practicable, errors should be resolved by recourse to the data originator before the data are submitted to the DCDB. A statement of the checks made should be included with the documentation accompanying the data and any unresolved errors or suspicions about the data should be clearly identified.

2B.2.5 Where possible the HOs should attempt to ensure that all data provided to the DCDB are accompanied by a statement on the estimated quality and accuracy of the data (see 2B.2.6 - 2B.2.8 below). The application of a standard method of quality control allows comparison of the reliability of new and existing data. HOs may thus remove data with a relatively poor reliability rating, or data found to be in error.

2B.2.6 In addition to the criteria for "deep sea soundings" shown in the IHO Special Publication 44, it is obviously desirable that soundings should be recorded in a uniform manner", i.e. that they all be:

(1) expressed in metres;

(2) corrected for oceanographic instrumental, and tidal factors.

2B.2.7 It is also advisable that HOs and Institutions collect only those soundings that fulfil the accuracy requirements of the IHO, which implies that the responsible HO or Institution will be in possession of adequate information concerning:

(1) the nature of the sounding equipment used, the degree of accuracy of its calibration, and the way in which corrections have been carried out for instrumental, oceanographic, or other factors;

(2) the methods used to determine the position of the vessel carrying out the sounding operation and the degree of accuracy actually observed in the determination of such positions.

2B.2.8 Notification of deleted data should be passed by the HO to the DCDB, which will amend its own records. In addition, if the HO determines that revisions are required to data already provided to the DCDB, new versions of the data should be sent to the DCDB. They should include sufficient documentation that identifies the problem and the data affected. In turn, the DCDB should send a list of such deleted and revised data to the IHB for inclusion in Part 2 of the annual publication B-4.

2B.2.9 HOs should retain their own files of deleted data, for possible future use as a research resource or as a check against the reappearance of such data in other agencies' files.

2B.2.10 **Provision of Data to the DCDB**

2B.2.11 All digital data provided should preferably be time-sequenced on a cruise-by-cruise basis and, wherever possible, port-to-port in extent. Data should also be correctly identified and meet the guidelines for quality control and should be provided to the DCDB provided:

(1) it is national data and has not previously been passed to the DCDB;

(2) if it is not national data, and has not already been sent to the DCDB, ensure that proper authority to provide it to the DCDB has been obtained.

2B.2.12 Data should be provided to the DCDB regularly, although it may be most practical to batch the data over a period of months. Only data which have reached the DCDB by 31 October will be listed in the next issue of B-4.

2B.2.13 MGD77 is the preferred format for data, but the DCDB will, by agreement, accept data in other formats if adequate documentation is provided (see Annex A of Part 1). For details of acquisition of formats MGD77 and GF3, See paragraph 3.1.3 of Part 3.

2B.3 ADDITIONAL ROLE OF THE IHO VOLUNTEERING HYDROGRAPHIC OFFICES - (DIGITAL DATA)

2B.3.1 In respect of Data Collection and Quality Control, the roles of and incentives to the VHOs are identical to those of the HOs. However, two additional tasks are requested of the VHOs: Validation of Data and Conversion of Oceanic Plotting Sheets to Digital Form; these are described below. Additionally, for those VHOs awaiting digital capabilities, advice is also given.

2B.3.2 **Validation of Data**

(1) VHOs are requested to maintain digital data banks within their own geographic area of responsibility; these provide a base against which new data are validated.

(2) Validation is generally carried out by making comparisons between the new and existing data sets. The manner of this comparison is a matter of choice for the VHO. The aim is to ensure correct data.

(3) The VHOs are also requested to validate (from 1993) retrospectively all data within their area of responsibility which has been sent to the DCDB by others during the previous 12 months. Details of these data will be published annually in IHO B-4 (formerly BP-0004).

(4) In the case of successful validation, the VHO should inform the DCDB that the data have been validated.

(5) If the validation identifies possible errors between old and new data, enquiries should be made to the originators of one or both data sets. The outcome of the enquiries should be assessed by the VHO and their conclusions sent to the DCDB and copied to the originators.

