

Training Center and International Cooperation Agency visit

Côte d'Ivoire
2025





Une Référence Internationale



Direction des missions institutionnelles
et des relations internationales
Division relations extérieures

BREST, le 26 février 2025
N°021/Shom/DMI/REX/NP

REPORT

- OBJET** : report of the technical visit to Côte d'Ivoire from January 13 to 17, 2025 - Prospective study relating to the establishment of regional training courses in hydrography, physical oceanography and marine cartography in connection with the Maritime Organisation of West and Central Africa (MOWCA).
- APPENDICES** : eight appendices.

Summary

The creation of a Training Center of Excellence is necessary and feasible.

In addition to the "IHO" reports already written during Technical Visits and Seminars (see the references in Annex C), this document must, right now, be used to establish the roadmap which was decided at the meeting summary of the end of the IHO visit.

A roadmap where all the stakeholders already identified will find interests.

The "Center of Excellence" which will be set up, will indeed be able to offer qualifying professional training, recognized at the national (License 3 and above) and international (CAT B and A FIG/OHI/ACI) levels, providing access to numerous public and private jobs in industry and services both nationally and internationally.

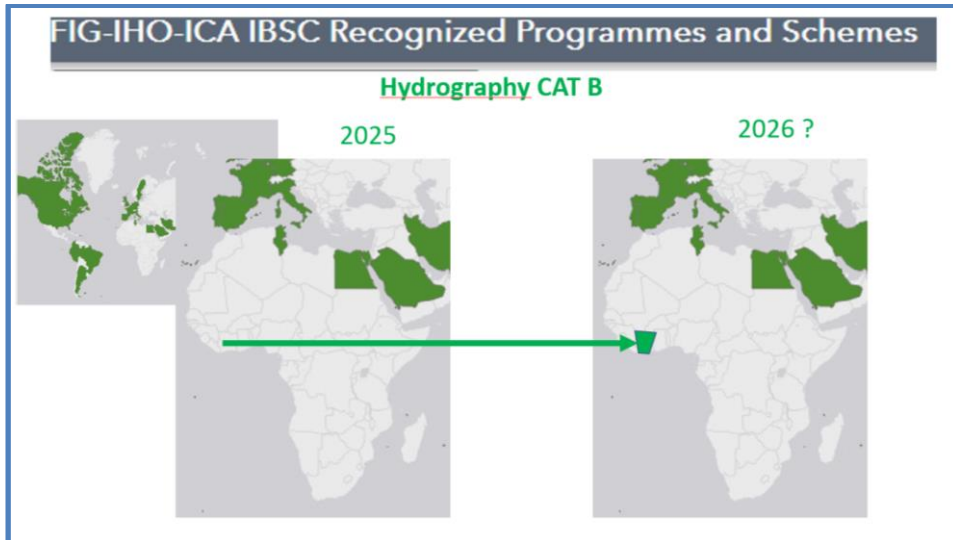
This roadmap must be constructed in a collegial manner. It is agreed that MOWCA will take responsibility for its management.

MOWCA is now strongly involved through the "IHO/ MOWCA" Letter of Intent signed by the Director of the IHO John NYBERG and the Secretary General of the MOWCA Paul ADALIKWU.

IHO is equally involved, regionally, with actions to be carried out under the responsibility of the Capacity building Coordinator of the Eastern Atlantic Hydrographic Commission (EAthC), Gabin SOGORB (France/Shom).

Why can this be done?

- There is much less uncertainty than in the past regarding the feasibility of such a project. The very fact of having already clearly identified possible pitfalls makes the project more resilient. **Among these pitfalls, the lack of perseverance, often due to lack of human resources available to carry out such a project. The financing (or the provision of personnel financed elsewhere) of this human resource is essential and a priority.** The "project" spirit must be developed. Control of results (we know what we want), resources (costs) and deadlines (being aware of annual milestones for programme approvals and budgets) will be at the heart of the concerns of the project team which will be constituted by the roadmap. A SWOT analysis (strengths, weaknesses, opportunities and threats) will allow the project to be approached with lucidity and confidence;
- The project is much less dependent on resources external to the African continent than it was around ten years ago;
- The observation is identical both in terms of existing infrastructures for hosting training courses, as well as regional training engineering capacities and teacher pools for both theory and practice;
- There is no shortage of arguments to defend the project from national and international institutions to obtain the complementary resources (human, financial, educational materials, etc.) that will be necessary for the project in its initial phase. The roadmap must identify them and justify them in order to obtain them ;
- Regarding Côte d'Ivoire in particular, the context is very favorable at the institutional (with the objective of short-term membership of the IHO) and organisational levels with the creation of a National Hydrography, Oceanography and Marine Cartography Committee, where the stakeholders met during the visit will be able to share their ambitions, express their needs and respond to them by pooling their resources;
- To get back to basics, this project must be done because it meets the professional needs of employers that qualified young people can respond;
- As Max Claver GAGUIE of MOWCA clearly pointed out: "All that remains is to strike the iron while it is hot, take advantage of a great dynamic".



**Figure 1: The ambition:
a first certified school in West and Central Africa**

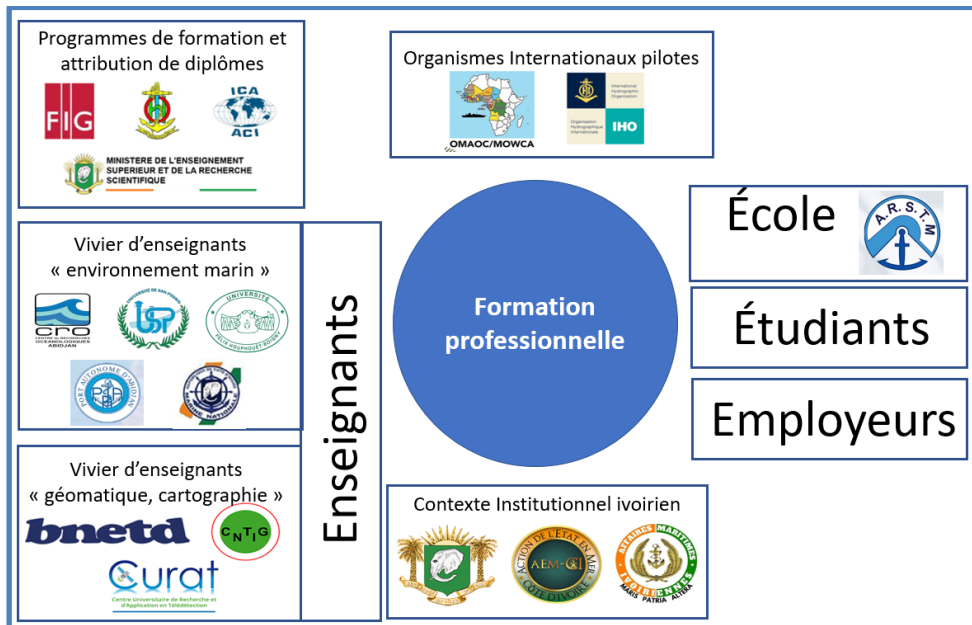


Figure 2: A very favorable context for teaching, learning, obtaining a diploma in order to take up jobs

Editors :

(with the participation of Max Claver GAGUIE from MOWCA and Sangaré SEYDOU from PAA)

Henri Dolou

& Gabin Sogorb





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Permanent du
Comité
Interministériel de
l'Action de l'État en
Mer (SEPCIM AEM)



Ministère des
Transports



Direction Générale
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Ministère de la
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Université Félix Houphouët-Boigny
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Numérique



Comité National
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Géographique

With the assistance of :



Service hydrographique et
océanographique de la marine
(France)



Secrétariat de l'OHI
(Monaco)

TABLE OF CONTENTS

Introduction	8
1 Introduction – Programming	8
2 Team members	8
PART A	10
About the visit	10
3 Context	10
4 Effectiveness of the visit	10
5 Results (report)	11
6 Suite	12
PART B1	13
IVORIAN ORGANISATIONS & INSTITUTIONS: MEETINGS AND COOPERATION POTENTIAL	13
7 Transport – Maritime administrations – State action at sea – Defense (State institutions)	13
7.1 MT: Ministry of Transport - Ministry Delegate to the Ministry of Transport in charge of Maritime Affairs	13
7.2 DGAMP - MRCC : General Directorate of Maritime and Port Affairs - Maritime Rescue Coordination Centre	14
7.2.1 DGAMP	14
7.2.2 MRCC	14
7.3 SEPCIM: Permanent Secretariat of the Interministerial Committee for State Action at Sea (SEPCIM AEM)	15
7.4 MN : Navy (Marine Nationale)	17
8 Port activities	18
8.1 PAA : Autonomous Port of Abidjan	18
8.2 PASP : Autonomous Port of San-Pedro (for the record)	19
9 Research and development in oceanography	19
9.1 CRO : Oceanological Research Center	19
9.2 UFHB: Félix Houphouët-Boigny University including CURAT: University Center for Research and Application in Remote Sensing	20
9.3 USP : University of San-Pedro	22
9.4 IRD : Institute of Research for Development	22
10 Terrestrial cartography - Geomatics	23
10.1 CIGN of BNEDT: Geographic and Digital Information Center of the National Bureau of Technical Studies and Development	23
10.2 CNTIG: National Committee for Remote Sensing and Geographic Information	24

