Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies

IOC Editorial Board for the International Bathymetric Chart of the Western Pacific

First Session

Tianjin, People's Republic of China,
12-15 October 1993

UNESCO

In this Series, entitled

Reports of Meetings of Experts and Equivalent Bodies, which was initiated in 1984 and which is published in English only, unless otherwise specified, the reports of the following meetings have already been issued:

1. Third Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
2. Fourth Meeting of the Central Editorial Board for the Geological/Geophysical Atlases of the Atlantic and Pacific Oceans
3. Fourth Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' *(Also printed in Spanish)*
4. First Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources
5. First Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources
6. First Session of the Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
7. First Session of the Joint CCOP(SOPAC)-IOC Working Group on South Pacific Tectonics and Resources
8. First Session of the IODE Group of Experts on Marine Information Management
9. Tenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies in East Asian Tectonics and Resources
10. Sixth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
11. First Session of the IOC Consultative Group on Ocean Mapping *(Also printed in French and Spanish)*
12. Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ships-of-Opportunity Programmes
13. Second Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
14. Third Session of the Group of Experts on Format Development
15. Eleventh Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
16. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
17. Seventh Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
18. Second Session of the IOC Group of Experts on Effects of Pollutants
19. Primera Reunión del Comité Editorial de la COI para la Carta Batimétrica Internacional del Mar Caribe y Parte del Océano Pacífico frente a Centroamérica *(Spanish only)*
20. Third Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
21. Twelfth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of South-East Asian Tectonics and Resources
22. Second Session of the IODE Group of Experts on Marine Information Management
23. First Session of the IOC Group of Experts on Marine Geology and Geophysics in the Western Pacific
24. Second Session of the IOC-UN(OETB) Guiding Group of Experts on the Programme of Ocean Science in Relation to Non-Living Resources *(Also printed in French and Spanish)*
25. Third Session of the IOC Group of Experts on Effects of Pollutants
26. Eighth Session of the IOC-UNEP Group of Experts on Methods, Standards and Intercalibration
27. Eleventh Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans *(Also printed in French)*
28. Second Session of the IOC-FAO Guiding Group of Experts on the Programme of Ocean Science in Relation to Living Resources
29. First Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
30. First Session of the IOCARIBE Group of Experts on Recruitment in Tropical Coastal Demersal Communities *(Also printed in Spanish)*
31. Second IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
32. Thirteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asia Tectonics and Resources
33. Second Session of the IOC Task Team on the Global Sea-Level Observing System
34. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and Overlay Sheets
35. Fourth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
36. First Consultative Meeting on RNODCs and Climate Data Services
37. Second Joint IOC-WMO Meeting of Experts on IGOSS-IODE Data Flow
38. Fourth Session of the Joint CCOP/SOPAC-IOC Working Group on South Pacific Tectonics and Resources
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41. Third Session of the IOC Consultative Group on Ocean Mapping
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43. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
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48. Twelfth Session of the Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of the Oceans
49. Fifteenth Session of the Joint CCOP-IOC Working Group on Post-IDOE Studies of East Asian Tectonics and Resources
50. Third Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
51. First Session of the IOC Group of Experts on the Global Sea-Level Observing System
52. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean
53. First Session of the IOC Editorial Board for the International Chart of the Central Eastern Atlantic *(Also printed in French)*
54. Third Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico *(Also printed in Spanish)*
55. Fifth Session of the IOC-UNEP-IMO Group of Experts on Effects of Pollutants
56. Second Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Indian Ocean
57. First Meeting of the IOC *ad hoc* Group of Experts on Ocean Mapping in the WESTPAC Area
58. Fourth Session of the IOC Consultative Group on Ocean Mapping
59. Second Session of the IOC-WMO/IGOSS Group of Experts on Operations and Technical Applications
60. Second Session of the IOC Group of Experts on the Global Sea-Level Observing System
61. UNEP-IOC-WMO Meeting of Experts on Long-Term Global Monitoring System of Coastal and Near-Shore Phenomena Related to Climate Change
62. Third Session of the IOC-FAO Group of Experts on the Programme of Ocean Science in Relation to Living Resources
63. Second Session of the IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials
64. Joint Meeting of the Group of Experts on Pollutants and the Group of Experts on Methods, Standards and Intercalibration
65. First Meeting of the Working Group on Oceanographic Co-operation in the ROPME Sea Area
66. Fifth Session of the Editorial Board for the International Bathymetric and its Geological/Geophysical Series
67. Thirteenth Session of the IOC-IHO Joint Guiding Committee for the General Bathymetric Chart of the Oceans *(Also printed in French)*
68. International Meeting of Scientific and Technical Experts on Climate Change and Oceans
69. UNEP-IOC-WMO-IUCN Meeting of Experts on a Long-Term Global Monitoring System
70. Fourth Joint IOC-WMO Meeting for Implementation of IGOSS XBT Ship-of-Opportunity Programmes
71. ROPME-IOC Meeting of the Steering Committee on Oceanographic Co-operation in the ROPME Sea Area
72. Seventh Session of the Joint IOC-WMO-CPPS Working Group on the Investigations of 'El Niño' *(Spanish only)*
73. Fourth Session of the IOC Editorial Board for the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico *(Also printed in Spanish)*
74. UNEP-IOC-ASPEI Global Task Team on the Implications of Climate Change on Coral Reefs
75. Third Session of the IODE Group of Experts on Marine Information Management
76. Fifth Session of the IODE Group of Experts on Technical Aspects of Data Exchange
77. ROPME-IOC Meeting of the Steering Committee for the Integrated Project Plan for the Coastal and Marine Environment of the ROPME Sea Area
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IOC/EB-IBCWP-I/3
Paris, 3 February 1994
English only

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1. OPENING OF THE SESSION

The First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Pacific (EB-IBCWP) was opened at 9.15 am on Tuesday 12 October 1993 in the office of the National Marine Data and Information Service (NMDIS) of the State Oceanic Administration (SOA), Tianjin, China, by the Convener Dr. Hou Wenfeng, Director of NMDIS and Chief Editor of IBCWP.

Mr. Haiqing Li, Assistant Secretary IOC, welcomed the participants of the EB-IBCWP inaugural session on behalf of the IOC Secretary, Dr. G. Kullenberg, who conveyed to the meeting his best personal regards as well as that of IOC. Mr. Li briefly reviewed the development of the IOC project on IBCWP and expressed the wish for a successful result of the meeting.

Mr. Jinkang Wang, Director of the Department of Comprehensive Planning and Official Representative of SOA, welcomed the participants on behalf of the Government of China and stressed the importance of bathymetric charts and relevant geological and geophysical charts, of nearshore and offshore areas, as a basis for multidisciplinary and cooperative marine research and for mineral resource exploitation. He stated that SOA would provide Prof. Hou Wenfeng and the National Marine Data and Information Service with full support. Some money has been provided from SOA's limited budget to support this meeting and they will endeavour to provide financial support for China's involvement in the project.

In Prof. Hou Wenfeng's welcoming speech, as the Chief Editor of IBCWP, he acknowledged the contributions of IOC, particularly those of Dr. Gunnar Kullenberg and Mr. Desmond Scott, to the project. He also expressed his appreciation to Dr. Kerr for his participation in the meeting as the representative of IHB. He looks forward to substantial progress during this meeting through the mutual efforts of the members of the Editorial Board.

A full list of participants is given in Annex VIII.

2. ADOPTION OF THE AGENDA

The issue of the status of data and its quality control was raised. After some discussion, it was decided that this issue would be discussed as part of agenda item 9. The Editorial Board adopted the provisional agenda (see Annex I).

3. ELECTION OF THE CHAIRMAN AND VICE-CHAIRMAN

Prof. Hou proposed Commodore Mohammed Rasip Bin Hassan from Malaysia in his capacity as Chairman of the IHO East - Asian Hydrographic Commission (EAHC), as an ideal candidate for the position of Chairman of the EB-IBCWP. Secondly, he proposed Mr. Chris Johnston from Australia as Vice-Chairman and Rapporteur, given his experience in the establishment of the project. These candidates were unanimously accepted. Mr. Haiqing Li, in his capacity as the Technical Secretary for the Session, informed the meeting of IOC practice on the period of service of the Chairman and Vice-Chairman. Guidelines covering the period of service and other responsibilities of members of the Editorial Board, are contained within IOC/INF-785. Commodore Hassan took over the responsibility of running the meeting from the Convener.

4. ADMINISTRATIVE ARRANGEMENTS, DOCUMENTATION

The Technical Secretary, Mr. Haiqing Li, presented the working documents and other relevant documentation, drawing special attention to the results of the First Session of the IOC *ad hoc* Group of Experts on Ocean Mapping in the WESTPAC Area, Tianjin, China, 12 -14 June 1990, as well as to the Corrigendum (IOC/INF-822 Corr.) concerning the name of the IBCWP Subregion 2.

5. CONSIDERATION OF THE TERMS OF REFERENCE OF EB-IBCWP

The Chairman drew the attention of the Editorial Board to the Terms of Reference recommended by the First Meeting of the IOC ad hoc Group of Experts on Ocean Mapping in the WESTPAC Area which were adopted by the Assembly at its Sixteenth Session, Paris, 7 - 21 March 1992. The members of the Editorial Board carefully considered these Terms of Reference. The issue of project cost and budget was discussed at some length. It was decided that this issue would be reconsidered under Agenda Item 9.

The meeting agreed to proceed with the terms of reference as guidelines for future activities.

Prof. Hou Wenfeng, in his capacity as the Chief Editor, made a brief report, in accordance with the terms of reference, on the activities of the Editorial Board since its inception at the Sixteenth Session of the IOC Assembly (Annex V). The Chairman, on behalf of all Board Members, expressed his appreciation for the efforts that the Chief Editor has made in progressing the IBCWP project.

6. CONSIDERATION OF SPECIFICATIONS FOR IBCWP

The Editorial Board carefully reviewed the *Specifications for the International Bathymetric Chart of the Western Pacific* (Document IOC/GE-IBCWP-I/3, Annex VII), prepared by the IOC *ad hoc* Group of Experts on Ocean Mapping in the WESTPAC Area on the basis of *Specifications for the International Bathymetric Charts Produced Under Regional Mapping Projects*, to meet local needs of the Western Pacific.

The Meeting was advised that the maximum neat line size for China is 650 x 950 mm and the standard neat line size for Japan is 630 x 960 mm.

A sheet numbering and identifying system, proposed by Dr. Sharman and amended by the Editorial Board, was discussed and adopted.

Dr.Sharman pointed out the need for all sheets to be annotated to indicate that they should not be used for navigation.

The meeting was concerned about controversial naming of features and agreed that any such issue be referred to the Editorial Board for further action.

The meeting adopted the specifications with modifications (Annex II).

7. PREPARATION OF THE ASSEMBLY DIAGRAM

The Editorial Board considered four preliminary draft versions of the Assembly Diagram for the IBCWP prepared by the IOC Secretariat, as well as the versions prepared by the Chief Editor and the Russian member Dr. Evgeniy N. Shchaulov, bearing in mind the following criteria:

(i) uniformity of the format of the sheets;
(ii) inclusion of all important geographical features;
(iii) avoiding fragmentation of physiographic units;
(iv) the need to keep the number of sheets to a minimum.

After a lengthy discussion, the meeting adopted an Assembly Diagram based on IOC version 1 with the following understanding:

(i) The boundaries between subregions will coincide with sheet boundaries;

(ii) The Assembly Diagram is to be considered as a guide for the positioning of final sheet areas. All variations from the Assembly Diagram will be communicated to the Chief Editor and

all resulting effects at subregion boundaries shall be settled through negotiation with the party which has responsibility for the adjacent subregion, to the satisfaction of the Chief Editor.

The Assembly Diagram is presented as Annex III.

8. POTENTIAL NATIONAL PARTICIPATION IN THE PROJECT

The IOC Technical Secretary made a brief introduction on the IOC ocean mapping activities as a background to arrangements that might be followed during the implementation of IBCWP.

The Chief Editor proposed the *Terms of Reference for the Responsible Countries/Organizations Compiling International Bathymetric Chart for the Subregions of the Western Pacific.* This proposal was accepted, after amendments, as guidelines for the implementation mechanism.

Members of the Editorial Board were asked to inform on the possibilities of their countries participating in the process of collection, processing and plotting of bathymetric data, and which national institutions might contribute to the IBCWP project in terms of provision of data, expertise and financial resources.

Mr. Le The Tien, from Vietnam, informed that they are able to provide topographic maps at the scale of 1:500,000. At this time, they are not able to provide any bathymetric data. He suggested that training courses for the member countries would be helpful.

Captain Evgeniy N. Shchaulov, from Russia, informed that they are bringing together a group of experts including representatives from the areas of cartography, hydrography, marine geology, geophysics and other sciences to assist with IBCWP responsibilities. Sufficient data is available within their area of responsibility (Subregion 1). An initial working sheet has been prepared and was shown to the meeting. This sheet will be edited and finalized in accordance with the IBCWP specifications. They have requested that their area of responsibility be enlarged to include the western part of the Bering Sea.

Mr. Sung Kee Paik, from the Republic of Korea, mentioned that some nearshore sheets have been produced at a scale of 1:200,000. However, feature names are in Korean language. Korean contributions to IBCWP will be confirmed at a later stage.

Dr. George Sharman III, from the National Geophysical Data Centre of the United States of America, made an extremely informative presentation on data holdings relevant to IBCWP that are held by the IHO DCDB and WDC-A/MGG, Boulder, Colorado (Annex VII). These data, which are surprisingly comprehensive in some subregions, are available for incorporation into the IBCWP project. The wealth of data available is the result of shared resources and the success of IBCWP will depend on continued and expanded exchange of data and expertise between participants in the project.

Dr. Pat Wilde, from the USA, presented to the Chief Editor a compact disk containing gridded world relief data. These data have been provided as a contribution to the project by the National Geophysical Data Center.

Mr. Kunio Yashima, from Japan, stated that his country will take the responsibility of compilation, printing and publication of sheets within Subregion 2 in cooperation with Russia, China and the Republic of Korea.

Mr. Chris Johnston, from Australia, presented the status of their Offshore Resource Map Series (ORMS) project and announced that forthcoming sheets within Subregion 4 would be produced in accordance with IBCWP specifications. He presented the Chief Editor with copies of published ORMS sheets from western and southern Australia.

The Chief Editor informed that China has established the National Editorial Board for IBCWP, consisting of the experts in oceanography, cartography, hydrography and marine geology and geophysics. A catalogue of the bathymetric data for all subregions of the WESTPAC area is being prepared. The State Oceanic Administration has allocated 400,000 RMB for initiating this project, including the hosting of this meeting, and is prepared to continue its financial support to the project.

