



**18th MEETING OF THE IHO CAPACITY BUILDING SUB-COMMITTEE
IHO-CBSC18**

Online meeting, 2-3 June 2020

**Paper for Consideration by CBSC18
CAPACITY BUILDING PLAN FOR 2020 – 2022**

<i>Submitted by:</i>	<i>SEPRHC CB Coordinator</i>
<i>Executive Summary:</i>	<i>Update of 3-year work plan</i>
<i>Related Documents:</i>	<i>CBSC17-05.1G SEPRHC 2019 3-year work plan</i>

1. INTRODUCTION

1.1. Rationale

The maritime area between Panama Canal and Cape Horn is the place where the traffic maritime is moved constantly, crossed by different kind of ships: container ships, bulk carrier vessels, petroleum ships, etc. (see Figure 1). The member’s states that make up the SEPRHC have the responsibility to offer safe navigation for the ships that are going to several terminal maritime (17) and ports (54) located along the 8621 km coasts of the Pacific Ocean, approximately.

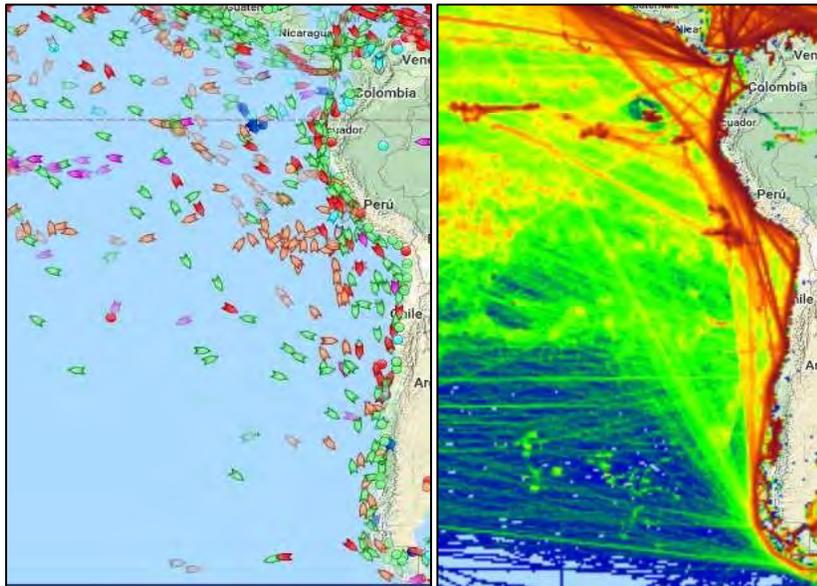


FIGURE 1.- MARINE TRAFFIC DENSITY
(<https://www.marinetraffic.com/en/ais/home/centerx:-105.1/centery:-29.8/zoom:2>)



The hydrographic is the most important tool for the crossing of ships. The constant evolution of technology requires more capacity for better nautical publications.

Strategy Capacity Building of the International Hydrographic Organization classifies the development of Hydrographic Services in three stages:

- a. Stage 1: collecting and passing necessary nautical information to update existing charts and publications.
- b. Stage 2: surveying capacity building, aimed to conduct coastal and offshore projects; and,
- c. Stage 3: independent production of paper charts, electronic nautical charts and electronic publications.

Also, the Member States of SEPRHC are signatory of the Convention for the Safety of Life at Sea of the International Hydrographic Organization. Therefore, this Capacity Building Plan helps to lead the effort to assist Member States in fulfilling these obligations. Consequently, a coordinated national effort is required and the understanding of the following statements:

- a. Human, financial and time resources are limited. Thus, defining priorities is a key factor.
- b. Planning has to be realistic; and,
- c. The Coastal State commitment to work with the IHO / SEPRHC is fundamental for developing hydrographic services to the international maritime community.

The fast technological change has replaced the paradigms of navigation. Therefore, there is a need for continuum investment in education and training which enables the Hydrographic Services to provide quality products and services that meet the new demands of the maritime community.

According to the objectives established by CBSC about cooperation with the Regional Hydrographic Commissions for building capacities. In the past 3 years, SEPRHC Regional Group has participated in several training projects that have enabled continuous improvement of the technical skills in each of the Hydrographic Offices. Such skills are hydrographic survey, nautical charting, and management of hydrographic information.

At the annual meeting the CBSC uses the management plan as a reference for preparing the work program for the following year. Prioritizing courses and workshops. The CBSC program is admitted to the annual program of the IHO.



