NIOHC15-10

15th NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION MEETING

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Maximising the use of Hydrographic Survey Data

Executive Summary
Much commercial survey work that is undertaken is never used beyond its initial purpose and is often not included in charts. Given the tasking by IHC in IHC XVIII PR06 it is recommended that IRCC undertakes a programme of outreach to inform stakeholders of this issue and thereby assist in maximising the use of hydrographic survey data.

Introduction/Background

1. At the XVIII Conference of the IHO in 2012 the IHB submitted a paper on the Global Status of Hydrographic Surveying. This paper recognised that whilst accurate hydrographic data was an essential prerequisite to support navigation and other maritime activities there were many parts of the world where improvement in survey coverage and quality was necessary. 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 tasked 'the IRCC and HSCC, in cooperation with the Directing Committee, to progress whatever actions were necessary to improve the collection, quality and availability or hydrographic data worldwide ...'

2. This situation has been discussed at several Regional Hydrographic Commission meetings and some initiatives are being progressed. Examples of these include the adoption of new technologies such as satellite derived bathymetry and an increased acceptance of airborne bathymetric lidar surveys to accelerate survey coverage of shallow waters. In addition improved collaboration, as encouraged within the RHCs, is leading to projects such as the recently announced Organisation of Eastern Caribbean States (OECS) led regional hydrographic programme within the MACHC region. There is also IRCC-wide discussion on the merits of crowd-sourcing bathymetric data from the world's commercial shipping fleet to address the issue of data availability.

3. Whilst all these initiatives are extremely positive, the task facing the hydrographic community is vast, and all opportunities must therefore be fully exploited if significant progress is to be made. The relatively high cost of hydrographic survey specifically for charting purposes and the limited (and in many cases reducing) Government funding for this work dictates that best use is made of all survey work undertaken. From discussion with industry it has become clear that survey data collected by commercial companies for a variety of purposes could be more widely' used -.including by Hydrographic Offices to support safety of navigation.

4. Each year commercial survey companies enter into contracts with Government departments and commercial 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; however more often they contain a generic confidentiality clause which isn't specifically aimed at this but has the same effect. 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. Industry estimates that less than 20% of the bathymetric data collected during surveys for specific projects is made available to Hydrographic Offices for inclusion in charts and for wider uses.

5. Given the cost of hydrographic surveys, the scarcity of the governmental funding to afford this resource and the responsibility of IMO member States that are signatories to SOLAS in regard to the provision of hydrographic services, it is a great waste that data collected for specific projects is often not made available for charting or to support other marine activities.

Analysis/Discussion

6. Hydrographic Offices often have difficulties gaining access to commercial 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.

7. Whilst IRCC, HSSC and the Directing Committee can do their best to encourage communication and dialogue across the Government agencies and associated commercial industry stakeholders, it is ultimately for the Governments of coastal States to take action on this matter. They have the responsibility under SOLAS V regulation 9 to 'arrange for the collection of hydrographic data necessary for safe navigation '. However it is recognised that for many Administrations there may be political and/or legal issues that would prevent enforcement of a requirement for companies to render all bathymetric data to hydrographic offices.

8. Given these constraints simple and widely applicable solution is unlikely to be achievable for the time being and the best that can be done in the short term is to ensure wider knowledge of the issue. This needs to be spread amongst national Government departments and other stakeholders that deal with matters that concern the acquisition of marine geospatial data within a nation's national waters, for whatever original purpose. The aim should be to encourage a best practice approach which encourages the provision of data for wider use where this is practical/possible and within the framework of an MSDI paradigm.

9. There are three main issues that need to be addressed to facilitate the wider availability of bathymetric data and to establish the principles of best practice:

i. *Contractual arrangements*: Offshore operators do not normally have any obligations placed upon them to provide a copy of the geospatial data they collect to the responsible hydrographic office as part of the national permitting and contractual process.

This situation could be changed by the inclusion of a suitably generic clause requiring provision of some form of hydrographic data and facilitating its wider use in the conditions attached to the granting of licenses /permits/ approvals. This clause could then, where appropriate, be referred to in any subsequent survey contracts.