Mr. Wenhai Li, from China, reported on China's data holdings which are available for use in this IBCWP project.

Mr. Shan Yichun, from China, presented an outline of the database system being developed for the IBCWP project.

Commodore Mohammed Rasip Bin Hassan, from Malaysia, informed that they will contribute data and participate in the compilation, printing and publication of sheets within Subregion 3.

A selection of National Reports is presented as Annex VI.

9. ADOPTION OF IMPLEMENTATION MECHANISMS

The Editorial Board further discussed the implementation mechanisms of the IBCWP project, following the discussion on the same subject during the First Session of Group of Experts on Ocean Mapping in the WESTPAC Area. The members,while in general agreement with the outcome of discussion of the Expert Group Meeting, including in particular the division of the 6 subregions, proposed that there should be three levels of country/organization involvement within each subregion. The three levels are: responsible country/organization; producing country/organization; and participating country/organization.

The countries/organizations presently identified as offering involvement in the subregions are listed below:

Subregion	Responsible Country/ Organization	Producing Country/ Organization	Participating Country/ Organization
1	Russia	Russia	Japan
2	Japan	Japan,Russia China	China, Republic of Korea,Russia
3	China	China, Malaysia	Japan, Malaysia Vietnam (provisional)
4	Australia	Australia	Australia, China
5			
6			

This list is not complete. The Chief Editor will solicit other countries to assist in one or more of the three categories.

The terms of reference for the Chief Editor and the three levels of involvement were discussed and accepted as contained in Annex IV. The terms of reference proposed by the Chief Editor for the responsible country/organization served as a model for the following two levels of involvement.

Dr. Sharman encouraged the Board Members to, wherever possible, make use of electronic data transfer systems to facilitate data exchange. He offered to provide each of the Board Members with information regarding such systems.

The meeting expressed concern about data quality assurance. Rather than attempting to formulate guidelines on this issue at this time, the Board Members were encouraged to continue the discussion of matters relating to this issue and in particular to communicate any concerns to the Chief Editor.

The meeting decided that the Vice-Chairman should visit and liaise with New Zealand authorities, the proposed responsible country in Subregion 5, and the SOPAC Secretariat, the proposed responsible organization in Subregion 6, in regard to the status of IBCWP and future cooperation, particularly in regard to the implementation of activities within their Subregion.

The members requested that there be a listing of resources committed to and used by the IBCWP project. Such a list would include all manpower and other resources. The objective is to maintain some measure of the effort devoted to the project. The Chief Editor will include this information in his annual report, with the assistance of the Technical Secretary of IOC and information provided by each of the involved countries/ organizations.

10. ANY OTHER BUSINESS

10.1 IBCWP WORKSHOP

The meeting decided to organize a Workshop on Data Sources and Map Compilation as an intersessional activity. Dr. Sharman has offered to investigate the possibility of conducting the Workshop in Boulder in approximately 6-months time.

10.2 CARTOGRAPHIC STANDARDIZATION

Dr. Shchaulov mentioned the need to standardize cartographic issues such as paper density and thickness of drafted lines. The meeting agreed that this issue should be decided by the Chief Editor.

10.3 PROJECT PROMOTION

Mr. Kerr reminded the meeting that it is preferable that IOC Secretariat send letters of project introduction to all possible participating countries/organizations before the Chief Editor or other members of the Editorial Board make formal contact with these countries/organizations. Copies of these letters will be sent to each member of the Editorial Board.

10.4 ENCOURAGEMENT OF NEW NOMINATIONS

The meeting realized that a number of countries in the region,such as Indonesia, Philippines, Papua New Guinea and New Zealand, were unrepresented on the Editorial Board. It was proposed by the meeting that IOC should endeavour to seek representation from these countries as well as SOPAC in order to ensure effective implementation of the project. It was suggested that, in order to assist internal communication within some countries, IOC should send the invitation for nomination to the national focal point with copies to other interested groups.

It will be necessary for any new nominations to the Editorial Board to be approved by the IOC Consultative Group on Ocean Mapping.

11. DATE AND PLACE OF THE NEXT SESSION

The Technical Secretary informed the meeting of normal IOC practice in regard to the frequency of the meetings of the Editorial Board. The meeting decided that the Editorial Board will meet at least once a year.

The meeting agreed that the Second Session of the Editorial Board will be held in another country of the region and suggested Australia as a possibility. Chris Johnston agreed to seek necessary support to enable the second session to be held in Australia in approximately twelve months from now. He will advise the IOC Secretariat and the Chief Editor of any progress.

12. ADOPTION OF THE SUMMARY REPORT

The meeting adopted the Summary Report as amended.

13. CLOSURE OF THE SESSION

The First Session of the Editorial Board was closed by the Chairman at 10:00 on 15 October, 1993.

ANNEX I

AGENDA

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ANNEX II

SPECIFICATIONS FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE WESTERN PACIFIC (IBCWP)

SECTION 100 - GENERAL

101 - Introduction

A. International Bathymetric Charts produced under Regional Mapping Projects are a continuation and further development of the General Bathymetric Chart of the Oceans (GEBCO), under the general guidance of the IOC Consultative Group on Ocean Mapping. These charts are prepared and published with the co-operation of IHOs Volunteering Hydrographic Offices (VHOs) and/or groups of scientists from appropriate institutions.

B. For the IBCWP series, an Editorial Board will be established by the IOC Assembly or Executive Council, for the purpose of technical direction of its compilation and publication.

SECTION 200 - BASIC SPECIFICATIONS

201 - Projection

All sheets shall be shown on Mercator Projection using the International Ellipsoid, WGS-84.

202 - Scale

A. A scale of 1:1,000,000 at 33° Latitude shall be used for the western sheets as shown in the sheet Assembly Diagram (to be prepared by the Editorial Board). At a later stage it may be found desirable to produce some of the eastern sheets on a smaller scale.

203 - Graticule

A. A scaled border of each sheet shall be shown subdivided into 1 minute increments of latitude and longitude.

B. Meridians and parallels shall be drawn every 2°.

C. Labelling of the graticule shall be every 1°.

D. The tropics of Capricorn and Cancer shall be shown.

204 - Size

The neat line size of each sheet shall not exceed 700 x 900 mm.

205 - Numbering

A. For each chart a unique number/identifier, referencing the southwest corner of the map sheet and including the height and width of the sheet in degrees, shall be used. The format of this sheet identifier is shown below:

SW latitude + height N/S; SW longitude + width E/W

e.g. If the Southwestern corner is at 58°30'N, 156°30'E and the height of the sheet is 7° and the width is 5°30', then the sheet identifier would be 58.5+7N;156.5+5.5E.

B. Sheet numbers shall be printed in 8 mm Arabic figures in the lower right-hand and top left-hand corner of each sheet.

206 - Dating

The date of the chart publication to be shown on each sheet shall be the date of going to press.

207 - Units of measurement

Depths and topographic heights shall be shown in metres. Depths should be corrected from either in-situ sound velocity profile measurements or the latest edition of the Echo-Sounding Correction Tables, published by the United Kingdom Hydrographic Department, and this should be stated on the face of the chart.

208 - Marginal information

A. All marginal information shall be in English (a Chinese or other language version of certain sheets may be printed if so wished).

B. This shall include:

1. The general title of the chart.
2. Sheet number.
3. Projection, ellipsoid and scale (see 201, 202).
4. Unit of measurement used for depths and heights.
5. Code of colours used to portray hypsometry.
6. Code of colours used to portray bathymetry.
7. An index of areas and names of countries whose Hydrographic Offices or groups of scientists prepared plotting sheets for the sheet.
8. The names of scientific co-ordinators of the chart series and of scientists responsible for the scientific content of the sheet.
9. The logo of the Intergovernmental Oceanographic Commission (IOC) of Unesco.
10. Edition number and date of publication (see 206) followed by the statement:
"Published by the ..... (name of publisher)
under the authority of the IOC (of Unesco)".
11. List of the sources of the data used (for the chart series).

C. Disclaimer: The words **NOT TO BE USED FOR NAVIGATION** are to be included in bold 5 mm Arabic figures in the top right hand corner of each sheet.

SECTION 300 - TOPOGRAPHY

301 - For the land part, topographic maps shall be used.

302 - The World Vector Shoreline (WVS) shall be used. The coastline shall be shown as a firm line in black.

303 - A. Contours on land shall be at 200 m intervals.

B. The thicker lines shall be at 200, 1,000, 2,000, 3,000, etc., m. intervals.

C. Additional contours which may be required by the data must be shown.

D. A colour change for hypsometry shall be used at the following intervals: 0-200, 200-1,000, 1,000-2,000, etc., m.

E. Glaciers shall be shown by contours or by symbols. The significant heights shall be shown.

304 - **Hydrology of the land**

On the chart shall be shown, as appropriate:

- rivers and channels;
- lakes;
- lagoons.

305 - Major cities and towns, priority being given to those on the coast.

SECTION 400 - BATHYMETRY

401 - Compilation sheets, where necessary, shall be prepared by the participants in the Project, according to agreed zones of responsibility, on a scale of the order of 1:250,000. The British Admiralty 1:250,000 plotting sheets may be used; they should be prepared according to the Appendix to these Specifications.

402 - **Soundings**

A. A sparse pattern of numerical soundings shall be shown to indicate maximum and minimum (and other significant) depths, where known, over major undersea features in such a way as not to detract from the paramount objective of indicating sea floor relief by means of contours.

The exact position of all numerical soundings shown shall be indicated by a dot. The depth shall be written as cartographically convenient against the dot using 1.5 mm sans-serif figures. Where space does not permit the juxtaposition of the figures they may be offset and linked by a fine line to the dot placed in the exact position.

B. In order to indicate contour reliability, all soundings used shall be shown as dots representing discrete soundings or lines representing continuously sounded traverses. Areas of detailed surveys, where soundings are denser than can be conveniently shown, shall be indicated by numbered boxes referenced in the margin.

403 - **Depth contours and colours**

A. Basic contours shall be at 200 m intervals.

B. The 200 m contour line and all contours at 1,000 m intervals shall be drawn using thick lines.

C. 20, 50 and 100 m contours, if necessary, shall be drawn using thin lines.

D. A colour change for the bathymetry shall be used at the following intervals: 0-200, 200-1,000, 1,000-2,000, 2,000-3,000, etc., m.

SECTION 500 - NOMENCLATURE AND GEOGRAPHICAL NAMES

501 - A. A proposed list of names for inclusion on each sheet will be forwarded to the GEBCO Subcommittee on Geographical Names and Nomenclature of Ocean Bottom Features, with a request for guidance on any that might be controversial. In preparing this list account should be taken of the guidelines contained in the IOC/IHO publication BP0006, "Standardization of Undersea Feature Names". Names in contention should be referred to the Editorial Board which will in turn refer the issue to an appropriate UN authority for resolution.

B. As a general policy, local names (cities, towns, mountain ranges, rivers, etc.) shall be in exact agreement with the form prescribed by the most authoritative national source. In cases where the national names differ substantially from the normal English usage, the English version shall be shown alongside in parenthesis.

C. The nomenclature for undersea features shall be shown in the English language.

APPENDIX TO ANNEX II

RECOMMENDATIONS FOR PREPARATION OF PLOTTING SHEETS FOR INTERNATIONAL BATHYMETRIC CHARTS PRODUCED UNDER REGIONAL MAPPING PROJECTS

1. For plotting and contouring purposes the British Admiralty's 1:250,000 plotting sheets for oceanic soundings may be utilized.

2. Soundings should be in metres, corrected using either *in situ* sound velocity profile measurements or the latest edition of the "Echo Sounding Correction Tables".

3. The position of the sounding should be the central point of the group of figures representing it. But the position may also be indicated by a dot with the sounding figure alongside, and if necessary, by a thin line drawn to connect the two.

4. The soundings figures should be inscribed across the track; the figures should be easily readable, the recommended average size being 1.5-2 mm in height.

5. The largest possible number of soundings should be shown on the plotting sheets so long as their clarity is not impaired. When soundings are very dense, the number may be reduced if care is taken not to eliminate the more important soundings: maxima and/or minima.

6. The margin of each plotting sheet should contain the following legend:

"Compiled by ....."
"Last brought up to date on ....."
"Prepared under the IOC (International Bathymetric Chart of the Western Pacific)".

