



# IHO CAPACITY BUILDING PROGRAMME

## TECHNICAL VISIT

**The State of**

**Hydrography and Nautical Charting**

**in the Republic of Lebanon**



16-18 April 2019

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## Abbreviations

BA	British Admiralty
CB	Capacity Building
CBSC	Capacity Building Sub-Committee
CNRS	National Council for Scientific Research
EEZ	Exclusive Economic Zone
ENC	Electronic Navigational Chart
IIM	Italian Navy Hydrographic Institute
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INT	International
LAF	Lebanese Armed Forces
LAF-Navy	Lebanese Armed Forces – Navy
LNHS	Lebanese Navy Hydrographic Service
MBSHC	Mediterranean and Black Seas Hydrographic Commission
MSI	Maritime Safety Information
NHC	National Hydrographic Committee
NHCC	National Hydrographic Coordinating Committee
NtMs	Notice to Mariners
PCA	Primary Chart Authority
RHC	Regional Hydrographic Commission
RNC	Raster Navigational Chart
SHOM	Hydrographic and Oceanographic Service of the French Navy
SOLAS	[United Nations] Convention for the Safety of Life at Sea
TN-ONHO	Turkish Navy- Office of Navigation, Hydrography and Oceanography
TTW	Territorial Waters
UKHO	United Kingdom Hydrographic Office
UN	United Nations
UNCLOS	United Nations Convention on Law of the Sea
WMO	World Meteorological Organization
WWNWS	World Wide Navigation Warning Service

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## Executive Summary

### TECHNICAL VISITS

A proposal for a technical visit to Lebanon (Item A-09 / CBWP 2019) was approved in the 16<sup>th</sup> meeting of the Capacity Building Sub-Committee (CBSC-16) in Goa/India, which was held between 30 May - 01 June 2018, as a follow-up to the visit in 2014, to assess the current status of nautical charting and hydrography in the country and to provide advice to the government, public administration and to stakeholders on the way ahead.

The first Technical Visit to Republic of Lebanon was paid in 2009 under the IHO Capacity Building (CB) Program and the second one in 2014 was paid by representatives of Turkey, France and IHB. This visit's purpose was to follow up the recommendations made in both 2009 and 2014, and to provide further recommendations.

### GENERAL AWARENESS IN STATE OF LEBANON

The Republic of Lebanon has been a member of the IMO since 1966 and is a signatory to the SOLAS Convention. In general there is awareness in Lebanon on the obligations and provisions under SOLAS Chapter V, Regulations 4 and 9 to ensure that appropriate hydrographic and charting services are made available.

The Government of Lebanon, through its various agencies, is aware of the current state of hydrography and nautical charting in Lebanon and the benefits of modern hydrography to economic growth, safety of navigation and protection of the marine environment. Awareness has been heightened at the working level by the visit of the IHO Technical Team.

### IHO MEMBERSHIP OF LEBANON

Even though the Republic of Lebanon is not a member of the IHO, it holds an observer status within the MBSHC.

With the clear support of the Lebanese Government and the LAF, the LAF-Navy is the overarching body to coordinate the national hydrographic effort in the country. It assumed main responsibility for national hydrography and nautical cartography development. The IHO Technical Team considers that the LAF-Navy staff and the LNHS in all levels is fully aware of the national responsibility and takes intense pride in its successful delivery.

### INTERNATIONAL OBLIGATION OF LEBANON

The Lebanese Government decided in 2011 to join the IHO and the LAF created the NHC, comprising only the LAF-Navy Staff, which doesn't exist anymore.

The LNHS was also created in 2013 under the LAF-Navy, with an activation date of 01 February 2014 (Government Decision Number: 20, 2014 December, 23th).

Soon after, the Joint Maritime Chamber which is related to National maritime operations has created the National Committee of Integrated Maritime Policy .

### CERTIFIED PERSONNEL

LNHS possess personnel with Category-A and Category-B Hydrographic Surveyors Certification. On the other hand, LNHS currently has no Nautical Cartographers certified. There's also need for certified personnel on MSI, WWNWS and IALA courses.

### HYDROGRAPHIC SURVEY & NAUTICAL CARTOGRAPHY CAPABILITY

SHOM)is the PCA for Lebanon. The cartographic production is kept up-to-date but the underlying surveys are new with the last three years. Lebanon currently has no national capability for nautical chart production, but a minimum capability for geospatial production.

A comprehensive chart updating programme is required to contribute to a modern maritime and port infrastructure and to allow Lebanon to fulfill its international obligations according to (in accordance with) Regulations 4 and 9 of Chapter V of the SOLAS Convention.

No formal agreement was identified between Lebanon and the PCA. A few more arrangements are underway with the other countries in the region.

The last identified surveys in the country were conducted by SHOM in 2010 and 2011 mainly to address the needs of the Port of Beirut while the remainder areas are not kept updated in accordance with modern survey standards.

Hydrographic surveying capability however does exist in Lebanon and is managed by the CNRS for scientific purposes with the Scientific Research Boat CANA and cooperation is already in place with the LAF-Navy. The cooperative use of this hydrographic asset will be useful for both parties.

Since 2016, LNHS conducted hydrographic surveys aiming ports and approaches via two boats delivered by Italian Ministry of Defense, and joint surveys in cooperation with other countries.

#### MSI RESPONSIBILITY

There is no clearly established MSI organization in Lebanon. The LNHS is in charge of MSI at National level, and in contact with NAVAREA-III Coordinator for international promulgation. Local and Coastal Warnings are disseminated via VHF Radio through voice communication by LAF-Navy Stations.

MSI training should be considered as a high priority in order to provide the fundamental step towards a more capable structure.

The Directorate General of Land and Maritime Transport currently sends MSI to LNHS and they are aware of the role of PCA (SHOM) and UKHO.

It was evident to the Technical Visit Team that Lebanon already possesses hydrographic/charting capabilities, awareness and willingness and there has been many developments, improvements, new hydrographic surveys, INT Chart and ENC production through PCA, MSI provision through NAVAREA-III Coordinator and procurement of the new equipment and the tools to fulfill the recommendations made in the technical visit paid in 2014 under the IHO CB Program, that will help Lebanon to build a solid maritime infrastructure to support the safety of navigation and the economic growth.

# **REPORT OF TECHNICAL VISIT TO LEBANON**

## **(2019, April 16<sup>th</sup> – 18<sup>th</sup>)**

### **References:**

- A. MBSHC Chair's letter dates 2019, March 18<sup>th</sup> (Notification to National Representatives of Republic of Lebanon to meet with the IHO Technical Visit Team).
- B. 19<sup>th</sup> MBSHC Report from Lebanon (2015)
- C. IHO CB Technical Visit Report for Lebanon (2014)
- D. The Need of National Hydrographic Services – IHO Publication M2 Version 3.0.6 (2016)
- E. National Hydrographic Regulations – IHO Publication C-16 1<sup>st</sup> Edition (2007)
- F. IHO CBSC Procedure 9: Guidelines to Conduct Technical Visits

### **Introduction**

IHO is an intergovernmental international organization, currently comprising of 90 Member States. The IHO seeks to ensure that all States with coastlines and maritime interests provide adequate and timely hydrographic data, products and services, thereby advancing maritime safety and efficiency in support of the protection and sustainable use of the marine environment. The United Nations recognizes the IHO as the competent authority for hydrography and nautical charting. The IHO, based in Monte Carlo (Participate of Monaco), is managed with a secretariat led by a Secretary General with two Directors.

The Republic of Lebanon is not currently a member of IHO.

The IHO encouraged the establishment of RHCs to coordinate hydrographic activity and cooperation at the regional level. The RHCs are made up predominantly of IHO Member States; however, other regional States also participate as Associate Members. RHCs are not formal bodies of the IHO, but work in close cooperation with the Organization to help further achieve its goals and programs. RHCs meet at regular intervals to solve mutual hydrographic and chart production issues, plan joint survey operations, and resolve schemes for INT Chart coverage in their regions. Non-Member States may participate as RHC Associate Members or Observer as it is currently the case for Lebanon in the MBSHC with LNHS.

This report has been written with the intention of assisting the Government of Lebanon to strengthen and develop its hydrographic capability to meet its current and future needs and its international maritime obligations under the UN Convention for SOLAS. The report comprises a description of the visit, major conclusions and a number of recommended actions for consideration by the relevant organizations.

The report is supported by various Annexes providing detailed information including the dependence on hydrography and nautical charting of various sectors in Lebanon, an analysis of the current survey state, an analysis of the existing charting situation and surveys, and recommendations for the strengthening of national hydrography in the Republic of Lebanon.

## 1. Background

[Refer to RHC Conference proceedings or other regional meetings which have led to the formation of the Technical Visit Team and the shaping of its Terms of Reference. Draw attention to the RHC Chair's invitation to nations in the region to meet with the Technical Visit Team and discuss national plans (Reference A). Note the target date for feedback from the Technical Visit Team. Draw attention to Terms of Reference of the Technical Visit Team at Annex A.]

The first Technical Visit to Republic of Lebanon was paid in 2009 under the IHO CB Program and the second one in 2014 by the representatives of Turkey, France and IHB. This visit aims to follow up the recommendations made in 2009 and 2014, and provide further recommendations.

A proposal for a technical visit to Lebanon (Item A-09 / CBWP 2019) was approved in the 16<sup>th</sup> meeting of the Capacity Building Sub-Committee (CBSC-16) in Goa/India, 30<sup>th</sup> May – 01<sup>st</sup> June 2018 as a follow-up to the visit paid in 2014, to assess the current status of nautical charting and hydrography in the country and to provide advice to the government, public administration and to stakeholders on the way ahead. During CBSC-16 meeting the visiting team was defined to be comprised of Italy (Lead) and Turkey, both answering positively. The visit was funded by CBWP 2019 (3.000,00 €) and paid by the IHO CB Program.

Capt. Lamberto Orlando LAMBERTI from Italy and Lt. Emre GULHER from Turkey carried out a hydrographic awareness, technical assessment and follow up visit to the Republic of Lebanon from 16<sup>th</sup> to 18<sup>th</sup> April 2019.

The IHO Team first called on the Chief of the Lebanese Navy, Rear Admiral Hosni Daher. The main meetings were held at the Naval Base in Beirut and LAF-Defence HQ in Yarzé where the members of the LNHS assembled.

1<sup>st</sup> day (2019 April, 16<sup>th</sup>):

Morning session: meeting at Naval Base in Beirut with LNHS and LAF-Navy personnel and visiting hydrographic infrastructure;

afternoon session: revision of documentation for TV report with LNHS personnel;

2<sup>nd</sup> day (2019 April, 17<sup>th</sup>):

morning session: meeting at Defence HQ in Yarzé with LAF-Defence personnel and meeting at Directorate of Geographic Affaires (DAG) in Araya with DAG Director and DAG personnel;

afternoon session: revision of documentation for TV report with LNHS personnel;

3<sup>rd</sup> day (2019 April, 18<sup>th</sup>):

morning session: meeting at LAF-Defence HQ in Yarzé with representatives of Directorate General of Land and Maritime Transport and Ministry of Environment, and LAF-Defence personnel;

afternoon session: revision of documentation for TV report with LNHS personnel, useful for closing remarks and to fix the draft version of Technical Visit Report.

The meetings with the staff of the LNHS and others stakeholders enabled the IHO Technical Visit Team to assess the current status of the hydrographic/cartographic activities in Lebanon.

The meetings with the staff of the LNHS and others stakeholders enabled the IHO Technical Team to build up a picture of the conspicuous features of the hydrographic and nautical cartographic activities. The meetings also facilitated the appreciation of data available and data sharing among the national representatives and with others cooperating nations (France, Italy,

UK, Turkey, etc.). It was clear to the visiting team that all the Navy Staff involved in the establishment of the National Hydrographic Service (NHS) was well prepared for the meetings and able to actively interact with the Team.

This resulting report has been written with the express intention of assisting the Government of Lebanon to develop and strengthen its hydrographic and cartographic capability to meet its current and future needs and also its international maritime obligations under the SOLAS Convention. The report comprises a description of the visit, a brief assessment of the current situation and an analysis of the nation’s hydrographic needs, major conclusions and a number of recommended actions for consideration by the relevant authorities.

## 2. Composition of the Team

[Note that the RHC Technical Visit Team is comprised by:]

Name/Charge/Organization	Role
Captain Lamberto Orlando LAMBERTI Deputy Director Italian Navy Hydrographic Institute (IIM) (current CBSC Vice Chair)	Team Leader
Lt. Emre GULHER Head of Chart Production / Marine Data Manager Turkish Navy-Office of Navigation, Hydrography and Oceanography (TN-ONHO) (current MBSHC CB Coordinator)	Assistant

### LOGISTIC

**FLIGHTS:** The IHO CBSC Secretary arranged for the flights of Italian and Turkish delegates from Genoa Cristoforo Colombo airport (Italy) / International Atatürk Istanbul airport (Turkey) to Beirut airport (Lebanon).

**ACCOMMODATIONS:** The Technical Visit Team arranged for the accommodations in the Monroe Hotel in Beirut near to the Lebanese Navy Base.

**TRANSPORTATION:** the transfers from airport to the Monroe Hotel, and from hotel to the meeting locations were provided by LNHS.

**SOCIAL EVENTS:** All lunches were hosted by LNHS at the LAF-Navy facilities in Beirut Naval Base within a friendly atmosphere. A host dinner offered by LAF-Navy which took place at LAF Officer Club in Beirut on April, 17<sup>th</sup>.

## PART A - Overall assessment of the situation in Region

### 3. Efficacy of the Technical Visit.

[State whether the visit represented a worthwhile investment by the RHC countries which contributed resources, and make recommendations for any adjustments of terms of reference or work practice for any follow up efforts. Assess the extent to which the visits improved inter visibility between local agencies and brought awareness of the issues, and of the efforts of local coordinators, to Ministerial or Permanent Secretary level. Comment on interest in follow up advice.]

The visit was really a worthwhile investment since it is the first activity after the Republic of Lebanon became an Observer Member of the MBSHC and the importance of the issue is due to the presence in the delegation of the Vice Chair of CBSC (as a Team leader) and of the MBSHC CB Coordinator (as an Assistant).

During the technical visit to the LNHS, LAF-Navy, LAF-HQ and meetings with other maritime stakeholders the discussions were v always very fruitful to understand how were working the relationships between National bodies.

In every situation and issue discussed, the LNHS demonstrated high interest on suggestion forwarded by Technical Visit Team.

Thanks to Lt. Cdr Afif Ghaith (LNHS Head/Director and Category-A HS) and Slt. Christian Fahed (Category-B HS) both from LNHS, it was possible to meet most of stakeholders in Lebanon concerned with navigation and the marine environment.

It deserves to be mentioned that the Chief of LAF-Navy Rear Admiral Hosni Daher, very often introduced the meetings and recalled the importance of the technical visit.

A high-level meeting at the LAF-Defence HQ with the representatives of Ministry of Defense, Ministry of Environment and Directorate General of Land and Maritime Transport permitted not only to emphasize the need for national hydrographic services but generate strong engagement to create a NHCC. It also provided an opportunity to present the IHO Capacity Building Strategy and Plans and to assess the status of the Lebanese National Hydrographic Service, the recommendations and future actions.

A draft arrangement is on development between Lebanon and the PCA, and also others HOs (Italy, Turkey) and it has been discussed the importance and benefits of the IHO membership. An important step for Lebanon would be to increase their participation in the MBSHC as Observer Member and joining the IHO and becoming a full Membership.

The meetings have been an opportunity to check inter-visibility between local agencies, in particular, for bilateral cooperation with LNHS. It deserves to be mentioned that these local agencies (CNRS) have enough common interests to share the technical and human resources at their disposal (ships, GPS, tide recorder, GIS, knowledge etc.) Recommendations are proposed to consolidate these possibilities of cooperation, which without them, will not allow rapid development of hydrography in Lebanon.

The meetings were also an opportunity to address (and clarify) the following topics:

- relationship with NAVAREA -III Coordinator for MSI (Spain)
- relationship with PCA for nautical publication
- circulation of MSI between Directorate General of Land and Maritime Transport/LNHS and PCA.

It should also be pointed out that technical exchanges have covered the SOLAS convention obligations as well as cost effective shipping. The financial savings that can be generated by hydrographic investments have been specifically addressed for dredging operations and special projects.

The visit made it possible to conclude also on follow-up actions and recommendations concerning the following subjects:

- MSI
- equipment for hydrography
- ship(s) to conduct survey
- training opportunities
- data center (MSDI: Maritime Spatial Data Infrastructure)
- funding
- relationship with IALA, WMO and IOC

The visit focused on the national organization of the country. The possibilities for regional cooperation in Mediterranean Region, cultural (Arabic speaking countries) or economic support with EU, UN Organizations and NGOs could be strengthened.

It will be advisable to make regular reviews of the above actions and recommendations, the MBSHC and IHO meetings providing a good opportunity to communicate with the regional hydrographic community.

IHO full membership and the signature of an Official Hydrographic Arrangements with HO of others Countries are compulsory steps for LNHS, in order to gain a complete, comprehensive and independent hydrographic surveying and cartographic production capability.

#### 4. **Cooperative Arrangements and Potential.**

[Report the Team's views on the potential for regional cooperation, noting those regional organizations to which the nations visited belong.]

The Visiting Team gave advice on seeking potential cooperations with other countries in the region.

LNHS is planning to sign a MoU/TA/Agreement with France/Italy/Turkey in the field of Hydrography and Nautical Cartography.

a. [Regional Organization].

[Note any calls made by the Team on Secretariats of regional organizations, assess the influence and interest of the organizations in the sphere of work of the Technical Visit Team, and recommend IHO Secretariat or RHC liaison where appropriate. Report any forthcoming meetings of the organizations, particularly at ministerial level, at which the IHO should seek visibility and influence. Report any local institutions, particularly training facilities, which are sponsored by the organizations and which might be utilized by RHC members.]

