7th Meeting of the Inter Regional Coordination Committee (IRCC-7)
Mexico City, Mexico, 1-3 June 2015

Paper for Consideration by IRCC

Guidance on Access to Bathymetric Data Collected for Commercial or Scientific Purposes

Submitted by:	IHB
Executive Summary:	This paper proposes that the MSDIWG prepares a supplement or additional chapter, as appropriate, to C-17- *Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices* to provide guidance on best-practice mechanisms that can be established to improve national access to bathymetric and other relevant hydrographic data originally collected for commercial or scientific purposes.
Related Documents:	IHO Publication C-17- *Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices* IHO Publication B-11 - *IHO-IOC GEBCO Cook Book* IHO Publication C-16 - *National Hydrographic Regulations*
Related Projects:	None

Introduction / Background

1. At the XVIIIth International Hydrographic Conference (IHC-18) in 2012, the International Hydrographic Bureau (IHB) submitted a proposal on the Global Status of Hydrographic Surveying (PRO 6). This proposal recognised that while accurate hydrographic data was an essential prerequisite to support navigation and other maritime activities there were many parts of the world where improvements in survey coverage and quality were required. Following discussion of the proposal and noting that the current situation was unsatisfactory and that there was a need to improve the rate of survey acquisition, the Conference, through Decision 17 tasked "*the IRCC and HSCC, in cooperation with the Directing Committee, to progress whatever actions were necessary to improve the collection, quality and availability of hydrographic data worldwide, monitor and rectify possible deficiencies and shortcomings, cooperate with other international organizations and stakeholders as necessary, and to keep Member States informed on progress on this issue …*".

2. The relatively high cost of hydrographic surveying, specifically for charting purposes, and the limited (and in many cases reducing) Government funding for this work dictate that best use is made of all survey work undertaken. It is considered that survey data collected by commercial companies and the scientific/academic sector for a variety of non-charting purposes could be more widely used - including by Hydrographic Offices to support nautical charting and marine spatial data infrastructures (MSDI). Even lower resolution data sets will still be useful provided that metadata is provided that enables quality indicators to be calculated and associated with the data.

3. The situation concerning access to bathymetric data collected for commercial purposes and the need to discover data already collected for commercial or scientific purposes has been discussed at several Regional Hydrographic Commission (RHC) meetings.

4. At the 6th meeting of IRCC in May 2014 in Paris, the Chair of the MACHC introduced a document on the benefits of maximizing the use of hydrographic data collected for commercial purposes and this issue was discussed extensively by the Committee. This resulted in IRCC Action 6/47 to propose, at the forthcoming EIHC, an IHO Resolution on maximizing access to hydrographic information. The matter was reported to the EIHC as part of the IRCC Report but an IHO Resolution on the matter was not proposed. The EIHC took note of the importance of the issue and the intention of the IRCC to develop its initiative further.

Analysis/Discussion

5. Each year commercial survey companies enter into contracts with Government departments and other entities to undertake surveys that, if not solely hydrographic, at least contain a bathymetric element. These contracts will sometimes contain clauses that specifically restrict the dissemination of the collected data. More often they contain a generic confidentiality clause which has the same effect.

6. Survey companies render the collected data solely to their clients as they are contractually obliged to do but in the knowledge that, whilst meeting the needs of the task, all or parts of the data could be exploited for much wider use and benefit. Given the nature of the contracting process and the contracts themselves there is little that the survey companies are able to do about this. It was reported to IRCC6 by representatives from the commercial sector that less than 20% of the bathymetric data collected during surveys for specific commercial projects is made available to national hydrographic authorities for inclusion in charts and for wider uses.

7. Notwithstanding the requirements of UNCLOS to provide data collected on international scientific cruises conducted to the relevant countries, a significant amount of bathymetric and related data is collected for scientific purposes that is not made available for uses other than the original scientific objective. Mechanisms must be found to make such data discoverable and ultimately made available for other purposes when appropriate.

8. National hydrographic authorities (Hydrographic Offices - HOs) often have difficulties gaining access to commercial and scientific surveys of their national waters; in some cases they may not be aware that surveys have been undertaken. This problem may be exacerbated for IHO Member States that have a responsibility to chart the waters of other nations as they are usually a further step away from the source information.

9. Whilst IRCC, HSSC and the IHB Directing Committee can do their best to encourage communication and dialogue across Government agencies and associated stakeholders including the scientific and academic sectors, it is ultimately for the Governments of coastal States to take action on this matter. Coastal States have the responsibility under SOLAS V Regulation 9 to "*arrange for the collection of hydrographic data ... necessary for safe navigation*" and the opportunity to control and regulate survey activities in their waters, up to the outer limit of the EEZ, under the provisions of UNCLOS.

