



UNITED NATIONS
GENERAL
ASSEMBLY



Distr.
GENERAL

A/AC.135/4**
26 March 1968

ORIGINAL: ENGLISH

AD HOC COMMITTEE TO STUDY THE PEACEFUL
USES OF THE SEA-BED AND THE OCEAN FLOOR
BEYOND THE LIMITS OF NATIONAL
JURISDICTION

SCIENTIFIC ASPECTS RELEVANT TO THE STUDY OF THE PEACEFUL
USES OF THE SEA-BED AND OCEAN FLOOR BEYOND THE LIMITS OF
NATIONAL JURISDICTION*

(An outline prepared by the Inter-governmental Oceanographic
Commission (IOC) secretariat)

The following categories of scientific problems may be clearly defined:

- I. Problems related to the processes of formation and to the geographic distribution of marine minerals.
- II. Methodological problems related to the scientific exploration of the ocean and its resources.
- III. Problems related to human activities at sea, in particular, to the feasibility and safety of exploration and exploitation activities at sea.
- IV. Problems related to the accessibility of scientific data.

Examples of specific problems under each heading may be roughly suggested as follows:

- I. Problems related to the processes of formation and to the geographical distribution of marine mineral resources
 1. Combined effect of water circulation, biological productivity, continental run-off, and local chemical conditions on the sedimentation.
 2. Suspended matter in ocean water.
 3. Stratigraphy and micropaleontology of marine sediments.

* Circulated at the request of the representative of UNESCO.

** Reissued for technical reasons.

4. Chemical transformations in sediments.
5. Geochemical and biochemical processes affecting formation of nodules.
6. Upper-mantle processes and under-water volcanic activity.
7. Present level of knowledge as regards the existing mineral deposits in the ocean.
8. Present degree of coverage of the ocean by topographic, magnetic gravity and heat-flow surveys.
9. Present degree of coverage of the ocean by sediment sampling.

II. Methodological problems related to the scientific exploration of the ocean and its resources

1. Methodology of bottom sampling and sedimentation studies.
2. Precision echo-sounding and sound velocity.
3. Precision navigation on the high seas.
4. Scientific instrumentation, its standardization and the comparability of measurements.
5. Methodology of surveying and mapping.

III. Problems related to human activities at sea, in particular, to the feasibility and safety of exploration and exploitation activities at sea

1. Forecasting of sea-surface conditions (wind, waves, currents, temperature, salinity) and associated problem of organizing synoptic observations at the high seas.
2. Deterioration of materials in marine environment and their protection against corrosion and fouling.
3. Marine pollution as a result of human activities, its monitoring, control and abatement.

IV. Problems related to the accessibility of scientific data

1. Automatic machine processing of data.
2. Reduction of data to a form convenient for storage and retrieval.
3. Handling of reduced data by computers.

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4. Establishing an inventory of sediment cores for the world ocean.
5. Role and functioning of world data centres.
6. Basic rules and regulations for the international exchange of relevant scientific data.
7. World bibliographic and abstracting services on the scientific problems listed above.

The above inventory, although not an exhaustive one, covers adequately the scientific questions raised by Governments in their comments on resolution 2340 (XXII) and mentioned by the representatives of a number of countries in their statements in the Ad Hoc Committee.

Some of the above problems were extensively studied in the past, and the international organizations concerned (e.g. IOC, UNESCO, SCOR, IHB, WMO, United Nations) may already be able to furnish some brief accounts of the actual state of knowledge of these problems which may be quite satisfactory for the General Assembly. Some of the problems, however, are virtually unexplored and no satisfactory information on them may be furnished, particularly within the time-limit imposed.

It is useful to list here some documentation available in relation to the categories of problems listed above. Quotations from these documents may be readily used for compiling documentation for the General Assembly.

Category I

- (i) Chapter I of the Survey prepared by the United Nations under Economic and Social Council resolution 1112 (XL).
- (ii) Section "Marine Minerals", pp. 21-23 of the "Draft of a General Scientific Framework for World Ocean Study", IOC/UNESCO 1964.
- (iii) Chapter IV "Opportunities and Problems in Marine Geology and Geophysics" of the "Draft of a General Scientific Framework for World Ocean Study", pp. 52-61.

Category II

Section "Intercalibration of Methods", p. 12, of the "Draft of a General Scientific Framework for World Ocean Study".

Category III

- (i) Sections "Long-range weather forecasting" and "The ocean as highways", pp. 26-31 of the "Draft of a General Scientific Framework for World Ocean Study".
- (ii) Document CO-ORDINATION/R.628/Add.1, "Preliminary analysis of the answers received on the questionnaire concerning marine pollution", ACC Sub-Committee on Marine Science and its Applications.

Category IV

Manual on International Oceanographic Data Exchange (second revised edition), IOC Technical Series, No. 4, 1967.

Selected scientific bibliography as regards the above problems may be compiled by the Office of Oceanography of UNESCO by the end of June 1968, if required.
