

# **The IHO Capacity Building Efforts in the Region**

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**Key words:** hydrography, nautical cartography, marine safety information, capacity building, training, education

## **SUMMARY**

The International Hydrographic Organization is an intergovernmental organization with a consultative and technical character, contributing to safety to navigation and protection of the marine environment through the coordination of the activities of National Hydrographic Services. The organization seeks for the greatest uniformity of nautical charts and complementary publications, as well as the adoption of the safest and most efficient methods of conducting hydrographic surveys and production of nautical charts.

The Organization's Capacity Building effort has its base in the worldwide status of hydrographic surveying and nautical charting, together with the marine safety information provision. After a careful assessment, some regions in the world have been identified as having severe shortcomings in the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation.

This paper makes special reference to the IHO systematic approach developed to go in support of West Africa, to raise awareness on the importance of hydrography as a vital component to social and economic development.

The IHO program has included technical visits to several countries in the region; a technical workshop on the first phase of the development of hydrographic surveying and nautical capability and a seminar for the chairmen of the national hydrographic committees or equivalent, responsible to foster initiatives to improve the actual situation.

The IHO continues the follow up of the progress so far made, and is ready to explore in conjunction with the national authorities the inclusion of a new element in the overall program. The initiative considers the possibility to establish in the region an academic unit that would facilitate the education and training in the disciplines of hydrography and nautical charting.

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## **1. THE IHO AND THE INTERNATIONAL SCENARIO**

### **1.1 The IHO**

The IHO is an intergovernmental consultative and technical organization that was established in 1921 to support the safety of navigation and the protection of the marine environment. The object of the Organization is to bring about:

- The coordination of the activities of national hydrographic offices;
- The greatest possible uniformity in nautical charts and documents;
- The adoption of reliable and efficient methods of carrying out and exploiting hydrographic surveys;
- The development of the sciences in the field of hydrography and the techniques employed in descriptive oceanography.

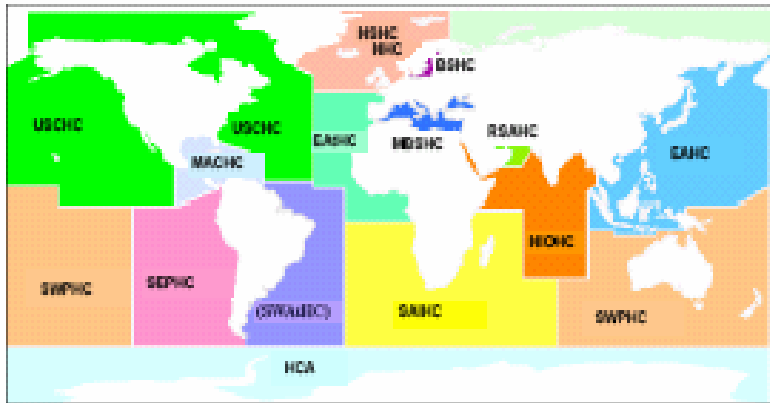
In 1919, twenty-four nations met in London for a Hydrographic Conference during which it was decided that a permanent body should be created. The resulting International Hydrographic Bureau began its activity in 1921 with eighteen Member States. At the invitation of H.S.H. Prince Albert I of Monaco, a noted marine scientist, the Bureau was provided with headquarters in the Principality of Monaco.

In 1970, an intergovernmental Convention entered into force, which changed the Organization's name and legal status, creating the IHO, with its headquarters (the IHB) permanently established in Monaco. The IHO Convention was registered with the UN Secretariat on 22 September 1970 under number 10764.

The IHB of the Organization is governed by a Directing Committee composed by three senior hydrographers elected every five years by the IHO Member States on the occasion of the International Hydrographic Conferences. The Organization has a membership of 75 maritime States, with several others in the process of becoming Members.

The IHO encourages the establishment of Regional Hydrographic Commissions and offers advice on their formation. To date, 14 such Commissions, composed of representatives from Member States' hydrographic services within a defined geographic area, meet at regular intervals to discuss mutual hydrographic and chart production problems, plan joint survey operations, and resolve schemes for medium and large scale International Chart coverage of their regions.

West Africa is covered by the East Atlantic Hydrographic Commission (EAHC) and the South Africa and Island Hydrographic Commission (SAIHC). (Fig 1)



**Fig 1:** Sketch showing Regional Hydrographic Commissions

## 1.2 The International Scenario

### 1.2.1 1985 UNCLOS

This Convention identifies the rights as well as the obligations and responsibilities of States, as regard to seas and oceans use, exploration, exploitation, delimitation, research and others.