7. Each plotting sheet should be accompanied by two overlays:

   (i) overlay contour lines with contouring made through each 100 metres, additional contours may be drawn through 50 and 10 metres, where warranted (on the shelf and abyssal plains);

   (ii) overlay source materials on which should be shown the following:

      (a) areas of soundings and position of isolated soundings with the appropriate legends required to indicate the source and the date of such soundings;
      (b) information on the method of navigation and its precision;

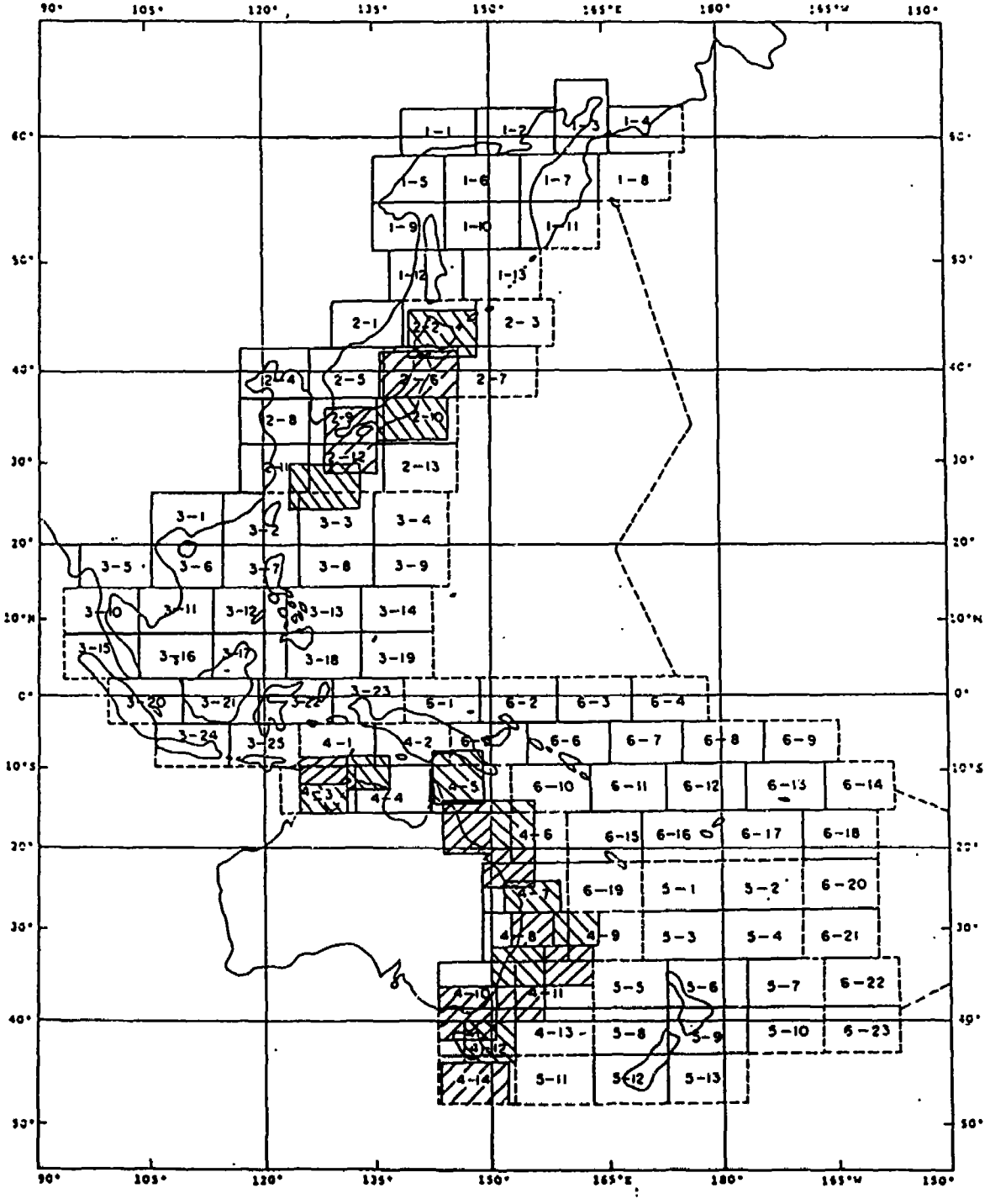
      (c) information on the type of the echosounder and its precision.

8. On each plotting sheet and overlay the date of completion of compilation should be indicated.

ANNEX III

ASSEMBLY DIAGRAM FOR THE INTERNATIONAL BATHYMETRIC CHART OF THE WESTERN PACIFIC

Scale 1:1 000 000 at 33° latitude



ANNEX IV

TERMS OF REFERENCE FOR THE CHIEF EDITOR AS WELL AS RESPONSIBLE,PRODUCING AND PARTICIPATING COUNTRIES/ORGANIZATIONS

(A)

The Chief Editor shall:

1. Carry out the Terms of Reference on behalf of the Members of EB-IBCWP within the Western Pacific region;

2. Keep the Members of EB-IBCWP informed of the latest developments relating to the compilation of IBCWP;

3. Provide technical advice and guidance to the implementation of the whole project;

4. Convene and coordinate consultative and technical meetings relevant to compilation, printing and publishing of IBCWP;

5. Conduct final review and approve the compilation sheets before printing;

6. Ensure that the processed data collected from various countries, regions and organizations for the purpose of compiling IBCWP is shared, and ensure the transmission of all necessary data to the producing countries of the individual sheets;

7. Explore all possible ways to find the support necessary for the completion of the IBCWP;

8. Present an annual report on the activities and progress of the project to the IOC Secretariat and the IOC Sub-Commission for WESTPAC. Copies of this report will be sent to each member of the Editorial Board.

(B)

The Countries/Organizations responsible for compiling the International Bathymetric Chart for specific subregions of the Western Pacific shall:

1. Prepare a detailed implementation plan for compiling the International Bathymetric Chart for their Subregion and submit this plan to the EB-IBCWP;

2. Ensure that the bathymetric sheets for their subregions be compiled, printed and published;

3. Monitor all activities relevant to compilation of International Bathymetric Chart of the Western Pacific for their Subregion;

4. Ensure smooth continuation of contours and other data from sheet to sheet both internally and externally between the subregions, by coordinating the activities of sheet producer countries and liaising with responsible countries/organizations from adjacent subregions;

5. Examine compilations within the Subregion and report to the Chief Editor on matters relating to standards and consistency;

6. Solicit data from all countries within the Subregion and external sources;

7. Be responsible for, and organize the work of pre-review of, the compilation sheets and submit them to Chief Editor for review;

8. Once approved by the Chief Editor, ensure that they are printed and published as soon as possible;

9. Provide support, wherever possible, to ensure the timely completion of the Subregion sheets; and

10. Present an annual report on the progress of the Subregion activities to the Chief Editor.

(C)

The Producing Countries/Organizations shall volunteer to produce a specific map sheet(s) either to compilation or final published stage by:

1. Assembling and undertaking quality assessment of data obtained by participating countries or from other sources;

2. Compiling and interpreting data according to established standards;

3. Co-ordinating activities with those of Producing Countries/Organizations for adjacent sheets to ensure smooth continuation of contours and other data;

4. Submitting compilation drawings to the responsible country for the Subregion for review and forwarding to the Chief Editor;

5. Where possible, publishing compiled sheets, following approval of the compilation drawings by the Chief Editor, in accordance with established standards.

(D)

The Participating Countries/Organizations shall:

1. Through agreement, provide data directly to the Producing or the Responsible Country/Organization for incorporation into the IBCWP;

2. Where possible, encourage the release of data for use within IBCWP;

3. Where possible, encourage ocean mapping activities that can lead to the availability of additional data for IBCWP.

ANNEX V

REPORT BY THE CHIEF EDITOR ON PROGRESS OF EB-IBCWP

Since the EB-IBCWP was formally established by the Sixteenth Session of IOC Assembly, Paris, 7-21 March 1991, the following activities have taken place.

1. PREPARATION FOR THE FIRST SESSION OF EB-IBCWP

The first session of EB-IBCWP, originally scheduled in China in mid-1992, had to be postponed due to lack of financial resources. As the Chief Editor, I brought the matter, through my representatives, to the attention of the Second Session of the IOC Sub-Commission for the Western Pacific, Bangkok, 25-29 January 1993 and to the Seventeenth Session of the IOC Assembly, Paris, 25 February - 11 March 1993. Both WESTPAC - II and the Seventeenth IOC Assembly considered the issue as a matter of priority and decided that the first session of EB-IBCWP be organized as soon as possible.

2. INITIATING PREPARATORY WORK FOR THE PROJECT THROUGH CORRESPONDENCE

A letter was sent to all the members of EB-IBCWP, inviting them to provide suggestions as to how to initiate the work on IBCWP, including the conduct of the first session of EB-IBCWP. Responses have been received from Australia, Japan, Malaysia, Russia, Thailand and Vietnam.

3. PROGRESS ON THE COMPILATION OF IBCWP

Generally speaking, no significant progress has been made in the compilation of IBCWP mainly due to the postponement of the first session of EB-IBCWP. However, some data and information have been received from the following countries:

AUSTRALIA	-	Information on the availability of bathymetric charts and data, as well as progress on national bathymetric chart compilation project.
CHINA	-	Bathymetric data catalogue and information on national mechanisms for implementation of the project
JAPAN	-	Information on national bathymetric chart compilation project
THAILAND	-	Information on existing national bathymetric compilation projects and related charts in the WESTPAC region.

ANNEX VI

SELECTED NATIONAL REPORTS TO FIRST SESSION OF EB-IBCWP

CHINA

The State Oceanic Administration (SOA) of China attaches much importance to the International Bathymetric Chart for the Western Pacific (IBCWP) and has designated Mr. Yang Wenhe, Deputy Administrator of SOA, to be responsible for national coordination and supervision of the Chinese participation in the project. SOA has allocated 400,000 RMB for initiating the project, including hosting the First Session of EB-IBCWP, and will continue its financial support to this project.

A National Editorial Board has been established for IBCWP as a back-up to the Chief Editor, with the National Marine Data and Information Service (NMDIS) as the organization for execution. This national board is composed of experts in the fields of oceanography, hydrography, cartography and marine geology and geophysics from the Chinese Navy, Academia Sinica, Ministry of Communications, Ministry of Geology and Mineral Resources, and the State Bureau of Survey and Mapping. Two meetings have been organized on data collection and technical support. Groups of experts on data collection, quality control and automatic plotting have been set up at NMDIS.

Preparation is being made on the catalogue of the bathymetric data to be used in IBCWP, with special reference to Subregions 2 and 3. This catalogue will include bathymetric data from 2,000,000 stations ranging from 100°E - 180°E, 90°N - 90°S from the current data holdings at both the Chinese National Oceanographic Data Centre (CNODC) and World Data Center D (WDC-D Oceanography). The Chinese data experts are now conducting data processing and database designing for IBCWP and experimenting on bathymetry chart plotting for a selected area of the Western Pacific. CNODC and WDC-D Oceanography will continue the data collection, processing and exchange for the project. CNODC is willing to undertake data analysis, quality control and database establishment for the IBCWP.

Apart from Subregion 3 for which China is responsible as proposed by the First Meeting of IOC Group of Experts on Ocean Mapping in the WESTPAC Area, China is also prepared to participate in sheet compilation for the boundary areas between Subregions 2 and 3 and between Subregions 3 and 4 to ensure smooth continuation of contours of the adjacent sheets.

AUSTRALIA

The Australian Geological Survey Organization (AGSO) in conjunction with the Hydrographic Service, Royal Australian Navy, have, since March 1989, been compiling and publishing a series of 1:1,000,000 scale bathymetric charts for the entire Australian margin. This work is being undertaken under the project name of Offshore Resource Map Series (ORMS).

All available digital data are being assembled and large quantities of analogue data are being digitized to ensure coverage in areas where there is little digital data. These data are then machine-contoured and subsequently the contours are modified, where necessary, to ensure that the bathymetric features are geologically realizable. Of the 33 maps planned, six have been published, two more are ready for printing and four more will be compiled by the end of this year (Figure 1).

The ORMS project is the first systematic assemblage of digital bathymetric data for the entire Australian continental margin being presented in contoured form at 1:1000,000 scale. The production of the map sheets in four colours, with a different shade of blue for each 1000 m interval, is achieved mainly by using commercially available software and hardware, supplemented by AGSO mapping and cartographic expertise together with printing assistance from the Hydrographic Service.

All data are stored in a digital database so that future revision of the series will be relatively simple. Where possible, the specifications produced for the IBCWP are being used for ORMS, including Mercator projection with true scale at latitude 33 degrees, thus ensuring that the sheets match at their boundaries.

The bathymetric database for ORMS comes from a wide variety of sources. On the continental shelf, to depths of 300 m, data from the Hydrographic Service are being used. The contours, available as published maps at a scale of 1:250,000 (National Bathymtric Map Series, 1976-90), have been digitized, some by way of automatic scanning. In deep waters, the AGSO Marine Database, containing survey lines spaced an average of 30-50 km part, has been used. These data have been augmented by manually digitized data from the latest GEBCO compilation sheets (1986), provided by the Hydrographic Service, and GEODAS data obtained from the National Geoscience Data Centre (Colorado, USA). In addition, other digital data-sets collected by universities, other research organizations and private companies, particularly any available swath-mapping data, are being incorporated whenever possible. The locations of all depth points are shown on the published maps. All depths have been corrected for the variation of sound velocity in different water masses using NP139, 1980 (Ministry of Defence,UK).

A number of seabed sampling sites have been included on the map sheets. These provide an indication of bottom conditions that may be of interest to deep-sea fishermen and others who need this information for cable or pipe-line laying, or other engineering purposes.

Exploration well locations are being plotted on the map sheets. Scientific drill sites undertaken as part of either the Deep Sea Drilling Project or the Ocean Drilling Programme are also shown. In some areas, such as the North West Shelf and Bass Strait, only the geologically most informative wells can be shown due to the high density of wells in these areas.

AGSO seismic survey lines have been identified on the map sheets, thus informing users of additional, readily available geoscientific information. The extent of the Australian Fishing Zone is also indicated.

Names of features on the maps comply with those shown on the GEBCO 1:10,000,000 scale compilations (Canadian Hydrographic Service). Where appropriate, information names used by marine scientists are shown in brackets, e.g. the Cuvier Plateau on Hartog Sheets is often referred to as the Wallaby Plateau. Any new names are being registered with the International Hydrographic Bureau in Monaco.

As well as being available as printed maps, the data will also be available in digital form. A database of contour strings is the most likely form of digital data.

Although the ORMS maps represent a major step forward in the bathymetric mapping of Australia's margins, they are only an intermediate step towards obtaining a clear image of seabed features. The data density of about one depth value for every 60 sq km is sufficient to map major bathymetric trends, but in some places data tracks are more than 100 km apart and thus significant features can easily be missed.

In places, where depths are sparse, Seasat and Geosat data are being used to constrain bathymetric trends. Such an area lies along the southern boundary of the Naturaliste, Albany, Esperance and Eyre sheets (Southwest Australia). Here a complex zone (Diamantina Zone) has very little bathymetric coverage relative to its complexity, and it has been necessary to both increase the contour interval to 500 m and manually smooth the contours.

The above information is given by way of background to the ORMS project. The important issue in relation to IBCWP is that AGSO and the Hydrographic service, RAN, wish to formally announce, at this IBCWP Editorial Board meeting, that the ORMS sheets within Subregion 4 (Figure 2) will be published under the auspices of IOC. Work on these sheets will commence in 1994 and it is anticipated that the proposed 16 sheets should be completed by the end of 1996. It should then be possible to consider the compilation of additional sheets to ensure complete coverage of Subregion 4 by the end of 1998.

