

**22nd MEETING OF THE CAPACITY BUILDING SUB-COMMITTEE
(CBSC22)
5 - 7 June 2024, Galapagos, Ecuador**

Paper for the Consideration by CBSC22

South West Atlantic Hydrographic Commission (SWAtHC) Report

Submitted by:	SWAtHC CB Coordinator
Executive Summary:	This document provides a summary report of the CB activities at SWAtHC.
Related Documents:	SWAtHC CB Work Plan 3 years 2024-2026.
Related Projects:	xxx

1. Introduction / Background

On 16th November 2006, Argentina, Brazil and Uruguay signed the cooperation agreement that resulted in the South West Atlantic Hydrographic Commission (SWAtHC). The main achievements have been the development of a regional Cartographic Plan, establishment of a Planning Commission to coordinate INT Charts and ENC production and the acceptance of Paraguay and Bolivia as Associate Members and Observer, respectively. The high level of harmonisation between all members results in a region without overlaps in ENCs, nor unassessed CATZOCs and gaps being addressed.

The new CB Work Plan (2024-2026) is based on the assessment of the phase of development of each of the coastal State within the SWAtHC region in accordance with the IHO CB Strategy and arranging training activity to build the necessary capability to meet SOLAS Convention obligations and IHO Standards and Resolutions.

2. Assessment of Capacity Building Phase Stage of Coastal States

2.1. The main objective of this information is to help the CB Coordinators to assess the regional and national needs for Capacity Building support, and to better measure the success of the IHO's Capacity Building programme.

The numerical grid below applies to the Phases:

Value	Assessment
-1	No information available.
0	The country is unaware of its national obligations.
1	The county is aware of its national obligations but does not have the means to do it.
2	The country has the ability to fulfill national obligations.
3	The country fulfills its national obligations through a third party.
4	The country fulfills its national obligations in a sustainable manner.

Note: the assessment represented by 3 is an alternative to 4 as explained in the IHO's Capacity Building Strategy.

2.2. This assessment is complemented with the indication of whether the Coastal State has established a National Hydrographic Committee (NHC) or a National Hydrographic Coordination Committee (NHCC). Countries with an established NHC or NHCC will be given preferential status when capacity building submissions are considered. The assessment for the NHC/NHCC is:

Value	Assessment
-1	No information available.
0	The country does not have a NHC/NHCC.
1	The country is in the process of establishing a NHC/NHCC.
2	The country has established a NHC/NHCC.

Then, the Assessment of Capacity Building Phase Stage of SWAtCH States is:

Members	NHC or NHCC	CB Phase 1	CB Phase 2	CB Phase 3	Last TV
Argentina	2	4	4	4	N/R
Brazil	2	4	4	4	N/R
Uruguay	2	4	4	4	N/R
Paraguay (Associate)	2	2	2	1	2014
Bolivia (Observer)	0	0	3	2	2023

Those states with a mature hydrographic service do not require a technical visit and can be marked as N/R (not required).

Technical Visit reference: https://www.iho.int/mtg_docs/CB/Assessment_Reports.htm

3. Activities performed in 2023 and in the beginning of 2024

From May 1 to 5, 2023, the Lieutenant Lucia Cattana participated in the 3rd IHO Assembly and previous conference, in Monaco. She also participated, from July 5 to 10, 2023, in an experience at sea on Charleston Coast, South Carolina, onboard a NOAA Hydrographic vessel, activities supported by the IHO training project “Empowering Women in Hydrography.” – EWH.”

From July 10 to 21, 2023, the “Directorate of Hydrography and Navigation – DHN - Brasil”, through the “Educational and Training Center Admiral Radler de Aquino - CIAARA”, performed a course on Multibeam Systems Operation with theoretical and practical classes, including activities onboard a hydrographic boat. This course had 16 participants. The following topics were covered: configuration of equipment, communication protocols; bathymetric data acquisition and processing.

In September 5, 2023, a Symposium on “Maneuvering and Navigation: teaching in a simulated environment” was held by CIAARA (DHN-Brazil). Approximately 90 professionals related to Maritime activities attended this Symposium. The following topics were discussed:

- Technical aspects of the development of a maneuver simulation center;
- Practical applications of the simulation of maneuver bridges in the security of port activities;
- Naval maneuvers, from the beginnings of Newton and Euler to the 21st century; and

- The flexibility of using the navigation simulator as an educational resource.

From October 25 to 27, 2023, the Lieutenant Gregorio Diaz Torres participated in a seminar in London, United Kingdom. This activity is part of the JCBP and GEOMAC/IHO-Nippon Foundation CHART Project training project.

