



INTERNATIONAL HYDROGRAPHIC ORGANIZATION
MESO AMERICAN & CARIBBEAN SEA HYDROGRAPHIC COMMISSION



CAPACITY BUILDING PLAN

Programme document for the period 2021-2023

1. INTRODUCTION

1.1. Rationale

It is estimated that over 30% of the world's crude oil passes through the Caribbean which is home to over 50% of the world's cruise shipping. In addition, the Caribbean endures a hurricane season from July to November; the storms can and do leave a trail of devastation on the islands and their coasts. For these reasons, it is crucial that SOLAS contracting Governments undertake hydrographic surveys as and when required, that they arrange for the compilation and publication of hydrographic data, the dissemination and keeping up to date of all nautical information necessary for safe navigation.

The IHO Capacity Building Strategy classifies the development of hydrographic services into three phases:

- those which are in Phase 1: Collection and circulation of nautical information, necessary to maintain existing charts and publications up to date;
- those which are in Phase 2: Creation of a surveying capability to conduct coastal and offshore projects; and
- those which are in Phase 3: Produce paper charts, ENC and publications independently.

An important and complementary element of hydrographic capacity building is the development of a mature infrastructure for Maritime Safety Information (MSI) and such an infrastructure sits firmly in Phase 1.

Coastal/maritime states have certain treaty obligations (SOLAS) placed on them and the IHO/MACHC effort aims at assisting states in meeting these obligations. To achieve this a national understanding and coordination effort is required noting that:

- resources (human, time, finance etc) are limited, consequently prioritization is a fundamental issue;
- planning must be realistic;
- longer term training such as CAT A or B are not covered because such training is out of the scope of the IHO CB budget.

Nowadays, the rapidly evolving technology has replaced old navigation paradigms and demands continuous investments in education and training so that the Hydrographic Services can continue to provide high quality products and services which satisfy new demands of the maritime community.

MACHC is aware of its Member States' efforts to provide quality service to the international maritime community in order to contribute to the safety and security of navigation and human life at sea as well as the preservation of the environment in its region and, as part of the IHO community, to contribute to the achievement of the objectives and directions of the Organization. This document provides the MACHC Capacity Building plan to support those efforts.

1.2. Aims and objectives

The overall aims of the Plan are:

- a) to train staff, at various levels, to ensure a much needed capability on MSI, hydrography and nautical cartography, particularly after natural disaster or other incidents

which could affect water depths in harbours and approaches; and

b) to comply with the IHO resolutions and guidelines regarding MSI, hydrographic and nautical cartographic activities.

The specific objectives of this Plan are:

a) to ensure a basic level of MSI is established in all coastal states to, produce Local/Coastal/NAVAREA Warnings, communicate effectively with the charting authority and implement the MSI elements of GMDSS;

b) to instruct staff in the region on the methods of carrying out hydrographic surveys, to improve safety of navigation through enhanced navigational products;

c) to promote the establishment of Hydrographic Services (HS) and the evolution of CB Phases of the established ones.

1.3. Priorities

Despite the breadth of need existing in the Region, for the period of 2021 to 2023, priorities should be set in the sequence of the following list, the first of which are the highest:

0 - activities which may promote awareness of national MSI and hydrographic obligations;

1 - activities which may improve the capacity of existing HS in Phase 1, including MSI-activities;

2 - activities which may improve the capacity of existing HS in Phase 2; and

3 - activities which may improve the capability of existing HS in Phase 3.

Note the link between the training activities listed in paragraph 2. Activities below, and phases 0 to 3 listed above

The current hydrographic capacity status of countries/territories of the region is in Annex **A**.

1.4. Methodology and Procedures

This Plan will be reviewed each year, and adjustments made as necessary.

Each year the Commission will decide responsibilities for the programmed events of the subsequent year.

The MACHC Capacity Building Coordinator will send to the Chair, no later than January 31st of each year details of all planned projects. The projects must be written in the standards established by the IHO CBSC (see Annex **B**).

Projects supported by IHO CB Fund must follow the IHO CBSC procedures published at the IHO website.

The Chair will check the proposed projects and, if requesting IHO CB Fund support, will send them to the IHO CBSC Chair and Secretary no later than MARCH 15th, otherwise, will take the appropriate action.