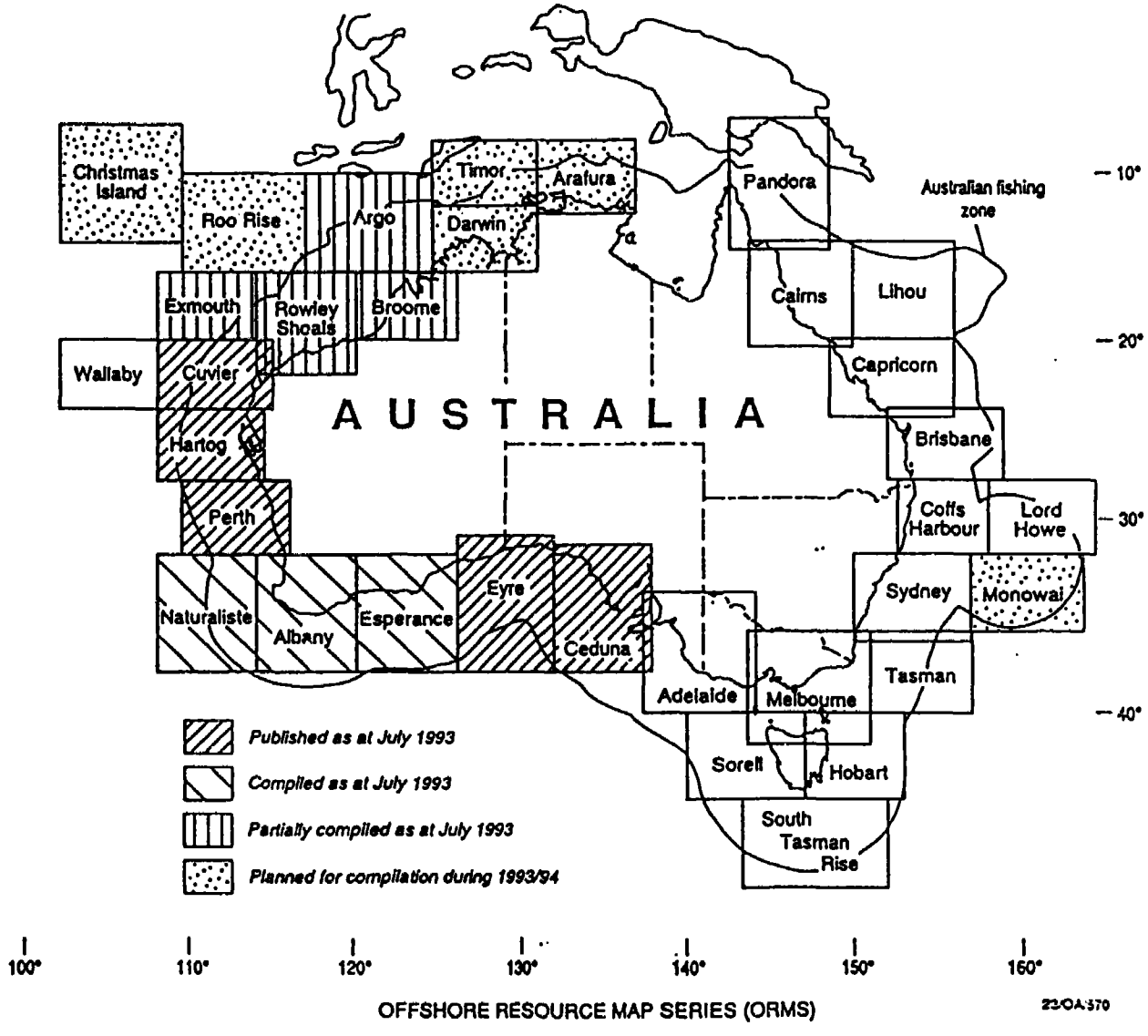

Christmas Island
Roo Rise
Timor
Arafura
Argo
Darwin
Pandora
Australian fishing zone
Exmouth
Rowley Shoals
Broome
Cairns
Lihou
Wallaby
Cuvier
Capricorn
AUSTRALIA
Hartog
Brisbane
Perth
Coffs Harbour
Lord Howe
Eyre
Sydney
Monowai
Naturaliste
Albany
Esperance
Ceduna
Tasman
Adelaide
Melbourne
Sorell
Hobart
South Tasman Rise
Published as at July 1993
Compiled as at July 1993
Partially compiled as at July 1993
Planned for compilation during 1993/94
10°
20°
30°
40°
100°
110°
120°
130°
140°
150°
160°
OFFSHORE RESOURCE MAP SERIES (ORMS)
23/OA/370

Figure 1

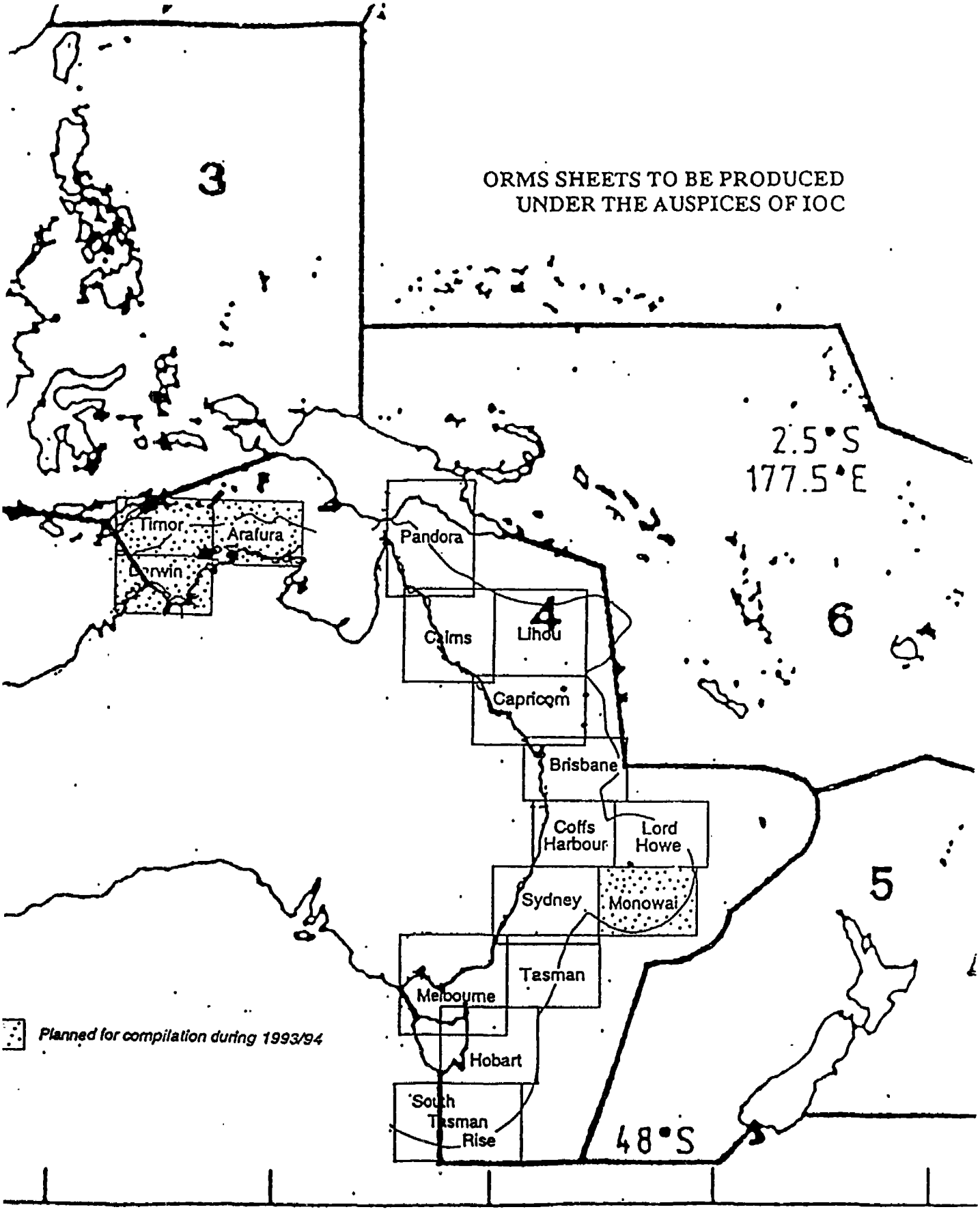
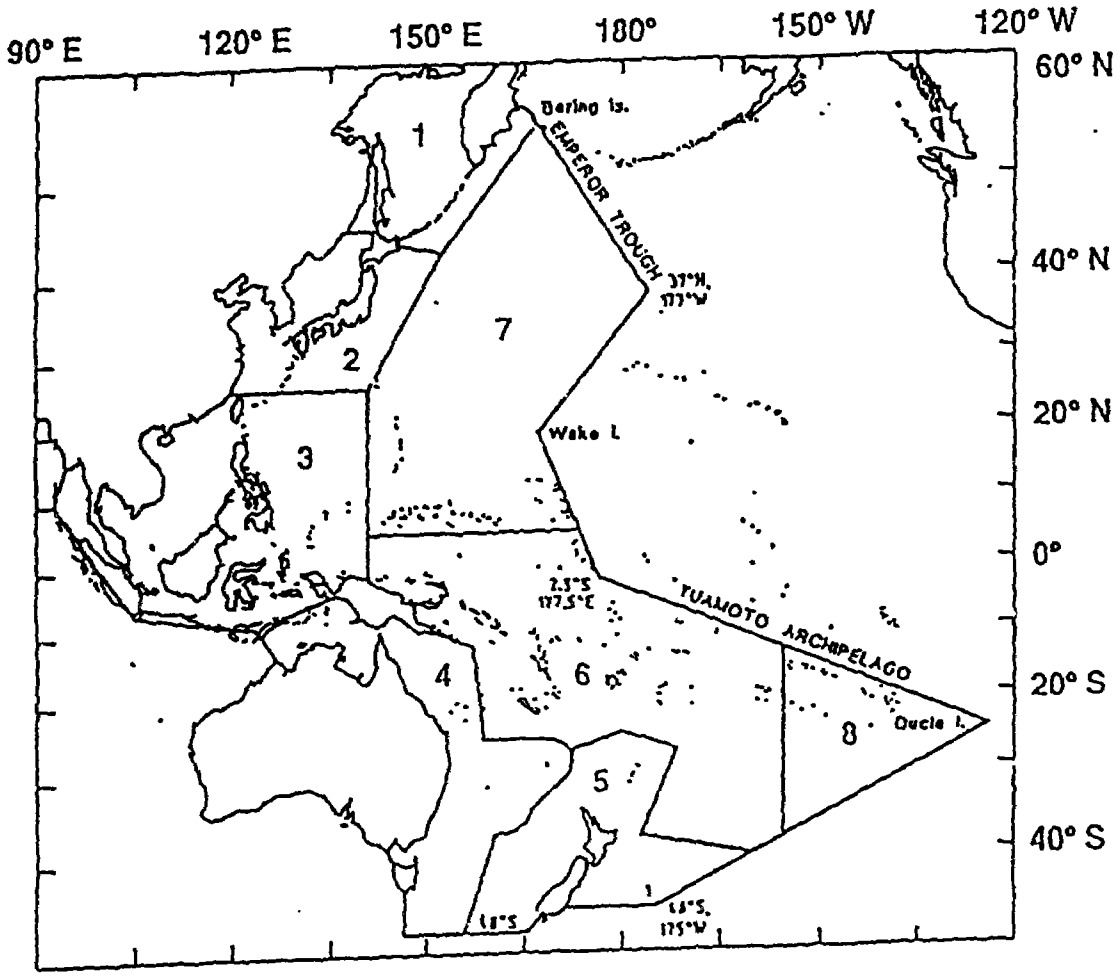

ORMS SHEETS TO BE PRODUCED
UNDER THE AUSPICES OF IOC
3
4
5
6
2.5°S
177.5°E
48°S
Timor
Arafura
Darwin
Pandora
Cairns
Lihou
Capricorn
Brisbane
Coffs Harbour
Lord Howe
Sydney
Monowai
Tasman
Melbourne
Hobart
South Tasman Rise
Planned for compilation during 1993/94

Figure 2

ANNEX VII

DIGITAL BATHYMETRIC DATA HOLDINGS OF THE IHO DCDB AND WDCA/MGG IN THE WESTPAC AREAS

WESTPAC Areas

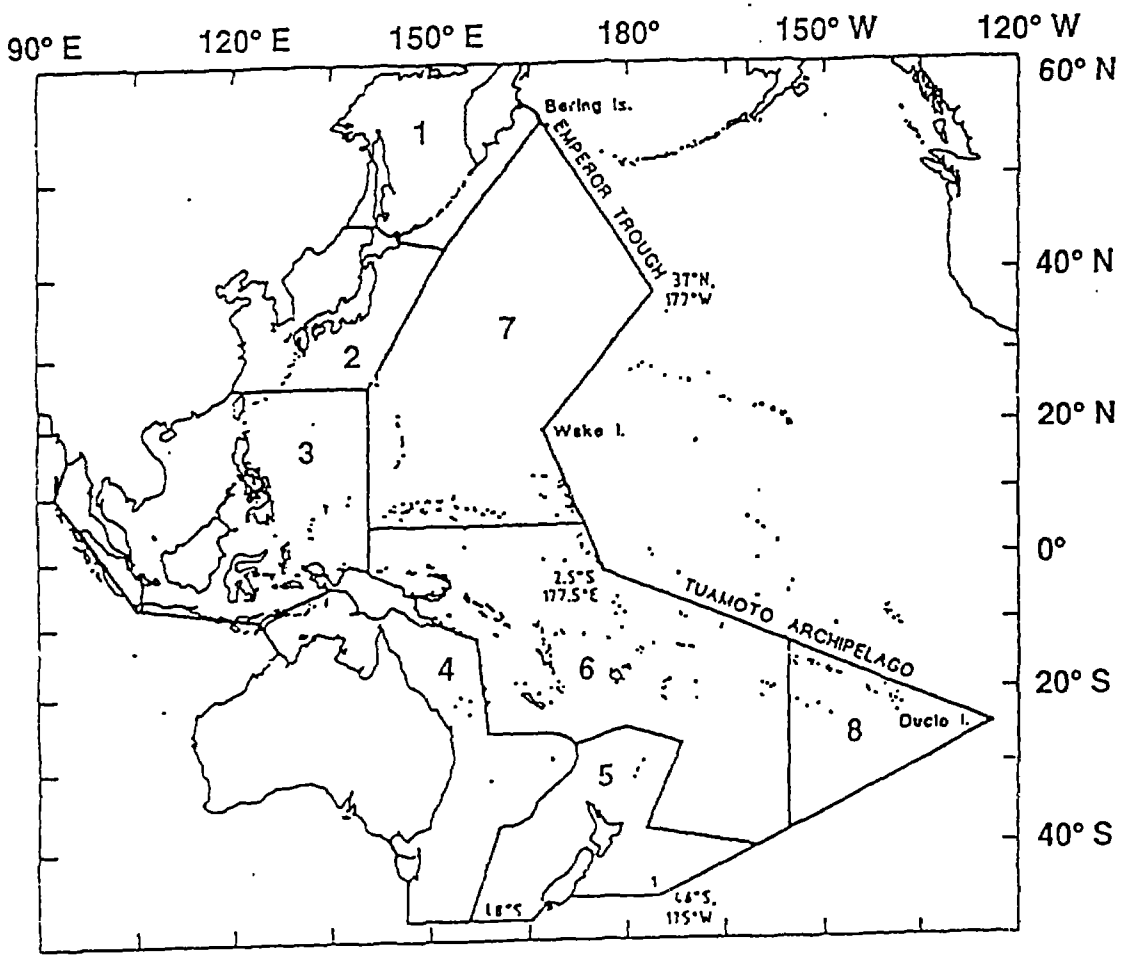


1. Sea of Okhotsk & SE Kamchatka
2. Japan Sea
3. Central Western Pacific
4. Australian Margins
5. New Zealand waters
6. SOPAC area
7. Northcentral
8. Southeastern