LNHS willing to participate in the MBSHC-21 Meeting that will be held this year in Cadiz (Spain).

Technical Visit Team informs LNHS of the importance for attending also other IHO meetings and activities, and suggests the participation this year (2019) of a delegation from LNHS as observer in the CBSC and IRCC Meetings in Genoa (Italy) and recommends to attend hopefully as a future MS the 2<sup>nd</sup> IHO Assembly in 2020.

Technical Visit Team suggested also LNHS for a strong participation in IHO activity and in hydrographic and cartographic Working Groups.

b. Regional Organization.

[Some Regional Organizations have appointed Regional Maritime Safety Advisers to lobby and advise member states. RHCs should be working closely with them. Where there is no information on such posts in advance of a Study Team Visit, the Leader should make every effort to establish contact and report it.]

Note some MoU/Agreement between LAF-Navy/LNHS and maritime stakeholders are on development especially with CNRS [Ministry of Education and High Education]

c. Defence and Security Arrangements.

In many regions there is strong liaison between Navies and Defence Force Coast Guards because of the need for cooperation to combat drug trafficking and other threats. These disciplined forces may have key roles in coordination, especially of Maritime Safety Information (MSI) broadcast and Search and Rescue (SAR) components of GMDSS

LAF-Navy normally cooperates and has relationship with other Government agencies/bodies without formal arrangements , because it is in the framework of national legislation. There is a Maritime Committee called Maritime Chamber constituted by Government Decision n. 1 dated 16/08/2006) and designated by where the LAF-Navy Chief is the Chair; IHO TV Team gives recommendation to involve more Maritime Agencies.

LAF-Navy has the responsibility of the Coast Guard and is already involved in Search and Rescue (SAR) and Fishery patrols. Their interest in hydrography has been emphasized. The LAF-Navy proposed to provide its ships and staff to develop hydrographic and oceanographic capacities in the context of the development of civil activities encouraged by the new government. According to Chief of the LAF-Navy/LNHS is “Ready, willing and available”.

For the activity related to Private Companies there is national regulation which control the related activities at sea and there is the need to put in force a formal contract/arrangement.

## **PART B –LEBANON Assessment**

5. RHC Involvement.

[Note whether the country is an IHO member, and/or a member of the RHC. Note whether it was represented at the most recent Regional Conference, and whether a National Report was available to the RHC Technical Visit Team. Where none of these apply, note whether there is any routine liaison with the HO of a RHC or IHO member nation.]

LNHS is an Associate Member State of IHO since 2011 and participated to the activities and meetings of MBSHC since 2013 as an active Associate Member State of IHO.

LNHS released his National Report at the 19<sup>th</sup> MBSHC (2015) which is available in IHO Website. Visiting Team based lot of preparing work on these IHO Technical Visit and National reports.

6. Preliminary Liaison.

[Record any local assistance with coordination of the visit.]

All preliminary assistance was well organized by IHO CBSC Secretary, the TV Team Leader (Captain Lamberto O. LAMBERTI – Italy) and the MBSHC CB Coordinator (Lt. Emre GULHER – Turkey) and the LNHS personnel (Lt. CDR Afif GHAITH) on e-mail correspondence.

The IHO questionnaire was delivered one month in advance, used at the beginning and proved extremely useful (Preliminary discussions of Lt. Cdr. Afif Ghaith with all stakeholders).

7. Points of Contact.

[Confirm the accuracy of details in the IHO Year Book of the local first point of contact for hydrographic and MSI matters. Include changes as an Appendix. Note any local difficulties in line accountability, and loss of top level awareness and support for the national hydrographic capability, which will be discussed later in the report. Report any changes in local legislation or organization which will result in changes to information published by the IHO.]

YEARBOOK up-dates are reported in Annex G.

## Description of Maritime Activities

### 8. National Maritime Affairs.

[Provide a thumb nail sketch of the significance and salient features of the maritime sphere in the country visited. Note any individuals who have been especially helpful in building up this picture.]

During the visit it has been very useful the information provided by the following LNHS personnel (Person/Charge):

- Rear Admiral LAF-Navy Chief
- LtCdr Afif GHAITH LNHS Director
- S.Lt Christian FAHED LNHS Hydrographic Surveyor Category B

A list of contact of LNHS, LAF-Navy, LAF and other stakeholders is reported in Annex C.

The following is a general assessment of the situation in Lebanon regarding hydrography and nautical charting services.

#### 8.1 National Hydrographic Awareness.

Lebanon has been a member of IMO since 1966, is a signatory to the SOLAS Convention, but is not a member of the IHO. It has Observer status within the IHO and the MBSHC. In general there is awareness in Lebanon on the provision under SOLAS Chapter V Regulations 4 and 9, which places an obligation on contracting Governments to arrange for the collection, compilation, dissemination and maintenance of all information required for safe navigation. Therefore, Lebanon is required to collect and publish Maritime Safety Information (MSI), arrange for hydrographic surveys to be undertaken compliant to the IHO technical standards (IHO/S-44 Publication) and nautical charts and publications to be compiled and published and for these documents to be maintained with their timely updating. The Government of Lebanon, through its various agencies, is aware of the current state of hydrography and nautical charting in Lebanon and the benefits of modern hydrography to economic growth, safety of navigation and protection of the marine environment.

Awareness on Hydrography, IHO Membership, NHCC and International Cooperative Agreements were the key tasks and was raised at the administrative and working level by the IHO Technical Visit Team.

#### 8.2 National Hydrographic Infrastructure

Five agencies within Lebanon have responsibility for or participate in hydrographic matters:

- a. Ministry of Public Works and Transport – Directorate General of Land and Maritime Transport;
- b. Directorate of Geographic Affairs – Lebanese Armed Forces (LAF);
- c. Lebanese Navy Hydrographic Service – LAF-Navy;
- d. National Council for Scientific Research (CNRS);
- e. Ministry of Environment.

The **Ministry of Public Works and Transport – Directorate General of Land and Maritime Transport** has responsibility for Maritime Affairs and implementation of all Maritime Conventions (SOLAS) ratified by the Republic of Lebanon. It is a regulatory body and responsible for maintenance and improvement of marine navigational aids in ports and coast. It has no hydrographic capability.

The **Directorate of Geographic Affairs - Lebanese Army** is responsible for land mapping in the country. It has all the necessary staff and equipment and ready to provide all the land data and the printing facilities needed for the nautical charting.

With the clear support of the Lebanese Armed Forces (the Lebanese Army), the **Lebanese Navy** is the overarching body to coordinate the national hydrographic efforts. It assumed main responsibility for national hydrography and nautical cartography.

The **Lebanese National Hydrographic Service** was officially established under the Lebanese Navy in 1 Feb 2014 and was officially activated with Governmental Decision n. 20 dated 2014 December, 23th.

LNHS's draft organizational structure should allow to handle the phase 1 (MSI), phase 2 (Hydrographic Surveying) and phase 3 (Nautical charting). The positions of LNHS Organigram (Annex D) are not currently filled with staff (to be filled).

The **National Council for Scientific Researches (CNRS)** a public institution established in 1962 and assigned with the task of formulating national science and technology policy, initiating, guiding, supporting and conducting scientific research programmes and activities in Lebanon. CNRS manages and runs the Centre for Marine Sciences and it is the operator of the scientific research vessel CANA which was previously a fishing boat donated by Italian Ministry of Foreign Affairs, renovated and converted into a scientific vessel particularly specialized in marine and environmental research in light of the high priority of the project for the study and the safeguard of the Lebanese marine ecosystem presented by CNRS.

A Multibeam upgrade of CANA Vessel was funded by Italian Ministry of Defense (Italian Navy) with LAF-Navy to assist LNHS for hydrographic surveys in coastal water up to 2.000 meters depths.

### 8.3 National Hydrographic Authority

The IHO recommends that every coastal State should designate a National Hydrographic Authority responsible for coordinating hydrography and charting in the country. The role of the National Hydrographic Authority is to be the principal national and international point of contact and to act on behalf of the government to ensure that the State meets its international obligations to make proper MSI and nautical charting services available to mariners. The National Hydrography Authority is the first point of contact for in-country stakeholders and for maintaining relations with relevant international organizations.

In the case of the Republic of Lebanon, LNHS is the National Hydrographic Authority and the first point of contact for in-country stakeholders and for maintaining relations with relevant international organizations in terms of hydrography. This includes the IHO, MBSHC, the PCA and other countries and agencies that might support hydrographic development and assistance in Lebanon.

The LNHS within the LAF-Navy is the most appropriate body as the National Hydrographic Authority. Such an arrangement is similar to that adopted in many other maritime states.

Regarding the performance of Lebanon's international obligations arising from SOLAS, LNHS assumes main responsibility for collection and dissemination among mariners of MSI, arrangement and fulfillment of hydrographic surveys, issuance of nautical charts and publications and their timely updating.

LNHS also is Lighthouse Authority and responsible for establishment and the maintenance of the navigational aids in Lebanon waters according to the international standards (IALA).

The Technical Team recommends LNHS to create a national legislation concerning the role, duties and responsibilities of NHA and its budget (refer to IHO publication C-16 for examples abroad) and procedure to get the data from foreign surveys carried out in the waters under its national jurisdiction with the other ministries in charge (Ministry of Defense, Ministry of Internal Affairs, Ministry of Foreign Affairs, Ministry of Environmental Protection and natural Resource, Ministry of Education with the National Research Council, etc.).

#### 8.4 Additional stakeholders

The Ministry of Environment was identified as a very important stakeholder in Lebanon due to its activities dealing with the oil spill and the waste management. This Ministry is responsible for the marine protected areas and sensitivity maps for oil.

#### 9. Trade and Maritime Traffic.

[Where possible provide statistics on shipping transit and port calls. Describe the main components of sea borne traffic, and the patterns of activity in national waters, under the following headings:]

In Annex F there has been a main description of trade and maritime traffic.

- a. Through Routes.  
[Note any regional through routes which pass through the country's waters.]  
Tripoli– Marsine (Turkey) ferry boat route  
Tripoli– Antalya (Turkey) ferry boat route
- b. Tran-shipment.  
[Comment on the existence of any hub ports.]  
Beirut is a general hub Port of the Lebanon and also Tripoli port operates as a container Terminal.
- c. Bulk Trades.  
[Comment on the significance of this element of international shipping and any impact on port development plans. Note the existence of refineries and of bulk loading facilities.]  
Refer to Annex F.
- d. Feeder, Coasting and Local Trade.  
[Comment on volume and patterns, and list significant ports, including ferry ports.]  
Refer to Annex F.
- e. Offshore Supply and Support.  
[Comment on significance and on any particular influence on MSI and GMDSS requirements.]  
Refer to Annex F.
- f. Tourism Cruise Liners.  
[List all local ports of call and anchorages.]  
Refer to Annex F.

- g. Tourism Small Craft.  
[Comment on the significance of leisure cruising, and note major cruising areas and concentrations of marina developments. In some smaller island states this may be the most significant maritime segment of the economy. Establish whether mega-yachts are visiting.]  
Refer to Annex F.
- h. Fisheries.  
Note the volume and type of fishing in national and adjacent waters. Include both local artisanal and pelagic fisheries, and the presence of foreign vessels.]  
Refer to Annex F.
- i. Other informations;  
[Note any other information useful in national and adjacent waters.]  
Refer to Annex F.

#### 10. Responsibility for Safety of Navigation.

[Record the authority which is responsible for:

- the maintenance of channels,
- removal of wrecks,
- provision and maintenance of Navaids,
- and the promulgation of Notices to Mariners.

Note any difficulties in conducting these tasks e.g. defective buoy tenders.]

The maintenance of channels and the removal of wrecks inside the ports and approach is managed by Directorate General of Land and Maritime Transport. Also in the coastal areas it takes the responsibility.

The provision and maintenance of Navaids is on the responsibility of LNHS and the promulgation of Notices to Mariners nowadays is on the responsibility of PCA.

#### 11. Defence Force Responsibilities.

[Note the roles of the Navy/Defence Force Coast Guard (CG). e.g. SAR, fishery protection, and operations to counter traffic in drugs or illegal immigrants. Comment on any specific defence requirement for improved hydrographic data.]

LNHS makes special charts, MetOc support and surveys, and release some special information (MSI and weather forecast, etc) for the needs of the LAF-Navy, which is acting also as a Coast Guard.

#### 12. Coastal Zone Management and Environmental Protection.

[Note the existence of any marine National Parks or other management zones, and the existence of any climate monitoring stations.]

This is on the responsibility and managed by the Ministry of Environmental and LNHS provide surveys and MSI information on request.

## Outline C 55 Analysis

### 13. Status of surveys within the National Maritime Zone.

[Summarize the status of surveys within the territorial sea and EEZ, and comment on any areas of particular concern in the light of the foregoing description of maritime activities. Make particular note of any coastal areas which are charted purely from lead line surveys. Note any offshore banks or other shoal areas which require side scan sonar coverage to bring the area to full modern standards. Note the need to obtain coordinates for offshore oil and gas fields.]

The Status of Surveys is still not assessed in digital form and LNHS was advised from Technical Visit Team on the necessity of completing the Questionnaire C-55 and the relative part of the IHO C-55 Publication.

Until now there are not off-shore infrastructure nor oil & gas platforms.

### 14. Collection and Circulation of Nautical Information.

[Assess the effectiveness of this crucial process, based on information from the HO with charting responsibility as well as the national coordination point. Note any advice which has been given to local authorities, and detail any assistance which is required from the HO with charting responsibility.]

LNHS is clearly established as MSI authority and coordinates its activities with the Worldwide Navigation Warning Service (WWNWS) implemented globally by the IMO, WMO and IHO.

The four paper charts and six ENC's of Lebanon published by the PCA (SHOM) has been subject to regular NtMs. Currently there is liaison between the Directorate General of Land and Maritime Transport and the PCA through LNHS. It is necessary to establish a formal routine flow of MSI to the PCA if charts are to be maintained to the standards required for safety of navigation.

The Technical Team recommended the definition of a focal point of contact for MSI is an urgent issue and that Lebanon may benefit from valuable MSI training opportunities of the IHO Capacity Work Programme.

### 15. Survey Capability.

[Comment on the state of any local hydrographic service/unit, and draw attention to any supporting documentation in accompanying Attachments e.g. Mission and Output Plan documentation. Summarize the future plans of the unit, and assess the sufficiency of manpower and equipment resources.]

The Lebanese waters have not been surveyed to modern standards except for the survey of the coastline, a survey carried out in 2003 and the Beirut Port Approach survey done by France in 2010, 2011 and 2016, of which data was provided to the Lebanese Navy.

CRNS has been conducting multi-beam echo sounder surveys in support of scientific and environmental activities in coastal areas by scientific research vessel CANA. The latest scientific survey was done in 2013. While not achieving the IHO S-44 standards of survey accuracy, much of the data is most likely useful for hydrographic matters. Currently, there is no formal mechanism in place to ensure that this data is brought to the attention of and made available to the stakeholders, especially to the Lebanese Navy.

In October 2018 there was an hydrographic activity in the area between Beirut and Junieh Bay on behalf of Italian/Lebanese cooperation with ITS Hydrographic Ship Magnaghi.

UP-GRADE MB EM710 by the mean of Italian support to LNHS and need of a formal Agreement between LNHS and CNRS for hydrographic activity with CANA Vessel.

Provision by Italian Navy (IIM) of hydrographic survey boat fitted with MB and hydrographic rubber boat fitted with interferometric MB (PDBS). LNHS performed new survey in the Port and approaches of Beirut.

The current state of surveys as summarized in IHO Publication C-55 "Status of Hydrographic Surveying and Nautical Charting Worldwide" (see Annex H last update 30/06/2017 by SHOM/UKHO) is in the table below:

Survey Coverage	A	B	C
Depths < 200m	3,4	4	92,3
Depths > 200m	0	76,8	23,2

A= percentage which is adequately surveyed.

B= percentage which requires re-survey at larger scale or to modern standards.

C= percentage which has never been systematically surveyed.

Note:

1. Data provided by France and UK

2. The only systematic surveys are in the immediate approaches to the main ports. None are modern.,3

3. Data now derived from survey GIS polygonal surfaces method. New values might divert significantly.

LNHS is advised to produce a medium term National Survey Plan for a period of 3/5 years and the National hydrographic assessment made by LMHS is reported in in Annex J.

#### 16. Independent Chart Production Capability.

[Note any charts which are being produced locally, and comment on their standard. Summarize discussion of implementation of the INT chart scheme in the region, noting. local comment on proposals for coverage. Report clearly any local proposals for modification or extension of coverage of INT small scale, large scale and port schemes.

Report proposals for local surveys within the area of coverage of proposed new charts.]

Lebanon has no national capability for nautical chart or publication production at this stage. The Lebanese coasts are currently covered by four French charts belonging to the international portfolio, four British charts and nine ENCs which are carried out by France (7), United Kingdom (1) and Turkey (1). The existing charts published and maintained by the SHOM, UKHO and ONHO do not necessarily contain the latest navigationally significant information.

The data from which the charts are compiled is noted as being in many cases old, imperfect and with undefined reference systems.

The LNHS now possess a minimum capacity in geospatial chart production and will be improving in cooperation with other HOs for compiling new edition of chart and nautical charts and publications by the means of Technical Arrangements.

## Proposals for Coordination and Capability Building

### 17. National Hydrographic Committee.

[Note the existence of any high level coordinating bodies, and assess their awareness of the contribution of hydrography to national policy making.

State whether the Team has advised creation of a more focused committee, and note any proposals for reporting route and frequency.