2. Activities

| Phase | Activity | Project Objective | Target Audience |
|-------|----------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| | <u>Technical and Advisory Visits</u> | | |
| 0.1 | High level visit to governmental authorities | To raise government awareness of their SOLAS treaty obligations | Related Ministries and Heads of National Agencies, particularly governmental decision makers |
| 0.2 | Technical assessment and advice visit | Provide advice to identify how coastal states meet their | Maritime Sector National |

| Phase | Activity | Project Objective | Target Audience |
|-------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| | | hydrographic and MSI responsibilities | Agencies. Stakeholders and decision makers |
| 0.3 | Technical Implementation Visit | To audit the state of recommendations made as a result of previous technical visits | Maritime Sector National Agencies. Stakeholders and decision makers |
| 0.4 | Seminar on Raising Awareness of Hydrography | | Maritime Sector National Agencies. Stakeholders and decision makers |
| | <u>Technical Workshops, Seminars, Short Courses</u> | | |
| 1.1 | MSI Course (3 days) Training on establishment of MSI structure and basic MSI procedures | To establish a core group of trained persons to deal with MSI | MSI Practitioners |
| 1.2 | Phase 1 Skills (5 days) An introduction to the assessment and promulgation of navigationally significant data | To provide a core group with the skills and knowledge to assess and promulgate navigationally significant information to the wider maritime community (this course supports the MSI course) | MSI Practitioners |
| 1.3 | MSI Workshop (3 days) | To reinforce the learning at 1.1 above | MSI Practitioners |
| 2.1 | Basic Hydrographic Survey Course (10 days) | To provide awareness of national hydrography, hydrographic surveying and nautical cartography | Maritime Sector Decision Makers |
| 2.2 | Port and Shallow Water Survey Course (5 days) | A workshop to aid exchange of information and ideas about the challenges faced by port and shallow water surveyors in the MACHC region | Port Surveyors |
| 2.3 | MBES Processing (5 days) | To train a group of hydrographic surveyors the techniques required to post-process MBES data | Hydrographic Practitioners |
| 2.4 | MSDI and Database Management (5 days) | To give participants an understanding of spatial data infrastructures (SDI) including the importance and role of data management and databases | Government Planners |
| 2.5 | Tides and Water Level Workshop (5 days) | To provide fundamental knowledge and understanding of tides and water level, and their applications for hydrographic surveying and mapping activities | Hydrographic Practitioners |
| 2.6 | Seabed Classification Workshop (5 days) | To provide a group of professionals with the skill and knowledge to use acoustic techniques to map extensive seabed surfaces and to determine the products of seabed | Hydrographic Practitioners |

| Phase | Activity | Project Objective | Target Audience |
|-------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| | | mapping | |
| 3.1 | Basic ENC and ENC Production course (10 days) | To train a group of professionals with a practical introduction to S-57 data | Cartographic Practitioners |
| 3.2 | ENC Production and QA (5 days) | To train a group of professionals to verify and validate S-57 data | Cartographic Practitioners |
| 4.1 | Law of the Sea Workshop (5 days) | To teach participants the basic technical principles applicable to maritime boundary delimitation. The delegates should be from technical hydrographic or cartographic backgrounds | Maritime Sector Decision Makers |
| 4.2 | Tsunami inundation mapping workshop (5 days) | To improve the modelling and presentation of regional tsunami inundation maps | Maritime Sector and emergency planning |
| 4.3 | Foundation Module of the Marine Cartography & Data Assessment (MCDA) CAT B Course (3 weeks) | To provide participants with the knowledge of cartographic basics covering the underlying details of the nautical chart. | Cartographic Practitioners |
| 4.4 | Compilation Module of the Marine Cartography & Data Assessment (MCDA) CAT B Course (5 weeks) | A highly practical module where the student will compile into a database all the relevant nautical chart content in compliance with IHO S-57 using CARIS S-57 Composer software. | Cartographic Practitioners |
| 4.5 | Product Construction Module of the Marine Cartography & Data Assessment (MCDA) CAT B Course (2 weeks) | This module covers the production of an ENC base cell including ENC validation and exchange set creation using CARIS S-57 Composer together with the production of a Paper Chart using CARIS Paper Chart Composer. | Cartographic Practitioners |
| 4.6 | Data Assessment Module of the Marine Cartography & Data Assessment (MCDA) CAT B Course (3 weeks) | This module focuses on decision making and processing of new information using software and traditional checking processes. | Cartographic Practitioners |
| 4.7 | Maintenance Module of the Marine Cartography & Data Assessment (MCDA) CAT B Course (2 weeks) | Another highly practical module which features Notice to Mariner updating of digital and paper products together with New Edition maintenance of the ENC and Paper Chart. | Cartographic Practitioners |
| | <u>Long Courses and Programmes</u> | | |
| HA | Category "A" Hydrographic Programme | A recognized CAT A level Programme in accordance with IHO Publication S-5 – <i>Standards of Competence for Hydrographic Surveyors</i> | Hydrographic Managers |
| HB | Category "B" Hydrographic Programme | A recognized CAT B level Programme in accordance with IHO Publication S-5 – <i>Standards of Competence for Hydrographic Surveyors</i> | Hydrographic Practitioners |

| Phase | Activity | Project Objective | Target Audience |
|-------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| CA | Category "A" Nautical Cartography Programme | A recognized CAT A level Programme in accordance with IHO Publication S-8 – <i>Standards of Competence for Nautical Cartographers</i> | Cartographic Managers |
| CB | Category "B" Nautical Cartography Programme | A recognized CAT A B level Programme in accordance with IHO Publication S-8 – <i>Standards of Competence for Nautical Cartographers</i> | Cartographic Practitioners |
| | On-the-job and onboard training | | |
| OJ | On-the-job training | | |
| OB | Onboard training | | |
| | | | |
| | | | |
| | | | |
| | | | |