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The active participation in IHO Capacity Building Programs allowed the conduction of seminars and regional technical workshops, which enabled the SEPRHC to gain knowledge of new methodologies to be applied in the Hydrographic Offices.

For the past three years, the CRHPSE has participated in the following Capacity Building Programs:

2019:

P-20 “Workshop Quality Control of ENC production (Not founded).
P-26 “Workshop on Law of the Sea” (Not founded).
P-27 “Workshop on MSDI implementation and development (Not founded).

- One student of SEPRHC (EC) was approved by IHO Cat B Nautical Cartography in UKHO.
- PE continues the offering for participation of SEPRHC members in hydrographic research in “BAP Carrasco”
- Training in Hydrography programs in Cat A and Cat B

2020:

SEPRHC hoped to do:

P-12 Workshop on MSI (Pending - Not yet founded).
P-19 Workshop on Coast line (Pending - Not yet founded).
P-25 Workshop on Crowdsourced Bathymetry (Pending - Not yet founded).
P-23 Workshop Caris Composer (Pending - Not yet founded).

- PE continues the offering for participation of SEPRHC members in hydrographic research in “BAP Carrasco”
- Training in Hydrography programs in Cat A and Cat B

2021:

The vision for this year is:

Workshop on MSI
Workshop “Update coastline cartography through UAV”
Workshop on CSB
Workshop on standardization in the use of “CARIS Composer Paper Chart”
All Proposed as new projects.

**2022:**

SEPRHC is s envisioning and looking forward to focus cooperative work for:

1. S-100
Regional HO's migration from S-57 to S-100 still only in development stage. The total migration of the database to a server in S-100, will require a coordinated work of exchange of knowledge and experiences, especially of those specialists who have participated in the design and conceptualization of the new standard. This migration will also have direct impact on MSDI.
2. ENC Quality Control
It is necessary to share knowledge and experiences, to work together to achieve product optimization considering adaptation to technological changes and permanent demand of the market, which requires being at the highest level.
3. TSUNAMI INUNDATION CHARTS
Cooperation and exchange of experiences, bringing the state of preparation of these products to a cutting-edge Regional level that allows the community to be given information that safeguards the life of coastal communities that may be exposed to this threat.

REGIONAL IMPACT OF THE TRAINING

The workshops had permitted that the participants update the knowledge's according the last version of technologies, discover the multiply use of the data, the diverse stakeholders, and above all, forming a chain of expert professionals in certain areas, who can be consulted as advisors.

Once the training has been received, the HOs have planned their hydrographic projects not only for nautical charts, also too, to characterize undersea features, continental shelf studies, search for historic shipwrecks, geological studies, laying submarine keys, flood charts, river surveys, etc. Activities that go beyond the nautical chart, thanks to the training received by CBSC.

It is advisable to select the attendees and for this it is necessary that the HO choose the persons working on the specific topic of the workshop. In this way, the transmission of knowledge is not only on the part of the instructors, the students also contribute with responsible questions, share experiences of their work and when they return to their country, they apply what they learned in the workshop.

This allow us to address learning in relation to the needs of Member States in the region. The participation in courses, workshops, and technical visits has improved the production processes of the hydrographic offices.



These training events have been fundamental for decision-making processes. New experiences and procedures have been learned and used for the optimization of resources and thus made us more effective.

1.2. Purpose and Objectives

The objectives of the plan are:

- a. To ensure the establishment of a basic level of MSI among all Member States to produce Local/Coastal/NAVAREA alerts and communicate effectively with the charting authority, and implementation of the elements of GMDSS MSI.
- b. To acquire knowledge for advice the governmental institutions which every day consult the hydrographic service in the issue of law of the sea principally.
- c. To learn more about SDB and CSB issues, for do in our commission.
- d. To train managers at different levels to ensure a much-needed capacity in hydrography and nautical charting, including natural disasters and other incidents that could affect the depths in ports and its proximities.
- e. To instruct managers in the methods for running hydrographic surveys which will improve the generation of marine products and therefore improve the safety of navigation.
- f. To comply with the resolutions and guidelines of the IHO regarding hydrographic activities and nautical charting; and
- g. To ensure the availability of hydrographic data to support the sustainable use of marine resources

1.3. Priorities

Despite the large number of needs in the region, the priorities for the 2018 to 2020 period are ranked in order of importance:

- 0. Activities that promote the awareness of national liabilities;
- 1. Activities that improve the capacities of Hydrographic Services in Stage 1;
- 2. Activities that improve the capacities of Hydrographic Services in Stage 2;
- 3. Activities that improve the capacities of Hydrographic Services in Stage 3; and
- 4. Activities that go beyond Stage 3.