As regard to hydrography nothing is mentioned directly, but the need of CHARTS for the application of several of its articles, is clearly indicated.

In fact, without CHARTS, several activities cannot be easily implemented as indicated in the Convention, as for example:

- Establishment of baselines, normal or straight baselines.
- Measurement of the extension of Territorial Sea, Contiguous Zone and EEZ
- Definition of the Continental Shelf external limits / extension beyond 200 nautical miles
- Identifying tracks, traffic separation schemes, sea lanes and innocent passage routes
- Deploying submarine cables and ducts, and conducting drilling

This Convention is a masterpiece, and constitutes the origin of many other subsidiary regulations required for its implementation. It does not only affect coastal States, but all States, including land-locked ones.

### 1.2.2 1998 UN Resolution A/53/32

This is the first time an UN resolution refers to the importance of hydrography:

Art 21 “ Invites States to cooperate in carrying out hydrographic surveys and in providing nautical services for the purpose of ensuring safe navigation as well as to ensure the greatest uniformity in charts and nautical publications and to coordinate their activities so that hydrographic and nautical information is made available on a worldwide scale”

### 1.2.3 2002 SOLAS V

A revised text of the Safety of Life at Sea (SOLAS) Convention entered in force in July 01, 2002. In the reviewing and updating process, the International Maritime Organization (IMO) considered necessary to mention the obligation of all maritime states to provide hydrographic services following IHO resolutions and recommendations. This is particularly reflected in Regulation 9 of the Chapter V of SOLAS.

### 1.2.4 2003 UN Resolution 58/240

This resolution while highlighting the importance of hydrographic surveys and nautical charting, recognizes the role of IHO and invites IHO together with IMO to continue the effort to encourage greater international cooperation.

This is the first time an UN resolution makes direct reference to the IHO. But more important than that, is that UN identifies the *Coastal African States* as the target for capacity building efforts.

### 1.2.5 2003 IMO Resolution 1958 (23)

After entering in force the revised SOLAS, the International Maritime Organization wanted to develop further Regulation 9 “Hydrographic Services”, and adopted the mentioned resolution, on the ground that :

- the collection and dissemination of accurate and up-to-date hydrographic information is vital to safe navigation
- in many parts of the world, waters used by international shipping have not yet been surveyed to the modern hydrographic survey standards laid down by the International Hydrographic Organization (IHO) or are not regularly surveyed by an established hydrographic service
- the authorities responsible for ports, rivers, canals, dredging, aids to navigation and other matters, including regional and local authorities, obtain and receive hydrographic information which could be used to update navigational charts issued by charting authorities

### 1.2.6 2004 UN Resolution 59/24

This resolution falls into the Ocean and the Law of the Sea report to the Assembly. Due to its importance we have considered to extract the most relevant parts.

“The General Assembly,

Recognizing that hydrographic surveys and nautical charting are critical to the safety of navigation and life at sea, environmental protection, including vulnerable marine ecosystems and the economics of the global shipping industry, and recognizing in this regard that the move towards electronic charting not only provides significantly increased benefits for safe

navigation and management of ship movement, but also provides data and information that can be used for sustainable fisheries activities and other sectoral uses of the marine environment, the delimitation of maritime boundaries and environmental protection,

9. Encourages intensified efforts to build capacity for developing countries, in particular for the least developed countries and small island developing States, *as well as coastal African States*, to improve hydrographic services and the production of nautical charts, including the mobilization of resources and building of capacity with support from international financial institutions and the donor community, recognizing that economies of scale can apply in some instances at the regional level through shared facilities, technical capabilities and information for the provision of hydrographic services and the preparation of and access to nautical charts”

#### 1.2.7 2005 IMO MSC Circular 1179

Considering that not all IMO Member States are as well IHO Member States, both international organizations have been working together, and the mentioned Circular is a result of the discussions had. The IMO Maritime Safety Committee through this Circular refers to deficiencies in hydrographic surveying and nautical charting worldwide and their impact on safety of navigation and protection of the marine environment.

The covering text of the Circular indicates:

1 The Maritime Safety Committee, at its eightieth session (11 to 20 May 2005), in response to a proposal from the International Hydrographic Organization (IHO) for the issuance of an MSC circular, approved the note set out in the annex. The note indicates deficiencies worldwide in the provision of hydrographic services in accordance with SOLAS regulation V/9.