The International Hydrographic Review, in its November 2023 edition (Volume 29-2) published two (2) scientific articles by students from the Hydrography Course for Officers (CAHO), taught at the “Educational and Training Center Admiral Radler de Aquino – CIAARA/DHN/Brazil.

- “The implementation of dual frequency positioning for ionospheric effects correction”, authors:

First Lieutenant Jean Roger da Silva and Lieutenant Commander Guilherme Antônio Gomes do Nascimento.

- “The use of GNSS receivers in smartphones as high precision positioners”. First Lieutenant Rodolfo Nogueira Leal Fabricio and Lieutenant Commander Guilherme Antônio Gomes do Nascimento.

Every year SWAtHC joint effort to contribute to IHR.

From November 6 to 10, 2023, a Workshop was held in the city of Singapore, with the objective to develop knowledge to convert the current “Electronic Navigational Chart” (ENC) in S-57 format to the new S-101 format, defining the best way to perform the conversion and the main errors observed. The event was supported by the IHO training fund and also by the IHO-SINGAPORE LAB. CHAtSO was represented by officials from Argentina, Brazil and Uruguay.

From November 13 to 17, 2023, the MACHC performed a Workshop on Tides for Spanish speakers, with the collaboration of the Intergovernmental Oceanographic Commission (IOC), the International Maritime Organization (IMO) and the National Oceanic and Atmospheric Administration (NOAA). This Workshop was held in Puntarenas, Garabito, Costa Rica, and the IHO Capacity Building Fund (CB Fund) paid for accommodation and travel expenses. Brazil, DHN, supported this Workshop with an instructor, Captain César Henrique de Oliveira BORBA and the CHAtSO was also represented by officers from Argentina and Uruguay.

In March 14, 2024, a virtual meeting was held between representatives from SWAtHC (Brazil, Argentina and Uruguay) and a team from the Spanish Hydrographic Institute. The main objective was to expand knowledge related to S-100 products and how to develop an implementation plan, as well as the conversion of the electronic chart standard S-57 to S-101.

The International Hydrographic Organization (IHO) is the entity that defines the “standards” for hydrographic data, products and services, such as Nautical Cartography in a digital hydrographic data model, S-57, on which the nautical chart specifications are based in electronic format (ENC). In recent years, and taking advantage of technological developments, all efforts have been directed towards creating a new geospatial data model, S-100, which extends the previous concept to a whole set of interconnected digital data aligned with international standards (ISO 19100). This new model and all the “standards” supported by it also aim to support autonomous navigation and the concept of “e-navigation”, guaranteeing formats that are intelligible both to humans and to computer processing and applied artificial intelligence.

In 2024, one day before the CHAtSO meeting, in April 8, the IV Hydrographic Awareness Seminar was performed, with the coordination of the Naval Hydrography Service (SHN - Argentina). This event was supported by the capacity building fund of the International Hydrographic Organization (CBSC-IHO) and had two objectives: the first one was to promote the development of the importance of hydrography for the CHAtSO Associate and Observer members, as well as to provide information on the state of the art in hydrography, especially regarding inland water activities.

The following contents were presented:

- Naval Hydrography Service (SIHN-Argentina);
- Directorate of Hydrography and Navigation (DHN – Brazil);
- Navy Oceanography, Hydrography and Meteorology Service (SOHMAUruguay);
- IHO Capacity Building Sub Committee (Capacity Building);
- Maritime Safety Information (MSI);
- International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) – Category “A” and “B” Courses;
- International Association of Marine Aids to Navigation (IALA);
- Hydrographic surveys in rivers;
- CARIS software for the production of nautical cartography in hydrobias (Teledyne Geospatial – CARIS);
- Benefits, implementation and distribution of S-102 in ports and hydrobias (Teledyne Geospatial – CARIS);
- Work and experience in river ENC; and
- S-102.

This Seminar was financially supported by the IHO Capacity Building Programme.

It is worth noting that the two Bolivian representatives had their airline tickets purchased by IHO, however, they did not attend the event, for administrative reasons, as described in a letter from the Bolivian Hydrographic Service (letter n° 24/2024, dated 08 April).

In April 11, after the CHAtSO18 meeting, a workshop was held on tools for implementation ENC S-101 production and “Dual-Fuel” production (S-57 and S-101). This course had the support of the Naval Hydrographic Service of Argentina and was also offered free of charge by the Teledyne Geospatial.

In May 6th to 10th, 2024, the “International ENC Validation Training Course” was held at “Educational and Training Center Admiral Radler de Aquino – CIAARA/DHN/Brazil. This course was taught by IC-ENC instructors, with simultaneously translated into Spanish. Students from several countries participated (Argentina, Brazil, Chile, Ecuador, Panamá, Peru, Uruguay and Venezuela), the total is sixteen (16).