Note whether the local hydrographic service/unit is making a technical contribution to delimitation, offshore resource exploitation, environmental management, maritime traffic control, or any other areas of National Maritime Policy.]

It was evident to the visiting team that Lebanon already possesses hydrographic capability, awareness and willingness, and the effective cooperation and coordination of the national activities will prove a positive step towards the establishment of a formal National Hydrographic Service that will help Lebanon to build a solid maritime infrastructure to support the safety of navigation and the economic growth.

To coordinate hydrographic effort for the effective fulfillment of SOLAS responsibilities and the efficient management of a State's maritime area the IHO Team during the visit recommended the establishment of a National Hydrographic Coordinating Committee to provide input to and coordination of the hydrographic programme and setting national charting and surveying priorities. In this way, the stakeholders are in a position to assist in the continuing maintenance of the charts, longer term planning and perhaps also to the programme budget. Lebanon has currently no established National Hydrographic Coordinating Committee (NHCC), but the existence of the Joint Maritime Chamber and efforts to sign the National Committee of Integrated Maritime Policy are good developments to establish a NHCC/NHC.

All hydrographic stakeholders need to be involved in contributing to Lebanon national hydrographic programme. This is not only to identify and prioritize national requirements, but also to contribute to the execution of the programme. This could be through help in-kind, such as the provision of boats, or personnel or through contributions to enlist contract support – for example for surveys of areas targeted for development. A key role for the stakeholders is to educate and encourage everyone to forward all relevant new or changed hydrographic information to the national coordinator for hydrography and charting (LNHS).

The need for coordination of the national hydrographic effort was clearly demonstrated to the IHO Technical Team. It is recommended that the regular meetings of the stakeholders are held as allowed for in its terms of reference to make best use of Lebanon's valuable hydrographic assets.

### 18. Phase 1 Hydrographic Capability: MSI Organization and GMDSS.

[Summarize any proposals for improvement of liaison and effective passage of information between national and regional charting agencies.

Comment on the requirement for liaison with Transport Ministries or Port Authorities.]

Maritime Safety Information (MSI) is considered by the IHO as the first phase in hydrographic capacity building and whilst the IHO Technical Team could see that progress has been made in this area it has concerns that the national MSI system is functioning and controlled by LNHS.

The IHO recommends that every coastal State should designate a national MSI coordinator (LNHS). There the need to continue with MSI training activities, To assist in this the MBSHC CB Coordinator should submit the MSI training requirement of Lebanon in the next CBSC meeting.

However, as all hydrographic and maritime stakeholders have an interest in and input to MSI such training as is given should be extended to this group such that there is an awareness of what is MSI, how it is disseminated and what their role is in this process.

The IHO Technical Team strongly recommends that a formal working relationship should be established between the NAVAREA-III Coordinator in Spain and the national MSI coordinator (LNHS). This relationship should include regular contacts. In this way the NAVAREA-III Coordinator knows that the link is being maintained and is aware of the situation in Lebanon.

a. MSI (Navigational Warnings).

[Note the existence of local navigational warnings and Notices to Mariners and other publications e.g. Lists of Major Nav aids, Tide Tables.

Comment on their reliability.

Comment on discussions with local authorities, and summarize proposals offered for improvement of MSI in national waters.]

There is clearly established MSI infrastructure that coordinates its activities with the WWNWS implemented globally by the IMO, WMO and IHO. LNHS is the primary MSI authority in Lebanon.

LNHS currently has been issued in one language (English):

- List of Light and Aids to Navigation according to IHO standards;
- Sailing Direction (that include Navigational Regime and Sailing Rules in Lebanese waters) in National standards.

Technical Visit Team suggest LNHS to improve on issuing new publication in IHO standards (Radio Navigational Warning, Tide Table, etc.).

See National Report in the presentation made by LNHS during the meetings (Annex J).

b. Information on Ports and Harbors.

[Comment on discussions with government representatives concerning the legal requirement and economic importance of timely supply of plans and coordinates of new development to responsible charting agencies.

Note where the local hydrographic service/unit or port authorities need better top level support in collation and dissemination of this information.

Where there is no hydrographic unit comment on the capacity of the Land Survey Department to advise port authorities and other agencies.]

The Directorate General of Land and Maritime Transport through the Port Authorities is responsible and manage the information with a good exchange with LNHS.

c. GMDSS Status.

[Summarize the status of GMDSS in local waters, and any advice offered to local authorities (Table 1).]

Table 1: Summary of Progress towards Implementation of GMDSS based on information of C-55 (last up-date 30/06/2017 by SHOM).

Master Plan	A1 Area	A2 Area	A3 Area	NAVTEX	SafetyNET	Notes
No	Yes (VHF)	No	No	No	No	1 to 8

[Notes:

1. Specify any geographic limitations to Area coverage.
2. Note NAVTEX Station location, especially when designed for optimum overlap.
3. Note where proposals are subject to financial appraisal by the national government.
4. Note where choice of MSI medium is to be subjected to cost analysis, and comment on optimum solution and interim arrangements.
5. Note Team recommendations of negotiation for facility sharing.
6. Specify any firm commitments or local proposals for co ordination.
7. Note where SafetyNET is available and could be used for Coastal Warnings but the state wishes to assess comparative costs of implementing their own NAVTEX Station before adopting this solution.
8. Note where the Team could not establish status of National Plan.]

d. Others Services.

[Note any other information useful in national and adjacent waters.]

Directorate General of Civil Aviation is responsible for the meteorological station and weather forecasting.

Directorate General of Land and Maritime Transport Civil Aviation is responsible for the buoy system.

LNHS is responsible for the Lebanese tide gauge net.

19. Phase 2 Hydrographic Capability: Survey.

[Comment on the adequacy of top level support and resourcing for the local hydrographic service/unit. Summarize any proposals which the Team has made for revision of line accountability of the unit. Where there is no local hydrographic unit, comment on the requirement for independent capability.]

According the last visit in 2014 the government of Lebanon had neither trained hydrographer nor nautical cartographer. No tide gauge installed in the country yet.

Since 2014 there was a big improvement in the Hydrographic Resources are listed below.

- National Council for Scientific Research (CNRS): CNRS operates scientific research ship CANA equipped with Kongsberg EM 710 Multi-beam Echo Sounder System with the full suite of supporting devices. In addition to that CNRS has the archive of raw survey data previously done by CANA.
- Hydrographic and Oceanographic Service of the French Navy: SHOM has the survey data for Lebanese waters.
- UP-GRADE MB EM710 by the mean of Italian support to LNHS and need of a formal Agreement between LNHS and CNRS for hydrographic activity with CANA Vessel.
- provision by Italian Navy (IIM) of hydrographic survey boat fitted with MB and hydrographic rubber boat fitted with interferometric MB (PDBS). LNHS performed new survey in the Port and approaches of Beirut and Jounieh Bay, also in cooperation with ITS HS Magnaghi in 2018 October.

a. Provision of Survey Data.

[Clarify accountability for this task.]

Note any commitment to pass data to other HOs with INT or primary charting responsibility in the area.

List any data which has been passed to the Team for onward transmission.]

LNHS wish to sign cooperation Agreements with other countries (France, Turkey, Italy) for provision on survey data and co-production of the INT charts and nautical publications. On behalf of a regulation and by law LNHS can be commissioned from a Private Company for conducting hydrographic survey or to publishing some special cartographic project.

b. Survey Capability.

[Summarize the Team's judgment of current and potential capability. Comment on advice given by the Team. Identify areas where RHC members could assist by loan of experts or equipment. Note opportunities for regional collaboration.]

LNHS pays focuses extensively on upgrading and procurement of new equipment for hydrographic surveying. From 2017 LNHS has been utilizing shallow water multi-beam echo-sounders that ensures surveying in compliance with IHO S-44 standard for hydrographic surveys. Multi-beam surveys have been performed in water areas of Beirut and Jounieh ports, as well as in approach channels to the ports and areas with the highest traffic density. Currently for hydrographic surveys it is used, as the situation requires, big hydrographic boat CANA, nr. 1 surveying launch and n.r 1 rubber small boat.

Staff of LNHS also monitor the coastline location through the utilization of appropriate GPS-equipment and satellite images in cooperation with DAG personnel.

Technical Visit Team note the need to improve hydrographic survey in medium and deep water and suggests LNHS for a refitting of actual owned vessel or a purchasing of a new one with “State-of-the-Art” instrumentation for Hydrography, Oceanography and Geophysics Research and for maintenance work of lights and buoys.

c. Potential for Regional Activity.

[Comment on volume of work in local waters and remaining capacity to assist other states in the region.

Make recommendations on the ability of the hydrographic service/unit to provide technical hydrographic advice to neighboring States.

Note any potential for regional burden sharing e.g. DGPS provision.]

There a concrete potential Regional Activity with a cooperation at National level and at international level (with Turkey, France, Italy and other Mediterranean MS).

Bilateral agreements with established hydrographic services are a valuable means of fulfilling SOLAS obligations for countries with a limited and or developing hydrographic capability. Lebanon's charts are currently produced and published by SHOM and UKHO but the visiting team could not identify any formal arrangement.

It is recommended to Lebanon to formally designate the PCA and to establish a formal bilateral agreement as an interim solution until the in-house chart production is established. For instruments up-date see last National Report in Annex J.

20. Phase 3 Hydrographic Capability: Chart Production.

[Summarize the Team's judgment on current and potential capability, and on viability of local chart production.

Comment on advice given by the Team.

Assess quality of routine data management, paying particular attention to such measures as assessment of density of sounding coverage and development of capability in plotting bottom contact detail from side scan sonar.

Comment on the balance of effort devoted to data collection compared to local production of publications.]

The Republic of Lebanon has extensive hydrographic surveying needs. Surveys nowadays are quite adequate, but need to be up-dated to modern standards. The existing charts published and maintained do not necessarily contain the latest navigational significant information. The data from which the charts are compiled is noted as being in many cases old, out dated and on undefined reference systems. To assist in this the IHO Technical Team recommended that the LNHS to establish a Charting Plan and a Priority Survey Plan. LAF-NAVY may seek assistance of a well-established Hydrographic Service through a bilateral agreement as an interim solution until the in-house survey and charting capacity is available.

Technical Visit Team gave advice on to up-date with Hydrographic Service of Spain correspondent and to complete the information on IHO C-55 Publication.

Considering the coastline length of Lebanon, new chart scheme and existing paper charts and ENC's published by SHOM/UKHO, should be maintained by LNHS as far as possible, the nature of coastal waters with few hazards and dangers, and together with the existing hydrographic resources, it seems that there is not that much to do for Lebanon to reach a very good state in the worldwide hydrographic community. A current chart production, hydrographic surveying and procurement program seems well enough for the future.

21. Table 2 presents the summary of the assessment of the National Hydrographic Capability

IHO Member	RHC	NHC	Phase 1 Capacity	Phase 2 Capacity	Phase 3 Capacity	Notes
No	MBSHC Observer Member	No	Yes (75%)	Yes (80%)	No (10%)	1 to 6

Technical Visit Team gave advice on the need of an up-date with the MBSHC CB Coordinator (Turkey) in order to complete the information.

[Notes:

1. Inform how the Maritime and Port organizations in the country relate with the national hydrographic authority and or the charting authority.
2. Inform whether the Maritime and Port organizations have some survey equipment, and some surveyors trained to IHO standards.
3. Note whether it may be possible to generate/regenerate limited field survey capability.
4. Note any charts which are produced, together with limitations e.g. suitable for government planning, but not for navigation, particularly in view of lack of correction arrangements.
5. Note where RHC advice on equipment management and maintenance is merited.
6. Note any assessment of potential to provide field survey services to other states in the region, and recommend scope for RHC consultative support.]

## Proposals for Assistance

### 22. Training.

[Identify training priorities, and comment on advice given by the Team.

Note the status of any National Indicative Plan. Comment on response to any assistance offered by IHO Secretariat.

Summarize proposals for training available from other RHC or IHO member states.]

Lebanon has significant national hydrographic resources but lacks a coordinated approach to developing its staff and gaining the best from the equipment available. It is strongly recommended that the LNHS review this situation and propose first a coordinated plan to obtain international specialized courses offered by the MBSHC CB Coordinator. Secondly that the LNHS proposes financial means whereby this training can be achieved. In addition it is recommended that, at least in the short term, all trained hydrographic staff is considered as a national resource pool and engage in survey operations that are taking place within the country – government and commercial – to ensure that their professional development is maintained.

A list of courses is contained in IHO publication C-47 - Training Courses in Hydrography and Nautical Cartography, freely available from the IHO website. The list of the FIG/IHO/ICA recognized programmes in Hydrography and Nautical Cartography can be found in the IHO website under "Capacity Building". Short courses in the fundamentals of hydrographic data gathering are available through the IHO Capacity Building Programme and should be considered by Lebanon with the MBSHC CB Coordinator support.

An additional source of capacity building is to include clauses in commercial survey contracts in the country to include capacity building.

Appropriate training of personnel and use of state-of-the-art surveying and cartographic production techniques will ensure more benefits for LNHS with respect to arrangement in the field of hydrography and cartography. Therefore the Technical Visit Team recommends LNHS to seek ways to provide the technical staff with the necessary training in the field of hydrography, nautical cartography, MSI, WNWNS, WMO and IALA, and to favor Ministry of Defence of Lebanon in facilitation of procedures of founding related to training of its technical staff in the international certified programmes (training/courses).

Technical Visit Team advice that in MBSHC Region there are Member State managing Category-A and Category-B Hydrographic Surveyor and Nautical Cartographer Courses.

### 23. Equipment.

[Summarize any advice given for equipment procurement options, or for technical advice.

Note where any special conditions (e.g. local topography and disruptive masking of GPS) need to be taken into account.]

LNHS has sufficient instrumentation to support shallow water surveys in port and approach areas.

Technical Visit Team note the need to improve hydrographic survey in medium and deep water and suggests LNHS for a refitting of actual CANA vessel owned by CNRS or a purchasing of a new one with "State-of-the-Art" instrumentation for Hydrography, Oceanography and Geophysics Research.

24. Funding.

[Confirm that local authorities are aware of the information in IHO Publication M 2.

Note any specific proposals for advice or lobbying by RHC or IHO Secretariat.

Brief on the role of the IHO CBSC, and the importance of submission of bids through the RHC Chair.]

Technical Visit Team confirmed that local authorities are aware of the information in IHO Publication M 2. and briefed LNHS on the role of the IHO CBSC, and the importance of submission of bids through the RHC Chair.

Nowadays LNHS is an IHO Observer State and need to become a full Member State in order to have full access to financing activity made by CB Work Program.

## Follow-up Actions

25. Encouragement of Formation of a NHC, Development of a National Hydrographic Strategy, and RHC Membership.

[Summarize recommendations for contacts, or supply of documentation. ACTION: IHO Secretariat; RHC Chair.

LNHS is aware of the role of the IHO CBSC, and the importance of submission of bids through the RHC Chair.

Technical Visit Team advised LNHS for the importance of NHCC formation, of National Hydrographic Strategy development, and IHO/RHC Membership.

26. Encouragement of Effective and Timely Collection and Promulgation of Hydrographic Information.

LNHS is really aware of its commitments and duties.

- a. Note any commitment by the Team to forward Hydrographic Notes with urgent MSI. Note where copies are to be supplied to Hydrographic Unit and Maritime Services/Port Authorities to give them a format for subsequent routine communication of updates. ACTION: Technical Visit Team.

Noting to report.

- b. Note any requirement for MSI/SAR liaison with local authorities. ACTION: NAVAREA Coordinator.

Noting to report.

27. Encouragement of Development of Hydrographic Capability.

[Note areas where the Hydrographic Unit merits assistance:]

Technical Visiting Team suggest LNHS to continue and improve cooperation with MBSHC and especially with Member State in the area of responsibility with Joint Projects.

Lebanon has significant national hydrographic resources but lacks a coordinated approach to developing its staff and gaining the best from the equipment available. It is recommended that all trained hydrographic staff is considered as a national resource pool and engage in survey operations that are taking place within the country – government and commercial – to ensure that their professional development is maintained.

There are limited opportunities for international hydrographic training, because of LNHS is not still a IHO MS.

Short courses in the fundamentals of hydrographic data gathering are available through the IHO Capacity Building Programme and should be considered by Lebanon with the MBSHC CB Coordinator support.

An additional source of capacity building is to include clauses in commercial survey contracts in the country to include capacity building. This can be achieved by amending national regulations that control surveys in the national territorial waters and the EEZ.

- a. Options for provision of consultative support including temporary secondments. ACTION: RHC Members.  
Noting to report.
- b. Options for transfer or loan of equipment. ACTION: RHC Member States.  
Noting to report.
- c. Assessment of the case for regional investment in equipment purchase e.g. DGPS. ACTION: RHC.

Technical Visiting Team note the opportunity to improve the DGPS Service with the new equipment for coastline or ports with DGPS correctional stations, to improve vessels equipment accuracy (Beacon IALA System and others, etc.)

- d. Recommendations for follow up technical assistance in development of a National Indicative Plan for training funding. ACTION: RHC and IHO Secretariat.  
Noting to report.

## Conclusions

### 28. Co operative Opportunities.

[Summarise opportunities for RHC and IHO Secretariat to build on any openings which have emerged from the visit, as indicated at paragraph 5. It is particularly important to identify where the RHC can represent the implications of IHO work for higher level regional policy. Draw attention to any specific commitments made by the Technical Visit Team to supply copies of this report or other IHO material.]

In the present report co-operative opportunities are already highlighted for LNHS with IHO and MBSHC Member States.

### 29. National Hydrographic Committees (NHCs).

[Note the incidence of consultative high level committees for maritime affairs in the states visited by the Team, and note any issues which dominate their agendas e.g. environmental monitoring and response to disaster. Report on responsiveness to the concept of a National Hydrographic Committee or equivalent arrangement.]