10. A single, widely applicable mechanism that will ensure improved access to bathymetric and related hydrographic data collected for commercial or scientific purposes is unlikely to be possible. A combination of measures must take into account the requirements and the constraints applicable in each country. However, the end result should be the implementation of a best practice approach in every coastal State that promotes the provision of data collected for a specific commercial or scientific purpose to be made available for wider use whenever this is practical and possible, and in particular, made available within the framework of MSDI to promote and allow data sharing.

11. Three main issues need to be considered when promoting the wider availability of bathymetric and related hydrographic data and establishing the principles of best practice:

a. ***Contractual arrangements:*** Offshore operators do not normally have any obligations placed upon them to provide copies of the geospatial data that they collect to the relevant hydrographic authority as part of the terms of their national permits or contractual obligations. This situation could be

improved, for example, by including a suitably generic clause that obliges operators to provide a certain level of the data that they collect for use in the national interest. This could be included as part of the conditions attached to the granting of licenses / permits / approvals, as is the case in some countries already. This measure has the potential to generate a significant increase in data made available to HOs.

b. ***Protection of sensitive data****:* If an obligation to make certain levels of information and data available to hydrographic authorities and for wider use is to be effective then the requirement to render such data must take account of any sensitivities (commercial or otherwise) associated with the data or its collection. Raw bathymetric point cloud data is often commercially sensitive and too detailed for wide or open release; however lower resolution data sets, such as derived gridded navigational surfaces, may not be and can therefore overcome concerns of data release. Meanwhile, in the scientific community, researchers may need to retain data until such time as the relevant research or conclusions of the research have been published.

c. ***Cost-effective provision:*** As well as protecting any sensitivity related to the data, the provision of information must be an easy and low-cost task. Hydrographic authorities could use derived products such as gridded navigational surfaces. A derived survey product of this nature is simple and relatively easy to produce and, provided that the survey parameters and the grid point selection criteria are included, it would still be useful for nautical charting and other general purposes. It will certainly be useful for other less demanding applications. In that context, the IHO in conjunction with industry and academia may wish to develop guidance on the types of derived survey products and the associated metadata that would, as a minimum, meet IHO requirements for charting and other applications.

12. It must, however, be recognised that for some countries there may be political or legal issues that could prevent enforcement of a requirement for companies and scientific institutions to render all useful bathymetric and related hydrographic data to the relevant national HO.

Summary

13. The high cost of hydrographic surveying specifically for charting purposes and the limited availability of government funding for surveying dictate that best use should be made of all survey work undertaken. Much commercial and scientific survey work that is undertaken is never used beyond its initial purpose and is often not included in charts or made available for other public good purposes. It is clear that survey data collected by commercial companies and the scientific institutions for a variety of purposes could be more widely used, including by HOs to support nautical charting and marine spatial data infrastructures.

14. The output from precious hydrographic survey resources is not being utilized effectively. The results of some commercial surveys cannot be released due to contractual, commercial and/or industrial sensitivities. However a large proportion of the data is not made available solely due to a lack of awareness of the issue or a lack of clarity on options for the wider use of collected data within contracts. Increasing awareness of these issues in government and with other stakeholders, including commercial companies and scientific institutions, could result in a significant increase in data being made available for nautical charting purposes and other public good benefits.

Recommendations

15. Providing an IHO reference publication that identifies best-practice mechanisms to improve national access to bathymetric and related hydrographic data collected for commercial or scientific purposes will be a useful guidance for national authorities.

16. Incorporating best-practice guidelines in IHO Publication C-17- *Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices* is most appropriate. This is because promoting access to bathymetric and related hydrographic data collected for commercial or scientific purposes within the framework of MSDI will significantly assist national development not only for improving charting but also for the widest possible use of bathymetric and other hydrographic data.

17. IHO Publications C-16 - *National Hydrographic Regulations* and B-11 - *IHO-IOC GEBCO Cook Book* may contain useful references, examples or information that could be considered when developing guidance on mechanisms that can be established to improve national access to bathymetric data collected for commercial or scientific purposes.

Resources and Priorities

18. It is understood that the Chair of the MSDIWG supports this proposal and it can be accommodated in the work programme of the MSDIWG.

19. Several expert industry observers have indicated their availability to provide input to the work.

20. The work can be completed in time for consideration by IRCC-8.

21. The work should be assigned a medium level of priority.

Action Requested of IRCC

22. The Committee is invited to:

a. Task the MSDIWG to prepare a supplement or additional chapter, as appropriate, to C-17- *Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices* that provides guidance on mechanisms that can be established to improve national access to bathymetric and related hydrographic data originally collected for commercial or scientific purposes. The draft to be submitted to IRCC-8 for review and endorsement prior to any formal adoption by Member States.