The aim would be to see the clause accepted globally as best practice and used wherever possible. The clause could be drafted by the IRCC as an element of best practice guidance for Governments needing to comply with SOLAS V 9 and submitted by IHO to IMO as an information paper and potentially published in the form of a MSC Circular. If widely accepted this could generate an enormous Increase in data made available for nautical charting.

ii. *Protection of sensitive data*: If the requirement to make bathymetric information available to HOs and for wider use is to be accepted 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 much too sensitive and detailed for wider release; however much lower resolution datasets, such as derived gridded navigational surfaces, may not be and can therefore overcome concerns of data propriety. Such datasets will still be accepted by HOs, as long as some metrics on both the source data and generated information are supplied, and will be very useable from a cartographic point of view.

iii. *Cost-effective provision*: As well as protecting any sensitivities related to the data, the provision of information must be a simple, quick and low-cost task. As explained above, HOs will accept derived products such as gridded navigational surfaces. A derived survey product of this nature would be simple and quick to produce and, as long as the survey parameters and the grid point selection criteria are included, it would be safe to use for navigational purposes. The IHO in conjunction with Industry could prepare guidance on the types of derived survey product and associated metadata that would as a minimum meet IHO requirements for charting.

10. This message has to be effectively communicated to the Governments of coastal States such that the net result is that it is seen as a benefit to that State and not perceived as an added layer of bureaucracy, cost or such other constraint or limiting factor. Continuing dialogue and publicity is needed through IMO and relevant NGOs representing the maritime and offshore industries to gain widespread appreciation of this issue. This approach should promote the concept of participation as reflecting positively on all stakeholders as they may be viewed as conscientious stewards within the maritime domain.

Conclusions

11. The output from precious hydrographic survey resources is not being utilized effectively. It is recognised that some surveys cannot be released due to contractual, commercial and/or industrial sensitivities. However a large proportion is not made available solely due to lack of awareness of the issue and limited clarity on the wider use of collected data within contracts. A great deal could be done to improve the

situation through the education of stakeholders, encouraging a paradigm shift on the provisions of offshore licensing and permitting and promoting best practice throughout the marine industry sector. By encouraging provision and wider use of survey information all participants in offshore activities will be supporting safety of navigation and the coastal State's obligations under SOLAS.

12. Increasing awareness of these issues by Governments and other stakeholders including multinational companies could, with a small amount of effort, result in an enormous increase in data made available for nautical charting.

13. IRCC has a role in informing government and industry and promoting best practice. It is the correct forum from which this issue can be raised through other international channels.

Recommendations

14. Taking account of the above NIOHC is invited to consider the following proposals:

14.1 IRCC should create suitable explanatory material that can be used to promote knowledge of the issue. This could be provided by HOs to all appropriate sectors of national Governments and the offshore industry to encourage consideration of the issue and incorporation of the initiative, through regular national permitting processes, for all offshore activities involving geospatial (bathymetric) data collection.

This material should outline:

- Potential wording that could be included in permit approvals/contracts.
- Simple steps towards best practice for each stakeholder group.

14.2 IRCC or IHB (Directing Committee) should engage in a programme with Government, Industry and other Stakeholders to generate greater understanding of the issues and promote best practice.

There will be a need to target as many Stakeholder groups as possible.

- Submission of information paper from IHO to the International Maritime Organisation, Maritime Safety Committee outlining the problem and requesting Member States to circulate explanatory material within all their Government departments that might be involved.
- IRCC to request that all Member States write to their respective Govt ministers and request circulation of explanatory material.
- Encouragement of discussion forums on the issue at major Government-Offshore
  Industry and commercial international conferences and through relevant professional bodies recognized by the FIG/IHO, IFHS,IMO etc.

14.3 If deemed necessary, IRCC should set up a small working group to produce the material referred to in 14.1 above and to identify outreach opportunities with stakeholders.

Justification and Impacts

15. Benefits:

- Improvements to safety of navigation through wider use of surveys both for charting and in support of the wider 'Blue Economy' increased awareness of national offshore activity by national hydrographic agencies
- A better and more thorough understanding by the offshore industry and marine users in general regarding the importance of data provision to national hydrographic authorities
- Cost and efficiency benefits for national survey programs receiving better augmentation of data from related offshore industry activities
- Improved communications between national governments and principal offshore industry stakeholders

16. Resource implications: A small amount of human resource will need to be made available by IRCC members in conjunction with industry to finalise explanatory material and create an outreach programme. These tasks could be accomplished centrally by a small consultative body or IRCC working group, working mainly by email, within a 12 month period. There would be some cost for compilation, translation and printing of the explanatory material. The final product would be provided to member States for formal acceptance.

Action Required of NIOHC

17. The NIOHC is invited to discuss this matter and endorse the recommendations set out above or take other action as deemed appropriate.