As a result of discussions and on the ground of obtained information and facts the following main conclusions were drawn:

- All branches of Lebanese Government demonstrate understanding of importance and advantages of activities of State Hydrographic Service of Lebanon, as well as willingness to improve it in the future.
- LNHS owns necessary technological tools for fulfillment of hydrographic surveys. The work has been carried out for modernization of vessels involved in hydrographic surveys and equipment for hydrographic surveying in order to ensure compliance with IHO surveys standards (IHO S-44 Publication).
- LNHS needs to improve the necessary technological tools for fulfillment of cartographic production. The work should be carried out for modernization of equipment and on the job training with a tutoring HO in order to ensure compliance with IHO cartographic standards (IHO M-4, S-57 and future S-100 Publication).
- LNHS surveying personnel feels the lack of formal hydrographic qualifications that hinder their professional development and improvement of skills.

## Recommendations

### 30. Urgent Actions.

[High light urgent actions emerging from the Summary Tables, and identify the Agencies which have important roles to play in advising on specific recommendations in the individual Country Reports.]

ACTION 1: to join the IHO as MS for benefiting of the status of full member and of all possibility in helping and funding by CBSC and RHCs (MBSHC in particular);

ACTION 2: MSI Service full implementation;

ACTION 3: Hydrographic survey plan implementation and cooperation in the hydrographic field with others national maritime stakeholders;

ACTION 4: to sign a TA for nautical cartography bilateral cooperation and develop the national cartographic plan.

### 31. RHC Follow up Actions

[List under appropriate headings, noting that details can be found in each individual Country Report e.g.:

a. Encouragement of NHCs through a Regional Plan. Specify Team recommendations for regional initiatives (e.g. in maximization of equipment resources) and for RHC and IHO Secretariat follow up with local contacts.

b. Funding. Note requirements for RHC advice in the preparation of National Indicative Plans for funding applications. Specify proposals for bilateral support which merit RHC championship.

c. Regional and Bilateral Training. Report the potential of training establishments in the region to offer MSI and hydrographic courses, and make proposals for co ordination and championship by RHC and IHO Secretariat.]

Nothing to report here.

### 32. Follow up Opportunities.

[Draw attention to forthcoming openings for follow up actions e.g. TACC meetings.]

Nothing to report here.

### 33. Preparations for Next RHC Conference.

[Note specific recommendations for liaison action by the RHC Chair.]

Technical Visit Team gives advice LNHS to make any effort with LAF-Navy/LAF-Defence for participation in next MBSHC meeting [MBSHC-21 - Cádiz, Spain (11-13 June 2019)] and to prepare a National Report .

## **TECHNICAL VISIT RECOMMENDED ACTIONS**

### **TECHNICAL VISIT 2014**

The last technical visit to Lebanon under the IHO CB program was paid in 2014. The report of that visit is available in the IHO Website.

Recommendations/Action that were made following previous technical visit to Georgia are key headings below with an assessment of progress made with each item:

1. LAF-Navy to establish the structure of the National Hydrographic Service as simple as possible to meet the requirements for the collection and circulation of nautical information, necessary to maintain existing charts and publications up to date. This is the phase 1 of the capacity building and should be done as an immediate action,  
ACTION PARTIALLY COMPLETED: There's the need to improve MSI circulation inside the nation between LNHS and Directorate General of Land and Maritime Transport. LNHS must provide latest MSI information to PCA (SHOM) to update existing charts and publications with NtMs.
2. LAF-Navy to ensure that a Maritime Safety Information (MSI) Coordinator is nominated as soon as possible to fulfill the national obligation under SOLAS V/4 on navigational warnings,  
ACTION DONE: LNHS was nominated as National MSI Coordinator
3. LNHS to notify the MBSHC Chair the relevant contact information about the national coordinator for MSI,  
ACTION DONE
4. MBSHC Chair to inform the NAVAREA III Coordinator the relevant contact information of the Lebanese national coordinator for MSI,  
ACTION DONE
5. LNHS to establish the necessary workflow with the NAVAREA III coordinator and assure a permanent flow of information,  
ACTION DONE: keep continuing in circulation and releasing relevant information to NAVAREA III
6. Directorate General of Land and Maritime Transport to establish a formal agreement with LNHS and submit the relevant MSI to the National MSI Coordinator,  
ACTION PARTIALLY COMPLETED: the Parties are in contact and exchange MSI information, but there's still not a formal Agreement
7. LNHS to develop a National Maritime Safety Information Plan as a matter of priority and ensure its execution,  
ACTION TO BE STARTED:
8. LNHS to establish an MSI page on its website to publish the relevant MSI and Notices to Mariners (NtMs),  
ACTION PARTIALLY COMPLETED: need for more MSI training and to establish a WEB page MSI service and improve cooperation with other countries in the region

9. LNHS to liaise with the PCA and other chart production nations to ensure that new navigationally significant information is forwarded and included in existing charts of Lebanon;  
ACTION PARTIALLY COMPLETED: see previous Recommendations 1, keep continuing to get in contact with others producers
10. LAF-NAVY to prepare the structure of the Lebanese National Hydrographic Service for the creation of a survey capability to conduct coastal and offshore projects, maintain adequate Aids to Navigation and to set up hydrographic databases. This is phase 2 of the Capacity Building,  
ACTION IN PROGRESS: To keep continuing on purchasing new hydrographic instrumentation and perform hydrographic training, up-date MB system and cooperate on board CANA Vessel with CNRS performing hydrographic surveys, improve and set up hydrographic database and circulation of information on AtNs
11. LNHS to establish a formal agreement with CNRS in order to employ the Scientific Research Boat CANA for hydrographic surveys, including the establishment of procedures to allow data acquisition to modern standards, acquisition of software and hardware, and the use of past survey data,  
ACTION PARTIALLY COMPLETED: Work in progress, not formal Agreement established yet
12. LNHS to establish a programme for the revision of all the published charts of Lebanon and a priority programme for the surveys, and keep the chart producers informed,  
ACTION TO BE STARTED
13. LNHS to create a national programme to encourage all mariners and other interested parties to report discrepancies on existing charts,  
ACTION PARTIALLY COMPLETED: to keep continuing on involving all maritime stakeholders involved in MSI
14. LAF-NAVY to prepare the structure of the Lebanese National Hydrographic Service for the creation of a cartographic capability to produce paper charts, Electronic Navigational Charts (ENCs) and publications independently, or alternatively by means of bilateral agreements. This is phase 3 of Capacity Building,  
ACTION PARTIALLY COMPLETED: The structure is already in place, and Bilateral Agreements are to be finalized in near future; LNHS could benefit from a cooperation with a foreign Hydrographic Authority to speed up the process to become an independent PCA
15. LNHS to coordinate and cooperate with Directorate of Geographic Affairs of the Lebanese Army to make available the latest topographical maps in appropriate scale which covers the coastline of Lebanon,  
ACTION COMPLETED: to keep continuing with this process
16. Directorate of Geographic Affairs of the Lebanese Army to assess the requirement of LNHS and define priority survey of the topographical maps in appropriate scale which covers the coastline of Lebanon in order to contribute to the update of nautical charts,  
ACTION PARTIALLY COMPLETED; to keep continuing with this process, LNHS is doing its topographic and geodetic survey activity
17. LNHS to coordinate the establishment of a network of tide gauges in the main ports and relevant areas,

**ACTION COMPLETED:** to keep continuing with this process of acquiring tidal data and issue tidal prediction

18. LAF-NAVY to seek the establishment of National Hydrographic Coordinating Committee (NHCC) at the Government level and constantly engage with the relevant stakeholders in order to coordinate the hydrographic activities in a national level while contributing to the high level awareness,  
**ACTION NOT COMPLETED:** LNHS and LAF-Navy is aware of the need of NHCC and need to involve the others maritime stakeholder in this important issue, no formal agreement is already present. The LAF-Navy is the Chair of the Joint Maritime Chamber (constituted by Government Decision n. 1 dated 16/08/2006) with the Ministry of Internal Affairs “General, Internal Security Forces and Civil Defence”, the Ministry of Finance “Customs”, Ministry of Energy “Lebanese petroleum Admin.”, Ministry of Public Works “Directorate General of Land and Maritime Transport”, Ministry of Environment, Ministry of Agriculture and Fishery, Ministry of Defence, but need to involve other main maritime stakeholders in the participation and joining in as Ministry of Foreign Affairs, Ministry of Education and High Education, Ministry of Economy, National Council for Scientific Research CNRS, etc.
19. LAF-NAVY to conduct a survey to identify all the relevant stakeholders that could potentially be part of the NHCC and those that can be beneficiaries of the hydrographic services and products,  
**ACTION IN PROGRESS:** as reported in recommendation 18
20. LAF to propose to the Government of Lebanon that the Lebanese National Hydrographic Service be formally and legally constituted as the Lebanese National Hydrographic Authority (NHA),  
**ACTIN DONE**
21. LAF-NAVY to liaise with the foreign affairs Ministry of the Government of Lebanon to send a letter to Government of Monaco to accede to the Convention on the IHO,  
**ACTION IN PROGRESS**
22. LAF-NAVY to liaise with the foreign affairs Ministry of the Government of Lebanon to send a notification to the IHO informing the official point of contact in Lebanon. The proposed updated information for the IHO Yearbook is provided at Annex G,  
**ACTION DONE**
23. LAF-NAVY to allocate regular funding and travel support for the NHS to fulfill the duties of the Service and to represent Lebanon in appropriate forums, and in particular, to attend relevant meetings of the MBSHC and IHO,  
**ACTION IN PROGRESS:** Funding established for the hydrographic activity for 2019 and 2020. Need to be funded the participation to international meetings as next MBSHC meeting in Cadiz (Spain) on June 2019.
24. LNHS to apply to the MBSHC for the short term assistance of an established hydrographic service to develop the national hydrographic infrastructure for Lebanon and the participation in a MSI course in 2015,  
**ACTION DONE:** keep continuing in training and assistance in MSI field
25. LNHS to develop and monitor a coordinated training plan such that staff of the hydrographic service can gain the necessary training and professional experience,

**ACTION IN PROGRESS:** keep continuing in training and assistance in hydrographic survey field

26. MBSHC CB coordinator to inform LNHS regarding the CB training opportunities in the region and elsewhere,  
**ACTION DONE:** keep continuing with information and involving LNHS in participation on the opportunities for training and assistance in all domain (need to be IHO MS to achieve full access to Phase 2 and 3)
27. LNHS to profit from the training opportunities as approved in the IHO CB Work Programme, especially those related to Phase 1,  
**ACTION IN PROGRESS:** keep continuing in training and assistance in MSI field
28. LNHS to request that national hydrographic services with staff experienced in MBES methods be invited to Lebanon to review survey practices,  
**ACTION IN PROGRESS:** keep continuing in training and assistance in hydrographic survey field
29. LAF-NAVY to allocate regular funding for the NHS to get relevant charting and surveying systems and software,  
**ACTION IN PROGRESS:** keep continuing as reported in recommendation 23
30. LNHS to establish a formal bilateral agreement with a well-established Hydrographic Service to be the PCA as an interim solution until the in-house chart production is established,  
**ACTION IN PROGRESS:** keep continuing as reported in recommendation 14
31. LNHS to make use of the IHO Publication M-2 (The Need for National Hydrographic Services) for raising awareness throughout the country.  
**ACTION IN PROGRESS:** keep continuing
32. LNHS to address the representation of the natural reserves on all relevant nautical charts for the efficient management and protection of these reserves.  
**ACTION IN PROGRESS**

## **TECHNICAL VISIT 2019**

In order to enhance the quality of the performed work and fulfillment by Lebanon of its international commitments regarding provision of navigational safety in Lebanese waters, the IHO Technical Visit Team provides the following recommendations for the consideration of Lebanese relevant Authorities and IHO Secretariat and MBSHC Chair:

33. Continue with equipment purchase and training as proposed
34. Seek opportunities for staff to attend hydrographic and cartographic training courses
35. To seek ways to provide the technical staff with the necessary trainings in the fields of hydrography, nautical cartography and MSI
36. To make easier LNHS (by LAF-Defence/LAF-Navy) in facilitation of procedures related to training of its technical staff in the international certified programmes (training/courses)

37. To establish the Master Plan, NAVTEX Service and SafetyNET
38. To schedule performance of hydrographic surveys for complete the coverage of Lebanese coastal waters with up-to-date data, taking into consideration the priority surveys program.
39. To schedule production of new edition of the existing charts and new charts (both paper charts and ENCs) with the up-to-date data.
40. To continue purchasing of up-to-date hydrographic/cartographic equipment, systems and software for carrying out the hydrographic surveys and chart production.
41. To make necessary arrangement in the field of hydrographic surveys, chart/publication production and updating, MSDI and MSI
42. To complete and forward to International Hydrographic Bureau the IHO C-55 Questionnaire "Status of Hydrographic Surveying and Nautical Charting World-Wide" that is of significant importance for international cooperation strategy.
43. To create maritime spatial data center (MSDI) under the umbrella of LNHS. This future hydrographic service could provide "more than nautical charts" to all parties interested (maritime portal, bespoke charts, recognized marine database, qualified data, etc.). For interoperability, it is important that the future hydrographic service adopts the relevant standards and be aware of the emerging S-100-compliant standards.
44. To create national legislation concerning the role, duties and responsibilities of LNHS and its budget (refer to IHO publication C-16 for examples abroad) and procedure to get the data from foreign surveys carried out in the waters under its national jurisdiction with the other ministries in charge.
45. To be funded by LAF and continue to participate in International Hydrographic Conferences, the meetings of Mediterranean and Black Seas Hydrographic Commission as well as the meetings of relevant IHO bodies.
46. LNHS is advised to produce a medium term National Survey Plan for a period of 3/5 years.
47. To improve on issuing new publication in IHO standards (Radio Navigational Warning, Tide Table, etc.).
48. To up-date the summary of the assessment of the National Hydrographic Capability (the Table 2) with CBSC MBSHC Coordinator (Turkey) in order to complete the information.
49. To note the need to improve hydrographic survey in medium and deep water and suggestions was forwarded to LNHS for a refitting of actual owned vessel or a purchasing of a new one with "State-of-the-Art" instrumentations for Hydrography, Oceanography and Geophysics Research and for maintenance work of lights and buoys.
50. Suggested to introduce further SW in production line of LNHS to compile, produce and analyze ENC.

#### **URGENT RACCOMENDED ACTION BY TV TEAM**

- ACTION 1: to join the IHO as MS for benefiting of the status of full member and of all possibility in helping and funding by CBSC and RHCs (MBSHC in particular);
- ACTION 2: MSI Service full implementation;
- ACTION 3: Hydrographic survey plan implementation and cooperation in the hydrographic field with others national maritime stakeholders;
- ACTION 4: to sign a TECHNICAL ARRANGEMENT for nautical cartography bilateral cooperation and develop the national cartographic plan.
- ACTION 5: close following IHO activity and attendance to IHO/IALA/IOC/WMO meetings
- ACTION 6: creation of National Hydrographic Coordinating Committee (NHCC)

<b>DATE</b>	<b>2019, April 23<sup>rd</sup></b>
<b>MBSHC TECHNICAL VISIT TEAM LEADER</b>	<b>Captain Lamberto Orlando LAMBERTI</b>
<b>SIGNATURE</b>	_____

**List of Annexes:**

- A. Terms of Reference of the RHC Technical Visit Team;
- B. Summary of Events (consolidated Agenda);
- C. Contact List of LNHS, LAF-Navy, LAF and the relevant Maritime Stakeholders;
- D. LNHS Organization Template;
- E. Preliminary Information / Questionnaire
- F. Lebanon Maritime Resources, Trade and Maritime Traffic;
- G. P5 Yearbook/Annuaire: Lebanon (last update 2019 April, 19<sup>th</sup>);
- H. C-55 Lebanon (Update 30 June 2017)
- I. Charting Analysis of Lebanon Waters
- J. LNHS Report to the MBSHC TV Team (last update 2019 April, 19<sup>th</sup>).

**DISTRIBUTION: MBSHC Chair**

**INFORMATION: IHO Secretariat / LNHS / TN-ONHO / IIM**

## TERMS OF REFERENCE OF THE MBSHC TECHNICAL VISIT TEAM

1. The Technical Visit Team, comprising members of the staffs of the Hydrographers of Italy/Turkey, led by Italy, are to carry out a visit to the Republic of Lebanon which have indicated a willingness to discuss issues of mutual interest in the fields of Hydrography/Nautical Cartography .

### PREPARATION

2. The members of the Team, under the guidance of the leader and with the assistance of the staffs of the Hydrographers of LAF-Navy, are to plan the Team visit having obtained access to material available from Lebanese Hydrographic Office (SHMAL), the International Hydrographic Organization (IHO), [appropriate International Technical Consultative Organizations], and all the information supplied by Republic of Lebanon which is to be visited.

### WORK OBJECTIVES

[Note: If the Technical Visit Team has more than one area of activity e.g. MSI and hydrography, separate headings should be used. The following example covers hydrographic work.]

3. The Team is to:
  - a. obtain access to decision making levels of government in each country visited and liaise with senior officials, emphasizing the importance of hydrography to coastal states and, hence, the need to include hydrographic and associated charting activities within National Plans;
  - b. assess the National capacities to plan and execute the collection and rendering of hydrographic data to enable the production of charts and publications both locally and through the supply of data to Hydrographic Offices with international chart folios;
  - c. consider and advise on measures which can be taken to improve the capacity of nations to carry out the above;
  - d. emphasize the basic importance of a national system for the collection of data, such as engineering drawings and local Notices to Mariners, which have an effect on the interests of mariners;
  - e. advise on the assistance to be gained from close liaison with the IHO, IMO and funding agencies to enable viable and sustainable capability to be maintained.