PART B2	25
REGIONAL AND INTERNATIONAL ORGANISATIONS AND INSTITUTIONS: MEETINGS AND COOPERATION POTENTIALS	25
11 MOWCA : Maritime Organisation of West and Central Africa	25
12 ARSTM CAMPUS	27
12.1 ARSTM: Regional Academy of Marine Sciences and Technology	27
13 International development aid organisations (for the record)	29
Appendix I to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	30
Abbreviations	30
Appendix II to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	33
Terms of reference of the visiting team	33
Appendix III to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	35
Sources – References	35
Appendix IV to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	37
List of main contacts in the organisations in Côte d’ivoire	37
Appendix V to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	41
International Agencies in Côte d ’Ivoire – International Schools - IHO/secretariat– France	41
Appendix VI to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	44
Agenda – Events	44
Appendix VII to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	45
Letter of Intent IHO / MOWCA Regional training courses	45
AppendIX VIII to the repport N°021/Shom/DMI/REX/NP dated 26/02/2025	46
Présentation du projet de « CRÉATION d’un Centre d’excellence de FORMATION » (in French)	46

INTRODUCTION

1 INTRODUCTION – PROGRAMMING

The Visit was planned as part of the IHO capacity building activity programme for the year 2025:

- CBWP 2025 Action P-05;
- Training Center Visits (TCV) and International Cooperation Agency Visits (ICAV) in EAthC countries
- Phase 1 : Côte d'Ivoire

It was used (this report does not reflect it) to advance the actions identified during the last Technical Visit of 2021 (Reference in Annex C), namely:

- The accession of Côte d'Ivoire to the IHO;
- The signing of a SOLAS-type Administrative Arrangement with France;
- The constitution of a CNHOC (National Coordination Committee for Hydrography, Oceanography and Marine Cartography);
- The involvement of Côte d'Ivoire in the EAthC (Eastern Atlantic Hydrographic Commission which goes from France to Angola) and more particularly the hosting and organisation of the next conference No. 19 of 2026 ;
- The training of French-speaking Ivorian hydrographers and marine cartographers abroad (pending the existence of specialized regional schools).

It was previously organized locally by:

- Mr Sangaré SEYDOU, Head of the Hydrography Department of the PAA (official correspondent of Côte d'Ivoire to the IHO);
- Colonel Mariko MAMADOU, Technical Advisor to the Secretary General of OMAOC.

The terms of reference for the visit are set out in Annex B.

2 TEAM MEMBERS

The permanent visiting team consisted of:

Name	Institution	Role
John NYBERG	IHO (Secretariat)	Director (15, 16 and 17 January 2025)
Gabin SOGORB	IHO (France/Shom)	Capacity building Coordinator of the Eastern Atlantic Hydrographic Commission (EAthC)
Henri DOLOU	IHO (France/Shom)	Expert Hydrographer
Sangaré SEYDOU	PAA	Head of the Hydrography Department of the Autonomous Port of Abidjan
Max Claver GAGUIE	MOWCA	Programme manager
Yaho Olivier COMBES	ARSTM	Head of the department in charge of Continuing and Professional Training Development

The PAA, in addition to its expertise in port hydrography, provided the necessary logistical support for travel and holding meetings.

Colonel Mariko MAMADOU of MOWCA brought his great maritime expertise and gave the mission the benefit of his large network of contacts in administrative and political circles. MOWCA as a whole provided the local support and global coordination which was essential for the holding of meetings and the signing of the IHO/MOWCA Letter of Intent relating to the establishment of regional hydrography, physical oceanography and marine cartography training courses.

At the end of a very long and rich career, may Colonel Mariko MAMADOU, upon retiring, be greatly thanked.



In the background: Sangaré SEYDOU (PAA) on the far left, Kouadio André N'DOLI (Director of Engineering and Project Management, representing Mr. Hien Yakouba SIE DG of the PAA) in the center and Colonel Mamadou MARIKO (MOWCA) on the far right.

Front: NYBERG (IHO) on the left and Dr Paul ADALIKWU (MOWCA) on the right
Sangaré SEYDOU and Mariko MAMADOU, great architects of the signing of the IHO/MOWCA Letter of Intent

PART A

ABOUT THE VISIT

3 CONTEXT

As defined in the Terms of Reference (Annex B) then presented (Annex G), the purpose of the visit was to study how to “Train for jobs in hydrography, physical oceanography and marine cartography in West and Central Africa” through the creation of a “Training Center of Excellence”.

Train to meet professional needs to practice professions in industry, services, institutions, etc. Both for public and private jobs, nationally and internationally. This is to respond to inadequacies such as the absence of “national” hydrographic institutions covering waters under sovereignty outside ports.

Furthermore, only European countries (France, Spain, Portugal), Morocco (autonomy nearing completion) and Nigeria are currently producing (with qualified personnel) official nautical charts that comply with “SOLAS” requirements.

At this stage, it was a prospective approach, nevertheless based on observations long established during Technical Visits and “IHO” Seminars.

4 EFFECTIVENESS OF THE VISIT

As this is a prospective mission, it is still too early to measure the real effectiveness of the visit. The fact remains that:

- based on past Technical Visits and Seminars, it was able to be prepared in detail ahead of the visit through exchanges and analyzes of existing reports and texts (see references in Annex C);
- the head of the Hydrography Department of the Autonomous Port of Abidjan (PAA) and the Technical Advisor to the Secretary General of the Maritime Organisation of West and Central African (MOWCA) were able to obtain all the desired meetings in the Terms of Reference, at all levels, namely the following stakeholders (managers and teams)
 1. At the state and institutional levels of Côte d’Ivoire:
 - Directeur de Cabinet du Ministre des transports (MT)
 - Directeur Général de la Direction Générale des Affaires Maritimes et Portuaires (DGAMP)
 - Directeur, chef des opérations du Maritime Rescue Coordination Centre (MRCC – Abidjan)
 - Directeur de la Coordination des Opérations de l’AEM du Secrétariat Permanent du Comité Interministériel en charge de l’Action de l’État en Mer (SEPCIM – AEM)
 - Sous-chef d’État-major de la Marine Nationale ivoirienne (MN)
 2. At the autonomous port of Abidjan (PAA):
 - le Directeur Général
 - le Directeur de l’ingénierie et de la maîtrise d’ouvrages (DIMO) (dont dépend le département hydrographie)
 - le Chef du département hydrographie (dont géodésie)
 - le Chef des pilotes maritimes du port d’Abidjan
 - des Responsables des aides à la navigation

3. At the academic and research levels:

- le Directeur du Centre de Recherches Océanologiques CRO, ses chercheurs dont le Chef département environnement et le responsable du Laboratoire de Physique et de Géologie marine : PHYGEM
- des Chercheurs de laboratoires en charge d'océanographie et hydrodynamique côtière de l'Université Félix Houphouët Boigny (UFHB) d'Abidjan. Dont une chercheuse également en responsabilité à la direction de l'Économie Bleue et de l'Environnement Côtier au Ministère en charge de l'environnement
- des Chercheurs du Laboratoire des Sciences de la Matière, de l'Environnement et de l'Énergie Solaire (LASMES) et du Centre Universitaire de Recherche et d'Application en Télédétection (CURAT) de l'Université Félix Houphouët Boigny (UFHB) d'Abidjan
- d'un responsable du Centre Universitaire de Recherche et d'Application en Télédétection (CURAT de l'UFHB)
- le Maître de Recherche, Directeur de l'Unité de Formation et de Recherche Sciences de la Mer (UFR-SDM) de l'Université de San-Pedro (USP)
- le Directeur de Recherche représentant l'Institut de Recherche pour le Développement (IRD - France) en Côte d'Ivoire

4. At the levels of geography and geomatics:

- le Directeur du Centre d'Information Géographique et du Numérique (CIGN) du Bureau National d'Études Techniques et de Développement (BNEDT)
- des Chercheurs du Comité National de Télédétection et d'Information Géographique (CNTIG)

5. For the Maritime Organisation of West and Central African (MOWCA) and its specialized bodies :

- le Secrétaire Général de l'OMAO
- le Directeur Général de l'ARSTM
- le Conseiller AEM du Directeur de l'ISMI

6. At the French embassy:

- l'Attaché de Défense (AD)
- une représentante du Service de Coopération et d'Action Culturelle (SCAC)

7. Expertise France of AFD group:

- la coordinatrice du projet GOGIN II de l'Union Européenne
- l'Expert Renforcement de Capacités du projet GOGIN II de l'Union Européenne)

- summary meeting at the end of the visit was able to take place bringing together all the institutions and organisations met during the week.
- an "IHO /MOWCA" Letter of Intent was signed at the end of the visit in front of partners who have, perhaps more than before, ambitions to share together.

5 RESULTS (REPORT)

Above all, it is important to underline the unanimity of the participants in recognizing the needs to be met and in participating in different ways in the development of the Center.

This report is written to:

- above all, facilitate the transition to the next phase which will consist of setting up the project team and writing the roadmap;
- provide references that will prove useful, at least for those joining the project along the way.

6 SUITE

As stated at the wrap-up meeting, it was agreed that a project team would be needed to start things off:

- made up of competent staff in the following areas: management, “Hydrography – Oceanography – Cartography” professional experience, financing, teaching, communication, etc.
- whose first task will be to write a roadmap which will address long-term project planning with progressively objectives to be achieved over time to train:
 - Hydrographer Senior Technicians CAT B (FIG-OHI-ACI): PRIORITY N°1
 - Marine Cartographers Senior Technicians CAT B
 - Hydrographers Engineers CAT A
- responsible for defining the necessary resources (material, human, financial) and obtaining them:
 - infrastructures
 - educational equipment
 - teachers
 - scholarships for students (economic model to be defined)

Who is now to take what action?