Data Quantities and Concentrations

Area #	Description	Size 10^6 km^2	Digital Data Records	MBytes	Data Density km^2/datum
1	Sea of Okhotsk	2	100,772	12	21
2	Japanese	4	753,658	92	5
3	Central Western	11	812,449	99	13
4	Australian	7	136,385	17	48
5	New Zealand	4	161,118	20	24
6	SOPAC	18	1,242,537	152	14
7	NorthCentral	14	1,048,296	128	13
8	Southeastern	4	107,393	13	38
	Totals:	63	4,362,608	533	Average: 14

WESTPAC Area



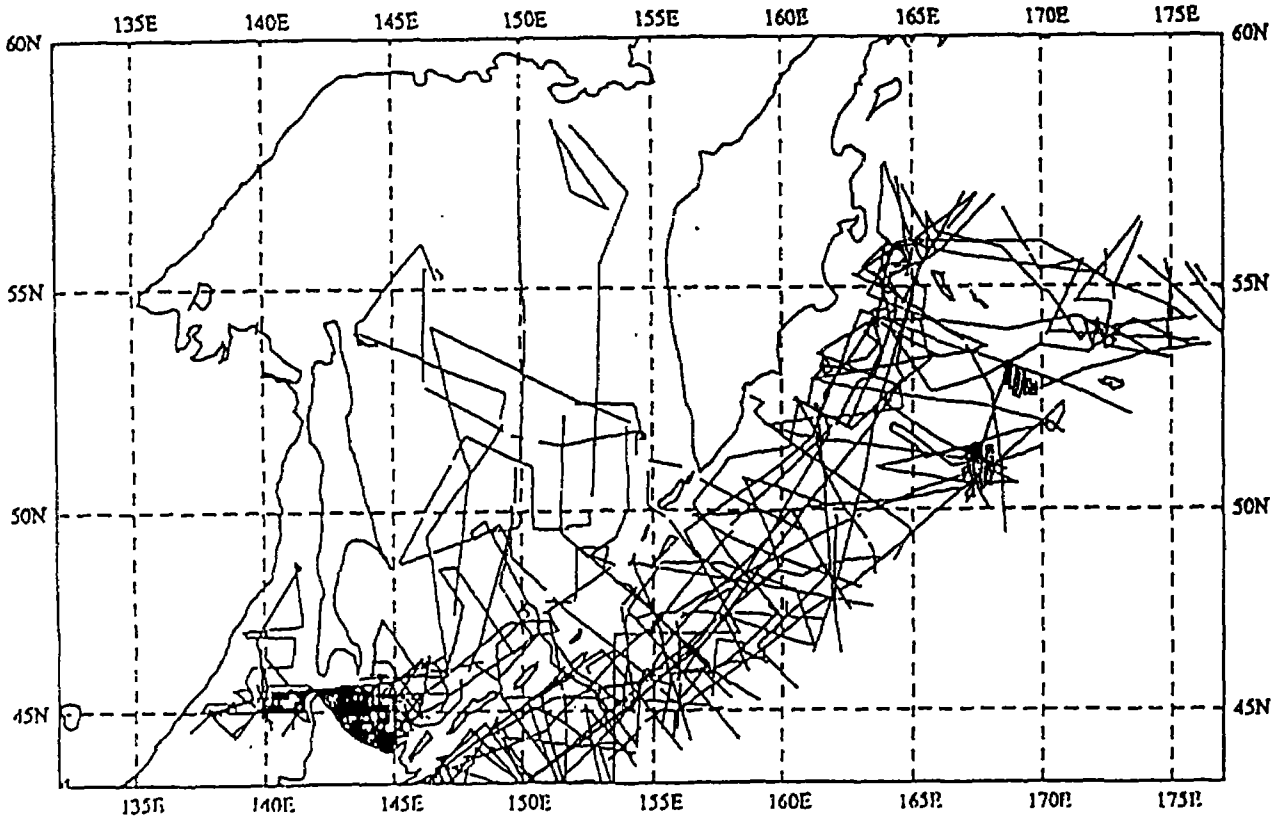
1. Sea of Okhotsk & SE Kamchatka

AREA:
2.1 Million km^2

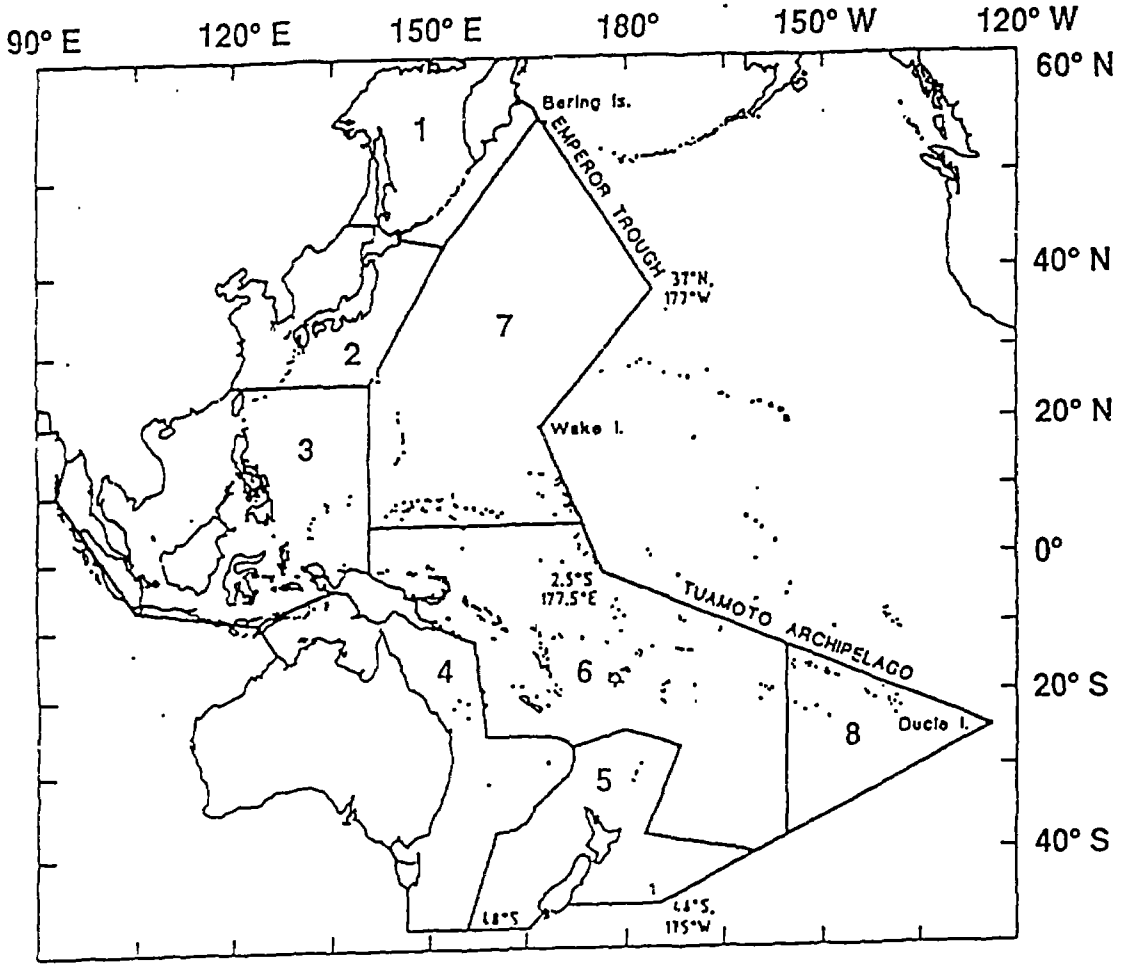
DATA:
100,772 soundings
(12 MBytes)

Mean Spacing:
4.6 km.

Area 1: Sea of Okhotsk and SE Kamchatka



WESTPAC Area



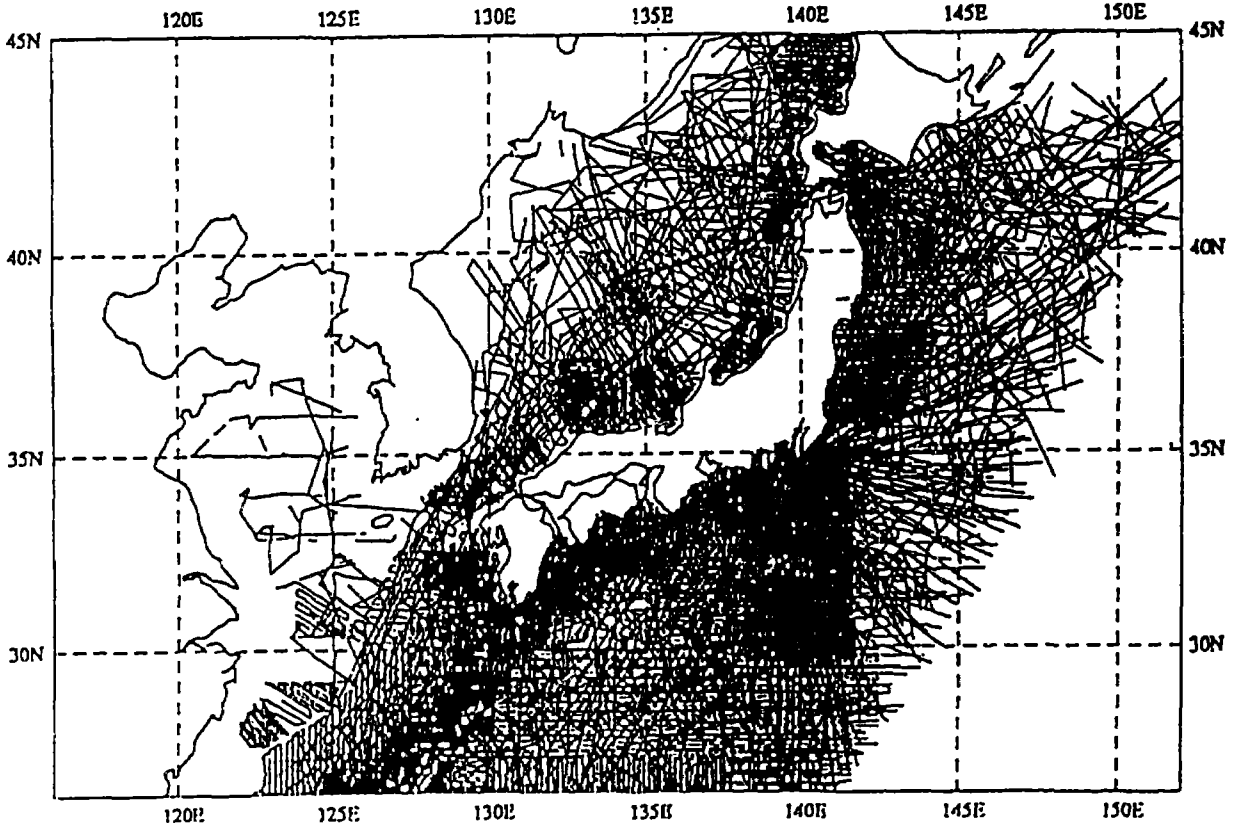
2. Japan Sea

AREA:
4.0 Million km^2

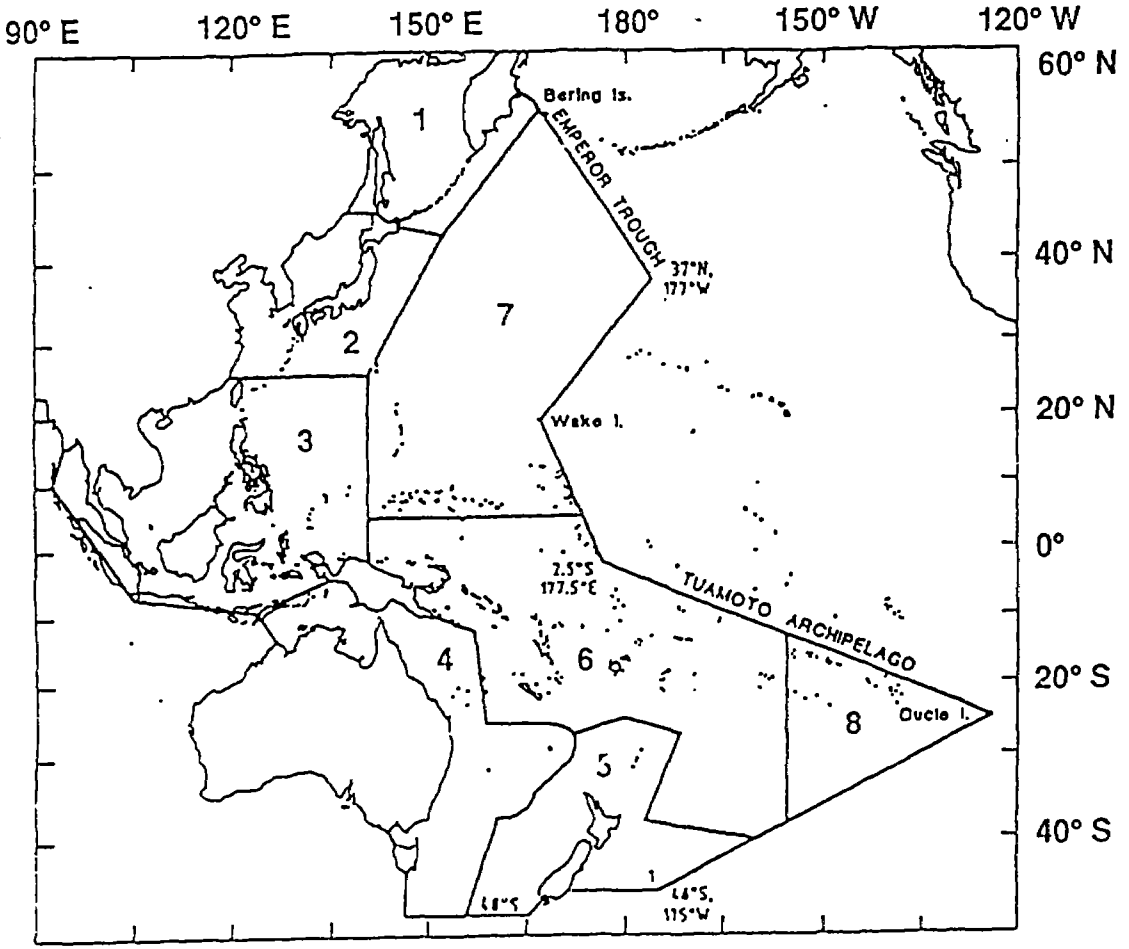
DATA:
753,658 soundings
(92 MBytes)

Mean Spacing:
2.3 km.