(6) For GEBCO purposes, VHOs are no longer to update Oceanic Plotting Sheets (OPS), but see also 2B.3.6.

Footnote (i) It is recognised that some VHOs may not be able to meet with the request to validate all or any of the data in their area of responsibility. It is hoped that, in the passage of time, automatic procedures will enable this task to be undertaken.

(ii) Where data conflicts cannot be resolved it may be necessary to defer decisions until new data are acquired.

2B.3.3 **Conversion of Oceanic Plotting Sheets to Digital Form**

2B.3.4 VHOs which retain some of their older data in analogue form are encouraged to convert these to digital form in order to increase the holdings of the DCDB.

2B.3.5 Conversion programmes may be carried out in stages to satisfy particular internal priorities or responsibilities. When designing digitizing programmes, VHOs should bear in mind the following points:

(1) For GEBCO support purposes, priority should be given to data collected with modern accurate navigation and depth recording systems. However, older data are still important in data sparse areas.

(2) Advice from the DCDB should be sought to identify data already available in digital form.

(3) To ensure maximum accuracy, data should be digitised from the original Plotting Sheet, rather than from the OPS (see Annex A).

(4) Details for the quality control of digital data and its submission to the DCDB are given in paragraphs 2B.2.4 and 2B.2.9 respectively.

2B.3.6 **VHOs Awaiting Digital Capability**

2B.3.7 These VHOs should continue to update their OPS in accordance with Part 2A of this publication.

2B.3.8 If VHOs wish to receive plots from the digital data listed in B-4, Part 2, they should apply only to the HO or institution holding the original data. If such data are added to their OPS, they should be clearly identified to prevent re-digitization at a later date.

2B.3.9 These VHOs should continue to advertise analogue data in B-4, Part 1. They should be prepared, on request by another VHO with digitizing capabilities, to pass copies of the plotted or raw analogue data for digitization.

2B.3.10 The IHO wishes to encourage all VHOs to adopt digital methods for collecting, storing and exchanging bathymetric data. VHOs requiring any assistance in setting up their own digital data programmes should contact the IHB.

2B.3.11 VHOs should bear in mind that, for GEBCO purposes, all analogue OPS will be phased out by 1996.

IHO Volunteering Hydrographic Offices (VHO's) for GEBCO

Argentina, Australia, Brazil, Canada, Chile, France, Germany, India, Indonesia, Japan, The Netherlands, New Zealand, Philippines, Russian Federation, South Africa (Rep. of), Sweden, Turkey, United Kingdom, USA (NOAA & NIMA).

Services hydrographiques volontaires (SHV) de l'OHI pour la GEBCO

Allemagne, Argentine, Australie, Brésil, Canada, Chili, Fédération de Russie, France, Inde, Indonésie, Japon, Nouvelle Zélande, Pays-Bas, Philippines, Rép. d'Afrique du Sud, Royaume-Uni, Suède, Turquie, USA (NOAA & NIMA).

Servicios Hidrográficos Voluntarios (SHV) de la OHI para la GEBCO

Alemania, Argentina, Australia, Brasil, Canadá, Chile, EE.UU. (NOAA & NIMA), Federación Rusa, Filipinas, Francia, Holanda, India, Indonesia, Japón, Nueva Zelanda, Reino Unido, República de Sudáfrica, Suecia, Turquía.