2 Member Governments, Parties to SOLAS’ 74 as amended, are reminded of their obligations under the Provisions of regulation V/9 and are urged to take actions to remedy the situation.

3 Member Governments are invited to bring the attached annex to the attention of their national authorities responsible for Hydrography, Nautical Cartography and Safety of Navigation, as well as of other appropriate parties.

#### 1.2.8 2005 UN Resolution 60/30

Through this Resolution the UN insists in the importance of Capacity Building:

“Encourages intensified efforts to build capacity for developing countries, in particular for the least developed countries and small islands developing States, as well as coastal *African States*, to improve hydrographic services and the production of nautical charts, including electronic charts, as well as the mobilization of resources and building capacity with the support from international financial institutions and the donor community.”

In this opportunity the UN also expressed that:

“Welcomes the adoption by the International Hydrographic Organization of the “World Hydrography Day”, to be celebrated annually on 21 June, with the aim of giving suitable publicity to its work at all levels and of increasing the coverage of hydrographic information on a global basis, and urges all States to work with that organization to promote safe navigation, especially in areas of international navigation, ports and where are vulnerable or protected marine areas.”

All what has been mentioned constitutes the rationality under which the IHO is making a great effort in Capacity Building.

## **2. THE IHO CAPACITY BUILDING COMMITTEE**

### **2.1 The Committee**

The IHB Capacity Building Committee was created on 10 April 2003 with the following tasks:

- Continuously assess the status of hydrographic surveying, nautical charting and nautical information, developing IHO publication S-55.
- To cooperate with the IHB in the establishment and maintenance of close relationships with agencies and organizations which may provide financial support.
- To cooperate with the Hydrographic Regional Commissions in the creation of a Groups of Experts to carry out assessment studies.
- To support the IHB in monitoring the assessment carried out and the identification of potential projects.
- To cooperate with the IHB in the provision of advice to countries needing to implement SOLAS V, Rule 9.
- To support the IHB in the preparation and keeping update of the Capacity Building Work Programme.

The progress made since its establishment includes among others, the following achievements:

- Updating of Publication M-2 “Maritime National Policies and the Hydrographic Services”.
- Agreed on an IHO definition for “Capacity Building”.
- Develop of an IHO Capacity Building Strategy.
- Establishment of a management Plan integrating all requirements, projects and initiatives organized by the RHCs.
- Approval of the IHO CB Work Program (2005, 2006 and 2007)
- Establishment of the IHO Capacity Building Fund.

Taking advantage of two out of the three meeting held so far, Technical Workshops were organized to address representatives of the countries of the South West Pacific Hydrographic Commission (2004) and Meso American and Caribbean Hydrographic Commission (2005) on the establishment of the first phase of the development of hydro-cartographic and marine safety information capabilities. An early Technical Workshop was organized in conjunction

with the East Atlantic Hydrographic Commission on the occasion of its meeting in Brest, France, in 2003, benefiting States of this region.

The next meeting of the Capacity Building Committee is to be held in Maputo, Mozambique, June 2006, providing an opportunity to again organise a Technical Workshop similar to the one delivered in the early years, in this occasion benefiting the South African and Islands Hydrographic Commission.

## **2.2 The IHO Capacity Building Work Programme**

Initially, the CB Work Programme 2005/2007 was established on the basis of the information provided by the IHB and discussed at the CBC meetings. This procedure was adopted in the absence of requests submitted by RHCs. Nevertheless its content has shown it to be delineated in line with the real needs. The RHCs have started to contribute to improve the programme and the 2005 programme has recently been modified to include a new task of high priority to one of the RHCs.

The CBC task will be to assign a global priority to all the initiatives and in the light of the resources available, to propose a viable programme and budget, that will constitute a subset of the general IHO work programme that will be considered by the Member States.

## **2.3 The IHO Capacity Building Fund**

The Capacity Building Fund was established on 4 February 2005, immediately after Member States unanimously approved the administrative resolution that refers to it.

The resources for the time being come from the IHO ordinary budget (approximately 50,000 euros a year) and it is hoped that this amount will be increased in the near future, with savings made at the IHB and mainly by direct contributions of some volunteering Member States, and other International or private Organizations. That is to say, the Fund is open for contribution without any special reservations or priorities to a particular project in the Work Programme.