- As proposed and in application of the IHO/MOWCA Letter of Intent, MOWCA will oversee the “Drafting of the roadmap” action;
- For its part, the **IHO** will lead the specific actions of this roadmap within the framework of the “Capacity Building” activities of the IHO Eastern Atlantic Hydrographic Commission (EAHC). The Shom (France) ensures the coordination of these activities;
- All other **stakeholders** who will have a role to play in their respective fields, particularly for training as listed in annex G “STANDARDS OF COMPETENCE FOR CATEGORY “B” HYDROGRAPHIC SURVEYORS”: mathematics, physics, earth sciences, navigation, meteorology, acoustics, remote sensing, tides, current measurement, geodesy, hydrography, marine environment (oceanography), practical work, etc.
- Particular attention will be paid to additional modules to be added to the previously indicated standards which are only minimum standards. The aim is to maximize the employability of students in companies and services (see Annex G for some of the listed professions).

When ?

- From now until the end of **February 2025** for the **roadmap**;
- **For April 2025**: based on this roadmap and report, the Capacity Building Coordinator, within the framework of IHO procedures, will draft action proposals under the Capacity Development programme of the IHO for the next 3 years by addressing the necessary resources (which will need to be extended beyond the IHO to organisations likely to participate in financing);
- The road map drawn up, based on this report, it is suggested to make an appointment with international development agencies present in Abidjan such as those of: the European Union, France, Japan, South Korea, etc

PART B1

IVORIAN ORGANISATIONS & INSTITUTIONS: MEETINGS AND COOPERATION POTENTIAL

The following information was mainly collected before the visit in order to identify cooperation potential and verify it through meetings.

It was also important, to build a common project to create a new training course, to facilitate the mutual recognition that these organisations and institutions deserve to have between them.

These recognitions are also important within the framework of the National coordination Committee for Hydrography, Oceanography and Marine Cartography to be created elsewhere.

7 TRANSPORT – MARITIME ADMINISTRATIONS – STATE ACTION AT SEA – DEFENSE (STATE INSTITUTIONS)

7.1 MT: MINISTRY OF TRANSPORT - MINISTRY DELEGATE TO THE MINISTRY OF TRANSPORT IN CHARGE OF MARITIME AFFAIRS



References :

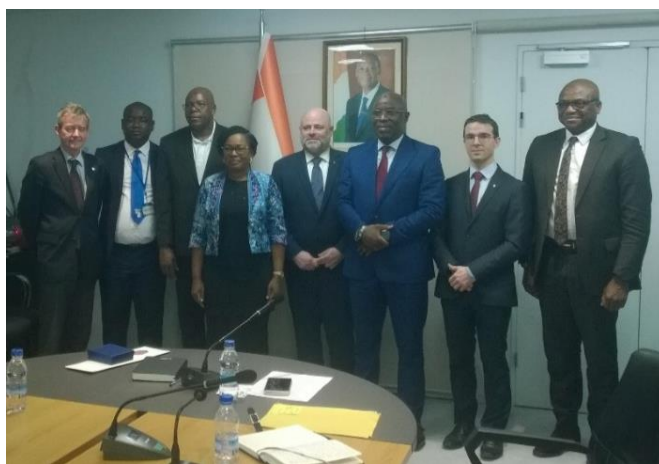
- Internet : <https://www.transports.gouv.ci/>
- Address : Abidjan Plateau - Immeuble POSTEL 2001 21ème et 15ème étage

Ministries exercise, in particular, the following supervision:

- DGAMP ;
- Autonomous Port of San Pedro (PASP) (<https://sanpedro-portci.com/>)
- Autonomous Port of Abidjan (PAA) (<https://www.portabidjan.ci/>)

These are essential ministries in Côte d'Ivoire for :

- port, maritime and river-lagoon affairs
- national hydrography beyond ports
- the creation of the National Coordination Committee for Hydrography, Oceanography and Marine Cartography (CNHOC)
- in connection with the PAA, the representation of Côte d'Ivoire at the IHO (Membership in progress)
- bilateral cooperation with France (Administrative Arrangement)
- audits (management of IMO findings)
- Ivorian ministerial relations with MOWCA



7.2 DGAMP - MRCC : GENERAL DIRECTORATE OF MARITIME AND PORT AFFAIRS - MARITIME RESCUE COORDINATION CENTRE



7.2.1 DGAMP

References :

- Internet :
<https://www.dgamp.ci/activites/coordination-de-sauvetage-maritime-mrcc#openModal>
- Contacts : (+225) 27 22 40 80 35 - BP V 67 Abidjan - info@dgamp.ci - Abidjan, Deux Plateaux Aghien

DGAMP :

- is the General Direction in charge of the administrative management of everything relating to the sea, lagoons, lakes and rivers in Côte d'Ivoire. It leads the policy of maritime, river-lagoon transport, the maritime and lagoon public domain, maritime and port security and safety, maritime cooperation ;
- its relationships: state actors in the maritime and port sector, Economic Partners and Operators, members of the Port Community, users of maritime services, etc.
- DGAMP has IHO/CAT B hydrographers trained in Japan with funding from the Japanese cooperation agency JICA;
- is interested in information likely to address the discrepancies noted during the 2016 IMO audit

7.2.2 MRCC

References :

Reference relating to the new Maritime Code: Law No. 2017-442 of June 30, 2017.

- Internet : <https://mrcc.komptech-cimat.net/presentation>
- Contacts :
CENTRE OPERATIONNEL: (+225) 27 21 25 59 96
BUREAU. CHEF MRCC: (+225) 27 21 25 59 97
STANDARD: (+225) 27 21 26 69 29

The missions of the **Center** - mostly civilian - are as follows (extract):

- search and rescue mission, including operations in the Ivorian zone of responsibility (EEZ) and operations in the international zone (zone 2) in accordance with the multilateral agreement on the coordination of maritime search and rescue services signed on November 9 2007 in LIBERIA by the Ministers in charge of transport;
- maritime navigation surveillance mission, emphasizing that the center carries out the missions of maritime traffic service (STM) and maritime assistance service (MAS),
- disseminating nautical information, which includes the dissemination of weather bulletins as well as information relating to navigation safety,
- "Security" : The SAR Center receives alerts emitted either by ships or by international centers via satellite, in accordance with the SOLAS convention and the international code for the security of ships and port installations (ISPS code).

The MRCC Abidjan has been the main SAR Center for the UEMOA (Union Économique et Monétaire Ouest Africaine - West African Economic and Monetary Union) zone since May 25, 2018.

It is responsible for coordinating the actions of the secondary centers and providing the intervention resources available in the UEMOA area in terms of search and rescue and fight against marine pollution.



7.3 SEPCIM: PERMANENT SECRETARIAT OF THE INTERMINISTERIAL COMMITTEE FOR STATE ACTION AT SEA (SEPCIM AEM)



References :

- Internet : <https://www.sepcim-aem.ci/>

The Permanent Secretariat of the Inter-ministerial Committee for State Action at Sea (SEPCIM AEM) is the monitoring and coordination body for State Action at Sea (AEM). Placed under the authority of the Prime Minister (planned under the authority of the Minister of Defense) it is responsible for pooling the State's resources (material, human and financial) and coordinating the civil and military administrations with jurisdiction at sea.

It is based on two (02) main axes:

- securing the Ivorian maritime space;
- developing a blue economy.

Missions of **SEPCIM AEM** are the following (extracts):

- preparation of monitoring-evaluation and prospective of the updating of the AEM strategy and participation in the definition of the Government's maritime policy;
- coordination at the central level of State Action at Sea;
- operational availability of AEM resources;
- keeping up to date the regulations relating to AEM;
- promotion of international and national rules governing AEM;
- monitoring the operation and animation of maritime prefectures;
- monitoring the State's commitments to sub-regional and international structures (CIC, CRESMAO, CRESMAC, ISMI);
- monitoring the development and implementation of international cooperation.

Issues/topics :

- AEM (and continental waters);
- national coordination: CNHOC for National Committee (Coordination) of Hydrography, Oceanography and Marine Cartography;
- SOLAS-type Administrative Arrangement with France ;
- Relations with Korea.



7.4 MN : NAVY (MARINE NATIONALE)



References :

Internet :

- <https://defense.gouv.ci/defense/marine#>
- https://www.facebook.com/profile.php?id=100064614733396&locale=fr_FR
- https://www.facebook.com/p/Marine-Nationale-Cote-dIvoire-100064614733396/?locale=fr_FR
- French Navy Headquarters: <https://defense.gouv.ci/defense/marine#>

The Navy:

- ensures the surveillance, control and defense of lagoons, waterways, coastlines and maritime areas under national jurisdiction and takes part in community surveillance of the Gulf of Guinea;
- participates in internal and external defense by carrying out observation, transport, support, assistance and interception missions;
- coordinates the operations of the State's Action at Sea.

Topics covered:

- maritime limits;
- specific defense and AEM charts;
- CNHOC;
- training center (Navy participation acquired).



8 PORT ACTIVITIES

8.1 PAA : AUTONOMOUS PORT OF ABIDJAN



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References :

- Internet : <https://www.portabidjan.ci/>
- Address : BP V85 Abidjan Treichville
- National report EAtHC : <https://iho.int/en/eathc18-2024>

The PAA plays a major (but almost exclusive) role in providing nautical information (NAVAREA II correspondent) and transmitting new bathymetric surveys to Shom. According to IHO Publication P-5, it represents Côte d'Ivoire within this organisation. In the past, the Head of the Hydrography Department of the Engineering and Project Management Directorate has always actively participated in IHO meetings and seminars.

The PAA maintains close relations with Shom (France), it is a driving force to:

- finalize Côte d'Ivoire's membership of the IHO;
- finalize the SOLAS Administrative Arrangement with France;
- establish the CNHOC (National coordination Committee for Hydrography, Oceanography and Marine Cartography), the importance of which was recognized at a high level (Ministry of Transport) and the scientific and technical community met during the visit (oceanographers, geophysicists, geomaticians, etc.);
- facilitate or even organize the next IHO EAtHC regional conference in 2026.

