

**IHO HYDROGRAPHIC COMMITTEE ON ANTARCTICA**  
**3<sup>rd</sup> Meeting, IHB, 8-10 September 2003**

Dear Hydrographer,

At the 3<sup>rd</sup> HCA Meeting held in Monaco from 8 to 10 September 2003, Members of the Committee discussed, among others, the following matters:

- a) Undersea feature naming.
- b) A Regional Hydrographic Commission for the Arctic.
- c) Multibeam Echo Sounders.

When considering these subjects, it was agreed that Member States should be informed and/or asked for cooperation on these issues, as they were considered of great interest to hydrographic operations.

Undersea Feature Naming:

When considering the report on GEBCO/SCUFN activities, it was noted that the Antarctic portion of the GEBCO Gazetteer of Undersea Feature Names includes only 184 names, as compared to the 17,000 names in the SCAR Composite Gazetteer, most of them on "land". Therefore, it was felt that many new names will be proposed in future for undersea features in this area, and the need to follow the existing procedure was stressed.

In doing this, IHO/IOC Publication B-6 "Standardization of Undersea Feature Names (Guidelines, Proposal Form, Terminology)" should be given high visibility among all governmental and/or scientific institutions in a position to submit name proposals to GEBCO/SCUFN.

Therefore, we kindly invite the appropriate Member States to contact governmental and/or scientific institutions in their countries and provide them with the relevant information concerning undersea feature naming procedures included in the IHO/IOC Publication B-6. English/French and English/Spanish versions of the latest edition, the 3<sup>rd</sup>, of B-6 are available for downloading from the IHO website (Publications - Download List), as well as Undersea Feature Name Proposal Forms in English, French and Spanish.

Regional Hydrographic Commission for the Arctic

One of the Regions which does not have a Regional Hydrographic Commission is the Arctic. At the meeting the possibility of the IHO establishing a regional commission for the Arctic region, similar to the HCA, was discussed. Options which might be considered would be expanding the scope of the HCA so as to include the Arctic area, or having this area covered by the neighbouring RHCs.

The inclination of the Commission was to handle the Antarctic and the Arctic separately. Nevertheless it was agreed to seek Member States' views on the matter, particularly those concerned with hydrographic and cartographic activities in the area.

You are kindly invited to let us have your views on this matter by **30 April 2004**, by completing the Response Form in Annex A.

MultiBeam Echo Sounders.

Germany informed the meeting that before any German ships using sonar can be deployed in Antarctic waters, the German Federal Environment Agency insists that an assessment of the environmental impact on marine mammals be carried out. There are specific restrictions on the use of multibeam systems. This has resulted in frequently interrupted surveys, of little use for charting purposes.

AWI was considering how to reduce the source level of Multibeam Echo Sounder (MBES) noise to reduce the impact on marine mammals. It was also reported that SACLANTCEN (La Spezia) has conducted studies on the matter in connection with the Ligurian Sanctuary for Whales (Italy - France - Monaco) and that similar studies were being carried out in the UK.

The problem in regulating the use of sonar to an extreme is that this is detrimental to hydrographic operations, which, in the case of the Antarctic, are costly and difficult to conduct.

The HCA Members were in favour of distributing the document presented by Germany on this subject to all IHO Member States for their information. A copy is attached herewith in Annex B. You are kindly invited to consider the attached document and provide comments on this potential worldwide problem by **30 April 2004**.

Finally, we would like to inform you that the 4<sup>th</sup> HCA Meeting will take place in Greece, in September or October 2004; the exact location and final dates are to be identified.

On behalf of the Directing Committee  
Yours sincerely,

*(original signed)*

Captain Hugo GORZIGLIA  
Director

Encls. : - Annex A: Arctic Areas - Response Form  
- Annex B: Document HCA3-INF11 "Restrictions on the use of multibeam systems in Antarctic waters, decreed by the German Federal Environmental Agency".

**ARCTIC AREAS**

RESPONSE FORM

*(to be returned to the IHB info@ihb.mc by 30 April 2004)*

**Member State:** .....

.1 Do you agree that issues related to the Arctic should be handled by establishing a new RHC , the "Arctic Hydrographic Commission"?

YES

NO

Comments: .....  
.....

.2 If not, which one of the following options would you favour?

Option A: Expanding the scope of the Hydrographic Committee on Antarctica (HCA), so as to include Arctic areas?

YES

NO

Comments: .....  
.....

Option B: Addressing Arctic issues within the existing neighbouring RHCs?

YES

NO

Comments: .....  
.....

Signature: .....

Date: .....

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**Restrictions on the use of multibeam systems in Antarctic waters,  
decreed by the German Federal Environmental Agency**

Dr.-Ing. Hans Werner Schenke

[Presented to the  
3<sup>rd</sup> Meeting of the IHO Hydrographic Committee on Antarctica (HCA)  
IHB, Monaco, 8 - 10 September 2003 (Doc. HCA3-INF11)]

**Foreword**

With the adoption of the Protocol on Environmental Protection in Antarctica (the so-called Madrid Protocol) in 1991 and the entry into force of the Protocol in 1998 the contracting countries commit themselves to the comprehensive protection of the Antarctic environment and associated ecosystems. To achieve this objective, the Protocol does not close Antarctica to human activities, but establish on a domestic level the legal framework for assessing and regulating these activities. The obligation to prepare an Environmental Impact Assessment (EIA) prior to any Antarctic activity is included in the protocol. The application and the content of the EIA, and the involvement of the public and other contracting parties depend on whether the likely effects of the proposed activities are:

- less than minor or transitory, in which case the activity may proceed;
- minor or transitory, in which case a so-called Initial Environmental Evaluation (IEE) must be prepared, or
- more than minor or transitory, in which case a so-called Comprehensive Environmental Evaluation (CEE) must be prepared.