3. Capacity Building Program

The program of capacity building activities for the period 2021-2023 is detailed in Annex C.

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MACHC Counties/Territories Capacity Building Phase StageReference: http://www.iho-ohi.net/mtg_docs/CB/CBA_TechnicalVisits.htm

| | Country / Territory | NHC or NHCC | CB Phase 1 | CB Phase 2 | CB Phase 3 | Last TV |
|----|------------------------------------------|-------------|------------|------------|------------|---------|
| 1 | Antigua & Barbuda | 2 | 4 | 1 | 3 | 2006 |
| 2 | Bahamas | -1 | 2 | 1 | 3 | 2006 |
| 3 | Barbados | 2 | 4 | 1 | 3 | 2006 |
| 4 | Belize | 1 | 2 | 2 | 3 | 2011 |
| 5 | Brazil | -1 | 4 | 4 | 4 | 2008 |
| 6 | Colombia | -1 | 4 | 4 | 4 | N/R |
| 7 | Costa Rica | -1 | 2 | 1 | 3 | 2011 |
| 8 | Cuba | 1 | 4 | 4 | 4 | N/R |
| 9 | Dominica | -1 | 2 | 1 | 3 | 2006 |
| 10 | Dominican Republic | 1 | 2 | 1 | 3 | 2018 |
| 11 | El Salvador | 1 | 1 | 3 | 3 | 2017 |
| 12 | Grenada | 0 | 3 | 1 | 3 | 2006 |
| 13 | Guatemala | 2 | 2 | 2 | 3 | 2019 |
| 14 | Guyana | -1 | 4 | 2 | 3 | 2013 |
| 15 | Haiti | -1 | 1 | 4 | 4 | 2017 |
| 16 | Honduras | -1 | 1 | 2 | 3 | 2010 |
| 17 | Jamaica | 2 | 4 | 1 | 3 | 2006 |
| 18 | Mexico | -1 | 4 | 4 | 4 | N/R |
| 19 | Netherlands - Antilles & Aruba (Leeward) | 2 | 4 | 4 | 4 | N/R |
| 20 | Netherlands - Antilles (Windward) | 2 | 4 | 4 | 4 | N/R |
| 21 | Nicaragua | -1 | 2 | 2 | 3 | 2014 |
| 22 | Panama | 1 | 2 | 2 | 3 | 2020 |
| 23 | St. Kitts & Nevis | 1 | 4 | 1 | 3 | 2006 |
| 24 | St. Lucia | -1 | 4 | 1 | 3 | 2006 |
| 25 | St. Vincent & Grenadines | 0 | 4 | 1 | 3 | 2006 |
| 26 | Suriname | 2 | 4 | 4 | 3 | 2008 |
| 27 | Trinidad & Tobago | -1 | 2 | 1 | 3 | 2006 |
| 28 | UK - Anguilla | 1 | 2 | 3 | 3 | 2006 |
| 29 | UK – Bermuda | -1 | 2 | 3 | 3 | |
| 30 | UK - British Virgin | -1 | 2 | 3 | 3 | 2006 |
| 31 | UK - Cayman | -1 | 2 | 3 | 3 | 2006 |
| 32 | UK - Montserrat | 2 | 2 | 3 | 3 | 2006 |
| 33 | UK - Turks & Caicos | -1 | 2 | 3 | 3 | 2006 |
| 34 | USA - Navassa | 0 | 4 | 4 | 4 | N/R |
| 35 | USA - Puerto Rico & US Virgin | 2 | 4 | 4 | 4 | N/R |
| 36 | United States of America | 2 | 4 | 4 | 4 | N/R |



| | | | | | | |
|----|-----------|----|---|---|---|-----|
| 37 | Venezuela | -1 | 4 | 4 | 4 | N/R |
|----|-----------|----|---|---|---|-----|

KEY

1. The numerical grid below describes the status of the National Hydrographic Committee (NHC)/National Hydrographic Coordination Committee (NHCC):

| 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 |

2. 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 country is aware of its national obligations but does not have the means to do it |
| 2 | The country has some ability to fulfil national obligations |
| 3 | The country fulfils its national obligations through a third party |
| 4 | The country fulfils 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 – through bilateral agreements a third party may be used to provide a solution for chart production and distribution (for ENCS through RENCs).