The hydrography department (with its floating resources, specific equipment and qualified personnel) is fully qualified, where appropriate, to provide practical training for hydrographic students, under conditions to be defined..

According to the PAA website, the CF-PAA (Training Center of the Autonomous Port of Abidjan) can provide training (<https://www.portabidjan.ci/fr/autorite-portuaire/formations>). However, this Center was not visited during the IHO Visit.



8.2 PASP : AUTONOMOUS PORT OF SAN-PEDRO (FOR THE RECORD)

The duration of the Visit did not allow to meet the actors on site.

Note: nevertheless, the University of San-Pedro participated in the meeting organized at the CRO as well as in the summary meeting (see the USP chapter).

9 RESEARCH AND DEVELOPMENT IN OCEANOGRAPHY

The meeting of academic and research stakeholders was essential. Oceanography is the subject of ambitious research and development and, as a science and technique, is " pulling hydrography upwards ". Oceanographers are a vital source of teachers for marine and coastal sciences and interactions with the atmosphere.

Although meeting a number of important institutions was possible, the corresponding supervisory ministries were not met, as the length of the visit did not allow for this.

The project will deserve to meet the following ministries in the future, as done with the Ministry of Transport (MT):

- Ministry of Higher Education and Scientific Research (MESRS : Ministère de l'Enseignement Supérieur et de la Recherche Scientifique)
- Ministry of the Environment, Sustainable Development and Ecological Transition (MEDDT: Ministère de l'Environnement, du Développement Durable et de la Transition écologique). It should be noted, however, that Dr. Sandrine DJAKOURE (UFHB/LASMES) from the Blue Economy and Coastal Environment Department of the MEDDT participated in numerous meetings.

The pooling of resources, particularly for observation at sea, on lagoons and along the coast, is a desire widely shared here in Côte d'Ivoire as in all the countries visited by the IHO (see the Technical Visit reports).

9.1 CRO : OCEANOLOGICAL RESEARCH CENTER



References :

- Internet : <https://cro.edu.ci/>
- Address : 29, rue des pêcheurs - BP V 18 Abidjan, Côte d'Ivoire

The CRO brought together the main stakeholders concerned with oceanography and the marine environment in general: CRO, UFHB, CURAT, USP, IRD.

Presentation :

- The CRO (Public Administrative Establishment of a Scientific and Technological nature) has the following mission to:
 - promote any technology and device that contributes to development through the enhancement of the aquatic environment,
 - provide scientific and technical information in the various social, professional and cultural environments concerned,
 - contribute to training and research.
- The CRO includes a Research Sub-Directorate (S/DR) including an Environmental Department where the PHYGEM Laboratory is located.
- The Marine Physics and Geology Laboratory (PHYGEM: Laboratoire de Physique et Géologie Marine) of the Environment Department supports the implementation of research activities in the areas of coastal sediment dynamics, the morphology and sedimentology of the

seabeds of marine, lagoon and lake systems, the quality and the particulate and dissolved flows of the contributions of hinterland waterways to the Ivorian coast.

- It provides researchers with a framework aimed at meeting the requirements for carrying out their research activity. PHYGEM aims to provide users and managers of the coastal fringe with knowledge on coastal and fluvial sedimentary processes (sedimentary input from continental waterways) necessary for better coastal management.
- The areas of activity covered include:
 - coastal erosion (retreat of the coastline, sedimentary),
 - submersion of barrier sandbars,
 - bathymetry and sedimentology of lagoon, lake and marine water bodies (foreshore),
 - movements of passes and estuary,
 - hydrology of estuarine areas,
 - fluvial inputs of materials of continental origin reaching the oceans (quality and particulate and dissolved flows of waterways).



9.2 UFHB: FÉLIX HOUPHOUËT-BOIGNY UNIVERSITY INCLUDING CURAT: UNIVERSITY CENTER FOR RESEARCH AND APPLICATION IN REMOTE SENSING



The UFHB constitutes a very important pool of teacher-researchers.

The promotion given to geospatial data is likely to bring together the “operational” actors in charge of hydrography, oceanography and, through GIS, marine cartography.

Like the project to create the Center of Excellence, particular attention is given by the UFHB to the employability of students, another fundamental reason for collaborating.

Reference (oceanography) :

- <https://w.univ-fhb.edu.ci/parcours-formation/master-ocean-et-littoral/>

Extracts :

The Masters of the University Center for Research and Application in Remote Sensing (CURAT) of the UFR-STRM (Earth Sciences and Mining Resources) carry the Mention Remote Sensing and GIS with five (05) specialties including: Analysis and Processing of Digital Images (ATIN), Climate, Environment and Sustainable Development (CE2D) and Ocean and Coast (OLIT). These Masters promote geospatial data to solve various problems in areas such as urban planning, land use planning, environmental management, natural resource management, disaster management, etc...

Current climate changes have impacts that severely affect coastal and marine environments. Indeed, climate change aggravates phenomena such as erosion, marine submersion during storms (often associated with flooding phenomena due to the overflow of coastal waterways) and influences the availability of fishery resources in marine and coastal ecosystems. . It is therefore important to study all of this in a systemic approach. Therefore, develop and apply effective management tools and strategies in both physical and operational oceanography for better knowledge of the functioning of coastal-marine environments and better management of their resources. The courses taught in the Ocean and Coastal sector (OLIT) give learners scientific and technical knowledge which equips them to contribute effectively to the resolution of these problems through the use of remote sensing and GIS

Objectives of the Ocean and Coast Master (OLIT) :

It aims to train competent and versatile professionals in the field of geomatics sciences applied to the management of the coastal-marine environment, fishing, maritime navigation, etc. OLIT training is in line with the needs of the market and related sectors.

The OLIT Master graduate is able to:

- process satellite images and extract information useful for oceanography;
- describe and understand the functioning of a coastal-maritime system;
- understand how coastal-maritime environments operate;
- know the methods and data sources used to study coastalization;
- assess the impacts of climate change on the coastal environment and coastal risks using geomatics;
- carry out an environmental diagnosis on a given coastal-maritime territory;
- design Webmapping or 3D type tools adapted to the dissemination of geomatics results intended for various audiences;
- evaluate actions to reduce risks and adapt to climate change in the coastal zone.

The career opportunities available to the Master's graduate in OLIT are:

- entrepreneurship to develop innovative solutions
- design or consulting office (Geomatics, Environment, Transport, Agriculture, etc.)
- businesses (geolocation, mobile telephony, banking, etc.)
- research institutions
- development aid agencies
- national and international NGOs
- programme and Development Fund M
- Ministries in charge of: Agriculture/Water and Forests/Territorial Planning/Environmental Protection and their implementing agencies
- territorial authorities (District, Region, Department, Town Hall, etc.)

UFHB / CURAT - University Center for Research and Application in Remote Sensing (+ GIS).

- Internet : <https://curat-edu.org/>

Applied research. Not visited but represented at the CRO meeting.

Among the main teams are:

- Geography team (UFR Sciences of Human and Society);
- Atmospheric Physics team (UFR Sciences of Structures, Material and Technology);
- Earth Sciences team (UFR Earth Sciences and Mining Resources);
- Mathematics team (UFR Mathematics and Computer Science).

9.3 USP : UNIVERSITY OF SAN-PEDRO

References :

- Internet : <https://usp.edu.ci/> ; <https://usp.edu.ci/sdm>
- Address : BP, 1800 San Pedro, Côte d'Ivoire



Extracts from the website:

- The Marine Sciences Training and Research Unit (UFR-SDM) at the University of San Pedro is a framework for training skills and handling technologies. It aims to be innovative and forward-looking, with cutting-edge solutions that inspire seaside communities. As an educational driving force, the UFR-SDM, through its research and the provision of competent tools and managers, aims to be a crucible for the promotion of maritime professions that will make Côte d'Ivoire an African naval power.
- It is staffed by 21 teachers. The teaching staff specialize in mathematics, physics, chemistry, biology, geology, geography and hydrogeology.

9.4 IRD : INSTITUTE OF RESEARCH FOR DEVELOPMENT



References :

- Internet : <https://www.ird.fr/cote-ivoire/presentation>

The IRD is cited for its involvement in research programmes in Côte d'Ivoire. Its relations with numerous Ivorian academic and research organisations (e.g. CRO, UFHB) make it an important local contact for the training project.

IRD staff can also be consulted on development support research strategies and procedures, for example through its contacts at the French Embassy (Service de Coopération et d'Action Culturelle - SCAC), and may also be introduced to the DUE.

In addition, the IRD has a long history of cooperation in regional programmes, which is significant when it comes to setting up a regional training centre.

Its experience in "twinning" regional schools in Africa with French schools will be more than useful.

Presentation :

Among the IRD's scientific priorities are:

- climate: variability, risks, modeling, ocean-atmosphere interactions;
- environment and resources: ecology of aquatic ecosystems, marine resources.

Since 2014, the IRD has been based on the campus of the university Félix Houphouët-Boigny (UFHB) in premises made available by the Ivorian government. These facilities also house staff from the French embassy for the C2D Higher Education and Research component and the Franco-Ivorian Hub for Education.

IRD staff are hosted, without exception, by their Ivorian partners such as the university Félix Houphouët Boigny and the Oceanological Research Centre, with whom they conduct joint research programmes in the fields of oceanography, hydrology and environmental sciences.

10 TERRESTRIAL CARTOGRAPHY - GEOMATICS

10.1 CIGN OF BNETD: GEOGRAPHIC AND DIGITAL INFORMATION CENTER OF THE NATIONAL BUREAU OF TECHNICAL STUDIES AND DEVELOPMENT



References :

- Internet : <https://www.bnetd.ci/fr>
- Adresses : **Headquarters** : Boulevard Hassan II, Cocody, 04 bp 945 Abidjan 04
CIGN : Avenue Joseph Anoma, Cocody, Abidjan
Training center : Route du Lycée Technique, Cocody, Abidjan

The **BNETD** is a reference for geographical information in Côte d'Ivoire and depository of the national photo library and map library.