However, the status of the Capacity Building of Member States and its assessment was performed according to the draft of the Process 11 which established the following list:

Weight	Description
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-1	No information available
0	The country is not aware of its national liabilities
1	The country is aware of their national liabilities but does not have the means to do so
2	The country has the ability to meet national liabilities
3	The country has the ability to meet obligations through a third party
4	The country sustainably fulfills its national liabilities

Note: The evaluation represented by 3 is an alternative to 4, it is explained in the Strategy of Capacity Building IHO.

The evaluation of the initial phase of Capacity Building is complemented whether or not the Coastal State has established a National Hydrographic Committee (NHC) or Hydrographic Coordination Committee (NHCC). The evaluation for the NHC / CHCC is as follows:

Weight	Description
-1	No information available
0	The country has not established a NHC/NHCC
1	The country is in the process of establishing a NHC/NHCC
2	The country has established a NHC/NHCC

In this sense, the assessment for the countries of the region is:

	Member State	NHC o NHCC	CB Stage 1	CB Stage 2	CB Stage 3	Last TV
1	Chile	2	4	4	4	No
2	Colombia	1	4	4	3	
3	Ecuador	1	2	4	2	
4	Peru	1	2	4	4	
6	Panamá	1				2018

Note: With regard to the Government of Panama, the IHO made a technical visit in 2005 in which it recommended the Oceanographic and Hydrographic Commission of Panama to develop a Cartographic Plan Panamanian coasts. This plan was implemented by the Geographic National Institute Tommy Guardia. Several communications have been sent encouraging to become a member of the International Hydrographic Organization.

Colombia in name of SEPRHC visited Panama 2018 whit similar purpose

1.4. Methodology and Procedures

Coordinator CBSC SEPRHC

This plan sets goals for the 2018 - 2020 period and may be annually reviewed and adjusted where is appropriate. Each year the SEPRHC decides the responsibilities for each scheduled event. For the subsequent year it considers the plan and proposals



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from other Regional Commissions to identify topics that could of benefit for the developing countries in the region.

Each year, the chairman of the SEPRHC in December will send to Coordinator Capacity Building of this commission one letter for at the 1 April, he must be show the details of the planned projects. The projects must be written as the CB Procedures 1 and 4. One time approved, this will send to IHO-CBSC before 10 April.

1.5. Baseline

Below there is a general description of the development achieved by each country to meet national responsibilities under Regulations 4 and 9 of Fifth Chapter of the Convention for the Safety of Life at Sea (SOLAS):

RULER 4. NAVIGATIONAL WARNINGS

“Each Contracting Government shall take all steps necessary to ensure that, when intelligence of any dangers is received from whatever reliable source, it shall be promptly brought to the knowledge of those concerned and communicated to other interested Governments.”

Ruler 9. HYDROGRAPHIC SERVICES

“Contracting Governments undertake to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation.”

The Colombia HO - CIOH is under mandate of the national maritime authority DIMAR which belong to Defense Minister.

For the Member States Peru, The Directorate of Hydrography and Navigation of the Navy (DHN) in coordination with The Coast Guard and the Harbour Master Directorate (DICAPI) are the institutions that provide the Aids to Navigation and Safety of Life at Sea.

Chile fully complies with the provisions of Chapter V of SOLAS Regulation 9 on "Hydrographic Services".

As the law of the State of Chile, corresponds to the Hydrographic and Oceanographic Service of the Navy (SHOA) established in 1874, the mission and functions associated with the topic.

In Ecuador, the Oceanographic Institute of the Navy (INOCAR) in coordination with the National Directorate of Aquatic Spaces (DIRNEA) are official agencies; however,



CBSC18-08.6H

due to a restructuring process imposed by the government and the departure of qualified personnel, the effectiveness of this service has diminished.

1. In particular, Contracting Governments are obliged to cooperate to establish, as far as possible, nautical and hydrographic services:
 - 1.1. Ensure that, as far as possible, hydrographic surveys are carried out complying with the requirements of a safe navigation.

The Navy of the Members are the responsible for hydrographic. In this way; SHOA, DHN, INOCAR and DIMAR-CIOH are the representatives to Monaco of Chile, Peru, Ecuador and Colombia respectively.

This hydrographic services have prioritized national and international trade routes; that is, those related to international ports as well as special infrastructure used for exporting and importing different products, and tourism operations.

However, a more structured approach is necessary to prioritize the coverage of hydrographic surveys.