### REPORT

4. A Report on the activities and recommendations of the Team is to be submitted to the Chair of the MBSHC by July 2019, 31<sup>st</sup>.

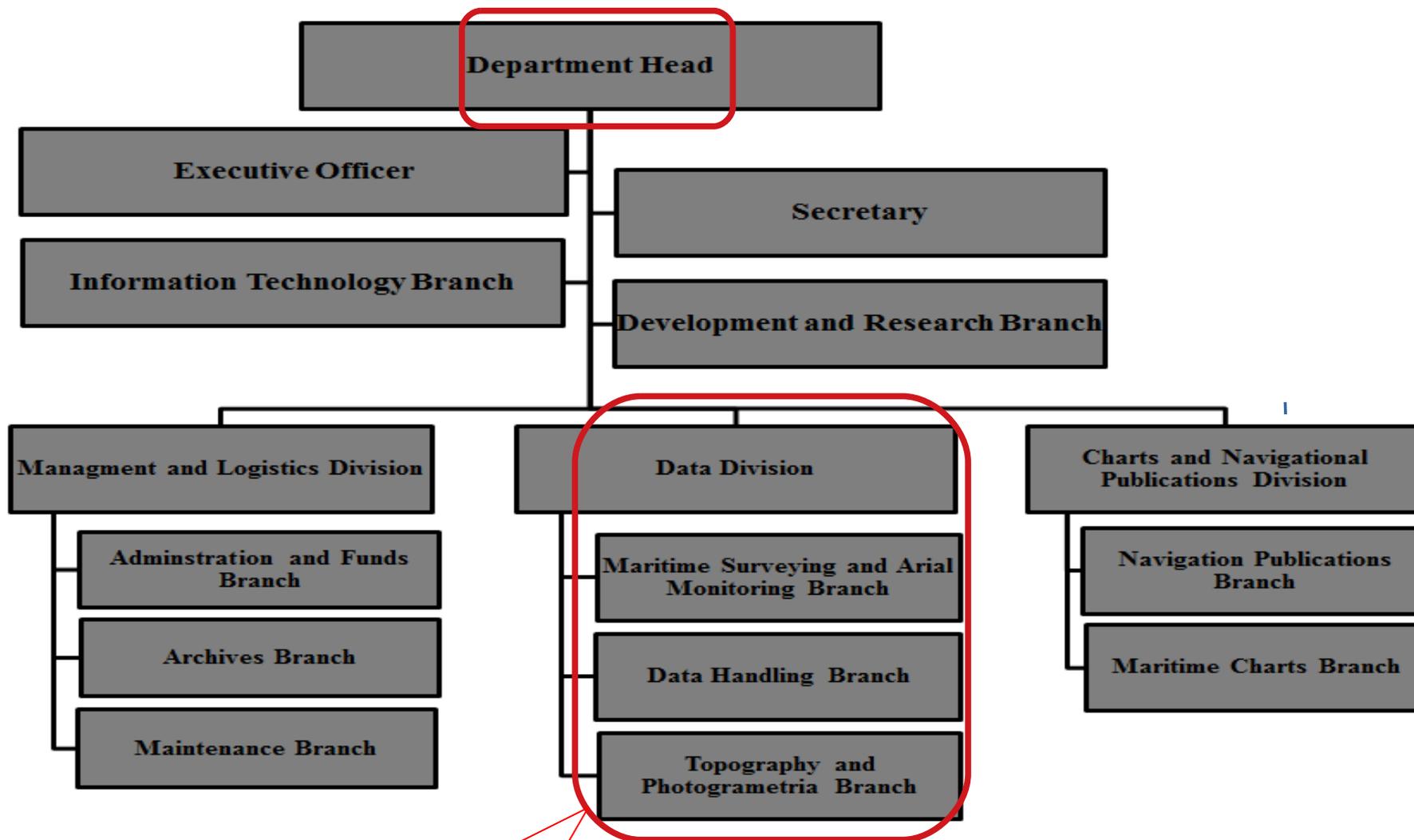
### Technical Visit Agenda/Programme (April 2019, from 16<sup>th</sup> to 18<sup>th</sup>)

Dates	Time Frame	Event	Explanation
Monday April 2019, 15 <sup>th</sup>	TBD	<ul style="list-style-type: none"> <li>– Arrival in Beirut Airport</li> <li>– Transfer from airport to Hotel</li> </ul>	Capt. L.O. LAMBERTI Lt. E. GULHER
Day 1 Tuesday April 2019, 16 <sup>th</sup>	09.00-09.30	Transport from Hotel to the central office of SHMAL in Beirut	
	09.30-13.00	<ul style="list-style-type: none"> <li>– Meeting with the Chief of Navy (presentations)</li> <li>– Meeting with the Lebanese Navy Hydrographic Service</li> </ul>	F-Navy/SHMAL IHO Technical Team
	13.00-14.30	Lunch	
	14.30-16.30	<ul style="list-style-type: none"> <li>– Overview of Activities and Review of the Preceding</li> <li>– Visit to Hydrographic surveys boat/vessel and facilities and Cana Vessel</li> <li>– Review with LNHS of the Activities in Beirut Naval Base</li> </ul>	LAF-Navy/SHMAL IHO Technical Team
	16:30-17.00	Transport to Hotel (End of Day)	
	19:00	Dinner	
Day 2 Wednesday April 2019, 17 <sup>th</sup>	08.30-09.00	Transport from Hotel to the central office	
	09.00-12.30	<ul style="list-style-type: none"> <li>– Meeting with the representatives of LAF Defence in Yarzé (presentations)</li> <li>– Meeting with the representative of Directorate of Geographic Affaires in Araya</li> <li>– Review of the Activities in Beirut Naval Base</li> </ul>	Staff from Navy Hydrographic Committee IHO Technical Team
	12.30-14.00	Lunch	
	14.00-16.30	<ul style="list-style-type: none"> <li>– Review with LNHS of the Activities and of Capabilities in Beirut Naval Base</li> </ul>	Staff from Navy Hydrographic Committee IHO Technical Team
	16:30-17.00	Transport to Hotel (End of Day)	
	19:00	Host Dinner offered by LAF Navy	
Day 3 Thursday April 2019, 18 <sup>th</sup>	08.30-09.00	Transport from Hotel to the central office	
	09.00-12.30	<ul style="list-style-type: none"> <li>– Meeting with the representatives of Lebanon Ministry of Environment, Directorate General of Land and Maritime Transportation and LAF-Defence personnel at LAF-Defence HQ in Yarzé</li> <li>– Review of previous meeting related issues with LNHS in Beirut Naval Base</li> </ul>	Staff from Navy Hydrographic Committee IHO Technical Team
	12.30-14.00	Lunch	
	14.00-17.00	<ul style="list-style-type: none"> <li>– Drafting Technical Visit Report (Final Assessment, Review of Preliminary Recommendations)</li> <li>– Meeting with the Chief of Navy (Review of Technical Visit)</li> </ul>	Staff from Navy Hydrographic Committee IHO Technical Team
	17:00-17.30	Transport to Hotel (End of Day)	
	19:00	Dinner	
Friday April 2019, 19 <sup>th</sup>	Afternoon	<ul style="list-style-type: none"> <li>– Transfer from Hotel to airport</li> <li>– Departure from Beirut Airport</li> </ul>	Capt. L.O. LAMBERTI Lt. E. GULHER

## CONTACT LIST

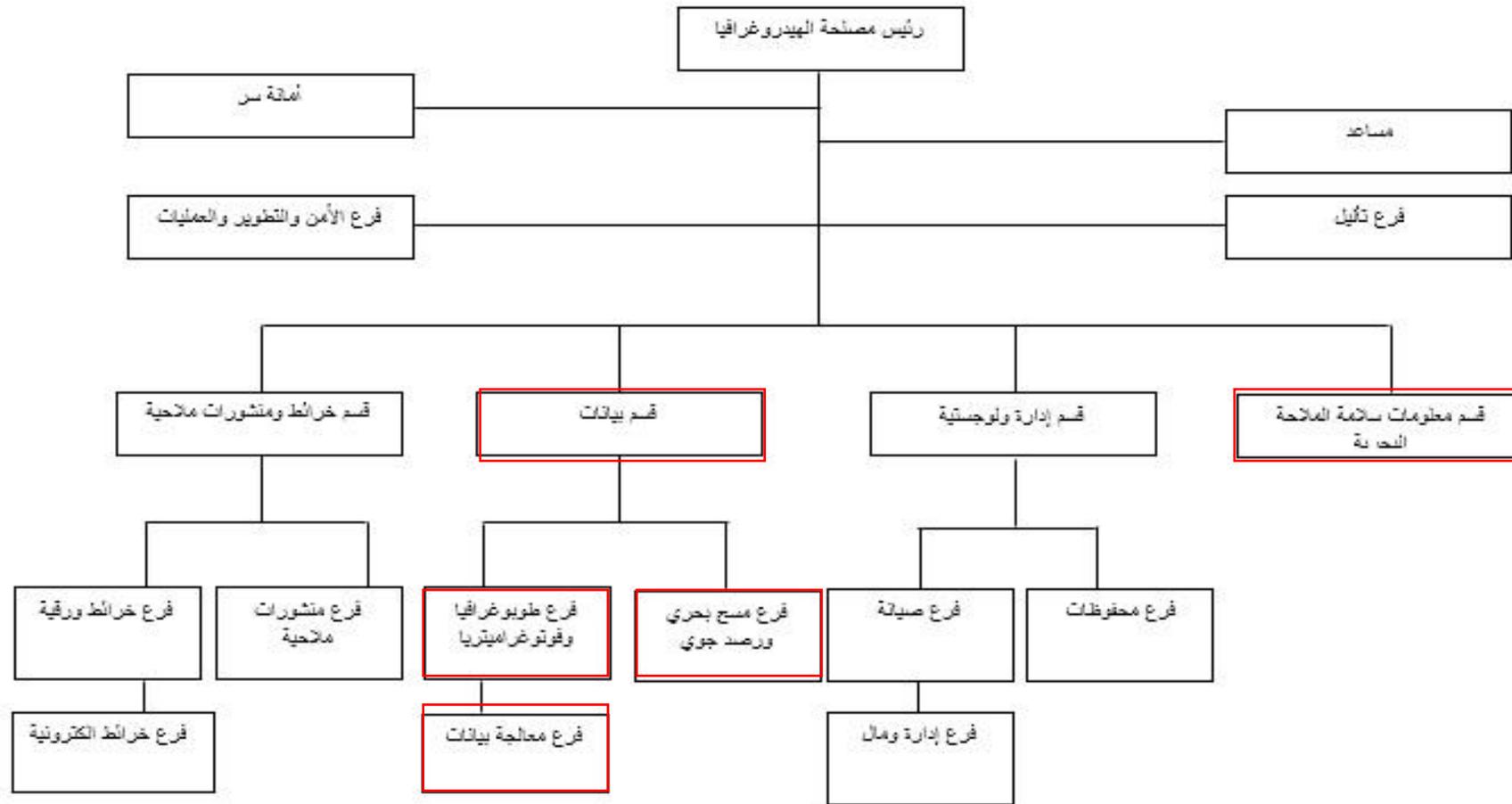
Name	Organization	Contact Number	Postal / Email Address
Radm. Hosni Daher	Lebanese Navy Commander in Chief	Tel: +961 1 983422 Fax: +961 1 983457	Navy@army.gov.lb
Captain Georges Darazy	Ministry of Defence Lebanese Armed Forces – Naval assistant in the Operation branch	Tel: +961 5 454213	gdarazy@gmail.com
Captain Mazen Basbous	Lebanese Navy Head of Operations	Fax: +961 1 983457	Navy@army.gov.lb
Brigadier Hassan Youssef	Directorate of Geodetic Affairs Director	Tel: +961 5 400-401	Dag@army.gov.lb
LtCdr Afif Ghaith	Lebanese Navy Hydrographic Service Director	Tel: +961 70 410574 Tel: +961 1 983 046 Fax: +961 1 983457	Shmal.Navy@army.gov.lb
Slt Christian Fahed	Lebanese Navy Hydrographic Service Head of Survey Departement	Tel: +961 70 225229 Tel: +961 1 983 046 Fax: +961 1 983457	Shmal.Navy@army.gov.lb
Mohammad Nahleh	Ministry of Public Work & Transport Directorate General Of Land & Maritime Transport	Tel: +961 3 783350	<a href="mailto:ministry@transportation.gov.lb">ministry@transportation.gov.lb</a> mm_nahleh@yahoo.com
Nathalie Karam	Ministry of Environment	Tel: +961 1 976555 Tel: +961 70 147755	n.karam@moe.gov.lb
Dr. Miled Fakhry	National Council for Scientific Research National Centre for Marine Sciences - CNRSL	Tel: +961 9 934763 Fax: +961 9 934763	milosman@cnrs.edu.lb

Lebanese National Hydrographic Service – Organization Template  
(Department level in the Lebanese Navy)



In RED position filled with specialized personnel

## بيان تنظيمي لمصلحة الهيدروغرافيا



## 1- PRELIMINARY INFORMATION/QUESTIONNAIRE

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### INTRODUCTION

The purpose of an IHO assessment visit is to consider the status of hydrographic services in the country and advise on how the situation can best be improved so the State can meet its international obligations for hydrography and at the same time contribute to safety of life at sea and protection of the marine environment as well as providing long-term improvements in national infrastructure and economic wealth.

The International Convention on the Safety of Life at Sea (SOLAS) places an obligation under international treaty law for all signatory nations, which includes "Coastal State", to ensure that appropriate hydrographic services are provided. This means that the government of "Coastal State" is responsible for ensuring that:

- Maritime Safety Information (MSI) is promulgated, • Hydrographic Surveys are carried out.
- Nautical Charts and other Nautical Publications are prepared and available, • Nautical Charts and other Nautical Publications are kept up to date, The United Nations Convention on the Law of the Sea (UNCLOS) and various Resolutions of the UN General Assembly also recognize the importance of hydrography and commit Member States of the UN to recognize their responsibilities for hydrography.

For further information, consult IHO Publication M-2 – *The need for national hydrographic services* at

[https://www.iho.int/iho\\_pubs/misc/M-2\\_3.0.6\\_E\\_122016.pdf](https://www.iho.int/iho_pubs/misc/M-2_3.0.6_E_122016.pdf)

## 2- QUESTIONNAIRE

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To assist in making the technical assessment visit successful, please return the following information

to [“Names and emails of the Technical Team”](#) .:

Head of Delegation: [Captain Lamberto Orlando LAMBERTI – Italian Navy Hydrographic Institute / Deputy Director](#)

Email: [lambertoo.lamberti@marina.difesa.it](mailto:lambertoo.lamberti@marina.difesa.it)

Telephone: +39 010 2443215

Mobile: +39 331 6197134

Assistant of Delegation: [Lieutenant Emre GULHER – Turkish NAVY/ MBSHC CB Coordinator](#) Email: [equher@shodb.gov.tr](mailto:equher@shodb.gov.tr)

Telephone: +90 216 322 2580

Mobile: +90506 245 5134

*If an answer is not known please insert “NK”*

*If the question is not applicable, please insert “NA”*

### 1. Details of the Respondent

- Title or rank: LtCdr/Head of the Lebanese Navy Hydrographic Service
- Name: Afif Ghaith
- Organization: Lebanese Navy Hydrographic Service
- Geographical Address: Beirut Naval Base, Chafic al Wazzan Street, Beirut - Lebanon
- Postal Address: NA
- Other contact information (e-mail, fax, etc.): [shmal.navy@army.gov.lb](mailto:shmal.navy@army.gov.lb)

### 2. Existing Capability

**Are the following hydrographic services provided for your country at present (YES/NO/NK)?** If YES, indicate which organization (or third country) is responsible for the service.

If the service is provided through a third country, indicate if the responsibilities are defined in a formal agreement and provide the relevant references if possible.

- Maritime Safety Information (MSI)? YES - LNHS
- Nautical paper charts? YES – France (SHOM) without any formal agreement
- Electronic Navigational Charts (ENC)? YES – France (SHOM) without any formal agreement
- Tide Tables? NK

- Tides / water level measurement? **YES – LNHS/CNRS**
- Hydrographic Surveys? **YES – LNHS/CNRS**
- Topography Mapping / Cadastral **YES DGA (Directorate of Geographic Affairs).**
- Topographic Surveys **YES – LNHS/DGA**
- Inland Waterways **NA**

**What do you suggest to improve the situation (will then be discussed during the visit)?**

**Formal Agreement between third party countries must be established, and all relevant stakeholders need to be more involved especially on a National Level (National Hydrographic Committee).**

**3. Which (if any) departments in your country have personnel with competencies in:**

- hydrographic surveying **LNHS/CNRS (Scientific Purpose)**
- nautical charting **LNHS**
- geospatial data management **LNHS/DGA**
- tides /water level measurement **LNHS/CNRS**
- topographic surveying and mapping **LNHS/DGA**
- digital elevation modeling **LNHS/DGA/CNRS**
- aerial and/or satellite image processing and mapping **LNHS/DGA**

**4. For each category available in your country, what is the general level of skill of the staff, including qualifications and training history?**

- hydrographic surveying **LNHS (Medium level; IHO Cat A/B) / CNRS (Medium level but for scientific use)**
- nautical charting **LNHS (Amateur level)**
- geospatial data management **LNHS (Medium level)/DGA (Advanced level)**
- tides /water level measurement **LNHS (Advanced level) / CNRS (Medium Level)**
- topographic surveying and mapping **LNHS (Medium level) /DGA (Expert level)**
- digital elevation modeling **LNHS (Medium level)/DGA (Expert Level) /CNRS (Medium level).**
- aerial and/or satellite image processing and mapping **LNHS (Medium level) /DGA (Expert level).**

**What do you suggest to improve the situation?**

**More investment in the Personnel training, either it be for LNHS or any joint training program with some of the stakeholders.**

**5. Is there any equipment / platform (such as ship or aircraft) available in your country for:**

- promulgation of Maritime Safety Information (MSI)? **At the moment MSI are disseminated through NAVAREA 3 coordinator Spain or through SHOM**
- hydrographic surveying? **LNHS (2 survey vessels) / CNRS (CANA)**
- nautical cartography? **LNHS possess the softwares**
- tidal observations? **3 Tide Gauges for LNHS / 2 Tide Gauges for CNRS**

**What do you suggest to improve the situation?**

If applicable and possible, provide details of equipment and software, for example. Ships or vessels, echo-sounders; DGPS stations; tide gauges; data acquisition, processing and management software; cartographic / topographic workstations; GIS tools; etc.