The **BNETD**, through its Geographic and Digital Information Center (CIGN), produces cartographic data and develops geographic information systems necessary for the study, implementation and operation of development work on the territory.

The **CIGN** ensures the coordination and control of mapping and remote sensing work on behalf of the State of Côte d'Ivoire and for its national and international clients.

Missions / Volet Géographique

- Exécuter des travaux de cartographie et de télédétection d'intérêt général pour des tiers.
- Coordonner, normaliser et contrôler des travaux de cartographie et de télédétection.
- Centraliser l'archivage de toutes les documentations aérospatiales et cartographiques entrepris en Côte d'Ivoire.





10.2 CNTIG: NATIONAL COMMITTEE FOR REMOTE SENSING AND GEOGRAPHIC INFORMATION

References :

- Internet : <http://cntig.net/>
- Adress : Rue des jasmins. Lot n° 10 bis, Cocody danga BP V 324 Abidjan - Côte d'Ivoire

Extracts from Website :

The **CNTIG** is the pool of expertise in geographic information systems, remote sensing and cartographic applications coupled with new information technologies. It supports and strategically advises state structures and their various branches in the implementation of their development and modernization projects using geospatial tools.

The CNTIG's expertise mainly covers the sector of geoinformation technologies, cartography, remote sensing and fields related to the application of geomatics. The fields of application their skills are: public security, defense, natural resources, thematic mapping, the banking and insurance sector, development and planning of national infrastructure.

The CNTIG also intervenes in the implementation of information systems, in feasibility studies, in the training of tailor-made personnel up to subcontracting in large-scale projects.

The CNTIG is the custodian of the geographic data bank from various data producers.

With the data at its disposal and those coming from external data providers, the CNTIG offers thematic cartographic products in various fields.

The CNTIG offers services at the user's request on various themes. The products are offered in various portable exchange formats such as: PDF, Geopdf, jpeg, PNG etc...

The CNTIG) has activities close to the CIGN of the BNETD which is the depositary of the national map library and photo library.



PART B2

REGIONAL AND INTERNATIONAL ORGANISATIONS AND INSTITUTIONS: MEETINGS AND COOPERATION POTENTIALS

11 MOWCA : MARITIME ORGANISATION OF WEST AND CENTRAL AFRICA



References :

- Internet : <http://www.omaoc.org/>
- Adress : BP: V 257-Abidjan-Côte d'Ivoire
Cocody Riviera Golf 4, Boulevard Arsène Usher Assouan, Rue E49

MOWCA carries out its activities through three Specialized Bodies as well as Maritime Academies

Specialized bodies:

- Port Management Association of West & Central Africa (PMAWCA) ;
- Union of African Shippers Councils (UASC) ;
- African Armaments Africains (3A).

Maritimes Academies:

- Regional Academy of Marine Sciences and technology of Abidjan (ARSTM) ;
- Regional Maritime University of Accra (RMU) ;

Les Organes Spécialisés :



Extract (<http://www.omaoc.org/dossier-suite19.php>)

OMAOC GS urges engagement of hydrographic training institutes for maritime safety and environmental conservation



Dr. Paul Adalikwu, the Secretary General of the Maritime Organisation of West and Central Africa (MOWCA), calls for increased participation of the Accra Regional Maritime University (RMU) and the Regional Academy of Marine Sciences and Technologies (ARSTM) in Abidjan in carrying out hydrographic surveys in OMAOC member countries.

Addressing participants at the 18th conference of the Eastern Atlantic Hydrographic Commission (EAtHC) in Casablanca, Kingdom of Morocco, Dr. Adalikwu highlights the importance of supporting these two MOWCA training establishments to undertake hydrographic surveys. The aim is to improve the safety of vessel navigation and foster sustainable marine environments throughout West and Central Africa.

Dr. Adalikwu highlights the capacity of both institutions to organize seminars and develop hydrography programmes as part of their maritime engineering training. This proposal aligns with the International Hydrographic Organisation (IHO) initiative to establish centers of excellence in hydrographic training.

During discussions held on the sidelines of the conference, Dr. Adalikwu engaged with Dr. John Nyberg of the IHO and senior officials of the EAtHC. It is agreed that a EAtHC team will visit the RMU and the ARSTM to assess the feasibility of implementing a hydrography programme at the engineering level.



Dr. Adalikwu highlights the eligibility of OMAOC maritime training institutions for such programmes, citing the adequacy of their facilities, availability of qualified lecturers, potential partnerships with international universities and the presence of training hydrographic agencies within the public administration or port authorities of Ghana and Côte d'Ivoire.

Following fruitful discussions, MOWCA and IHO/EAtHC commit to maintaining communication and planning evaluation visits at a later date. Both parties decide to invite the IHO to the 19th session of the MOWCA General Assembly in the last quarter of 2025, with the aim of enlightening ministers on the benefits of integrating hydrography into their maritime programmes.

The EAtHC, operating under the auspices of the IHO, plays a vital role in coordinating hydrographic and charting activities for safety of navigation and environmental protection along coastal regions from France to Angola, encompassing the territories of the MOWCA member states

12 ARSTM CAMPUS

12.1 ARSTM: REGIONAL ACADEMY OF MARINE SCIENCES AND TECHNOLOGY



References :

- Internet : <https://arstm.net/>
- Adress : Yopougon Niangon Loko - B.P. V 158 Abidjan

ARSTM is the regional maritime and industrial training institution which serves the fifteen (15) French-speaking countries of West and Central Africa. As a specialized body of the Maritime Organisation of West and Central Africa (MOWCA), it is responsible for twenty-five (25) States, stretching from Mauritania to Angola.

The ARSTM is made up of four (04) distinct entities: two higher schools, an apprenticeship college, a Strategic Training Institute and a research center, including:

- The École Supérieure de Navigation (ESN), specialized in the training of seagoing personnel (officers) of the merchant navy... including
 - Licence Professionnelle en Sciences Nautiques
 - Master professionnel en Sciences Nautiques
 - Licence Professionnelle en Mécanique Navale et Master Professionnel en Mécanique Navale



- The Maritime Port and Logistics Research Center (CREMPOL) is a specialized body within the Regional Academy of Maritime Sciences and Techniques (ARSTM). Strengthened by his association with the ARSTM, an institution recognized for its expertise in the maritime and oceanographic fields, CREMPOL benefits from an academic and professional environment conducive to research and innovation in the maritime fields, ports and logistics.
- The ARSTM Board of Directors is made up of the Ministers in charge of the Merchant Marine of the eight (08) countries signatories to the Operating Protocol, namely: Benin, Burkina Faso, Congo, Côte d'Ivoire, Gabon, Guinea, Togo, and the Democratic Republic of Congo, as well as MOWCA.
- The Chairmanship of the Board of Directors is rotating and is currently held by Burkina Fasso; The General Management is ensured by Côte d'Ivoire; The Deputy General Management is provided by Congo; Daily management is entrusted to a Management Committee.



12.2 ISMI : INTERREGIONAL MARITIME SECURITY INSTITUTE

References :

- Internet : <https://ismi-ci.com/>
- Adress : Institut de Sécurité Maritime Interrégional, Yopougon Niangon Loko
B.P. V 158 Abidjan, République de Côte d'Ivoire

Source : <https://ismi-ci.com/linstitution/>

ISMI mission:

Train and strengthen the capacities of civil and military personnel from the administrations of the States of the Gulf of Guinea with skills at sea, as well as architectural personnel from Yaoundé (CIC, CRESM, CMC).).

Target audience :

The administrations of the French-, English- and Portuguese-speaking States of the Gulf of Guinea with jurisdiction over the sea:

- Maritime prefectures;
- Police and Customs;
- Maritime and Fisheries Administration;
- Administration in charge of the Marine Environment;
- Administration in charge of Hydrocarbons;
- Judicial personnel and lawyers involved in the maritime sector;
- Foreign Affairs Staff;
- Naval, Air and Land Forces;
- Ports;
- Etc...



Source : <https://ci.ambafrance.org/Institut-de-Securite-Maritime>

The Interregional Maritime Security Institute (ISMI) provides training that meets the needs of the States of the Gulf of Guinea in the field of maritime safety and security and State action at sea.

The headquarters of the Institute is located in Côte d'Ivoire, within the Regional Academy of Marine Sciences and Techniques (ARSTM).

The Interregional Maritime Security Institute (ISMI) in Abidjan was created in 2015 to support the States of West and Central Africa as part of the "capacity building" decided by the Heads of State and Government at the Yaoundé summit in June 2013.

Located on the site of the Regional Academy of Marine Sciences and Techniques (ARSTM), ISMI is a training center which trains civil and military executives from administrations and private entities with skills in the fields of security and maritime security as well as the protection of the marine environment. It aims to enable the 19 States bordering the Gulf of Guinea to strengthen their capacities in terms of State Action at Sea (AEM).

It is a manifestation of France's support for the construction of a regional maritime security architecture as desired by African States (Yaoundé Declaration mentioned above).

France, via the Ministry of Europe and Foreign Affairs (MEAE / DCSD), finances part of the budget necessary for the operation of the ISMI.

France also provides the ISMI with three collaborators from:

- the corps of maritime affairs administrators (project manager);
- the corps of Army Commissioners (navy anchorage);
- and a Customs Officer (naval officer sector).

13 INTERNATIONAL DEVELOPMENT AID ORGANISATIONS (FOR THE RECORD)

The duration of the IHO Visit did not allow to really meet these organisations.