The implementation and the execution of establishing a legal framework for regulating research activities in Antarctica following the Madrid Protocol is in Germany assigned to the German Federal Environmental Agency (Umweltbundesamt UBA).

Multibeam operation are categorized by the UBA as minor or transitory impact to the environment. An Initial Environmental Evaluation was only performed by the UBA based on technical data of the multibeam (MB) system and some expert's reports. The source level of 237 db rel 1 $\mu$ Pas @ 1m and presumed side lobes of unknown energy and propagation are the biggest concerns of the UBA. The UBA believes this source level causes a potential risk to harm marine mammals. No other Contracting Party of the Antarctic Treaty System (ATS) has categorized MB-operation in this class.

Thus continuous MB-measurements are -in Germany only- imposed with following restrictions and limitations:

- continuous visual (three observers) and acoustical monitoring of the ship's vicinity for the appearance of marine mammals (whales, seals)
- one hour before beginning the MB-survey, a soft start-up with reduced transmission power
- at night and during bad visibility conditions MB-operation is not permitted
- in the case of appearance of one or more mammals the MB-operation has to be interrupted
- MB-operations are not permitted within a distance of 5 km to the sea-ice (8/8 coverage) and the shelf-ice edge.

**Consequences**

During several expeditions we have performed MB-surveys in Antarctic waters under the restrictions mentioned above. The obtained measurements are useless, systematic survey cannot be performed, and, moreover, ship's time is wasted, which is also problematic from an environmental aspect.

RV "Polarstern" has performed since nearly 20 years multibeam surveys which results were utilized to map the region in the Weddell Sea in a small scale. However, to support the compilation and production of the Nautical Chart for the INT chart scheme, the MB-surveys must be continued. The data are subsequently supplied to the involved HO's and to the IHO DCDB.

The ship operates mainly in the Atlantic sector of Antarctica, but also visits regions west of the Antarctic Peninsula. This area is especially visited by tourist vessels. The availability of multibeam data especially in this region is of high importance since they supply 3d-information of the seafloor topography and will help to make precise and thorough Nautical Charts in this ecologically sensitive region.

### **Cost-Benefit Ratio**

The assessment of the impact of multibeam sonar signals on the environment, as performed by the UBA is based on the theoretical assumption that marine mammals can be ensonified by the fan-shaped sonar beam which could result in a TTS (temporary threshold shift) or PTS (permanent threshold shift) and lead to disorientation and finally to stranding of marine mammals. The statistic probability to meet the creature with a narrow multi-beam fan once or even several times is absolutely small. However, it cannot be excluded with a 100% probability that a marine mammal can be exposed to a sonar signal.

If an adverse environmental impact of a proposed activity is known, for example as a result of an EIA, provision should be taken to prevent or limit these impacts. But if there are gaps in the knowledge with regard to possible effects on the environment, a meaningful cost benefit analysis should be performed. In the Annex I of the Protocol it is stated that an identification of gaps in knowledge and uncertainties encountered in compiling the information must be included in the CEE, but it is difficult to judge the gaps and uncertainties in the decision making process. However, the precautionary principle has not been explicitly included in the Protocol as one of the criteria or principles that must be taken into account during the decision making process.

At the UBA, the precautionary principle is generally used as a fundamental principle for assessing research activities in Antarctica. In no other country of the ATS the implementation and interpretation of this principle is performed in such a restrictive way.

The information about the sea floor topography is indispensable for the safety of human and marine life in Antarctica. Several ship accidents have occurred in Antarctic waters, damaging the sensitive ecological system. The new Nautical Charts of the INT-scheme will significantly improve the safety of navigation and natural life.

Germany is involved in the HCA since 1992. The two Nautical Chart INT 9055 and 9057 are jointly prepared by AWI and the BSH, using the multibeam data collected by AWI's ship "Polarstern". Especially the coastal zone along the shelf-ice edge, in which the use of the multibeam system is not permitted, the knowledge of seafloor topography is indispensable, and for sailing in these waters a safety relevant information.

In conclusion, the German Federal Environmental Agency (UBA) as responsible administration office substantially constraints the execution of multibeam survey in Antarctic waters. These restrictions will create enormous concern for possible damage to the environment incurred as a result of the lack of adequate hydrographic information.

Inherent in any grounding or collision at sea, is the risk of pollution from cargo and fuel. This has led in the recent years to incidents which have been far more serious than any possible environmental impact or interference from hydroacoustic sonar operations.

In order to continue our contribution to the preparation and updating of the Antarctic INT Charts we request support from the HCA, in form of a resolution, expressing the :

- need of adequate Nautical Charts in the area around Antarctica
- importance of the utilization of multibeam data for Nautical Charting
- the need of continuous collection of multibeam data in remote regions, also on transit routes.

Finally, we will request support from international organizations like the IMO, IHO and from scientific organizations. Resolutions, expressing the value and need of multibeam data, issued by international organizations, will be extremely useful to perform an objective cost benefit analysis between the risk of exposing a marine mammal to a sonar pulse or weakening the safety of natural life and navigation in Antarctica.