Medium to deep sea survey ship is still required at LNHS, fully equipped with all necessary hydrographic hardware and software.

A permanent GNSS network is underway at the moment (Joint project between LNHS/DGA/IIM).

Hardware for the promulgation of MSI is still needed.

**6. Existing Programmes**

Is there any awareness at the national level of the status of hydrographic surveys and nautical charting as assessed in IHO Publication C-55

([http://www.iho.int/iho\\_pubs/CB/C-55/index.html](http://www.iho.int/iho_pubs/CB/C-55/index.html))

No

Are there any national plans in place for developing hydrography and/or management of the coastal zone?

No

**What do you suggest to improve the situation?**

Establishment of the NHCC/NHC, chaired by LNHS.

Meetings on a National Level in order to emphasize on the importance and impact of Hydrography on a National Level.

**7. International Cooperation**

Are there any bilateral or regional arrangements in place to assist in the provision of national hydrographic services?

Yes (Italy in development, France and Turkey pending)

**What do you suggest to improve the situation?****8. Institutional Framework**

Who are the mapping and research agencies that you think should be involved in the establishment or improvement of hydrographic capacity in your country (provide addresses, points of contact, phone, fax, e-mail)?

9. In your country, what are the organizational and administrative structures that look after:
- maritime transport? **Lebanese Armed Forces - Navy / Directorate General of Land and Maritime Transport**
  - inland waterborne transport? **NA**
  - mapping? **DGA**
  - national development and infrastructure? **Ministry of Public Works and Transport**
  - prevention of marine disasters (storms, coastal floods, etc.)?
  - representation at the International Maritime Organization (IMO)? **Lebanese Armed Forces - Navy / Directorate General of Land and Maritime Transport**
  - representation at the Intergovernmental Oceanographic Commission (IOC)?
  - representation at the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)  
**Directorate General of Land and Maritime Transport**

10. In your country, what are the ministries and other national authorities / administrations / institutions potentially concerned with the provision and use of hydrographic services (provide designation, address, phone, fax, e-mail)?

11. What do you think is the level of awareness and priority in government and at the higher levels of the administration regarding the importance and value of hydrography to the country?

Low level, there's still need to increase the level of awareness and priority in Government Agencies and Maritime relevant Stakeholders.

What do you suggest to improve the situation?

Meetings on a strategic level, with the national policy makers.

12. Please describe the nature of any interagency cooperation with regard to hydrography, as you understand it.

**CNRS** – at the moment very shallow exchange in information and expertise, but a collaboration protocol is currently underway; if signed the flow of information should be deepened and fastened.

What do you suggest to improve the situation?

13. In your opinion, who should be, or is, designated by the government as responsible for the proper provision of hydrographic service in your country (position, address, phone, fax, e-mail)?

LNHS is designated by the Lebanese Government in 2014 as the National point of contact to all hydrographic related matters with a Government Decree.

## Lebanon's Maritime Resources, Trade and Maritime Traffic

### 1. Introduction<sup>1</sup>

The coast of Lebanon is about 255 kilometres in length. The country is bordering the Mediterranean Sea, between Occupied Palestine and Syria. Beirut is the largest city, main port and the capital of Lebanon. It is also the economic and administrative centre. There are 6 governorates: Beqaa, Beyrouth (Beirut), Liban- Nord, Liban-Sud, Mont-Liban, Nabatiye, Aakkar and Baalbek-. Nahr el Litani is the only major river in Near East not crossing an international boundary.

#### The Republic of Lebanon

The 1975-90 civil war seriously damaged Lebanon's economic infrastructure

### 2. Ports and Harbours

The five main commercial ports of Lebanon are Tyr, Sidon (New Port constructed but not yet fully operational), Beirut, Jounieh (under construction of new Port), and Tripoli. In addition, four secondary ports acting mainly as petroleum or chemical terminals are found in Jieh (south Beirut), Amchit, Selaata and Herri (between Tripoli and Beirut). About 16 Marinas and small fishing harbours are distributed between the coastal cities.

The Port of Beirut is the main port in Lebanon located on the eastern part of the Saint George Bay on Beirut's northern Mediterranean coast, west of the Beirut River. It is one of the largest and busiest ports on the Eastern Mediterranean. The Port of Beirut is the main port of entry into the country<sup>2</sup>. The Port of Beirut is located at latitude of 35° 54'N and longitude of 35° 31' E. During the mid-70's, the Port of Beirut was an important international trading station with the surrounding Arab countries and up until today it has preserved its commercial nature<sup>3</sup>. Beirut dry cargo port offers deep water quays and entrance channels, with a maximum draft of 13 meters and 16 meters respectively. Vessels up to 60,000 DWT can be received and up to 25 ships can be accommodated at a time. Beirut port is equipped with grain capacity: 120,000 tons and warehouses, and the port company inaugurated in 2000 the new Port and Customs Administration Complex<sup>4</sup>. The Port of Beirut has a total area of 1,200,000 sq.m and has 4 basins, 16 quays, and a new container terminal at quay 16 capable of handling 745,000 twenty-foot equivalent units (TEU) per year. Approximately 3,000 ships are using Beirut Port<sup>5</sup> every year.



Port of Beirut<sup>6</sup>

<sup>1</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/le.html> [Accessed 25 Feb 14]

<sup>2</sup> [http://en.wikipedia.org/wiki/Port\\_of\\_Beirut](http://en.wikipedia.org/wiki/Port_of_Beirut) [Accessed 25 Feb 14]

<sup>3</sup> <http://www.portdebeyrouth.com/index.php/en/> [Accessed 25 Feb 14]

<sup>4</sup> <http://lebanesemarineagency.webs.com/localports.htm> [Accessed 25 Feb 14]

<sup>5</sup> <http://www.portdebeyrouth.com/index.php/en/component/k2/item/25-keypoints> [Accessed 25 Feb 14]

The Port of Tripoli is the second major port in Lebanon. It is located at latitude of 34° 28'N and longitude of 035° 50' E. The port covers an approximate area of 3 square kilometers, with a water area of 2.2 square kilometers, and the land area composing of 320,000 square meters, and a 420,000 square meters dump area adjacent to the current port, The Port is currently undergoing expansion projects, where a new 600 m long berth is built for container trade, with a rear zone area of 1,200,000 m<sup>2</sup>.

### 3. Cruise Ship Operations

From Beirut Port Operates Abou Merhi Cruise Line, and from Tripoli Port operates Medline Shipping (Ferries) in connection with Mersin and Antalya (Turkey)

### 4. Offshore Oil and Gas

Lebanon currently imports all of the oil it consumes, approximately 101,000 bbl/d of oil. Lebanon is currently not an oil producing country. Recent seismic surveys indicated the potential for gas production in Lebanese waters, should start excavation in 2020, environmental studies already been performed

As a result of its geographic location, Lebanon was once a refinery center for crude oil that was exported from Iraq and Saudi Arabia by pipelines to two Lebanese coastal refineries, Zahrani in the south, and Tripoli in the north. However, the civil war led to the closure of these refineries and they are still closed.

### 5. Maritime Claims

Lebanon claims a 12 mile territorial sea (Decree n. 138 dated 16/9/1983), has an Exclusive Economic Zone (EEZ) area of approximately 19,196 square kilometres (Decree n. 6433 dated 1/10/2011) . Lebanon ratified the United Nations Convention on the Law of the Sea (UNCLOS) in 5 January 19958.

### 6. Defence including Coastguard

The Lebanon Navy has 49 Ships; a combination of Patrol boats and fast interception crafts; in its inventory. The Navy enforces the law and the State authority in Lebanese Territorial Waters. The Navy also organizes the traffic of commercial ships through the joint naval operations room. The Lebanon Navy assists ministries and agencies in their duties at sea like firefighting, marine pollution response, search and rescue operations, protecting natural resources and national interests along the coast

### 7. Sea Fishery

Fishery is a traditional maritime activity in Lebanon. The Lebanese fishing fleet consists of 2,700 fishing boats spread all over the Lebanese coast with approximately 1,100 being active in northern Lebanon. Fishing is not allowed within 500 m off the shoreline and between the 6 and 12 nautical miles zone for security reasons, unless when having a special authorization. In 2016, fish catches amounted to 4,291 tonnes according to World Bank.

With regard to maritime activities near the maritime borders with neighbouring countries, it should be noted that:

- At the southern maritime border, no maritime activities take place due to political conflicts between the two countries involved.
- At the northern maritime border (border with Syria), no major competitions between different users are currently experienced

## 8. Marine Reserves

The Lebanese coastline extends over 255 km in length. The coastal area, which constitutes around 8% of the total area of the country, comprises 33 % of the total built-up area in the country and hosts 55% of the total population (Dar Al-Hadassah & Iaurif, 2003). The Lebanese coastal area is part of the Mediterranean region that is considered a global biodiversity hotspot. It supports an amazing diversity and abundance of marine life and human activities, contributing to the Lebanese economy and offering enormous potential for future economic, social and cultural benefits

The current marine reserves are listed below:

- Palm Islands Nature Reserve (PINR ): The PINR was established through Law no. 121 of 9/3/1992; it includes three islands: Palm, Sanani and Ramkin.
- Tyre Coast Nature Reserve (TCNR): The TCNR was established by Law no. 708 dated November 5, 1998. The law states that a committee established through a decision from the Minister of Environment for a period of five years

## 9. Tourism and Coastal Recreational Amenities

Lebanon has a natural attractive seashore with about 300 days of sunshine a year, making it a favorable destination for leisure and activities that expand in different parts of the country.

## 10. Education and Science

The Lebanese Ministry of Agriculture (MoA), and the National Council for Scientific Research-Lebanon (CNRS-L); and stemming from the desire to enhance sustainable coastal development and to prioritize the study of marine eco-systems in Lebanese marine waters, the Italian government proposed a valuable donation in the form of a scientific vessel (CANA vessel) aimed at supporting marine studies and research in Lebanon.

## 11. Planned Maritime Developments in Lebanon Waters

The construction of Jounieh Touristic Port is underway expecting the capability to receive big cruise ships.

The exploration and excavation of the Seabed in the EEZ for Gas in the upcoming two years should boost the Maritime Sector

<sup>6</sup> <http://www.portdebeyrouth.com/index.php/en/component/k2/item/25-keypoints> [Accessed 25 Feb 14]

<sup>7</sup> [http://en.wikipedia.org/wiki/Port\\_of\\_Tripoli\\_%28Lebanon%29](http://en.wikipedia.org/wiki/Port_of_Tripoli_%28Lebanon%29) [Accessed 25 Feb 14]

<sup>8</sup> [http://www.un.org/Depts/los/reference\\_files/chronological\\_lists\\_of\\_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea](http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea) [Accessed 26 Feb 14]

<sup>9</sup> <http://www.lebarmy.gov.lb/en/structure/?200>

<sup>10</sup> Lebanon's Marine Protected Area Strategy - Supporting the management of important marine habitats and species in Lebanon

## Lebanon / Liban

Country information / Informations sur le pays / Información sobre el país

<b>Declared National Tonnage Tonnage national déclaré Tonelaje Nacional Declarado</b>	225229 tons (2019)
<b>National day Fête nationale Fiesta nacional</b>	22 November
<b>Remarks on membership Remarques sur l'adhésion Comentarios sobre la adhesión</b>	Legal process ongoing for membership

### LEBANESE NAVY HYDROGRAPHIC SERVICE

Contact information / Informations de contact / Información de contacto

<b>National Hydrographer or equivalent Hydrographe national ou équivalent Hidrógrafo Nacional o equivalente</b>	Head of the Lebanese Navy Hydrographic Service Commander Afif GHAITH  Postal address: Lebanese Navy Hydrographic Service , Beirut Naval Base, Chafic El Wazzan Street, Lebanon Tel: +961 70410754 E-mail: afifg@hotmail.com
<b>Other point(s) of contact Autre(s) point(s) de contact Otros punto(s) de contacto</b>	SLt Christian FAHED Tel: +961 70225229 E-mail: christian_fahed@hotmail.com Lt Elie EL JBEILY Tel: +961 71942850 E-mail: elie_lebnavy@hotmail.co.uk

Agency information / Information sur l'agence / Información sobre la agencia

<b>Date of establishment Date de mise en place Fecha de constitución</b>	February 2014
<b>Top level parent organization Organisme mère Organización asociada de nivel superior</b>	Ministry of Defense - Lebanese Armed Forces -Lebanese Navy
<b>Principal functions of the organization or the department Attribution principales de l'organisme ou du département Principales funciones de la Organización o el departamento</b>	Hydrographic and oceanographic data collection and processing, Nautical Charts Production and update Maritime safety Information
<b>Total number of staff employed Effectifs totaux Número total de personal empleado</b>	15

*Information for this organisation continues on*

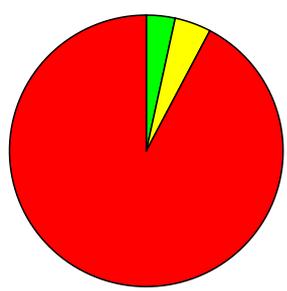
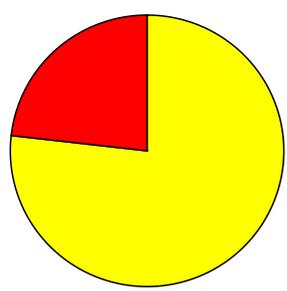
*next page.*

*Les renseignements sur cet organisme  
continuent à la page suivante.*

*La información sobre esta organización  
continúa en la página siguiente.*

<b>Detail of surveying vessels/ Aircraft</b> <b>Détail des bâtiments</b> <b>hydrographiques/aéronefs</b> <b>Detalle de buques</b> <b>hidrográficos/Aeronaves</b>	<b>Displacement</b> <b>-déplacement</b> <b>-Desplazamiento</b>	<b>Commissioning Date</b> <b>-date de mise en</b> <b>service</b> <b>-Fecha de puesta en</b> <b>servicio</b>	<b>Crew</b> <b>-équipage</b> <b>-Personal</b>
Navy Gator	2.8 T	Sept 16	3
Hydrographic RHB	550 Kg	Oct 17	2

Hydrographic surveying / Levés hydrographiques / Levantamientos hidrográficos

Survey coverage Couverture hydrographique Cobertura hidrográfica	Depth < 200m Profondeur < 200m Profundidad < 200m			Depth > 200m Profondeur > 200m Profundidad > 200m		
<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: green; margin-right: 5px;"></div> <div> <p><b>Adequately surveyed</b> Correctement hydrographié Adecuadamente levantado</p> </div> </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: yellow; margin-right: 5px;"></div> <div> <p><b>Re-survey required</b> Nécessitant de nouveaux levés Requiere nuevo levantamiento</p> </div> </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: red; margin-right: 5px;"></div> <div> <p><b>Never systematically surveyed</b> Jamais hydrographié systématiquement Nunca levantado sistemáticamente</p> </div> </div> </div>	3.4	4.3	92.3	0	76.8	23.2
						
<p><b>Notes</b> Notes Notas</p>	<p>1. Data provided by France and UK                  2. The only systematic surveys are in the immediate approaches to the main ports. None are modern.                  3. Data now derived from survey GIS polygonal surfaces method. New values might divert significantly.</p>					

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

GMDSS implementation Mise en œuvre du SMDSM Implementación SMSSM	Status Status Estado	Notes Notes Notas
Master plan Plan cadre Plan principal	NO	
A1 area Zone A1 Zona A1	NO	
A2 area Zone A2 Zona A2	NO	
A3 area Zone A3 Zona A3	YES	
NAVTEX NAVTEX NAVTEX	NO	
Safety NET Safety NET Safety NET	YES	

Nautical charting / Cartographie marine / Cartografía náutica

Coverage of charts published Couverture des cartes publiées Cobertura de cartas publicadas	Offshore passage Navigation au large Pasaje offshore			Landfall and Coastal passage Atterrissage et navigation côtière Recalada y Pasaje costero			Approaches and Ports Approches et ports Aproches y puertos		
<p><b>%</b> Covered by INT or other paper charts meeting S-4 Couvert par des cartes papier INT ou autres conformes S-4 Cubiertas por cartas de papel INT o otras cumpliendo S-4</p> <p><b>%</b> Covered by RNC meeting S-61 Couvert par des RNC conformes S-61 Cubiertas por RNC cumpliendo S-61</p> <p><b>%</b> Covered by ENC meeting S-57 Couvert par des ENC conformes S-57 Cubiertas por ENC cumpliendo S-57</p>	100	0	0	100	0	100	100	0	86
	INT	RNC	ENC	INT	RNC	ENC	INT	RNC	ENC
<p>Paper charts showing depth in meters Cartes papier avec les profondeurs en mètres Cartas de papel con profundidades en metros</p>	100 %	<p>Paper charts referenced to a satellite datum Cartes papier rapportées à un système géodésique satellitaire Cartas de papel referidas a un datum satelital</p>			66 %	<p>Data source Source des données Origen de los datos</p>			
<p>Notes Notes Notas</p>	<p>1. Data provided by France and UK</p>								

Maritime Safety Information / Renseignements sur la sécurité maritime / Información sobre seguridad marítima

Navigational information Informations nautiques Información náutica	Status Status Estado	Notes Notes Notas
Local warnings Avertissements locaux Avisos locales	Unknown	
Coastal warnings Avertissements côtiers Avisos costeros	Unknown	
NAVAREA warnings Avertissements NAVAREA Avisos NAVAREA	Unknown	
Information on ports and harbours Information sur les ports et rades Información sobre puertos	Unknown	

### 1. Lebanon Chart Coverage

The Republic of Lebanon does not have a chart production capability and relies historically on the SHOM to fulfil this function. The resume of chart coverage for Lebanon shown in IHO Publication C- 55 - Status of Nautical Charting (Last update: 30/06/2017) is shown in the table below, as updated by SHOM. There are no significant gaps in coverage.