Area 2: Japan Sea and Waters surrounding Japan



WESTPAC Area



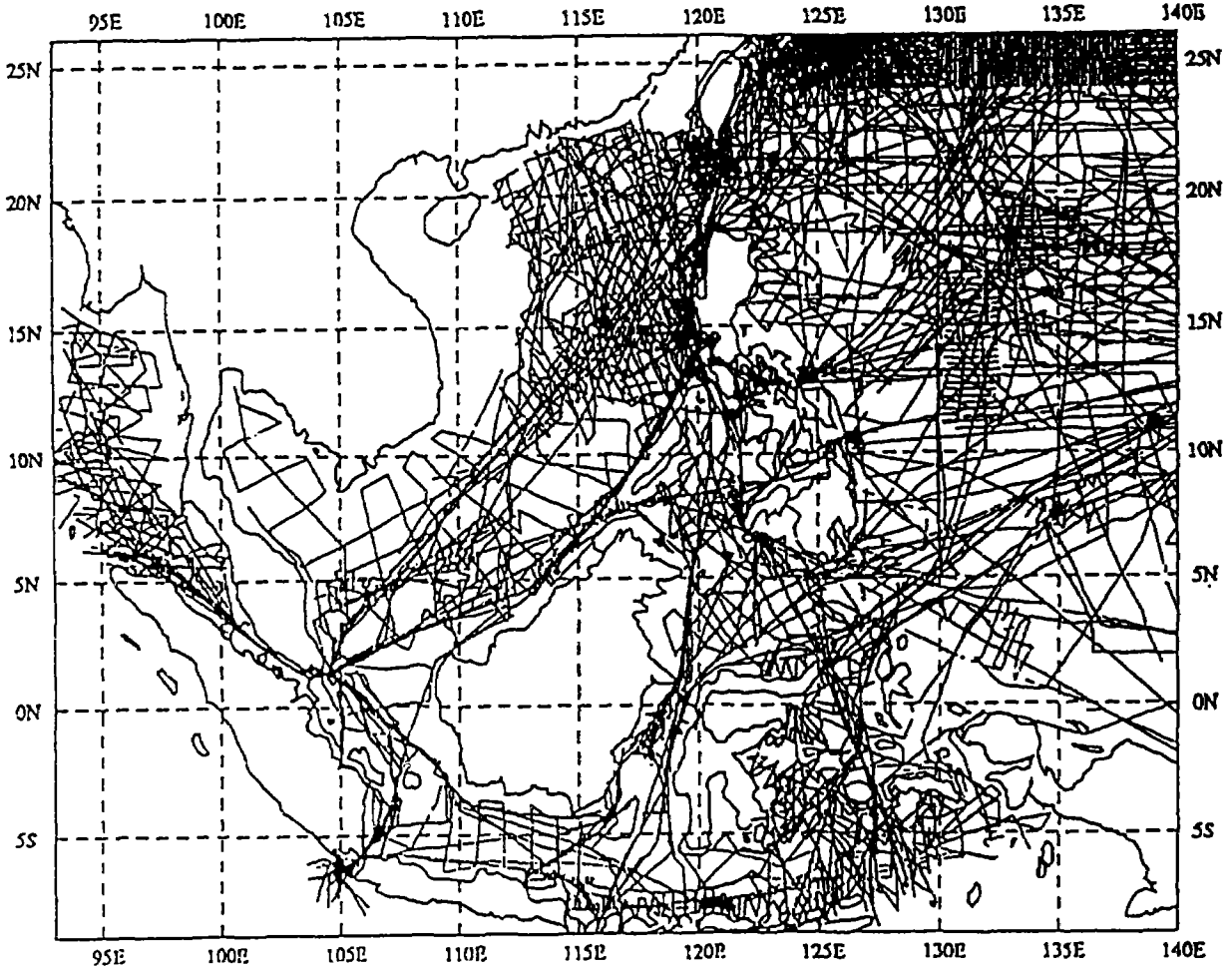
3. Central Western Pacific

AREA:
10.9 Million km^2

DATA:
812,449 soundings
(99 MBytes)

Mean Spacing:
3.7 km.

Area 3: The Central Western Pacific



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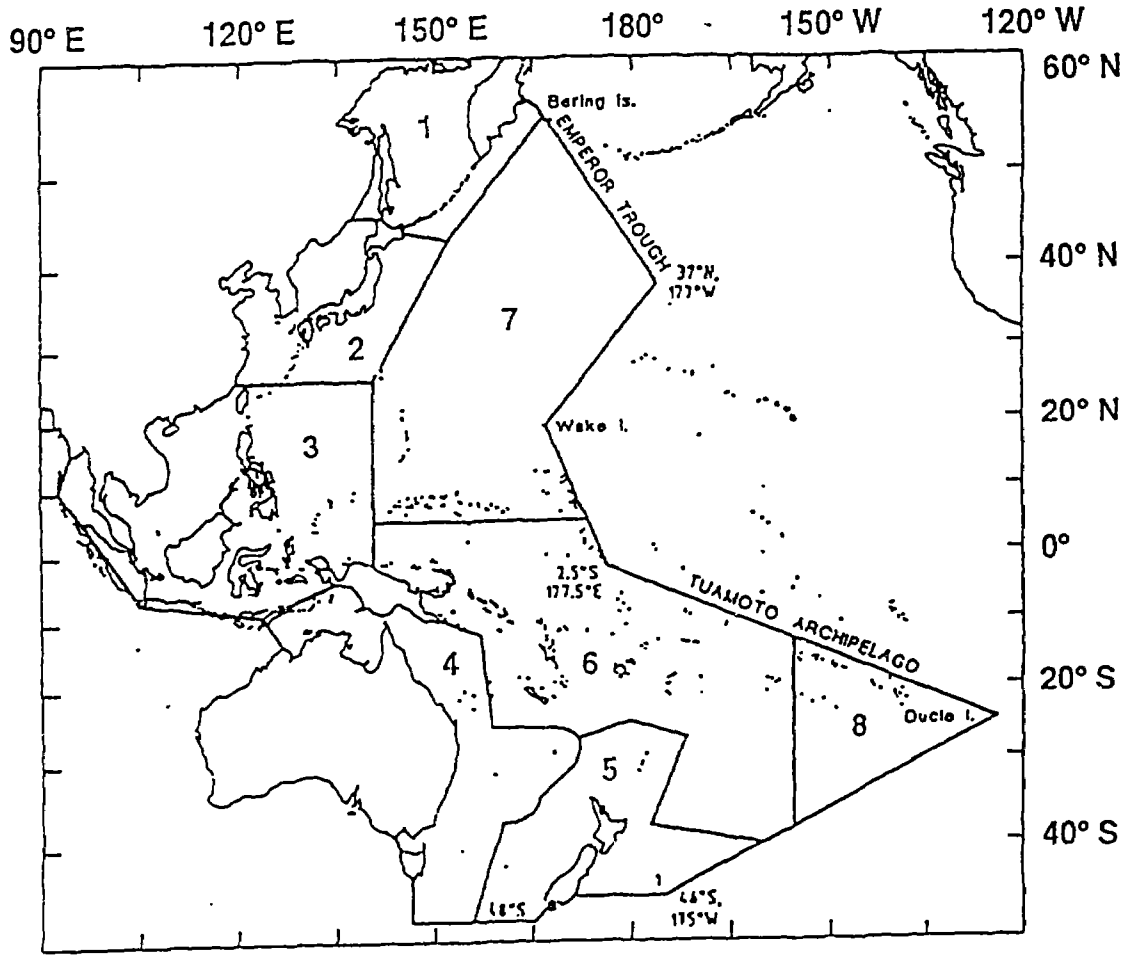


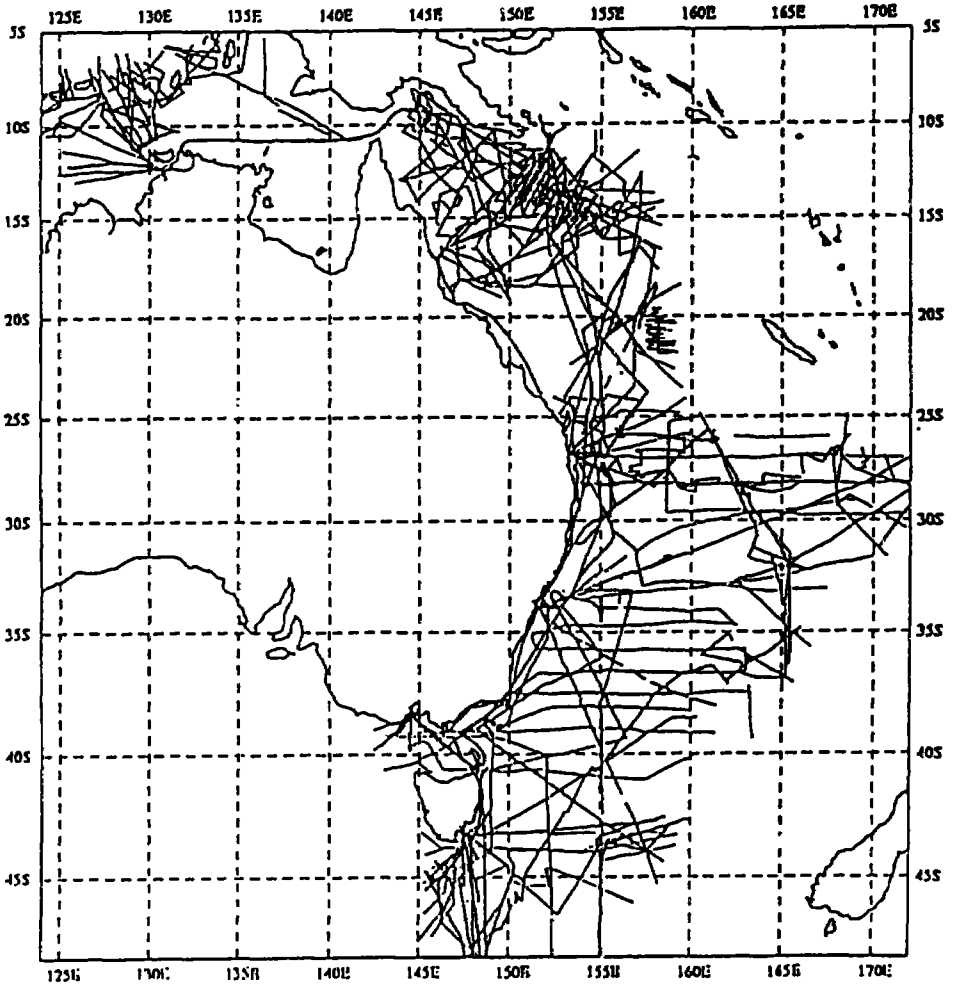
4. Australian Margins

AREA:
6.6 Million km^2

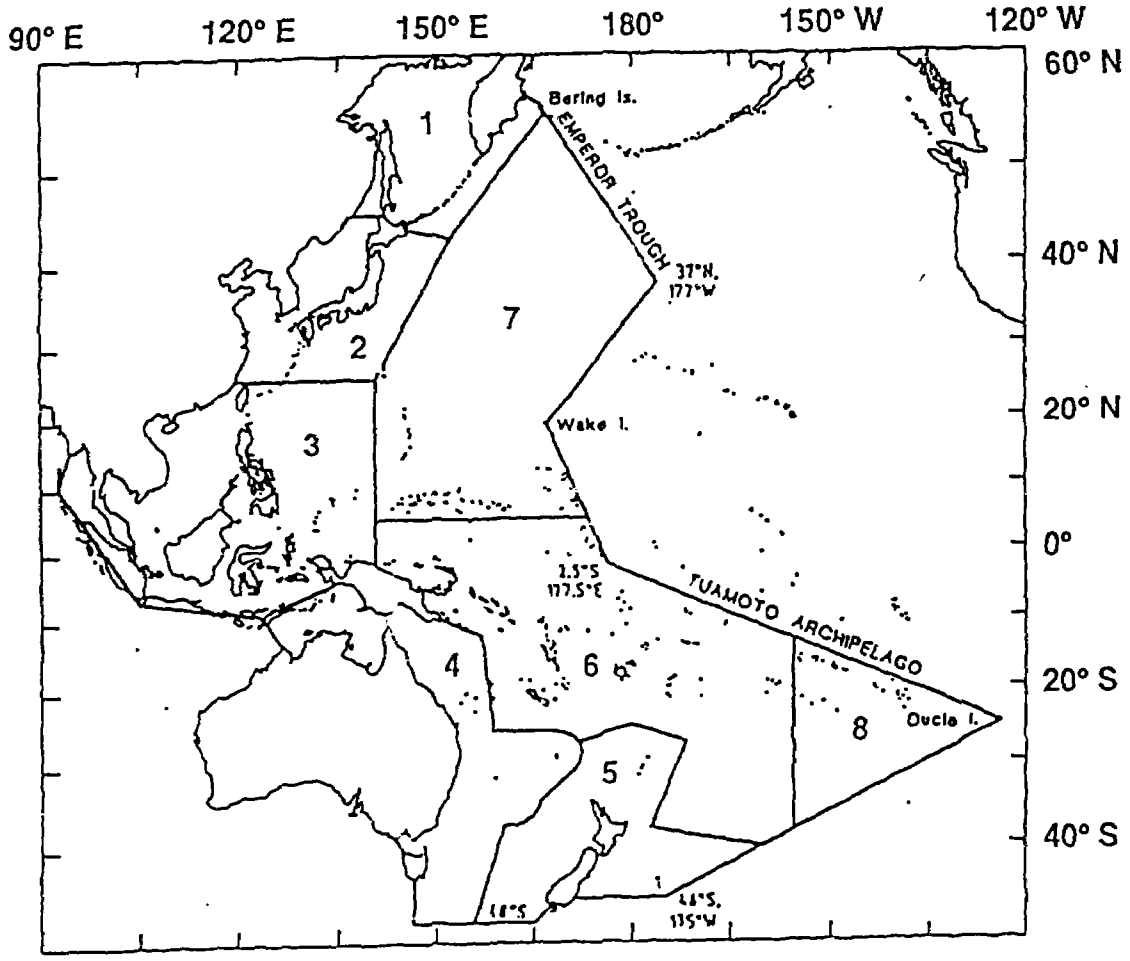
DATA:
136,385 soundings
(17 MBytes)

Mean Spacing:
6.9 km.