Only Expertise France (EF) from the Agence Française de Développement (AFD) group was met.

The roadmap must include such meetings and prepare for them.

APPENDIX I TO THE REPPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025

ABBREVIATIONS


ACI	Association Cartographique Internationale
AEM	Action de l'État en Mer <i>State Action at Sea</i>
AFD	Agence Française de Développement (EF : Expertise France)
ARSTM	Académie Régionale des Sciences et Techniques de la Mer
BEGM	Bureau Génie Maritime (Marine Nationale ivoirienne)
BNEDT	Bureau National d'Études Techniques et de Développement
CBSC	<i>Capacity Building Sub-Committee (IHO)</i> Sous-comité de renforcement des capacités
CEMMAR	Chef d'Etat-Major de la Marine Nationale (CIV)
CBWP	<i>Capacity Building Work Programme (IHO)</i> Programme de travail de renforcement des capacités
CIGN	Centre d'Information Géographique et du numérique (BNEDT)
CNHOC	Comité National d'Hydrographie, d'Océanographie et de Cartographie marine
CNTIG	Comité National de Télédétection et d'Information Géographique
CRO	Centre de Recherches Océanologiques
CURAT	Centre Universitaire de Recherche et d'Application en Télédétection (UFHB)
DGAMP	Direction Générale des Affaires Maritimes et Portuaires
EAtHC	<i>Eastern Atlantic Hydrographic Commission (IHO)</i>
CHAtO	Commission Hydrographique de l'Atlantique Oriental (OHI)
ECDIS	Electronic Charts Display Information System
ENC	<i>Electronic Navigational Chart</i> Cartes électroniques de navigation
FIG	Fédération Internationale des Géomètres
GMDSS	<i>Global Maritime Distress and Safety System</i>
SMDSM	Système Mondial de Détresse et de Sécurité en Mer
GOGIN	<i>Gulf of Guinea Interregional Network (UE)</i> <i>YARIS (Yaoundé Architecture Regional Information System)</i>
IALA	<i>International Organisation for Marine Aids to Navigation</i>
IHO	<i>International Hydrographic Organisation</i>
OHI	Organisation Hydrographique Internationale
IMO	<i>International Maritime Organisation</i>

OMI	Organisation Maritime Internationale
IOC	<i>Intergovernmental Oceanographic Commission</i>
COI	Commission Océanographique Intergouvernementale
IRD	Institut de Recherche pour le Développement (France)
ISMI	Institut de Sécurité Maritime Interrégional (ARSTM)
JICA	<i>Japan International Cooperation Agency,</i>
Ldi	Lettre d'Intention
Lol	<i>Letter of Intention</i>
MD	Ministère de la Défense (MN : Marine Nationale)
MEDDT	Ministère de l'Environnement, du Développement Durable et de la Transition écologique
MESRS	Ministère de l'Enseignement Supérieur et de la Recherche Scientifique
MN	Marine Nationale (CIV)
MOWCA	<i>Maritime Organisation of West and Central Africa (IMO)</i>
OMAOC	Organisation Maritime de l'Afrique de l'Ouest et Centrale (OMI)
MRCC	<i>Maritime Rescue Coordination Centre</i>
MSI	<i>Maritime Safety Information</i>
RSM	Renseignement de Sécurité Maritime
MT	Ministère des Transports
NHC	<i>National Hydrographic Committee</i>
CNH	Comité National Hydrographique
PAA	Port Autonome d'Abidjan
PASP	Port Autonome de San Pedro
PCA	<i>Primary Charting Authority</i> Autorité cartographique principale
PMAWCA	<i>Port Management Association of West and Central Africa</i>
AGPAOC	Association de Gestion des Ports d'Afrique de l'Ouest et du Centre
PHYGEM	Laboratoire de Physique et Géologie Marine (CRO)
RHC	<i>Regional Hydrographic Commission (EAtHC)</i>
CHR	Commission Hydrographique Régionale (CHAtO)
SCAC	Service de Coopération et d'Action Culturelle (Ambassade de France)
SEPCIM	Secrétariat Permanent du Comité Interministériel de l'Action de l'État en Mer (AEM) (Premier Ministre)
Shom	Service hydrographique et océanographique de la marine (France) <i>French Hydrographic and Oceanographic Service</i>
SMAN	Système mondial d'avertissement de navigation <i>Worldwide Navigational Warning Service (WWNWS)</i>
SMDSM	Système Mondial de Détresse et de Sécurité en Mer

GMDSS	Global Maritime Distress and Safety System (GMDSS)
SOLAS	<i>United Nations] Convention for the Safety of Life at Sea (United Nations)</i> Convention pour la sauvegarde de la vie humaine en mer (Nation Unies)
UE	Union Européenne
UFHB	Université Félix Houphouët-Boigny (Abidjan)
USP	Université de San Pedro
WACA	<i>West Africa Coastal Areas Management programme</i> Programme de gestion du littoral ouest-africain
WWNWS SMAN	<i>Word-Wide Navigational Warning Service</i> Service Mondial d'Avertissements de Navigation

APPENDIX II TO THE REPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025

TERMS OF REFERENCE OF THE VISITING TEAM

 <p>International Hydrographic Organization</p> <p>IHO</p> <p>Organisation Hydrographique Internationale</p>	<p>Training Center Visits (TCV) and International Cooperation Agency Visits (ICAV) in EAtHC countries</p> <p>Action P-05 of the Capacity Building Working Programme 2025</p> <p>Part 1 : Visit in Côte d'Ivoire</p>
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General context

The IHO Capacity Building Programme aims to coordinate the development of capacities of Member and Associate States in the field of hydrography and nautical cartography in order to meet the objectives of the IHO and the obligations related to Chapter V of the SOLAS Convention and the United Nations Convention on the Law of the Sea.

The stakeholders concerned are those in charge of maritime navigation safety, hydrography, cartography, the coastal environment and training related to the sea. In general, the blue economy (sea, ports, lagoons and rivers) and State Action at the Sea. Regionally, the IHO has decided to promote cooperation in West and Central Africa within the framework of the EAtHC: the Eastern Atlantic Hydrographic Commission.

Specific context of development of Regional Training Centers

There is an urgent need for training in hydrography and nautical cartography in Africa. Training outside Africa is neither a sufficient nor a sustainable solution. Apart from the Nigerian Navy Hydrographic School (NNHS - in Port Harcourt - not accredited by FIG-IHO-ICA), there is no training centre in the EAtHC area.

Objectives

The main objective of the visit is to study the feasibility and promote training of hydrography, physical oceanography and marine cartography in West and Central Africa.

This already involves identifying academic and practical training centers (universities, maritime academies, geographical institutes, port technical services, etc.) that could potentially meet the needs. It is then a question, beyond the reception infrastructures, of studying the capacities to be brought together: teachers, training materials (including boats and data acquisition and processing equipment), budgets, etc. Solutions will be sought and proposed.

Visit in Côte d'Ivoire

To meet these objectives, priority will be given to meeting or bringing together the relevant stakeholders present in Côte d'Ivoire, including:

- MOWCA and ARSTM (+ ISMI)
- The PAA representing Côte d'Ivoire at the IHO and having a "hydrography" department
- Ivorian ministerial structures that may be stakeholders such as:
 - The Ministry of Transport (including Maritime and Port Affairs: DGAMP)
 - The Permanent Secretariat of the Interministerial Committee for State Action at the Sea
- the Navy

- Scientific and technical organisations likely to constitute pools of teachers such as:
 - the CIGN (Center for Geographic and Digital Information) and the CNTIG (National Committee for Remote Sensing and Geographic Information)
 - the CRO (Center for Oceanological Research)
 - the Félix Houphouët Boigny University of Abidjan and the University of San-Pedro

International development agencies will be usefully consulted.

APPENDIX III TO THE REPPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025

SOURCES – REFERENCES

Object	Consult	Sources - References	Comments
Expressions of needs from EAtHC countries			
<ul style="list-style-type: none"> What the countries themselves express directly 	<ul style="list-style-type: none"> National reports from regional hydrographic commissions (every 2 years) 	<ul style="list-style-type: none"> https://iho.int/ https://iho.int/en/rhcs https://iho.int/en/eastern-atlantic-hc 	<p>Last reports (2024) on : https://iho.int/en/eathc18-2024</p> <p>Next reports in 2026</p>
<ul style="list-style-type: none"> What the IHO Technical Visit teams collected and assessed 	<ul style="list-style-type: none"> Technical Visits reports 	<ul style="list-style-type: none"> https://iho.int/en/capacity-building-and-technical-cooperation https://iho.int/en/capacity-building-assessment 	<p>In 2026, all countries in West and Central Africa will have benefited from a Technical Visit</p> <p>Meetings with international bodies (e.g. JICA, DUE, AFD) have been initiated in recent years (e.g. Madagascar, DRC, Guinea)</p>
<ul style="list-style-type: none"> What is defended by the EAtHC Capacity Building Coordinator (CB coordinator) 	<ul style="list-style-type: none"> The file (every year) compiled for the CBSCs (Capacity Building Sub-committee) 	<ul style="list-style-type: none"> https://iho.int/ https://iho.int/en/ircc https://iho.int/en/cbsc 	<p>Last documents/assessment (2024) on : https://iho.int/en/cbsc22-2024 (consult 3-years RHC Work Plans of EAtHC)</p> <p>Next documents in 2025 (march)</p>
<ul style="list-style-type: none"> Analysis conducted during the EAtHC18 seminar in April 2024: "20 years of capacity building actions within the CHAtO, Assessment and Perspectives" 	<ul style="list-style-type: none"> Post meeting document: [Report of the Regional Awareness Seminar: eng ; fra] 	<ul style="list-style-type: none"> https://iho.int/en/eathc18-2024 	<p>Important summary document</p>