The events that had not resources allocated, but were established in CBWP-2023, as shown below, were canceled:

- MBES Data Processing Course – (SHN - Argentina);
- Data management course for ENC S-100 production – (SOHMA - Uruguay); and
- Tides and Water Level Workshop – (DHN – Brazil).

4. Activities planned for 2024 and 2025

SWAtHC carried out one (1) event in April, 8th, IV Hydrographic Awareness Seminar, and proposed other three (3) events for 2024, but they did not receive funds so far:

- MBE Data Processing Course (proposed by Uruguay),
- Basic ENC production (S-100) (proposed by Argentina), and
- MSDI and data assessment (proposed by Brazil).

For 2025, SWAtHC submitted to CBSC the following proposals, in priority order:

- S-57 to S-101 conversion and S-100 production Course (proposed by Brazil);
- MBES Acquisition and Processing Survey Course (proposed by Argentina); and
- Tides and Water Level Workshop (proposed by Uruguay).

The Commission has sought to submit proposals jointly with neighboring Regional Hydrographic Commissions (MACHC and SEPRHC) in recent years and has benefited from this partnership. Then, SWAtHC intend to invite 2 representatives from MACHC and SEPRHC to participate in all Courses or Workshops approved for 2024 and 2025.

5. Challenges faced in the region

The implementation of the S-100 is a goal that SWAtHC members are constantly striving to achieve.

Hydrographic data acquisition and processing activities with new technologies require effective data management and a large storage. Therefore, it has been necessary to invest in training related to information technology, such as MSDI and “big data”.

Resources (human, time, finance etc.) are limited, then prioritization is a fundamental issue.

Another challenge is to encourage Paraguay and Bolivia to join the SWAtHC as full members following their accession to the IHO.

6. Achievements and lessons learned

The Seminar carried out by Argentina had 29 participants, and the feedback was so good.

All activities conducted in recent years improve the practical and theoretical skills developed by Latin America hydrographers and nautical cartographers in performing hydrographic activities.

Internal training led by the personnel who received the same training in other events is an effective tool for knowledge management and shows itself as a positive action in capacity building.

The Full Members updated C-55 by March 2024.

There are no issues between Nautical Charts of the Members in the Region. The few inconsistencies and overlaps in ENCs found by IC-ENC during last year were immediately solved.

The participation of the Hydrographic Institute of the Spanish Navy in the last SWAtHC Meeting was very positive, the Members were able to learn about the ongoing developments regarding S-100 products and MSDI.

Training of Foreign Countries Personnel:

- In December 2023, in the “Directorate of Hydrography and Navigation – DHN”, through the “Educational and Training Center Admiral Radler de Aquino” (CIAARA), an Officer from Cameroon and another from Bolivia concluded the Hydrography Course for Officers (CAHO), recognized by the IBSC/OHI as Cat “A”. The course was offered free of charge.

- A SOHMA Officer participated in the "Expedited Course in Meteorology and Oceanography for Officials (C-EXP-METOC-OF)", which was carried out in June and July 2023, at CIAARA.

- In 2024, at the DHN - CIAARA, two (2) Officers from Cameroon are taking the Course in Hydrography for Officers (CAHO) and one (1) Sergeant from Ecuadorian Navy is taking the Marine Aids to Navigation Course.

7. Conclusions

In 2023 and the beginning of 2024, the SWAtHC carried out 5 events in person: such as the Seminar coordinated by Argentina, which had a total of 29 participants, the Multibeam Bathymetry course, with practical activities in a hydrographic boat, the Symposium on “Maneuvering and Navigation”, the Workshop on tools for implementation ENC S-101, and the International ENC Validation Training Course; as well as the representatives of our Region took part of EPW activities, Seminars and Workshops organized by MACHC and IHO.

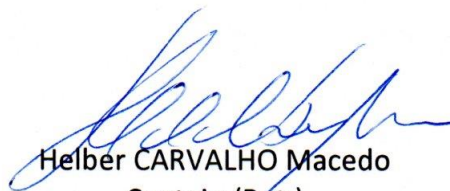
The Capacity Building (CB) program in Hydrography is an important strategic issue for all countries, because it promotes technical development, disseminates knowledge related to the state of the art and encourages the integration of professionals from different Hydrographic Services.

SWAtHC is committed to carry out Hydrographic, Cartographic and Capacity Building activities according to IHO objectives and goals.

8. Action Required to CBSC22

The CBSC is invited to:

- a. Note this report.
- b. Take any action considered appropriate.



Helber CARVALHO Macedo
Captain (Ret.)

SWAtHC - Capacity Building Coordinator