

## INTERNATIONAL COOPERATION IN HYDROGRAPHY

### A LETTER TO THE EDITOR

from Vice Admiral A. MACCHIAVELLI  
formerly Director of the Hydrographic Institute  
of the Italian Navy

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Sir,

I have read with great interest in the July 1976 issue of the *International Hydrographic Review* Commodore KAPOOR's address to the Annual Canadian Hydrographic Conference last April. Since he asks for comments, I am happy to respond.

Here is a subject which, it seems to me, demands all our attention, since it concerns the evolution of the International Hydrographic Organization. The "internationalization" of surveys would indeed be a radical advance for our Organization, the third since its creation.

In its early days, the IHB was aiming at uniformity of navigational charts and nautical documents. This objective has been achieved, at least for charts, by means of *consultations* and reciprocal agreements.

The second important step was the creation of an international portfolio of charts, followed by the preparatory work for the coordination of Radio Navigational Warning services: this can be regarded as the beginning of *collaboration*.

We have now reached a third stage, that of *joint participation*, which calls for an even closer relationship between hydrographic services.

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There are three different aspects to the whole question, and these I propose to examine separately:

The *need*;  
The *means*;  
The *role* of the IHO.

### The need

We are well aware of man's ignorance about the morphology of the sea floor, those enormous, insufficiently explored areas, represented by outdated and often unreliable bathymetry, for which Commodore KAPOOR has given such striking figures. This situation evolves but slowly, but the increase in two kinds of need is rapid:

- a) The navigator's traditional requirement for charting in line with modern concepts of shipping and position fixing, in order to provide safe navigation on and under the sea over an ever larger and denser network of sea lanes.
- b) The requirement of a relative newcomer, the oceanographer, who has now passed from the realm of pure scientific speculation to harness his research for the detection, evaluation and exploitation of the natural resources in food and energy to be found in the sea, on the ocean floor and in its subsoil.

It is perhaps of interest to examine briefly this second requirement, for — apart from its economic and political aspects — reasons exist that must lead us to reflect on a problem of primary importance: that of the survival of humanity.

The dialogue between hydrographers and oceanographers started many years back, but it has not always been "plain sailing". Naturally, I do not allude to that kind of oceanographic research carried out by Hydrographic Offices for military ends. Rather am I thinking of the customer requirement arising from the fact that the marine physicist, chemist, geologist, geophysicist, and even the marine biologist, all require a bathymetric chart as a work tool, and quite often also to illustrate the results of their research.

This has already been pointed out on various occasions, and the IHO has obviously not been indifferent to the problem, for in the course of the 10th I.H. Conference a Technical Resolution (\*) on this subject was approved. However from the discussion which took place during the Conference it is clear that the last word has not been said, and that some misunderstandings may still exist.

I have dwelt at some length on this question as I believe that we must not neglect our hydrographic activities for oceanography, and still less must we consider them as an occasional task of secondary importance.

Naturally, in each country the relationship between hydrographers and oceanographers is dictated by national structures, customs and priorities, but nevertheless we cannot, to my mind, disregard the ever-increasing need for topographic and geomorphologic maps of the oceans at a whole range of scales based on modern, special-purpose surveys.

(\*) J 2.1 : Morphological mapping of the sea floor (renumbered A 5.1 and K 1.2 in the 1976 system).

### The means

The task of meeting the need for marine and bathymetric charting worldwide falls upon some seventy hydrographic services, of whom nearly fifty are members of the IHO. These services represent a wide range of experience, traditions and capability; furthermore certain newly independent countries are aware of the need for a hydrographic service although they do not yet possess one.

In addition, several private companies have appeared on the world scene, but here it is a question of enterprises which, besides being strictly non-official, have as their object the needs of specific industries, and they are activities for which large vessels and an extensive infrastructure are not required.

It is a fact that no single Hydrographic Service — even one of the largest — could ever contemplate coping with the vast and complex task of hydrography on a world wide basis, for reasons not only technical, but also economic and political.

Certainly the last word has not been said on automation in surveying and cartography, but it is true that even if these techniques can increase the production rhythm in the most advanced hydrographic services and facilitate the exchange of data, they cannot of themselves solve the problem.

In a world of increasing internationalization — sometimes at painful cost — the hydrographers of the IHO, we who have always considered the universality of the sea as our symbol and the safety of mariners of all nations as our *raison d'être*, have a duty to choose and propose solutions that go beyond national horizons, respecting to the full the strictly apolitic spirit that inspires our Convention.

This then is the reason that I am entirely in agreement with Commodore KAPOOR when he proposes joint surveys.