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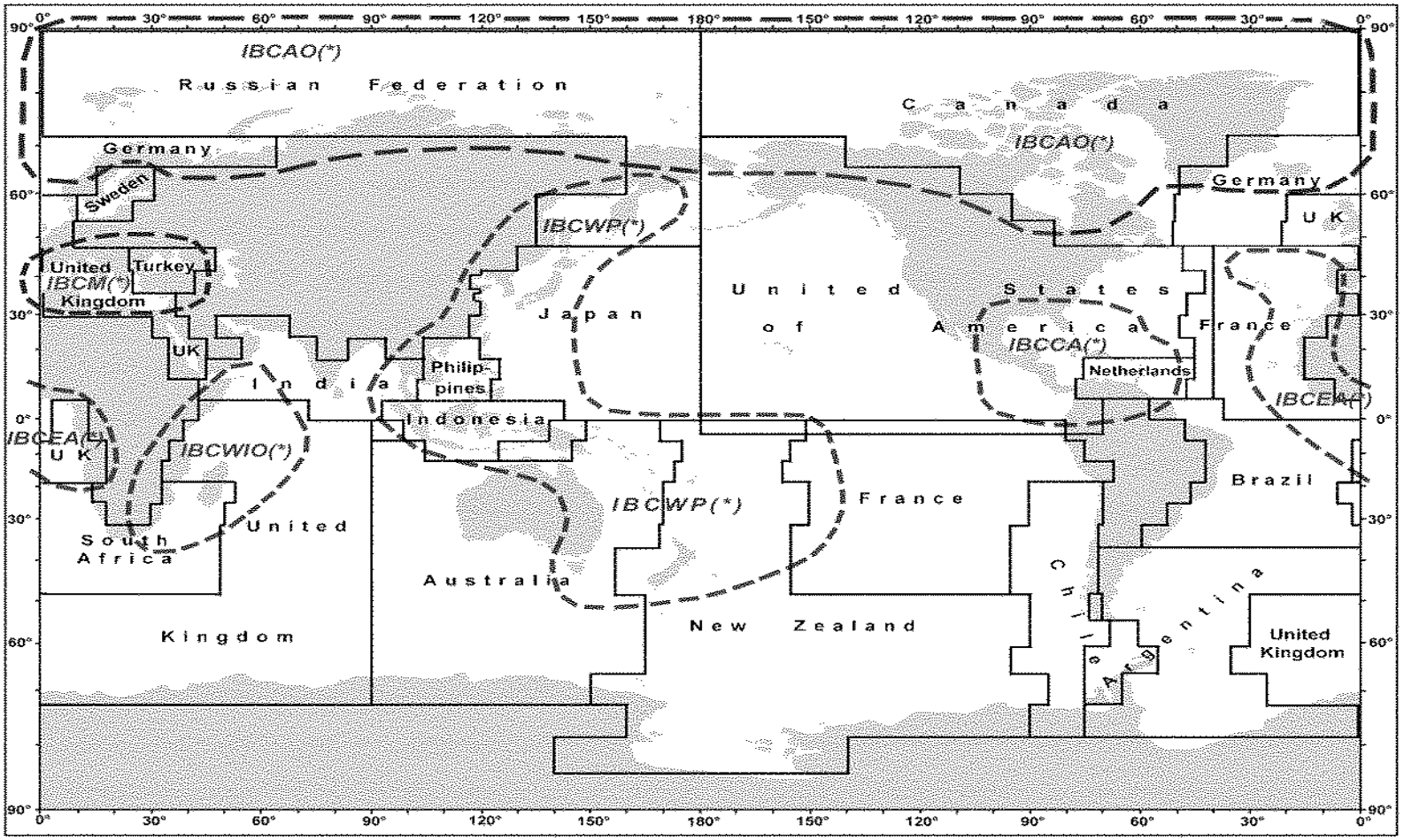