<b>IHO C-55 Status of Chart Coverage</b>			
<b>Chart Type</b>	<b>% Covered by INT Charts</b>	<b>% Covered by RNCs</b>	<b>% Covered by ENCs</b>
<b>Small Scale: Offshore Passage</b>	100	0	N/A
<b>Medium Scale: Landfall, Coastal Passage</b>	100	0	100
<b>Large Scale: Approaches and Ports</b>	100	0	87,5

While C-55 shows that Lebanon is well covered by charts, it must be noted that the quality of the underlying data is not adequate. The surveys were not always done to modern standards.

### 2. SHOM Charts

The published charts and current state of maintenance is shown in the table below. Percentage of WGS84 charts are %66 and the percentage of metric charts are %100 of the portfolio.

<b>SHOM Chart INT Chart</b>	<b>Title</b>	<b>Datum</b>	<b>Scale</b>	<b>Latest Edition Date</b>
7255 INT 3606	De EILadhiqiyeh a Sour	EUR50	1:251.500	1991
7256 INT 3608	De Sour a Al Arish	EUR50	1:258.100	1991
7348 INT 3670	Approches de Beyrouth	WGS84	1:30.000	2003
7514 INT 3671	Ports du Liban	WGS84	1:25.000 1:20.000 1:25.000 1:25.000	1998

**Summary of SHOM Charting**

### 3. British Admiralty Charts

The published charts and current state of maintenance is shown in the table below.

UKHO Chart INT Chart	Title	Datum	Scale	Last edition date
1561	Ports Lebanon	WGS 84	25.000	25.02.1999
	A-Trablous		25.000	
	B-Tel Aviv and Yafo		20.000	
	C-Saida		25.000	
1563	D- Sour	25.000	WGS 84	13.02.2014
	Approaches to Beyrouth	30.000		
	A-Beyrouth	12.500		
2633	B-Port de Joûnie	10.000	WGS 84	04.03.2010
	Latlaquie to sour Famogusta	300.000		
2634	Beyrouth to Gaza	WGS 84	300.000	31.03.2011

#### Summary of British Admiralty Charting

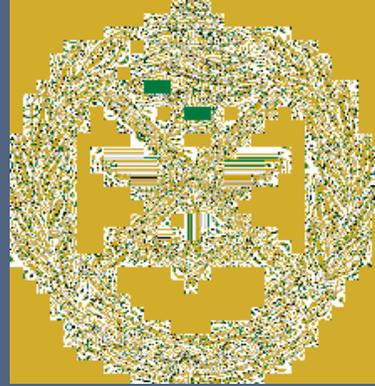
4.

### ENCs

There are 9 ENCs produced by France, UK and Turkey covering the Lebanese waters.

ENC No	Title	Published (Last NtoM/Year)	ER issued since Publication
FR57514A (Harbour)	Approaches to Tarabulus (Tripoli)	2010	2
FR511010 (Harbour)	Beyrouth (Beiroût) harbour and approaches	2006	10
FR57348B (Harbour)	Joûnié Harbour	2006	2
FR57514D (Harbour)	Loubnâne (Lebanon) - Approaches to Sur (Tyr)	2008	1
FR57514C (Harbour)	Mediterranean Sea - Port of Lebanon - Approaches to Sayda (Saïda)	2011	3
FR411010 (Approach)	Outer approaches to Beyrouth (Beiroût)	2006	11
FR311010 (Coastal)	Tartoûs to Soûr	2006	12
GB302633 (Coastal)	Eastern Mediterranean (between Cyprus and Lebanon)	2011	3
TR100030 (Overview)	Eastern Mediterranean	2014	1

#### Summary of ENCs



# Lebanese Navy Hydrographic Service Capacity Development Strategy

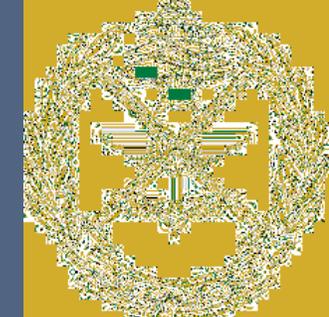
Lt Cdr. Afif GHAITH

SLt. Christian Fahed

Beirut, April 2019



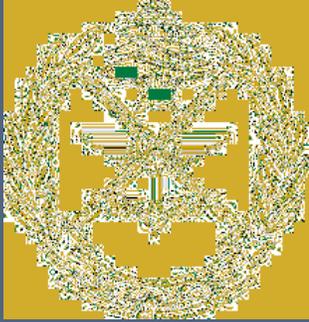
# Plan



- Introduction
- NAVY LAF Project
- The LNHS
- IHO/MBSHC Capacity Building Proposal
- National Hydrographic Committee
- MSI/Hydrography/Cartography Capacity Development
- Bilateral arrangements
- Projects
- Conclusion



# NAVY LAF Project



- 2011: Lebanese Government **decision** to join IHO
- February 2014: **Establishment** of LNHS
- September 2014: Start of **Training**
- October 2014: **Activation** of LNHS
- December 2014: Designation of LNHS as **National Point of Contact** for hydrography and National Coordinator for MSI
- June 2015: Status of **Observer** in the MBSHC
- October 2016: **First Italian equipment** procurement to LNHS
- 2017: Start of **surveys**
- October 2017: **Second Italian equipment** procurement to LNHS
- December 2017: First course on **Cartographic** software

رقم المحضر : ٤١

رقم القرار : ٢٠٠

تاريخ القرار : ٢٣ / ١٢ / ١٤٠٤

قرر المجلس الموافقة على ما يلي :

- تحديد مصلحة الهيدروغرافيا في الجيش كنقطة الإتصال المعنية في مجال الهيدروغرافيا على الصعيد الوطني ، وإعلام منظمة الهيدروغرافيا العالمية OHI بالمقررات المتخذة بهذا الصدد .
- تكليف وزارة الخارجية والمغتربين متابعة موضوع طلب انضمام لبنان الى المنظمة كعضو دائم فيها .
- مشاركة لبنان في إجتماعات المنظمة المذكورة بعد قبول عضويته فيها، عبر إنتداب ممثلين عن وزارتي الدفاع الوطني والأشغال العامة والنقل .
- إنشاء جهاز تابع لغرفة العمليات البحرية المشتركة لجمع المعلومات التي تؤمن سلامة الملاحة البحرية على طول الشاطئ اللبناني وتوزيعها على المراكز الدولية المختصة لا سيما مراكز SHOM .

أمين عام مجلس الوزراء

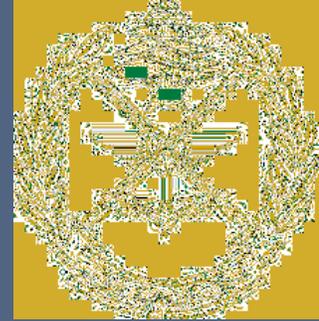
سهيل بوجي

نسخة طبق الأصل  
أمانة علي الحاج شحادة

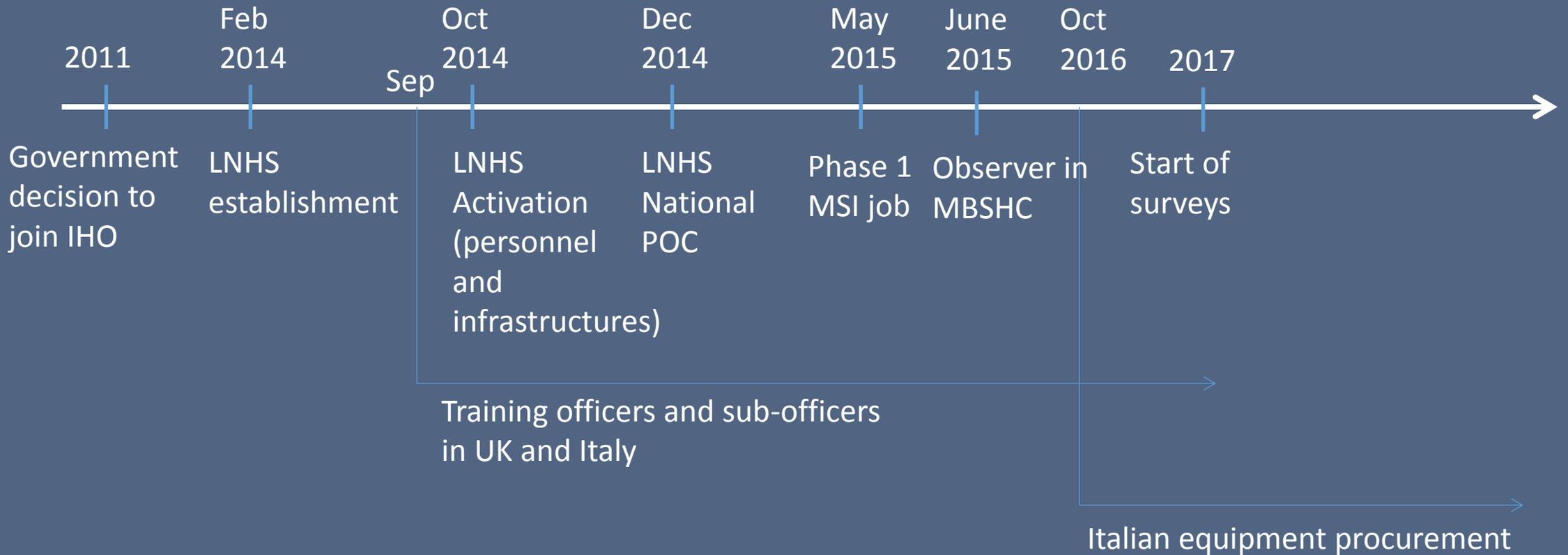
- يبلغ لجانب :
- السادة الوزراء
- وزارة المالية
- وزارة الخارجية والمغتربين
- وزارة الدفاع الوطني
- الجيش
- وزارة الأشغال العامة والنقل
- المديرية العامة لرئاسة الجمهورية
- المديرية العامة لرئاسة مجلس الوزراء رقم ١٨٦٦ / ٤٤٤
- مؤسسة المحفوظات الوطنية
- مركز المعلوماتية
- المحفوظات

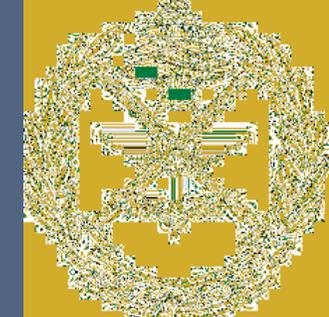
جانب قيادة الجيش  
للفضل بانقضى  
العميد الركن بسام بطرس  
رئيس الغرفة العسكرية بالدمشق

بيروت ، في ٢٣ / ١٢ / ١٤٠٤

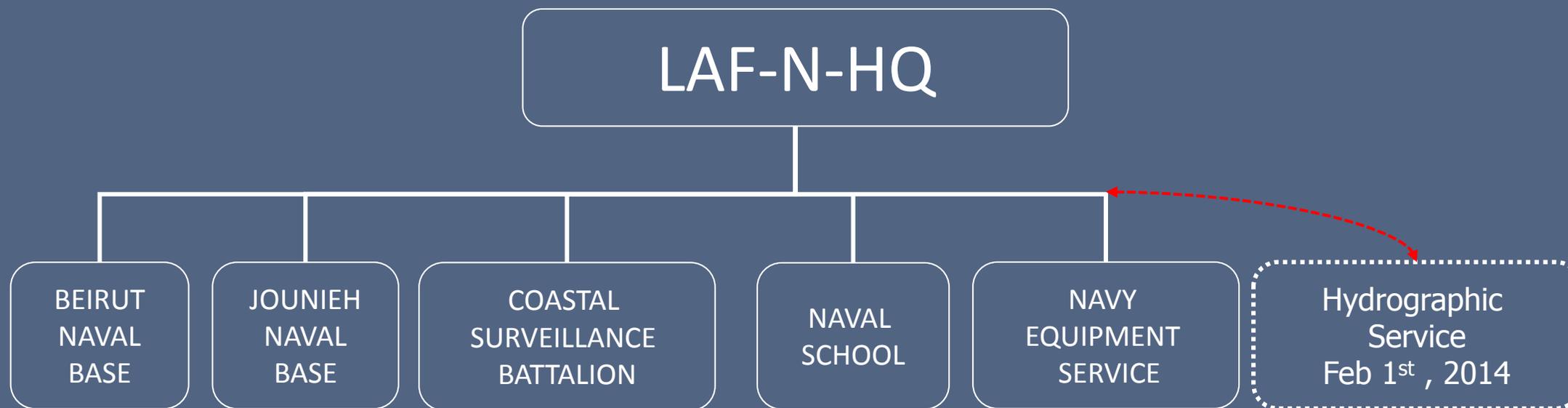


# NAVY LAF Project



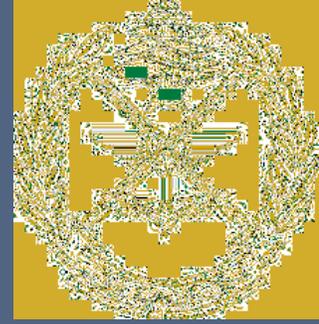


# Navy Organization

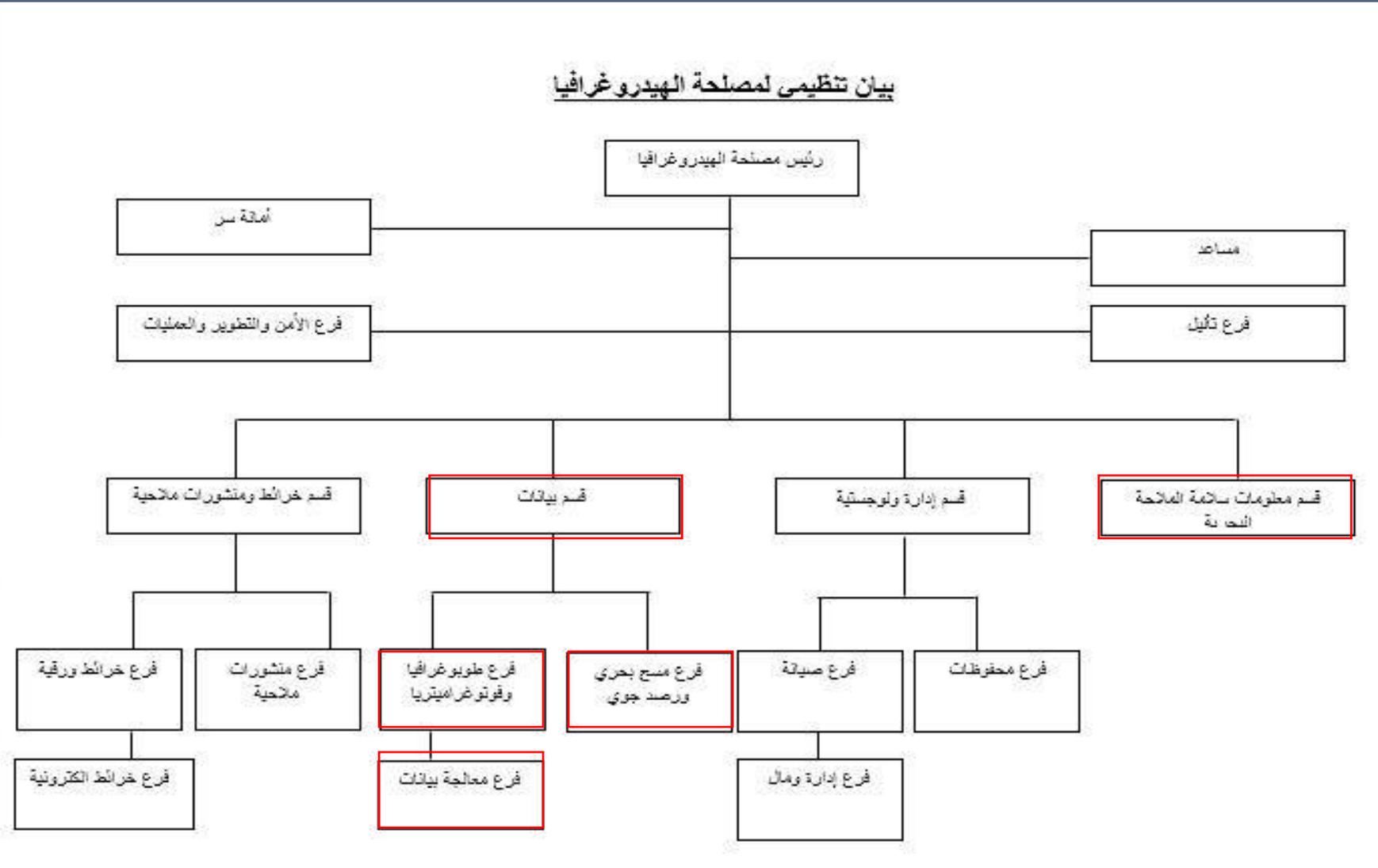




# LNHS Organization



## بيان تنظيمي لمصلحة الهيدروغرافيا



Data division

Survey s  
Meteo t

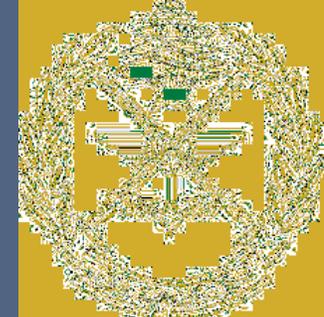
Data pro  
bran

Topogr  
bran

ADMIN  
Logistics  
Division

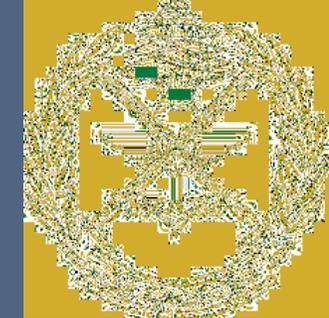


# Missions



- Coordination and dissemination of MSI
- Collecting, processing and managing hydrographic, oceanographic and meteorological data
- Updating and producing charts and publications
- Monitoring sea level and tidal measurements
- Coastlining (210 km coastline length)
- Establishing sea limits and claims (22000 km<sup>2</sup> of EEZ)
- Organizing aids to navigation, harbors, approaches
- Training personnel in the field of hydrography and cartography
- Providing new equipment and infrastructures