I believe that great advantages are to be gained for the hydrographic community as regards both greater efficacy of output on a global scale and the concentration of efforts in sectors and areas of interest to all.

One could argue that nations possessing today neither considerable commercial shipping nor the technical means to exploit natural resources might have only limited interest in participating in one of these joint ventures; or that the newly independent nations might experience quite understandable difficulties in permitting international hydrographic surveys in their territorial waters.

But here also I agree with Commodore KAPOOR that it is greatly in the interests of the countries whose hydrographic potential is still small (or even non-existent) to participate so far as their means permit them in an activity whose results will constitute a common heritage and which will give them that knowledge of their marine environment so indispensable for their future progress.

Such a solution would also provide a considerable contribution in the

matter of training their staff and would reinforce the praiseworthy efforts of the IHB on this count.

Hydrographic techniques are likely to be increasingly standardized, and the bonds between hydrographers (and if possible between peoples) will become closer and more durable. This at least is our most sincere hope.

### **The IHO's role**

How, then, is all this to be achieved? And is it possible and even advisable that it should be undertaken at world level?

When we pass from principles, techniques, doctrines and ideas to the more concrete world of surveying and charting we must necessarily take local factors into account since these factors require us to treat the problems region by region, although naturally respecting agreed overall general principles and guidelines. This moreover is the reason that hydrographic commissions have been created both within the IHO and outside it.

The suggestion of Commodore KAPOOR to create a suitable infrastructure for developing hydrographic survey programmes thus leaves me somewhat perplexed.

His idea certainly merits further study, but for the moment I would prefer to opt for encouraging Member States to form regional hydrographic commissions, leaving the problems of the joint surveys to these commissions.

I even go so far as to wonder whether it would be possible for the IHB to study the possibility of a sub-division of all Member States into regional commissions, and to propose their formation.

Nations bordering a certain region who are not members of the IHO would be able to associate themselves with the work of the commission in their region in order to study and find solutions for such specific problems as these joint surveys, under guidelines yet to be worked out. This would perhaps also give these nations an added incentive to join the IHO.

These then are questions for possible discussion at the next I.H. Conference.

### **CONCLUSION**

As I see the question today, and in the light of my present knowledge, I think my hopes can be summarized as follows:

- That the idea of carrying out joint surveys should be approved by all countries concerned with the development and safety of maritime navigation and the exploitation of the natural resources of the sea.
- That this work should be effected within the framework of IHO regional hydrographic commissions.

- That the hydrographic commissions should increase in number and finally extend to all Member States.
- That a formula be worked out for associating those countries not yet members of the IHO with the work of these hydrographic commissions.
- That the IHO will pursue its praiseworthy task of coordination and stimulation.

(signed) A. MACCHIAVELLI

Taranto, October 1976.

### CARTOGRAPHICAL SIN

At Day light in the Morning we steerd WSW and after wards WBS, which by Noon brought us into the Latitude of  $9^{\circ}30' S$  and Long<sup>de</sup>  $229^{\circ}34' West$ , and by our Run from New-Guinea ought to have been within sight of Wessels Isle, which according to the Charts is laid down about 20 or 25 Leagues from the Coast of New-Holland. But we saw nothing by which I conclude that it is wrong laid down, and this is not to be wonderd at when we consider that not only these Islands but the lands which bounds this sea have been discover'd and explor'd by different people and at different times, and compiled and put together by others, perhaps some ages after the first discoveries were made. Navigators formerly wanted many of the helps towards keeping an accurate Journal which the present Age is possess'd of: it is not they that are wholly to blame for the faultiness of the Charts, but the Compilers and Publishers who publish to the world the rude sketches of the Navigator as accurate surveys without telling what authority they have for so doing, for were they to do this we should be than as good or better judges than they and know where to depend upon the Charts and where not. Neither can I clear Seamen of this fault among the few I have known who are Capable of drawing a Chart or sketch of a Sea Coast, I have generally, nay almost always observed them run into this error; I have known them lay down the line of a Coast they never have seen and put down soundings where they never have sounded, and after all are so fond of their performances as to pass the whole off as sterling under the Title of a Survey Plan &c. These things must in time be attended with bad consequences and can not fail of bringing the whole of their works into disrepute. If he is so modest as to say such and such parts or the whole of his Plan is difective, the publishers or venders will have it left out because they say it hurts the sale of the work, so that between the one and the other we can hardly tell when we are possessed of a good Sea Chart until we our selves have proved it.

From *The Journals of Captain James Cook*, edited by J.C. Beaglehole, Vol. I : "The Voyage of the *Endeavour* 1768-1771". Cambridge University Press, for the Hakluyt Society, 1955.