Area 4: Australian Northern and Eastern Margins



WESTPAC Area



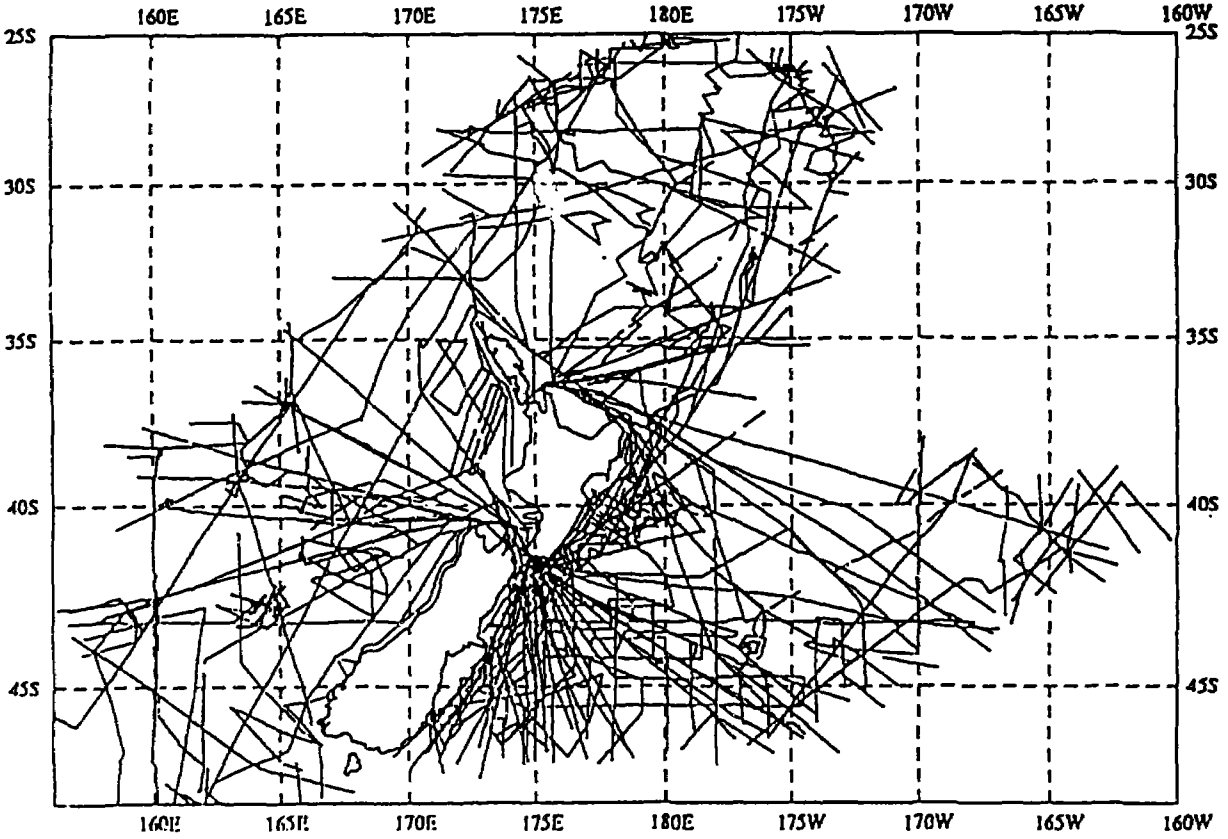
5. New Zealand waters

AREA:
3.9 Million km^2

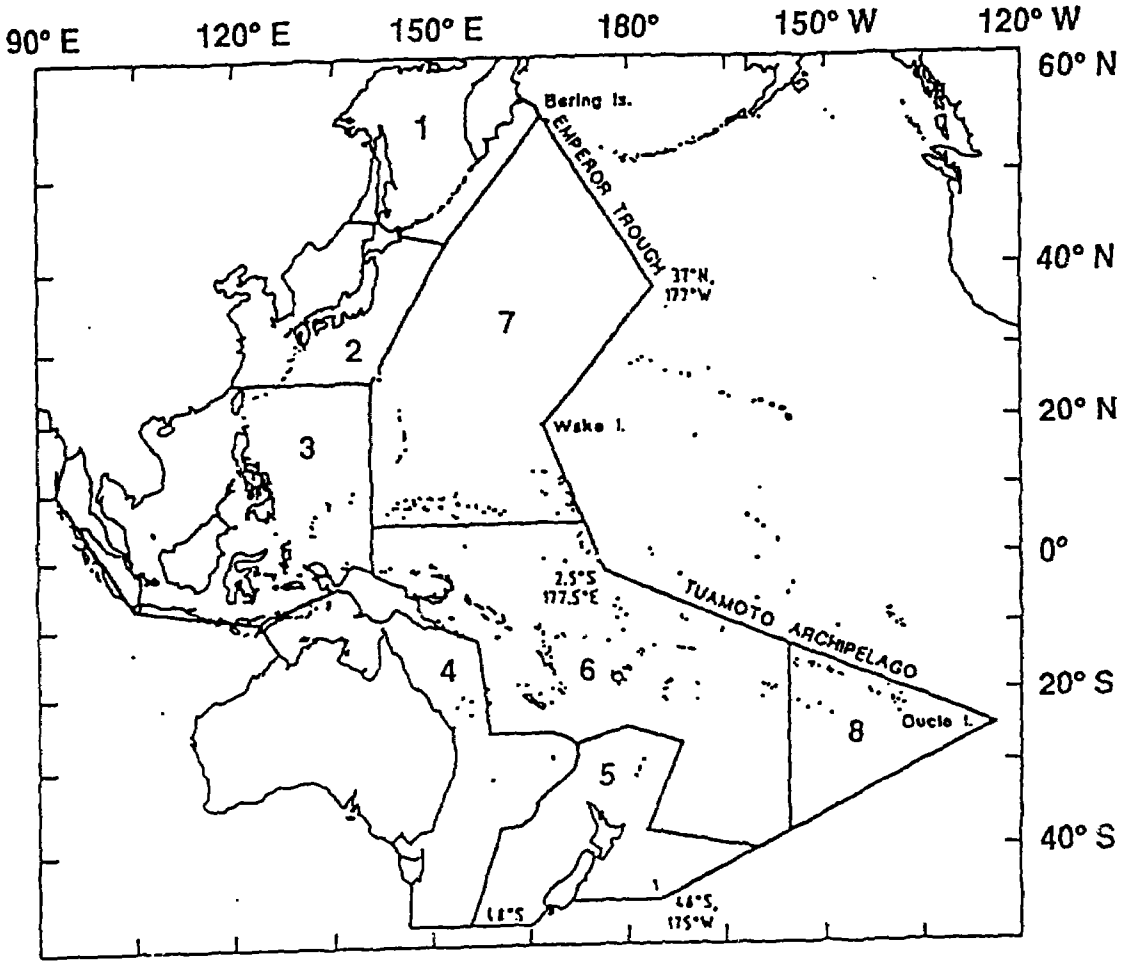
DATA:
161,118 soundings
(20 MBytes)

Mean Spacing:
4.9 km.

Area 5: Waters surrounding New Zealand



WESTPAC Area



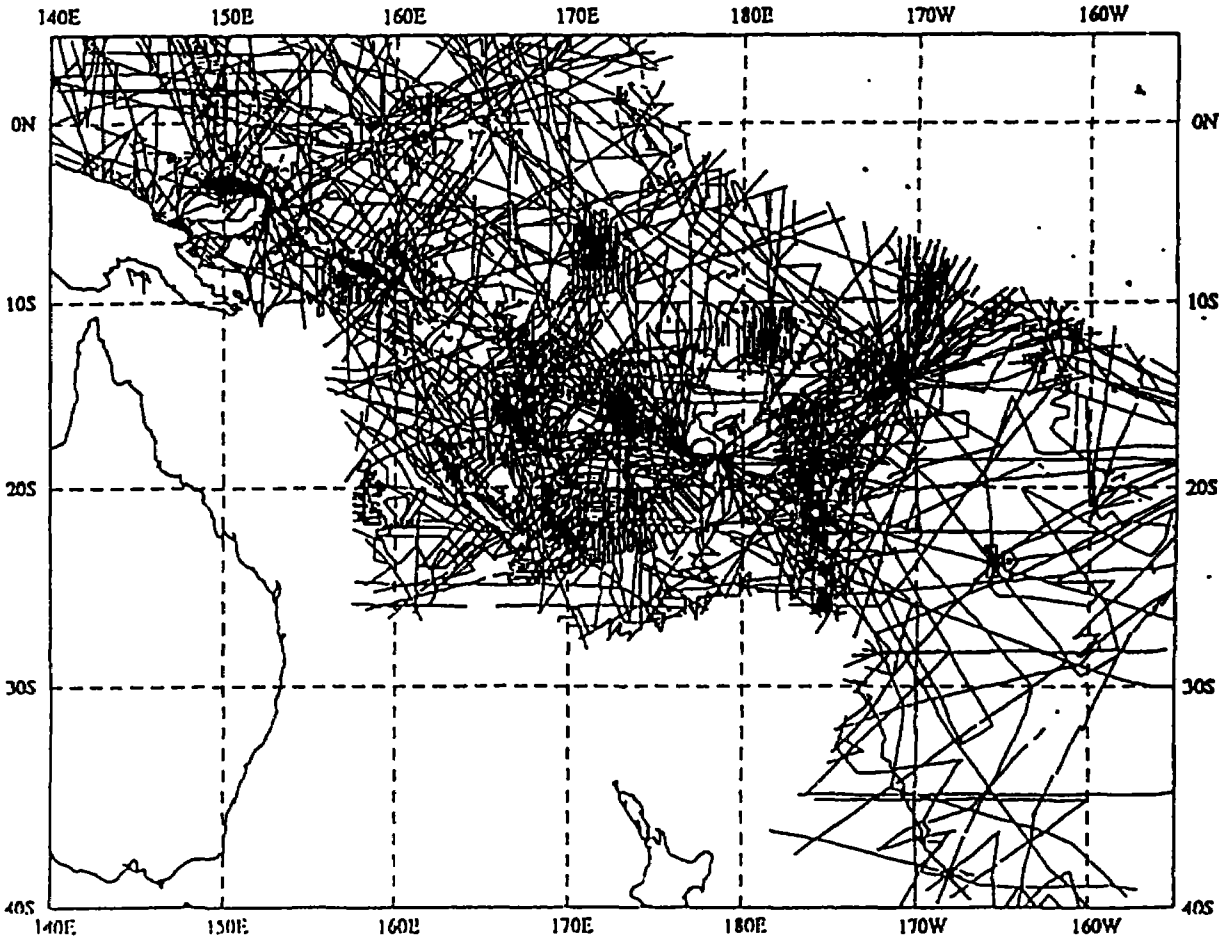
6. SOPAC area

AREA:
17.5 Million km^2

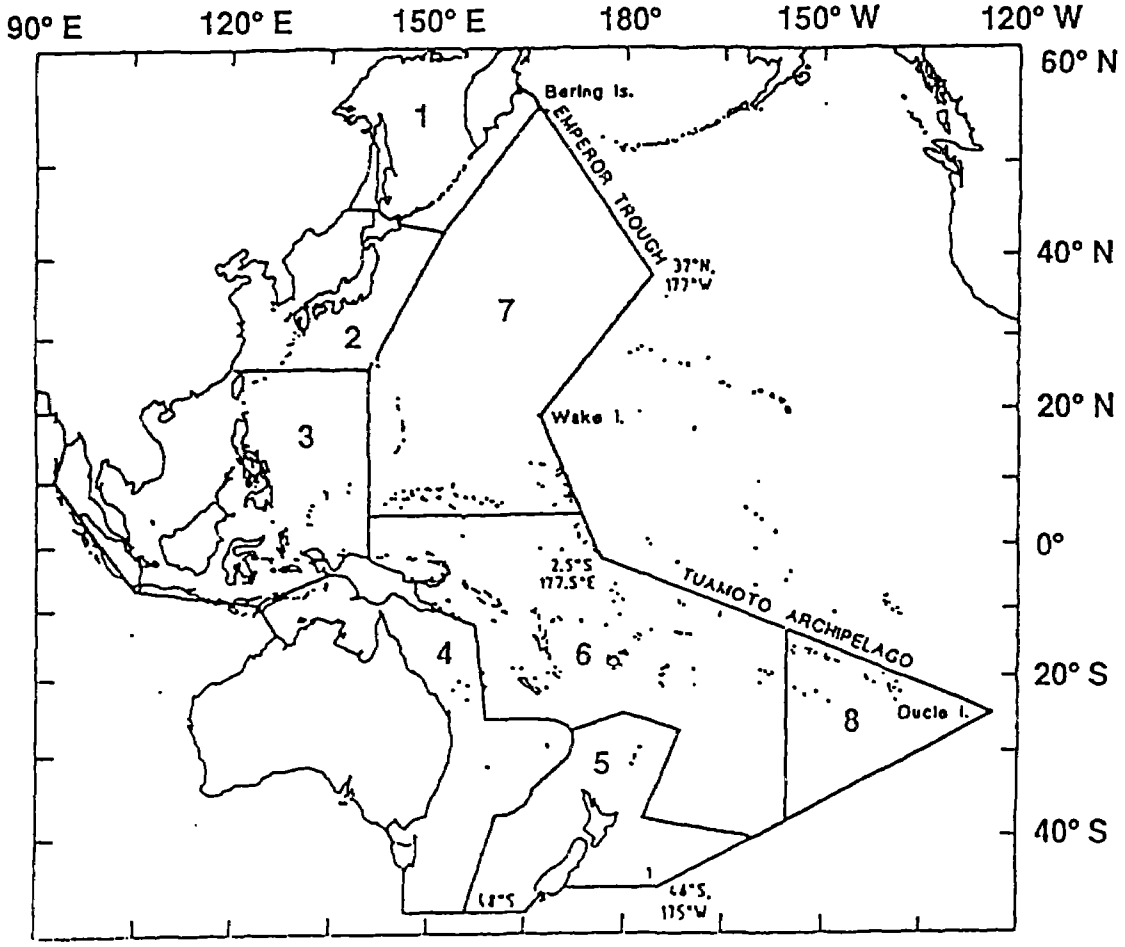
DATA:
1,242,537 soundings
(152 MBytes)

Mean Spacing:
3.8 km.