As a matter of principle, the IHO is not to be considered a “funding institution”. Specialized funding organizations already exist with global or regional structures, making it pointless to establish something in parallel. The Fund’s aim is to provide a “partial” support along the following lines:

- Technical Assistance
- Training and Education
- Financial Assistance
- Start-up Projects

The resources not used in a calendar year are kept in the Fund to be used in support of other initiatives identified by the CBC in the Work Programme.

### 3. CAPACITY BUILDING EFFORTS IN THE REGION

#### 3.1 Technical Visits.

##### 3.1.1 East Atlantic Hydrographic Commission

At the sixth and seventh meetings of the EAthC, in June 2000 and October 2002, the situation in the region was deemed worrying by the participating Member States of the IHO, Associate Members of the Commission and Observers. As a result it was decided to create a team of experts in hydrography, marine cartography and marine information, tasked to visit countries where a lack of surveys, charts and nautical information has been identified, provided that the countries concerned would welcome such a visit.

The French Naval Hydrographic and Oceanographic Service (SHOM), in charge of co-ordinating the project, invited all the littoral states in West Africa, from Morocco to the Democratic Republic of Congo, to consider accepting a visit from the team of hydrographic experts. Seventeen nations responded positively, and sixteen were visited in four trips made between the Fall of 2002 and the Spring of 2004. The team comprised of members from those nations which have charting responsibility in the region (France, UK and Portugal) and a representative from the USA.

The team was struck by how different the maritime situation of each country visited was from another (table 1). In many cases the authority with overall responsibility for safety of navigation had not been long established, and often division of areas of responsibility between Port Authorities, National Maritime Authorities and Naval Forces were not entirely clear.

**Table 1:** Assessment of National Hydrographic Capability

Country	IHO Member	IMO Member	IALA Member	EAthC Member <sup>1</sup>	NHC <sup>2</sup> Proposed	Phase 1 Capacity	Phase 2 Capacity	Phase 3 Capacity
Cap Verde	No	Yes	No	Assoc M	Yes	Partial	No	No
Mauritania <sup>3</sup>	Pending	Yes	No	Assoc M	No	No	No	No
Senegal	No	Yes	Yes	Assoc M	Yes	Partial	Yes	Partial
The Gambia	No	Yes	No	No	Yes	Partial	No	No
Guinea-Bissau	No	Yes	No	No	Yes	No	No	No
Guinea	No	Yes	No	Assoc M	Yes	Partial	Partial	No
Sierra Leone	No	Yes	Yes	No	No	No	No	No
Ghana	No	Yes	Yes	Assoc M	Yes	Partial	Partial	No
Togo	No	Yes	No	No	Yes	Partial	No	No

<sup>1</sup> Eastern Atlantic Hydrographic Commission

<sup>2</sup> National Hydrographic Committee

<sup>3</sup> Mauritania membership pending deposit of adhesion



Country	IHO Member	IMO Member	IALA Member	EATHC Member <sup>1</sup>	NHC <sup>2</sup> Proposed	Phase 1 Capacity	Phase 2 Capacity	Phase 3 Capacity
Benin	No	Yes	Yes	Assoc M	Yes	In process	Yes	No
Nigeria	Yes	Yes	No	Member	Yes	Partial	Partial	Partial
Cameroon	No	Yes	Yes	Assoc M	Yes	Partial	Yes	No
Équatorial Guinea	No	Yes	Yes	No	Yes	No	No	No
Gabon	No	Yes	No	No	Yes	Partial	Partial	No
Congo	No	Yes	No	No	Yes	Partial	No	No
D.R.C	No	Yes	No	No	Yes	No	No ?	No

Countries generally expressed a desire to improve the safety of navigation in their waters and to build a national hydrographic capability to serve their needs in the future.

Several suggestions were made including:

- formation of a National Hydrographic Committee
- provision of hydrographic services in accordance with SOLAS
- encouragement of effective and timely collection and promulgation of hydrographic Information
- encouragement of development of a Hydrographic Capability
- clarification through bilateral agreements on the way SOLAS commitments are to be enforced.

The team also provided information on training which is available in North America and Europe, including the International Maritime Academy in Trieste. *The Regional Maritime Academy in Accra, Ghana*, was considered as an example of a potential location for regional hydrographic training in the future.

### 3.1.2 South African and Islands Hydrographic Commission

A Technical Visit started to be organized last year by the SAIHC and the IHB together several IHO Member States for the benefit of the countries in that region. Eleven countries have been invited to consider this visit, and for the time being 7 countries have replied positively. The expert team will initiate this visit in February.