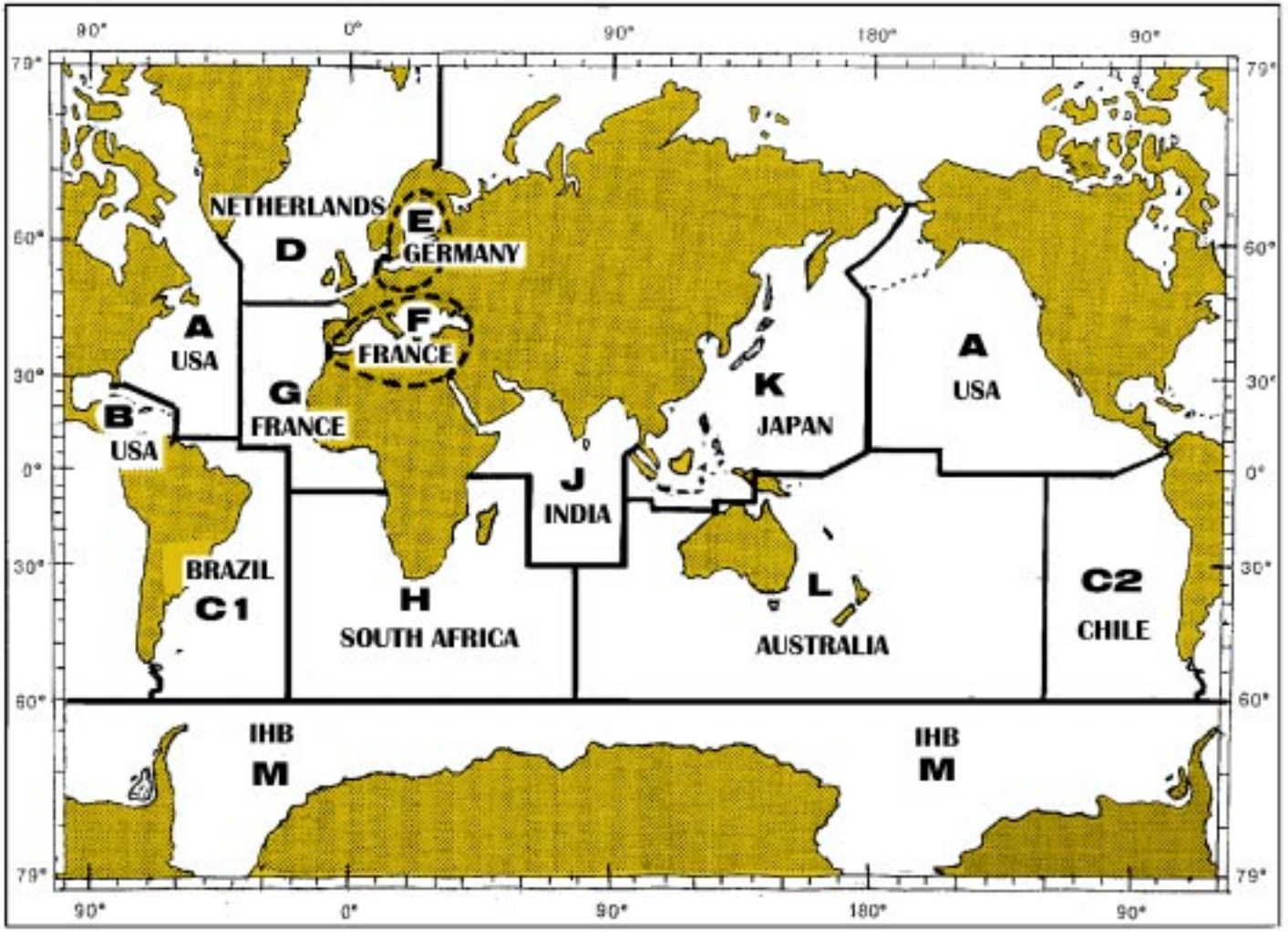
GEBCO AREAS OF RESPONSIBILITY