Training programmes			
<ul style="list-style-type: none"> Standards of Competence (CAT B et A) 	<ul style="list-style-type: none"> S-5B : Hydrographic Surveyors S-8B : Nautical Cartographers S-5A : Hydrographic Surveyors 	<ul style="list-style-type: none"> https://iho.int/en/standards-and-specifications 	Priority training is for Category B hydrographers
Miscellaneous - Management			
<ul style="list-style-type: none"> Creation of a CNHOC (National Hydrographic, oceanographic, and cartography committee) 	<ul style="list-style-type: none"> publication of "IHO M-2": The need for national hydrographic services (Version 3.0.7 June 2018) 	<ul style="list-style-type: none"> https://iho.int/fr/publications-mixtes 	The "National Hydrographic Coordinating Committee" and "Stakeholder Ministries" chapters

APPENDIX IV TO THE REPPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025

LIST OF MAIN CONTACTS IN THE ORGANISATIONS IN CÔTE D'IVOIRE

Prénom NOM	Fonction	Tél (+225)	Mail
MT	Ministère des Transports		https://www.transports.gouv.ci/
Dioman CONE	Magistrat Directeur de Cabinet	07 07 91 15 08	cabinet@transports.gouv.ci dioman.cone@yahoo.fr
Aya Odette KOUAKOU C.	Administrateur des Affaires Maritimes et Portuaires Conseiller Technique Maritime	07 07 87 71 35 27 20 34 48 75 27 20 34 48 85	Odeya2011@yahoo.fr
PAA	Port autonome	d'Abidjan	Représentant OHI
Seydou SANGARE	DIMO/Hydro: Chef du département hydrographie NAVAREA II	05 05 26 77 34 07 49 35 58 83	seysangare@yahoo.fr seydou.sangare@paa.ci
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APPENDIX V TO THE REPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025
INTERNATIONAL AGENCIES IN CÔTE D'IVOIRE – INTERNATIONAL SCHOOLS -
IHO/SECRETARIAT- FRANCE

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Agences Internationales de développement			
AFD Agence française de développement			
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APPENDIX VI TO THE REPPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025

AGENDA – EVENTS

Dates – Subjects – Events	Observations – Locations
Monday 13 January 2025	
Port hydrography PAA (Technical Services responsible for Hydrography and navigation aids)	PAA
Marine– Oceanography CRO, IRD, UFHB (University of Abidjan), USP (University of San-Pedro)	CRO
Defense MARINE NATIONALE (Navy)	BASE NAVALE - ETAT-MAJOR
Day 2 : Tuesday 14 January 2025	
Maritimes State Action at Sea affairs DGAMP et MRCC	DGAMP
Geography – Land cartography BNEDT/CIGN	BNEDT
Geography – Land cartography CNTIG	CNTIG
Day 3 : Wednesday 15 January 2025	
State Action at Sea SEPCIM	SEPCIM
Maritime – International coopération i OMAOC	OMAOC
Government Côte d'Ivoire MINISTERE DES TRANSPORTS	CABINET
Day 4 : Thursday 16 January 2025	
Training schools ARSTM et ISMI	ARSTM
Development agencies EF (Expertise France from AFD group)	EF
Debriefing and preparation for the next day's summary meeting (OHI and OMAOC)	Hotel
Day 5 : Friday 17 January 2025	
Representation of Côte d'Ivoire at the IHO Meeting of the IHO Director (John NYBERG) with the DG of the PAA	PAA/DG
Summary meeting of all stakeholders : recommendations, roadmap, actions, communication.	PAA meeting room
Signature of the Letter of Intent	PAA meeting room

APPENDIX VII TO THE REPPORT N°021/SHOM/DMI/REX/NP DATED 26/02/2025
LETTER OF INTENT IHO / MOWCA REGIONAL TRAINING COURSES



**International Hydrographic
Organisation**



**Maritime Organisation of
West and Central Africa**

Letter of intent

between the International Hydrographic Organisation (IHO) and the Maritime Organisation of West and Central Africa (MOWCA) relating to the establishment of regional training courses in hydrography and nautical cartography

The International Hydrographic Organisation on the one hand,
and
The Maritime Organisation of West and Central Africa on the other hand,

Within the predefined framework of the Memorandum of Understanding of July 15, 2016 between the IHO and the MOWCA;

Deploring, in West and Central Africa, the total absence of internationally recognized training courses in hydrography and nautical cartography;

Recognizing the urgent need for recurrent regional training offerings in hydrography and nautical cartography;

Decide to join efforts for cooperation on the development and the conduct of sustainable and recurring courses of recognized training in hydrography and nautical cartography in accordance with the applicable IHO Standards and recognized schemes in the specialized organs of MOWCA which are its maritime academies, in particular::

- The Regional Academy of Marine Sciences and Techniques of Abidjan (Académie Régionale des Sciences et Techniques de la Mer d'Abidjan : ARSTM) ;
- The Regional Maritime University of Accra (RMU);

Signed in Abidjan on 17 January 2025


**For the International Hydrographic
Organization**

John NYBERG
Director

**For the Maritime Organization
of West and Central Africa**

Dr. Paul ADALIKWU
Secretary General

PRÉSENTATION DU PROJET DE « CRÉATION D'UN CENTRE D'EXCELLENCE DE FORMATION » (IN FRENCH)

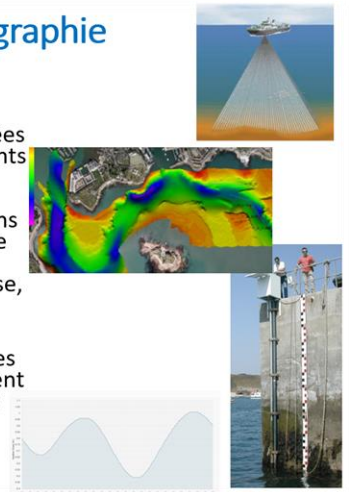


**Former aux emplois en hydrographie,
océanographie physique et cartographie marine
en Afrique de l'Ouest et du Centre**
Création d'un Centre d'excellence de formation

Visite de l'OHI en Côte d'Ivoire
 13-17 janvier 2025

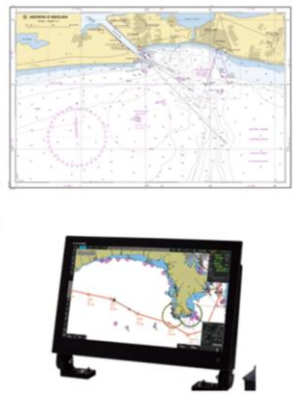
Définitions : hydrographie, l'océanographie physique

- L'**hydrographie** est la branche des sciences appliquées traitant du mesurage et de la description des éléments physiques des océans, des mers, des zones côtières, des lacs et des fleuves, ainsi que de la prédiction de leur changement dans le temps, essentiellement dans l'intérêt de la sécurité de la navigation et à l'appui de toutes les autres activités maritimes, incluant le développement économique, la sécurité et la défense, la recherche scientifique et la protection environnementale.
- L'**Océanographie physique** est l'étude de l'état et des processus physiques au sein de l'océan principalement des mouvements (ex: marées et courants marins) et des propriétés des masses d'eau océaniques (ex: température et salinité)



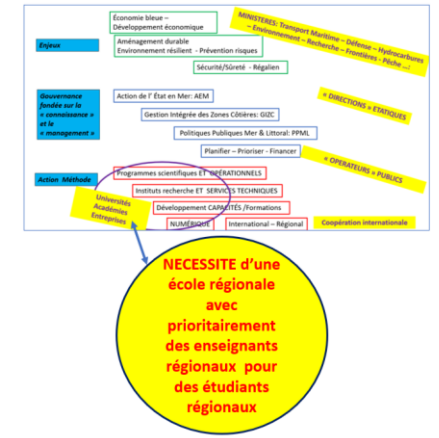
Définitions : cartographie marine

- La **cartographie marine** permet aux navigateurs de se situer et de se diriger. La bathymétrie (profondeurs - sondes), les obstacles sous-marins, la topographie des côtes et leur balisage, les zones de navigation réglementée, les installations en mer, les ports et leurs approches, les radio-services, la marée, les courants, sont autant de sujets à décrire à l'adresse du navigateur pour l'aider dans ses analyses et ses décisions, pour la préparation et le suivi de sa route. La carte marine, imprimée ou numérique (sous la forme de base de données ou d'images), est le support emblématique de ces renseignements.
- Les cartes marines sont généralement publiées par les services hydrographiques officiels des États côtiers ; elles engagent la responsabilité de l'Etat en cas d'erreur. Elles doivent être tenues à jour.