3. Those coastal states with a mature hydrographic service and consequently don't require a technical visit are marked as N/R (not required)



PROJECT SUBMISSION MODEL

IDENTIFICATION

Project Number :

| | |
|-------------------------------------------|--|
| Project Name: | |
| Submitting RHC/Country: | |
| Date: | |
| Institution executing the project: | |
| Name of responsible: | |
| Address: | |
| Telephone: | |
| Fax: | |
| e-mail: | |

GENERAL SPECIFICATIONS

(Please provide detailed information in Annex of no more than three pages)

| | |
|--------------------------------------------|--|
| Background information | |
| <i>Justification of the project</i> | |

| | |
|------------------------------------------|--|
| <i>Countries involved</i> | |
| Exposition of the problem | |
| General objective | |
| Specific objectives | |
| Outputs/Products | |
| Other deliverables | |
| Achievements and awaited benefits | |

| | |
|-------------------------------|--|
| Schedule of activities | |
|-------------------------------|--|

RESOURCES

| | |
|-------------------------------------------|--|
| Contribution by countries involved | |
| Contribution | |



| | |
|-------------------------------------------|--|
| by other parties | |
| Contribution expected from CBCFund | |
| Total Cost (euros) | |
| Breakdown of costs | |
| From CBC Fund (item and amount) | |

PROJECT SUMMARY

| Sponsor RHC | Year of Execution | Country/ Countries involved | Priority/ Status | Project Name | Project Objective | Benefits | Assistance required | Cost | Allocation and Priority (to be filled by CBC) | Contact Person |
|------------------------|------------------------------|--------------------------------------------|-----------------------------|-------------------------|------------------------------|-----------------|--------------------------------|-------------|--------------------------------------------------------------|---------------------------|
| | | | | | | | | | | |

Name and Signature of the RHC Chairman

Capacity Building Program for the period 2021-2023

2021

| Activity | Beneficiaries Countries / Territories | Responsible | Period | Obs. |
|------------------------------------------------------------------|----------------------------------------------|----------------------|---------------|-------------|
| High Level Technical Visit | Dominican Republic | MACHC CB Coordinator | 2021 | |
| High Level Technical Visit | Jamaica | MACHC CB Coordinator | 2021 | |
| Technical Assistance Visit | Honduras | MACHC CB Coordinator | 2021 | |
| Hydrographic Awareness Seminar to precede the main MACHC meeting | For identified coastal states | MACHC CB Coordinator | 2021 | |
| Non IHO Funded Regional Activities | | | | |
| SDB Workshop | For identified coastal States | EOMAP, TCarta & Esri | 2021 | |
| COCATRAM | For identified coastal states | COCATRAM | 2021 | |
| IALA World-Wide Academy | For identified coastal states | IALA | 2021 | |

2022

| Activity | Beneficiaries Countries / Territories | Responsible | Period | Obs. |
|------------------------------------------------------------------|----------------------------------------------|----------------------|---------------|----------------------------------------------------------------------------------------|
| Technical Implementation Visits | For identified coastal states | MACHC CB Coordinator | 2022 | IHO Funded |
| MSI Workshop | For identified coastal states | MACHC CB Coordinator | 2022 | IHO Funded Raised at MACHC21 CBC - To be delivered and developed by Colombia and WWNWS |
| Hydrographic Awareness Seminar to precede the main MACHC meeting | For identified coastal states | MACHC CB Coordinator | 2022 | IHO Funded Raised at MACHC21 CBC |
| Bathymetric Data Processing Course | For identified coastal states | MACHC CB Coordinator | 2022 | IHO Part Funded. Raised at MACHC21 CBC – With Neighbouring |



| | | | | |
|-----------------------------------------|-------------------------------|----------|--|-------|
| | | | | RHCs, |
| Non IHO Funded Regional Activities | | | | |
| SDB Workshop | | | | |
| COCATRAM | For identified coastal states | COCATRAM | | |
| IALA World-Wide Academy | For identified coastal states | IALA | | |
| NOAA Ship Experience 'Empowering Women' | For identified coastal States | NOAA | | |

2023

| Activity | Beneficiaries Countries / Territories | Responsible | Period | Obs. |
|------------------------------------------------------------------|--------------------------------------------------|----------------------|---------------|-------------|
| Technical Implementation Visits | For identified coastal states | MACHC CB Coordinator | | |
| Hydrographic Awareness Seminar to precede the main MACHC meeting | For identified coastal states | MACHC CB Coordinator | | |
| MBES Processing Course (5 Days) | For identified coastal states | MACHC CB Coordinator | | |