(*) In this area, an IBC project has been or is being developed, which takes precedence over GEBCO

IHO INTERNATIONAL CHARTING REGIONS



IHO Volunteering Hydrographic Offices (VHO's) reputedly participating in IBC Projects

- IBCM: France, Greece, Italy, Russian Federation, Spain, Turkey and United Kingdom.
- IBCCA: Colombia, Cuba, France, USA and Venezuela.
- IBCEA: France and Portugal.
- IBCWIO: France, Germany, Mozambique, Russian Federation, South Africa and USA.
- IBCWP: Australia (?), China, France (?), Indonesia, Japan, Korea (Rep. of), Malaysia, New Zealand (?), Philippines, Russian Federation, Singapore and Thailand (?).
- IBCAO: Canada, Denmark, Iceland, Russian Federation and USA.

Note: (?) means that we are not sure of the participation of the concerned M.S.

Services hydrographiques volontaires (SHV) de l'OHI supposés participer aux Projets IBC

- IBCM: Espagne, Fédération de Russie, France, Grèce, Italie, Royaume-Uni et Turquie.
- IBCCA: Colombie, Cuba, Etats-Unis, France et Venezuela.
- IBCEA: France et Portugal.
- IBCWIO: Afrique du Sud, Allemagne, Etats-Unis, Fédération de Russie, France et Mozambique.
- IBCWP: Australie (?), Chine, Corée (Rép. de), Fédération de Russie, France (?), Indonésie, Japon, Malaisie, Nouvelle-Zélande (?), Philippines, Singapour et Thailande (?).
- IBCAO: Canada, Danemark, Etats-Unis, Fédération de Russie et Islande.

Note: (?) signifie que nous ne sommes pas sûrs de la participation des E.M. concernés.

Servicios Hidrográficos Voluntarios (SHV) de la OHI que se supone participan en los Proyectos IBC

- IBCM: España, Federación Rusa, Francia, Grecia, Italia, Reino Unido y Turquía.
- IBCCA: Colombia, Cuba, Estados Unidos, Francia y Venezuela.
- IBCEA: Francia y Portugal.
- IBCWIO: Alemania, Estados Unidos, Federación Rusa, Francia, Mozambique y Sudáfrica.
- IBCWP: Australia (?), China, Corea (Rep. de), Federación Rusa, Filipinas, Francia (?), Indonesia, Japón, Malasia, Nueva Zelanda (?), Singapur y Tailandia (?).
- IBCAO: Canadá, Dinamarca, Estados Unidos, Federación Rusa e Islandia.

Nota: (?) significa que no estamos seguros de la participación de los EMs a los que se hace referencia.

Annex H to IHB CL 60/1999

RESPONSE FORM

1. IHO Plotting Sheets for GEBCO (1:1M) and IBC (1:250K) programmes

1a N° of sheets held ……..

1b N° of sheets digitized ……..

1c Expected date of digitizing completion: ……...

1d Assistance in digitizing needed (YES / NO) ? ……

1e Can provide assistance in digitizing to other HOs (YES, details / NO) ? ……..

1f Comments ……

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2. Release to GEBCO of Continental Margin Bathymetric Data

2a Will forward data to the GDA Manager (YES, date / NO) ? ……..

2b Will consider forwarding data to the GDA Manager, on request (YES / NO) ? ……..

2c If YES to 2a or 2b, details on content (e.g. gridded data and grid size, or digital / analog contents and list of depth contour values) ……

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2d If YES to 2a or 2b) details on transfer format (e.g. xyz ASCII, S-57 Ed. 3.0, GF3, MGD 77, etc..) ……
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2e Comments

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3. GEBCO Guidelines, Part 2B "Management of Digital Bathymetric Data"

3a Changes that should be considered (Alternatively MS may prefer to provide a copy of Part 2B, where suggested changes are indicated)

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4. Alignment of GEBCO/IBC Areas of Responsibility with INT Chart Regions

4a Would you agree that the GEBCO/IBC areas of responsibility be changed so as to coincide with INT Chart Regions, and that distribution of responsibilities within each region be based on agreed INT Chart Schemes at medium scales, e.g. between 1:500 K and 1/1 500K ?

YES ☐ NO ☐

4b If YES to 4a, would you agree that INT Chart coordinators be tasked to elaborate an arrangement within each INT Chart region, as regards GEBCO/IBC areas of responsibility ?

YES ☐ NO ☐

4c Comments

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5. IBC Projects of the IOC (IBCM, IBCCA, etc..)

5a Do you support that the IHB approach the IOC to formalize the relationship of the IHO with the IOC concerning the IHO participation in IBC programmes ?

YES ☐ NO ☐

5b Are you already involved in IBC projects (YES, details / NO) ? .....

5c If NO to 5b, would you be prepared to participate (YES, details / NO) ? .....