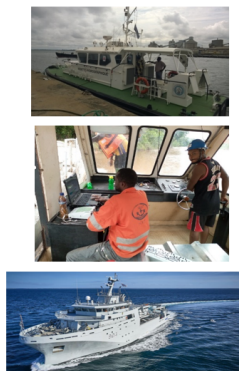
Des sciences et techniques au profit d'activités et métiers:

- Besoin de professionnels pour exercer des métiers dans:
 - l'industrie,
 - les services,
 - Les institutions, etc
- Emplois Publics et Privés
- En National et International



Métiers et activités: Hydrographe, océanographe, cartographe

- Hydrographe et cartographe portuaire (emplois d'hydrographes déjà existants dans les Ports Autonomes)
- Hydrographe et cartographe fluvial, lacs et lagunes
- Hydrographe, océanographe et cartographe marin dans ZEE (Zone Economiques Exclusives) et littoral (Service Hydrographique National)

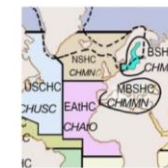


Insuffisances, dans la zone de la CHAto (Commission Hydrographique de l'Atlantique Oriental: de la France à l'Angola)

Quasiment pas d'institutions « nationales » couvrant les eaux sous souveraineté hors des ports

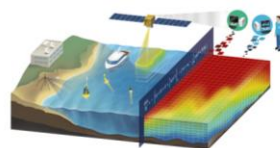
Seuls les pays européens (France, Espagne, Portugal), le Maroc et le Nigeria produisent des cartes marines officielles conformes aux exigences « SOLAS »

Les cartes marines de tous les autres pays sont produites, éditées, diffusées, commercialisées par le Royaume-Uni, la France et Portugal. Pays qui ont les moyens et les **personnels compétents pour le faire**



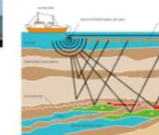
Autres métiers et activités connexes:

- Géomètre « littoral »
- Aménagements de bassins portuaires (bureau d'études)
- Gestion Intégrée des Zones Côtières - Protection du littoral (érosion)
- Aides à la navigation
- Recherche et développement en océanographie (physique hauturière et côtière : modélisation numérique de la colonne d'eau, géophysique marine : fonds marins) et études du climat (élévation du niveau de la mer - marées)



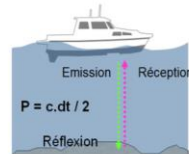
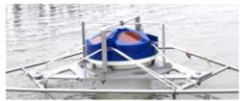
Autres métiers et activités connexes:

- Dragage (sociétés locales et internationales : Jan De Nul Group, Boscalis, Boscalis, Van Oord, Jan Deme)
- Pose de câbles sous-marins
- Offshore surveys : positionnement, bathymétrie (Industrie pétrolière)
- Énergies Marines Renouvelables (EMR) (ex : Éolien Offshore)
- Développeurs de matériels et logiciels d'acquisition, de traitement, de gestion de données, de en mer et littoral
- Revendeurs de matériels et logiciels



Techniques à maîtriser: mesures « géophysiques »

- Marégraphie (analogique, numérique, temps réel)
- Bathymétrie (acoustique, non acoustique)
- Topographie
- Sédimentologie (prélèvements, imagerie...)
- Géophysique (magnétisme, gravimétrie)
- Océanographie (dont courantométrie)



Compétences et savoir à acquérir : les questions de l'hydro-océano-cartographe

- quelles sciences et techniques ? (bathymétrie, topographie, marégraphie, sédimentologie, géophysique, océanographie ...)
- quels paramètres observés et géolocalisés ? (géodésie, localisation à la mer)
- quels capteurs et comment les mettre en œuvre ?
- quels systèmes d'acquisition et traitement ?
- quels archivages, gestion et mise à disposition des données ? (infrastructures de données spatiales, formats d'échanges, métadonnées...) ... (des Bases de Données confidentielles au cloud/Big data)
- quelles plateformes d'observation ? (navires, vedettes, drones marines, radars, avions, drones aéroportés, satellites)
- quels produits ? (cartes, SIG, modèles de marée et courants, prévision océanographique)

Techniques à maîtriser: la géolocalisation, la science de la mesure, les bases de données ...

- Toute mesure devant être géolocalisée! (optique, radiolocalisation, satellites)
- Tout repose sur la science de la mesure (précision, reproductibilité, estimation/maîtrise des incertitudes ...).
- Sans oublier la gestion et la mise à disposition des données:
 - infrastructures de données spatiales (Bases de données), formats d'échanges, métadonnées...Les réseaux de communication et de mises à disposition (portails de données)
 - Les systèmes d'exploitation et de visualisation (SIG)



Sciences et Techniques à maîtriser: Ca s'apprend dans des écoles ! Écoles d'hydrographie homologuées Cat B FIG-OHI-ACI

- Constat: absence d'écoles spécialisées (hydrographie, cartographie marine) en Afrique de l'Ouest et du Centre à part la NNHS (Nigerian Navy Hydrographic School - néanmoins pas encore homologuée)
- Obligation, pour être diplômé, de se rendre à l'étranger
- Au résultat:
 - peu de jeunes formés,
 - développement régional de ces sciences et techniques réduit etc



Une ambition: des écoles d'hydrographie, océanographie physique et cartographie marine en Afrique de l'Ouest et du Centre . Méthode

- L'objectif principal de la visite OHI (OMAOC associée) est d'étudier la faisabilité et promouvoir des enseignements (accessibles, récurrents et pérennes) d'hydrographie, d'océanographie physique et de cartographie marine en Afrique de l'Ouest et du Centre.
- Il s'agit déjà d'identifier les centres de formation académiques et pratiques (universités, académies maritimes, instituts géographiques, services techniques des ports...) pouvant potentiellement répondre aux besoins.
- Il s'agit ensuite, au-delà des infrastructures d'accueil, d'étudier les capacités à réunir : enseignants, matériels pédagogiques (dont vedettes et équipements d'acquisition et de traitement de données), budgets, etc.
- Des solutions seront recherchées et proposées.

Méthode: attendus des rencontres d'acteurs concernés

Bien identifier les acteurs nationaux et internationaux voulant s'impliquer dans le projet de création de cursus de formations dans une école en Côte d'Ivoire

Reconnaitre qu'il est des capacités déjà existantes en Côte d'Ivoire sur lesquelles s'appuyer:

- Infrastructures (écoles)
- Vivier d'enseignants pour la théorie (cours magistraux)
- Vivier d'enseignants pour la pratique (travaux pratiques sur plan d'eau)

Reconnaitre qu'il est des capacités manquantes et identifier rapidement des solutions déjà existantes pour les constituer

Lancer un projet sur le moyen long terme

Méthode: ce que pourrait être un tel projet

- Pour démarrer, constitution d'une équipe restreinte de définition du projet
 - Équipe internationale (manager, expérience métier « HOC » et financements, pédagogique, culture, communication)
 - Chargée de la planification du projet sur le long terme: objectifs à atteindre dans le temps pour former des:
 1. Hydrographes Techniciens Supérieurs CAT B (FIG-OHI-ACI)
 2. Cartographes marins Techniciens Supérieurs CAT B
 3. Hydrographes Ingénieurs CAT A
 - Chargée d'en définir les ressources (matérielles, humaines, financières) nécessaires et les obtenir
 - Infrastructures
 - Équipements pédagogiques
 - Enseignants

Méthode: Phase 1: Hydro CAT B

- Il s'agit là du besoin prioritaire à satisfaire
- Il ne manque pas déjà d'atouts pour le satisfaire
- Concrètement:
 - Identifier la structure d'accueil de la formation
 - Rédiger un programme de formation conforme à la norme et le faire homologuer
 - Ce programme comprendra les enseignements minimum exigés par la norme
 - + les compléments jugés nécessaires pour satisfaire au mieux les besoins des employeurs futurs
 - Recruter, éventuellement former et gérer des enseignants (prioritairement locaux + compléments étrangers si nécessaire) pour exécuter ce programme
 - Définir les formules pédagogiques (présentiel, distanciel)
 - Rédiger les cours
 - Enseigner



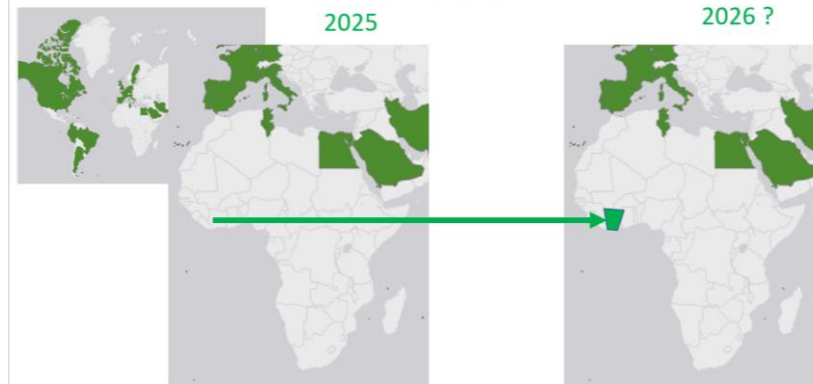
STANDARDS OF COMPETENCE FOR CATEGORY "B" HYDROGRAPHIC SURVEYORS

The S5-B standard contains the following list of *Basic subjects* and *Essential subjects*:

- B1: Mathematics, Statistics, Theory of Errors
- B2: Information and Communication Technology
- B3: Physics
- B4: Earth Sciences
- B5: Nautical science
- B6: Meteorology
- E1: Underwater Acoustics
- E2: Remote Sensing
- E3: Water Levels and Flow
- E4: Positioning
- E5: Hydrographic Practice
- E6: Hydrographic Data Management
- E7: Environment
- CFFP: COMPREHENSIVE FINAL FIELD PROJECT

FIG-IHO-ICA IBSC Recognized Programmes and Schemes

Hydrography CAT B



LISTE DE DIFFUSION

DESTINATAIRES :

- SECRETARIAT DE L'OHI
(DIRECTEUR JOHN NYBERG, ASSISTANT DIRECTEUR ERIC LANGLOIS, ASSISTANT DIRECTEUR LEONEL MANTEIGAS, MADAME LORÈNE CHAVAGNAS)
- PRÉSIDENT DE LA CHATO (MAROC)
- VICE-PRÉSIDENT DE LA CHATO (ESPAGNE)
- AMBASSADE DE FRANCE EN CÔTE D'IVOIRE
(COLONEL DAMIEN MIREVAL)

COPIES INTÉRIEURES :

- DG
- DMI (D-REX-EUR)
- DOPS (PSM - NA)
- DRH (ECO)
- ARCHIVES (DMIDSD 3.054).