## 3.2 Technical Workshops

### 3.2.1 East Atlantic Hydrographic Commission

Forty five delegates from 17 countries attended the EATCH Technical Workshop that was held from 26 to 27 October 2004 in Brest, France, hosted by the SHOM/EPHOM.

The aim of this event was to gather the authorities responsible from the coastal States of West /Central Africa having taken part in the technical visits carried out by the West Africa Action Team (WAAT), lead by SHOM, and to highlight the importance of Hydrography and Safety

of Navigation. Emphasis was made on the need to be able to achieve phase 1 of the Development of Hydrographic Surveying and Nautical Charting Capability, that is, to be able to collect and circulate nautical information necessary to maintain existing charts and publications up to date.

Among the conclusions of the Workshop, the following are the most relevant:

- All participants recognized the great value of the WAAT technical visit.
- Training was the principal concern of the countries represented.
- The identification of a national responsible for the preparation, maintenance and development of any action addressed to enhance the present status of Hydrography and the establishment of a National Hydrographic Committee in each country was identified as essential.
- All countries in the region are IMO members and therefore if have signed SOLAS Convention are now obliged by Regulation V to provide Hydrographic Services by themselves or through bilateral or multilateral agreements. It was stressed that the responsibility is with the Governments of those countries.
- The WAAT report provided “seed” information relevant to identify clear projects, both, at a national and at a regional level. Regional initiatives demand first, that national structures be set in place.

### 3.2.2 South African and Islands Hydrographic Commission

A similar Technical Workshop is under preparation and will take place on the occasion of the 4<sup>th</sup> Capacity Building Meeting that will take place in Maputo, Mozambique in early June 2006. This event is specially oriented to benefit countries in the SAIHC.

## 3.3 Seminar

### 3.3.1 East Atlantic Hydrographic Commission

The EAtHC, considering the excellent work done by its West African Action Team (WAAT) endorsed the IHB initiative to conduct a one-week Seminar for Chairmen of National Hydrographic Committees (or equivalent) of the countries in the region of the EAtHC, as a follow-up action of its results. The 8<sup>th</sup> EAtHC Meeting that took place in Brest, France, 28-29 October 2004 endorsed this idea and the Capacity Building Committee considered this activity within the CB Work Programme for 2005, allocating resources to support the attendance of participants.

The Seminar’s objective was to raise awareness at governmental level of the importance of hydrography to safety of navigation and national economic development, and to explore initiatives of common regional interest. The development of the initiative was worked jointly by the IHB and the Chairman of the East Atlantic Hydrographic Commission (EAtHC), with the strong support of some IHO Member States of the Commission and other international organizations.

Coordination was made with the International Maritime Academy (IMA) and it was agreed that the seminar would take place 10-14 October 2005 at the IMA premises in Trieste Italy.

Invitations to attend the Seminar were circulated on the 6<sup>th</sup> of May 2005. Addressees of the invitation were the official national focal points or those identified during the WAAT technical visit. 19 Countries (Benin, Cameroon, Cap-Verde, Congo (Republic of), Congo (Republic democratic of), Côte d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea –Bissau, Guinea Equatorial, Mauritania, Morocco, Nigeria, Senegal, Sao Tome e Principe, Sierra Leone and Togo) were invited to identify “the key national person” to attend the mentioned Seminar, ideally the Chairman of the National Hydrographic Committee, National Maritime Safety Committee or equivalent, and if any, the person that will assume the national responsibility to monitor the establishment of the country’s hydrographic capabilities. The need to ensure continuity of this effort was highlighted. Despite of the positive reply received from 12 Countries, unfortunately only 6 finally attended.

The IHB managed the CB Funds allocated by the IHO to partially support participants from the EAHC region attending the Seminar. Each country was requested to fund only the return air ticket of their representatives; the CB Fund covered all the rest. It has to be highlighted that IHO Member States as well as international organizations participating in the Seminar kindly funded their representatives.

The program of the Seminar considered 5 days; the first three days were focused on general aspects and the next two days were focuses on regional aspects, divided in “Regional Situation and Opportunities” and “Development of the basis for Regional Project(s)”. Probably, a similar Seminar will be organized for the SAIHC in 2008.

## **4. A REGIONAL ACADEMIC UNIT**

### **4.1 Justification**

Based on the assessments made so far, the IHO has the perception that the number of personnel from West African countries who require training in hydrography, nautical cartography and marine safety information is very high.