Area 6: SOPAC



WESTPAC Area



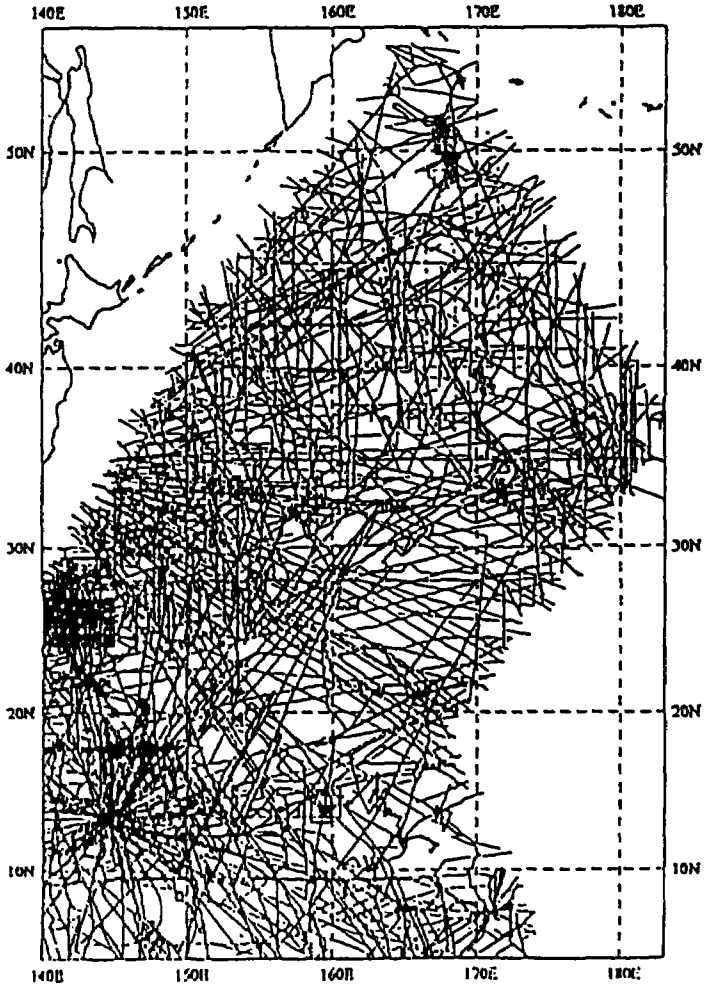
7. Northcentral

AREA:
14.1 Million km^2

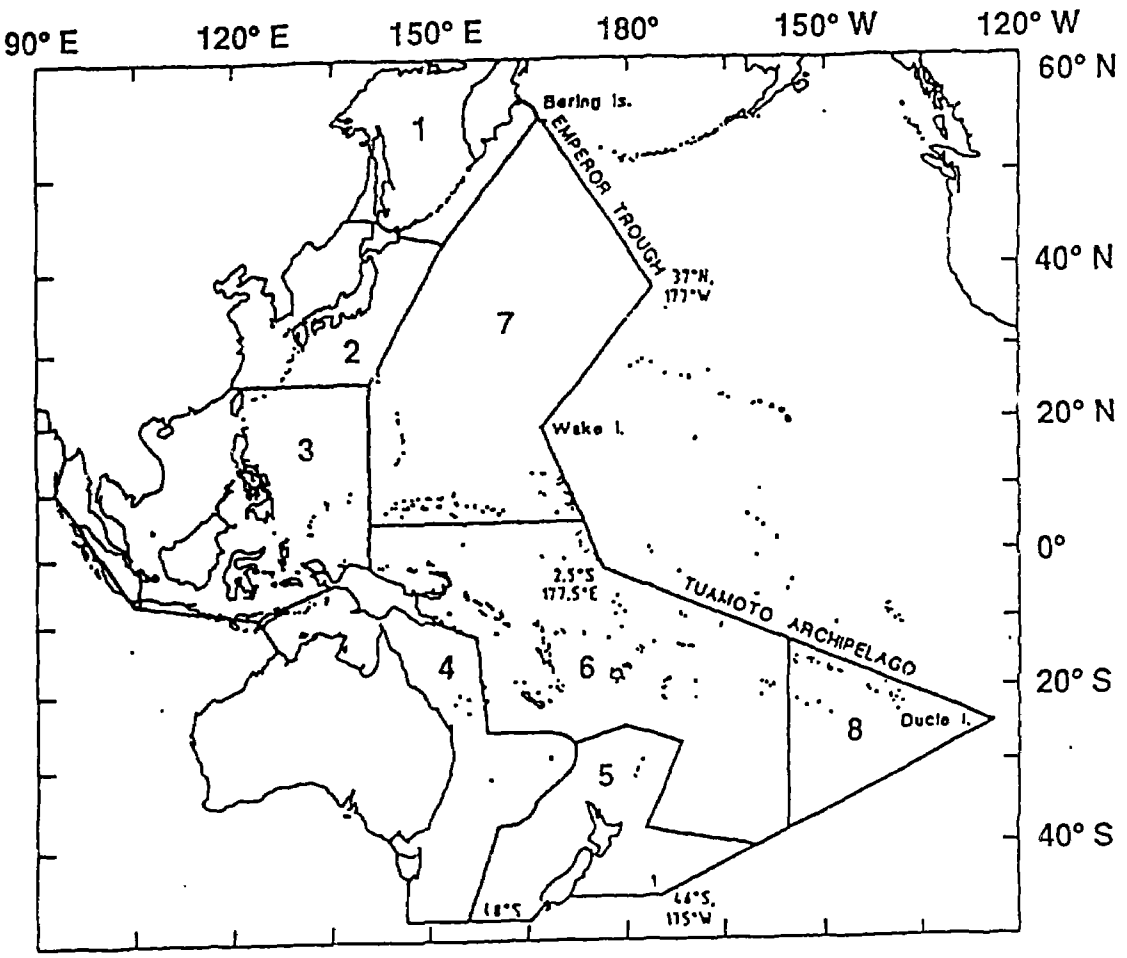
DATA:
1,048,296 soundings
(128 MBytes)

Mean Spacing:
3.7 km.

Area 7: Northcentral



WESTPAC Area



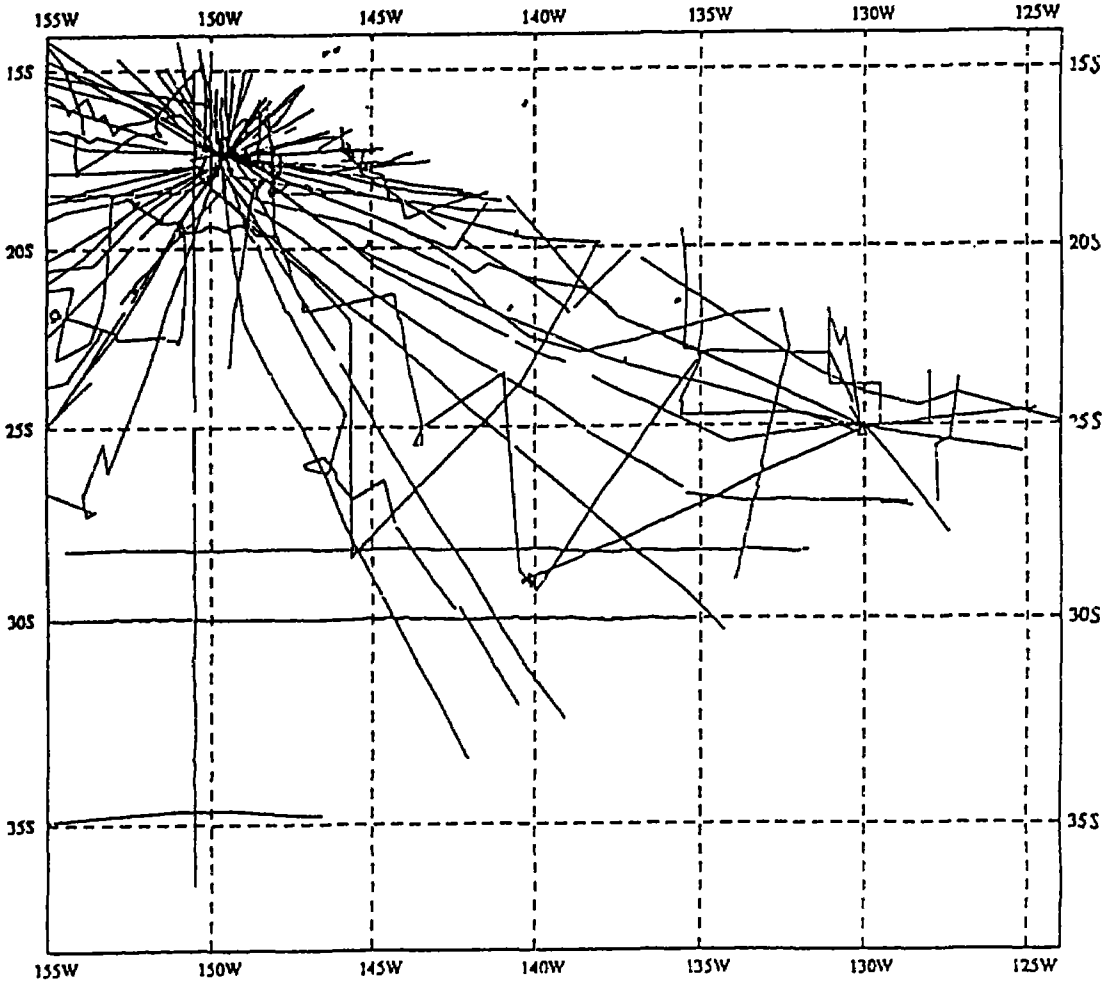
8. Southeastern

AREA:
4.1 Million km^2

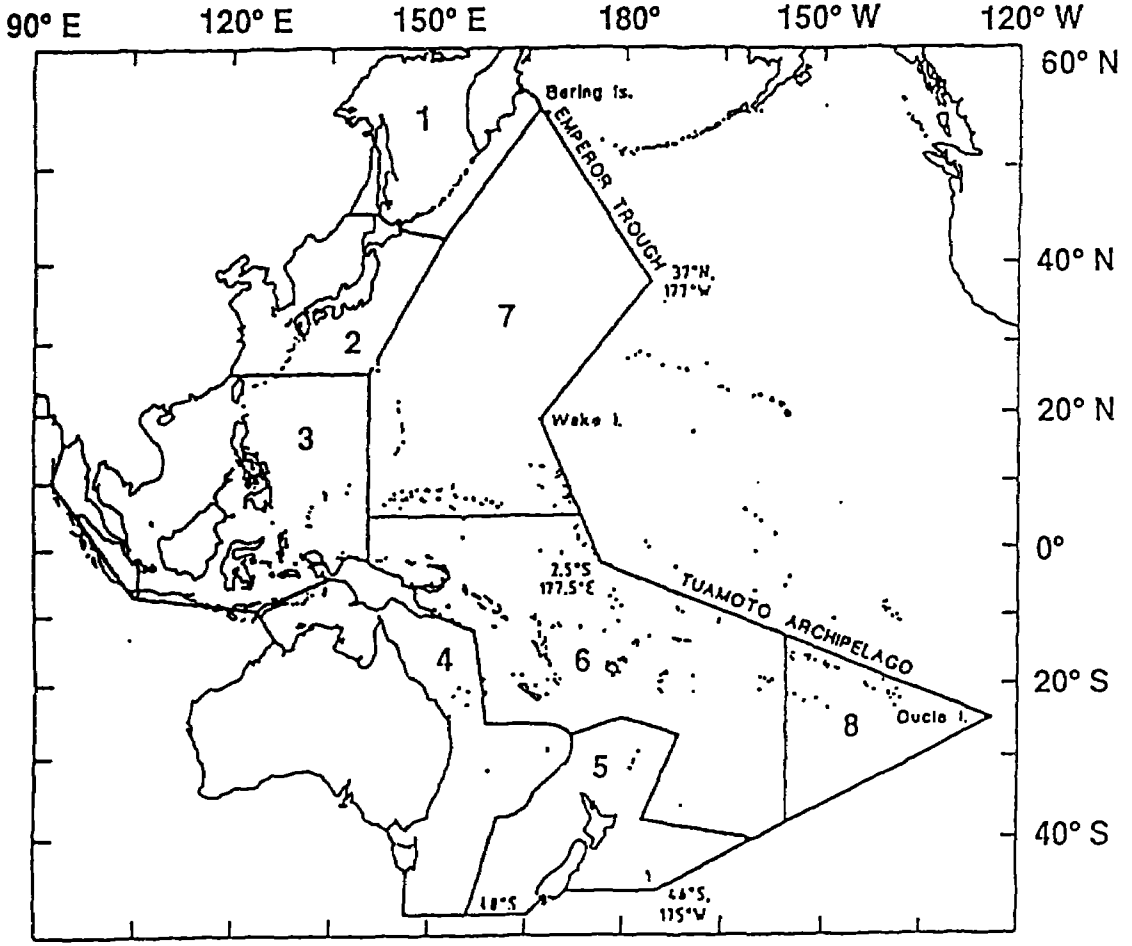
DATA:
107,393 soundings
(13 MBytes)

Mean Spacing:
6.1 km.

Area 8: Southeastern



WESTPAC Area



SUMMARY

TOTAL AREA:
63 Million km^2

DATA:
4,362,608
soundings
(533 MBytes)

Mean Spacing:
3.8 km.

ANNEX VIII

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82. Second Meeting of the UNEP-IOC-ASPEI Global Task Team on the Implications of Climate Change on Coral Reefs
83. Seventh Session of the JSC Ocean Observing System Development Panel
84. Fourth Session of the IODE Group of Experts on Marine Information Management
85. Sixth Session of the IOC Editorial Board for the International Bathymetric Chart of the Mediterranean and its Geological/Geophysical Series
86. Fourth Session of the Joint IOC-JGOFS Panel on Carbon Dioxide
87. First Session of the IOC Editorial Board for the International Bathymetric Chart of the Western Pacific