Other tasks are: develop and publish nautical charts, sailing directions, lists of lights, tide tables and other nautical publications, as appropriate, to meet the needs of safe navigation.

All members distribute the ENC by RENC

All members send vessel every year to Antarctic research as contribution to support safety of navigation and the protection of the marine environment I this area.

Three of four members share activities of survey and cartographic in the Amazon river.

2. The Contracting Governments are obliged to establish uniformity among charts and nautical publications and to take into account, as far as possible, international resolutions and recommendations.

The Hydrographic service development the nautical publications according the standard IHO.

3. The Contracting Governments are obliged to coordinate activities to the greatest extent possible so that hydrographic and nautical information are worldwide available in the fastest, reliable, and unambiguous way possible

Each Hydrographic service has national and international agreement according their convenience.



CBSC18-08.6H

The Navy’s agreement between this countries, permit to advice, give, collaborate and support mutually

4. The National Nautical Charting Plan establishes the scheme nautical charting the country. The SH under matrices: Port navigation, port facilities number, date data available, port development, public order and national sovereignty, sets priorities in technical visits, hydrographic surveys, mapping visits and publication of nautical charts.

All MS have national nautical plan and cartographic scheme in high level that permit the navigation in this area is safe.

5. The update of the national nautical cartography is constantly done through Notices to Mariners, digital updating of nautical charting, constant maintenance of navigation aids and new publications to provide safe navigation in waters

Done

6. All are working in the implementation of Data spatial infrastructure, for now it is operating in internal level. For cartography process, all have the tools HPD, the personal is changing of the old to the new system.
7. We need capacity in fundamentals of spatial data infrastructure. The nautical publications are being published according the IHO specifications: Nautical Charts, S-4, Training S-5, ENC, S-57, Surveys S-44, S-100 and Bathymetric publications.

2. ACTIVITIES

It is imperative to understand the importance of identifying courses that could improve hydrographic services provided by each country. For example, the following matrix would become a powerful tool for the planning of capacity building in the region. The Presidency will request, each year, the corresponding funds from the IHO for the implementation of certain courses; however, other courses can be managed through agreements with Major States or through the initiative of our Navies, depending on the availability of funds.

In order to fill the matrix, the courses or workshops that are not listed should be included under the caption “Others” located at the end of the matrix:

Stage	Activity	Beneficiary countries	Responsible	Observations
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	Technical and Advisory Visits			
0.1	High-level visit to governmental authorities			
0.2	Technical assessment and advice visit	Panamá	CO-IHO	The last TV Panamá was in 2005 CO visited Panama during 2018.
0.3	Technical implementation visit			
0.4	Seminar on Raising Awareness of Hydrography			

	Technical Workshops, Seminars, Short Courses			
1.1	MSI course (3 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.3)
1.2	Phase 1 Skills (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.3)
1.3	MSI Workshop (3 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.3)
2.1	Basic Hydrographic Survey Course (10 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	



CBSC18-08.6H

2.2	Port and Shallow Water Survey Course (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.)
2.3	MBES Processing (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	
2.4	MSDI and Data Management (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	
2.5	Tides and water level workshop (3 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.)
2.6	Seabed Classification workshop (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.)

3.1	Basic ENC and ENC Production course (10 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2)
3.2	ENC Production and QA (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)



3.3	MSDI and Data Assessment (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	
4.1	Law of the Sea Workshop (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.1-2.2)
4.2	Tsunami inundation mapping workshop (5 days)	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
4.3	Workshop Satellite Derived Bathymetry	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
4.4	Workshop Crowdsourced Bathymetry	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
4.5	Workshop on Antarctic Charts	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
	Long Courses and Programmes	Colombia, Chile, Ecuador, Peru	SEPRHC	



CBSC18-08.6H

HA	Category "A" Hydrographic Programme	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.1)
HB	Category "B" Hydrographic Programme	Colombia, Chile, Ecuador, Peru	SEPRHC	
CA	Category "A" Nautical Cartography Programme	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
CB	Category "B" Nautical Cartography Programme	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
	On-the-job and onboard trainings			
OJ	On-the-job training			
OB	Onboard training BAP Carrasco	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.2-3)
	Other			
O1	Hydrographic Risk Assessment for Safety of Navigation Workshop	Colombia, Chile, Ecuador, Peru	SEPRHC	In order to establish the new structure to the meet national obligations (SOLAS, CAP V, Rule 9, paragraph 2.1)



CBSC18-08.6H

3. ACTION REQUIRED OF CBSC

The CBSC is invited to:

- a. Take note of this update of CB 3-year work plan.