Students of hydrographic and nautical cartography courses are commonly personnel sent by governmental agencies. In many cases, national administrations are not always prepared to send away their staff due to the cost involved. On the other side, normally this courses might normally benefit just a very few number of students.

The experience of other institutions in hydrographic training has demonstrated the interest and value of international courses. The demand from developing countries to have staff prepared to carry out hydrographic surveying, nautical cartographic production and management of marine safety information is very high and the few international institutions already existing

cannot cope with such a demand. By the way, there is no one institution of this characteristics in the Region.

The objective of a Regional Academic Unit is to contribute to the worldwide effort to improve the safety of maritime navigation and the protection of the marine environment. To achieve this objective, it is necessary to promote the hydrographic knowledge and, consequently, to implement the tuition in hydrography and nautical cartography, taking advantage of the already existing accredited centres, such as the Maritime Academy in Accra (MAA), Maritime Academy of Abidjan and the Nigerian Academy of Oron. The figure of a consorsium of academic centres could also be explored.

## **4.2 IHO stock**

### **4.2.1 FIG/IHO/ICA International Advisory Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers**

That among other activities, this Board reviews at appropriate intervals the recommended minimum standards of competence for hydrographic surveyors and nautical cartographers, taking into account comments and recommendations received from National Focal Points (NPF) and other authorities; maintains and promulgate all publications and documents resulting from the tasks carried out by the Board; reviews the syllabi of programmes submitted by Hydrographic Offices, institutions and learned bodies taking into account comments and recommendations received from National Focal Points and other authorities and provides advice and comments on such syllabi by comparison with the recommended minimum standards and award certificates of programme recognition to those institutions whose programmes meet the recommended standards. This Advisory Board, together with the IHB could play an important role in guiding the selected centre to put in place the courses.

### **4.2.2 IHO Member States**

As it has been the practice in the past, as regard to the International Maritime Academy in Trieste, Italy, IHO Member States as well as the IHB might contribute with visiting instructors for particular subjects of the programme. IHO Member States might as well offer opportunities to perform practice on their facilities or field practice on board their hydrographic ships.

### **4.2.3 IHO Capacity Building Committee**

If considered a priority by the relevant Regional Hydrographic Commissions, some resources from the Capacity Building Funds could be made available by the IHO to partially fund some components of this initiative.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

- The IHO is fully complying with the request made by the United Nation as regard to the provision of capacity building opportunities to the African Countries.

- Governmental authorities in the region should be aware and take advantage of the opportunities the IHO is offering, and should consider assuring the establishment within their structures of a permanent contact point with efficient communication facilities to keep contact and liaise with the IHB.
- The establishment of a regional hydro-cartographic and marine safety information education center should be given consideration, as this initiative will certainly contribute to improve the regional response to the obligations set by SOLAS.
- Allocation of resources to improve hydro-cartographic and marine safety information services should be considered an investment and not an expenditure, due to the socio economic impact on national and regional development.

## BIOGRAPHICAL NOTES

Captain **Hugo M. Gorziglia** (54), graduated as Navy Officer of the Chilean Navy in 1970. In 1975 got his Hydrographic Engineer diploma. During his naval career he was mainly at the Servicio Hidrográfico y Oceanográfico de la Armada de Chile (SHOA). In the period 1976-86 conducted over 36 hydrographic missions, serving as well as Head of the Department of Hydrographic Surveying and the Department of Cartography. In 1987 was nominated Deputy Director and Technical Advisor. In 1994 was nominated Director of SHOA until December 1997. During this period he lead the development and modernization of SHOA. From 1998 till August 2002 he worked as the Advisor for the International Relations at SHOA and also as a private consultant in the fields of hydrography, applied oceanography, cartography, maritime and aquiculture concessions, and marine environment. In September 2002, after having being elected by IHO Member States, he assumed as Director of the IHB. At present is responsible of the coordination of 5 Regional Hydrographic Commissions, including MesoAmerica and the Caribbean; the South East Pacific; the East Atlantic; the ROMPE Area and the Antarctica, that he chairs. It has been his task to launch several Capacity Building initiatives, among others, the establishment of the IHO Capacity Building Committee, that he also chairs, the definition of the IHO Capacity Building Work Program and the creation and miss in place of the IHO Capacity Building Fund. He is in charge of the IHO Work Program and Budget and responsible for the IHO relations with several international organizations such as the IOC, FIG, ATS, PMACWA and the PAIGH.

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