Recommendations	Actions
<ul style="list-style-type: none"> <li>Establishment of a formal <b>bilateral agreement</b> with a well-established Hydrographic Service to be the PCA</li> </ul>	<ul style="list-style-type: none"> <li>Technical Agreement between LNHS and IIM underway.</li> <li>Protocol with France pending.</li> <li>Protocol With Turkey also pending.</li> </ul>
<ul style="list-style-type: none"> <li>Liaison with <b>PCA</b> to forward <b>significant information</b> and include them in existing charts</li> </ul>	<ul style="list-style-type: none"> <li>Liaison with SHOM to update Nautical Charts.</li> </ul>
<ul style="list-style-type: none"> <li>Allocation of <b>regular funding</b> to LNHS to get relevant charting and surveying systems and software.</li> </ul>	<ul style="list-style-type: none"> <li>Allocation of independent funding declared in 2019, and will start on yearly basis as of 2020.</li> </ul>
<ul style="list-style-type: none"> <li>To develop a <b>National MSI Plan</b></li> </ul>	<ul style="list-style-type: none"> <li>Awaiting the establishment of the National Hydrographic Coordinating Committee (NHCC).</li> </ul>
<ul style="list-style-type: none"> <li>Creation of “<b>Survey Capabilities</b>” in order to conduct surveys.</li> </ul>	<ul style="list-style-type: none"> <li>The Italian Project and procurement of Survey assets.</li> <li>The upgrade of CANA allowing medium to deep water capability.</li> </ul>
<ul style="list-style-type: none"> <li>Establishment of a <b>National Hydrographic Coordination Committee</b> to provide input to and coordination of the hydrographic program and setting national charting and surveying priorities.</li> </ul>	<ul style="list-style-type: none"> <li>Lebanon has currently <b>NOT</b> established National Hydrographic Coordinating Committee (NHCC).</li> </ul>
<ul style="list-style-type: none"> <li>Establishment of formal agreement with <b>CNRS</b> to use <b>CANA vessel</b> for deep water hydrographic surveys.</li> </ul>	<ul style="list-style-type: none"> <li>The Upgrade of CANA was purchased by the Italian Side, and a Protocol of co-operation is being studied and will be signed in the near future.</li> </ul>
<ul style="list-style-type: none"> <li>Cooperation with <b>Directorate of Geographic Affairs</b> for topographic issues</li> </ul>	<ul style="list-style-type: none"> <li>Co-operation is established and many joined projects has been executed.</li> <li>Permanent GNSS stations project with the DGA and LAF-HQ.</li> </ul>
<ul style="list-style-type: none"> <li>Participation of Lebanon in <b>MBSHC and IHO meetings</b></li> </ul>	<ul style="list-style-type: none"> <li>Last participation was in 2016. We received an invitation for 2019 meeting in Cadiz (Approval pending).</li> </ul>
<ul style="list-style-type: none"> <li>Becoming an <b>IHO member</b></li> </ul>	<ul style="list-style-type: none"> <li>Waiting for the approval from the ministry of Foreign Affairs.</li> </ul>



# IHO Capacity Building

## • Phase 1:

- Dissemination of MSI (short Term)
- Integrate Lebanon in the World-Wide Navigational Warning Service (WWNWS)

70% Achieved  
-Liaison with NAVAREA III  
-Weak flow of information  
-Additional steps required

## • Phase 2:

- Acquiring survey capabilities

80% Achieved  
Deep water under development

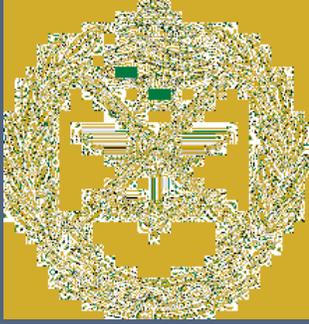
## • Phase 3:

- Producing and maintaining of charts and Nautical publications and setting bilateral agreements.

25% Achieved



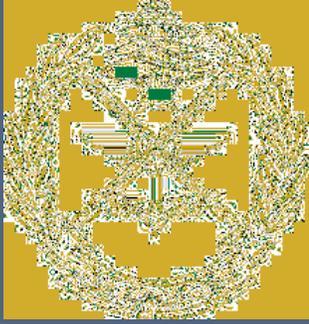
# National Hydrographic Committee



- Lebanon possesses hydrographic capability, awareness and willingness
- Lebanon has currently **NOT** established National Hydrographic Coordinating Committee (NHCC)
- Effective cooperation and coordination of the national activities = Positive step towards the establishment of National Hydrographic Service
- All hydrographic stakeholders need to be involved in contributing to Lebanon national hydrographic program.



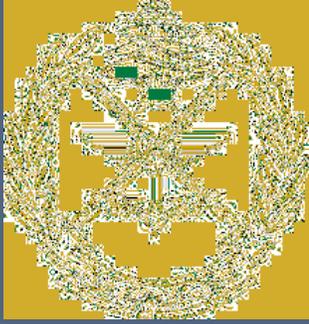
# National Hydrographic Capability Development



1. Coordinated plan to obtain **hydrographic surveyors**
2. Surveyors to gain necessary **professional experience** (hydrography, cartography, MSI, OJT)
3. Hydrographers to be involved in the **country survey operations**
4. Conducting **Joint survey operations** in Lebanese waters
5. **Amend national regulations** that control surveys in Lebanese Waters
6. **IHO membership** = High **benefits** to Lebanon
7. **MBSHC membership** = Lebanon as **efficient** Mediterranean country



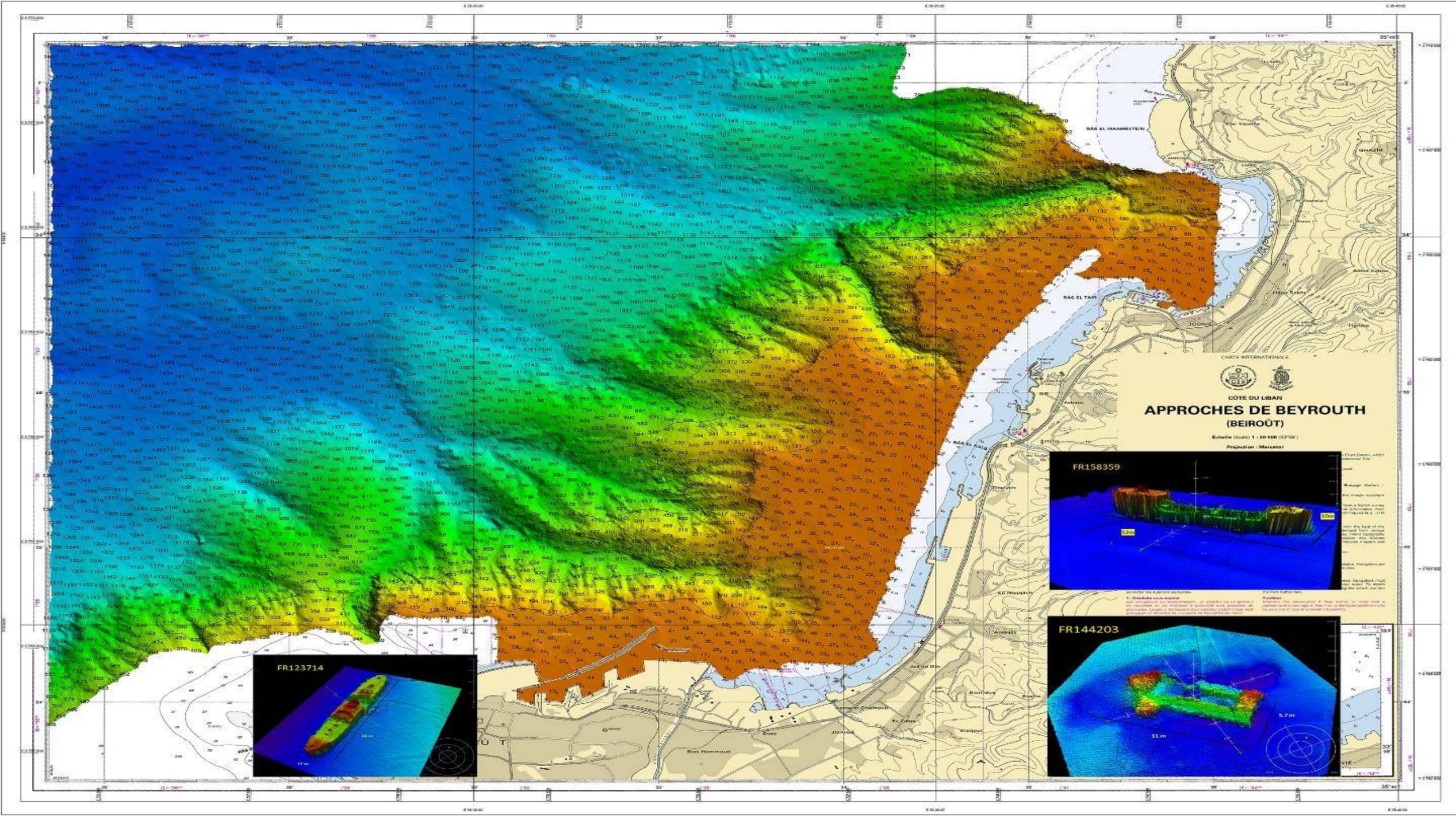
# National Charting Capability Development



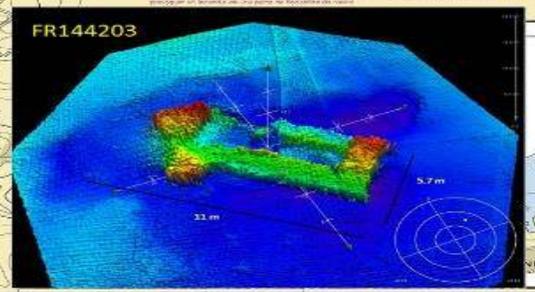
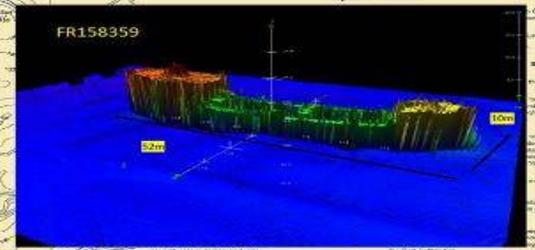
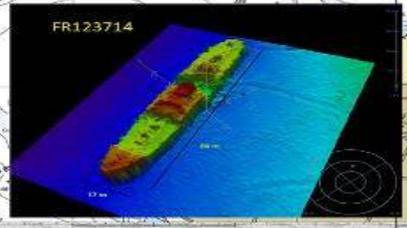
1. Additional and continuous **cartographic means** and **training**
2. Publish and **maintain Nautical Charts** that contain latest navigation information
3. Assistance through a **bilateral agreement** as interim solution in which a Charting and Priority Survey Plan would be established







CARTE INTERNATIONALE  
CÔTE DU LIBAN  
**APPROCHES DE BEYROUTH  
(BEIROÛT)**  
Échelle Graphique 1 : 50 000 (1:50'000)  
Projection : Mercator



FR158359  
10m  
5m

FR144203  
11m  
5.7m



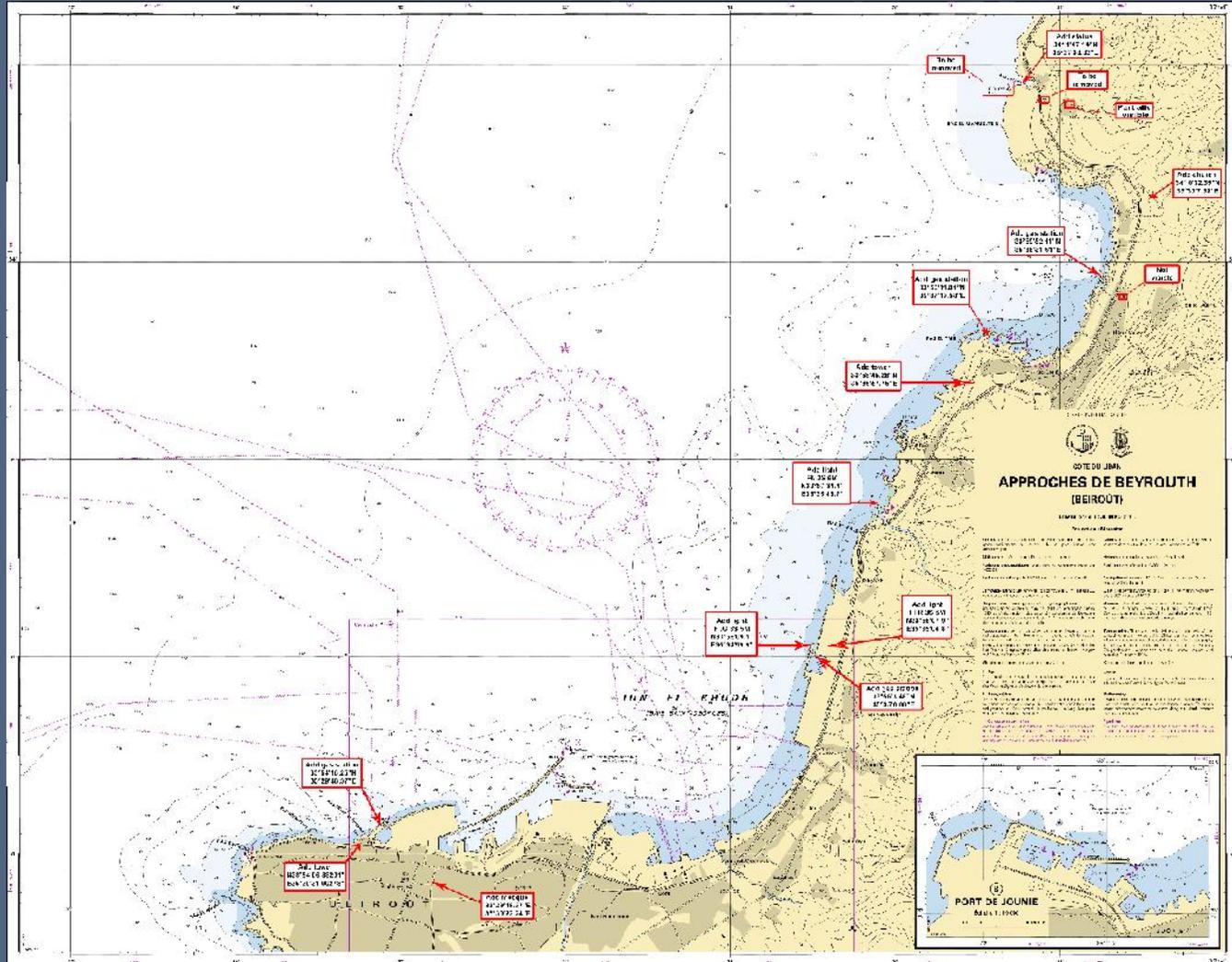
a SAAB group company

# LIGHTHOUSE

Thinking Ahead. Staying One Step Ahead.

# • Combined Mission With Magnaghi:

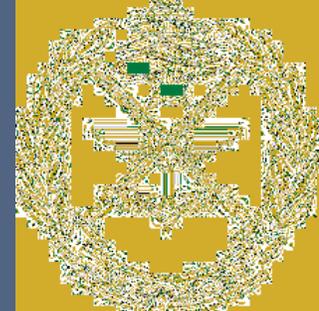
1. Bathymetry
2. Topography



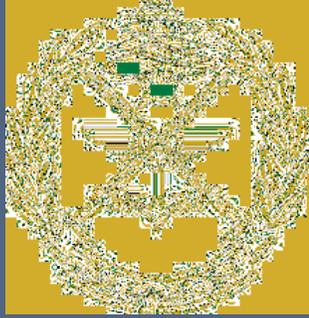
+	+	+	34-00-40X
+	+	+	34-00-30X
+	+	+	34-00-20X
+	+	+	34-00-10X
+	+	+	34-00-00X
+	+	+	33-59-50X
035-39-20E	035-39-30E	035-39-40E	



# Conclusion



- Importance of following up the **IHO/MBSHC membership**.
- Participation in **International Hydrographic meetings**.
- Importance of **establishing NHC**.
- Decision regarding **Bilateral Agreement signature**.
- Need of continuous **hydrographic and cartographic assistance**.
- Importance of providing LNHS with an **independent annual budget**.
- **Shmal.navy@army.gov.lb**



Thank you for your attention!  
Any QUESTIONS?