IHO Capacity Building Programme

The State of Hydrography and Nautical Charting in Israel

June 2015

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Contents

Abbreviations

BA	British Admiralty
CBSC	Capacity Building Sub-Committee
EEZ	Exclusive Economic Zone
ENC	Electronic Navigational Chart
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IOLR	Israel Oceanographic&Limnological Research
MBSHC	Mediterranean and BlackSeas Hydrographic Commission
MSI	Maritime Safety Information
NHS	National Hydrographic Service
NHC	National Hydrographic Committee
TN-ONHO	Turkish Naval Forces- Office of Navigation, Hydrography and
NtMs	Notice to Mariners
PCA	Primary Charting Authority
RHC	Regional Hydrographic Commission
RNC	Raster Navigational Chart
SHOM	Hydrographic and Oceanographic Service of the French Navy
SOI	Survey of Israel
SOLAS	[United Nations] Convention for the Safety of Life at Sea
UKHO	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on the Law of the Sea
WMO	World Meteorological Organization
WWNWS	Worldwide Navigation Warning Service

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Executive Summary

A proposal for a technical visit to Israel was approved by CBSC11 to assess the current status of nautical charting and hydrography in the country and to provide advice to the government and to stakeholders on a way ahead. At the last 18th Mediterranean and Black Seas Hydrographic Commission (MBSHC18) the visiting team was defined to be comprised by Turkey (Lead), Greece and the International Hydrographic Bureau (IHB).

Israel has been a member of the International Maritime Organization (IMO) since 1952 and is a signatory to the SOLAS Convention, but is not a member of the International Hydrographic Organization (IHO). It has observer status within the MBSHC. In general there is awareness in Israel 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 Israel, through its various agencies, is aware of the current state of hydrography and nautical charting in Israel 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.

With the clear support of the Israeli Government, Survey of Israel (SOI) 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 SOI staff in all levels is fully aware of the national responsibility and takes intense pride in its successful delivery. However the SOI has neither trained hydrographic surveyors.

Israel has currently national capability for nautical chart production. The Hydrographic and Oceanographic Service of the French Navy (SHOM) and United Kingdom Hydrographic Office (UKHO) are the Primary Charting Authorities (PCA) for Israel. The cartographic production is kept up-to-date but the underlying surveys are generally old. A comprehensive chart updating programme is required so to contribute to a modern maritime and port infrastructure and to allow Israel to fulfil its international obligations in accordance with Regulations 4 and 9 of Chapter V of the SOLAS Convention. Israel has a bilateral agreement with UK.

Hydrographic surveying capability however does exist within Israel and is managed by the Israel Oceanographic and Limnological Research (IOLR) for scientific purposes with the Scientific Research Boat and cooperation is already in place with the SOI. The cooperative use of this hydrographic asset will be useful for both parties.

Administration of Shipping and Ports is the established Maritime Safety Information (MSI) organization in Israel. Israel has not so far established a National Point of Contact to liaise with the NAVAREA III Coordinator.

It was evident to the visiting team that Israel 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 Israel to build a solid maritime infrastructure to support the safety of navigation and the economic growth.

REPORT

1. Introduction

The International Hydrographic Organization (IHO) is an intergovernmental international organization, currently comprising of 85 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 International Hydrographic Bureau (IHB), based in Monaco, is the secretariat of the IHO. Israel is not currently a member of IHO.

The IHO has encouraged the establishment of Regional Hydrographic Commissions (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 INTernationalChart coverage in their regions. Non-Member States may participate as RHC Associate Members or Observer as it is currently the case of Israel in the MBSHC.

This report has been written with the express intention of assisting the Government of Israel to strengthen and develop its hydrographic capability to meet its current and future needs and its international maritime obligations under the UN Convention for the Safety of Life at Sea (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 Israel, 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 Israel.

2. IHO Technical Visit

A proposal for a technical visit to Israel was approved by CBSC11 to assess the current status of nautical charting and hydrography in the country and to provide advice to the government and to stakeholders on a way ahead. At the last 18thMediterranean and Black Seas Hydrographic Commission (MBSHC18) the visiting team was defined to be comprised by Turkey (Lead), Greece and the International Hydrographic Bureau (IHB).

CDR.Bülent GÜRSES from Turkey, Lt. Andreas MICHOPOULOS from Greece and Yves GUILAM from the IHB carried out a hydrographic awareness and technical assessment visit to Israel between 1-3 July 2014.

The IHO Team first visited SOI and the main meeting was held at the SOI.

The meetings enabled the IHO Technical Team to build up a picture of the conspicuous features of the hydrographic activities. The meetings also facilitated the appreciation of data available and data sharing amongst the national representatives. It was clear to the visiting team that Director of the Department of Cartography of SOI and his 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 Israel to develop and strengthen its hydrographic 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.

Annex A contains the Technical Visit Programme jointly prepared for the visit by the visiting team and the SOI a general description of Israel and its geography and infrastructure. Annex B to this report presents the points of contact of the organizations Annex C describes the points of contact of the organizations visited and considered during the period.

3. Assessment of the Previous Technical Visit

This was the first IHO Technical Visit to Israel.

4. Hydrographic Assessment of Israel

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

4.1 National Hydrographic Awareness

In general there is awareness in Israel of the obligations and provisions under SOLAS Chapter V Regulations 4 and 9 to ensure that appropriate hydrographic and charting services are made available. Israel has been a member of IMO since 1952, 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.

The Government of Israel, through its various agencies, is aware of the current state of hydrography and nautical charting in Israel and the benefits of modern hydrography to economic growth, safety of navigation and protection of the marine environment. Awareness was one of the key tasks of the IHO Technical Visiting Team.

4.2 National Hydrographic Infrastructure

Five agencies within Israel have responsibility for or participate in hydrographic matters: Ministry of Construction- Survey of Israel, Ministry of Transport and Road Safety – Administration of Shipping and Ports, Israeli Navy, Oceanographic & Lumnological Research of Israel and Institute of Geological Survey.

Survey of Israel is a governmental agency for Mapping, Geodesy, Cadastre and Geoinformatics including production of nautical charts and publications except weekly notices to mariners. It has the responsibility for survey by contract to produce the charts. The main responsibility of SOI is for land mapping and cadastre in the country. The hydrographic branch is established in 1998 which is relatively new and responsible for surveys, paper chart, ENC and nautical publications production. SOI has a bilateral agreement with UKHO both for paper charts and ENCs and Jeppesen for ENC production. SOI does not have a survey vessel but the necessary surveys for the chart production is met by contract surveys or the data received from the other relevant authorities. There is lack of training on nautical Cartography, processing of data and ENCs as those areas are not covered by the educational institutions in Israel. SOI seems the best authority for being a principal point of contact with the IHO. The representatives of SOI participate the IHO Conferences since 2012 and MBSHC meetings since 2013.

Administration of Shipping and Ports has responsibility for Maritime Affairs and implementation of all Maritime Conventions ratified by the State of Israel. It is a regulatory body and responsible for maintenance and improvement of marine navigational aids in ports and coast. It has no hydrographic

capability. It is the principal point of contact with the IMO. It is also responsible for promulgating the notices to mariners.

Hydrographic Branch of Israeli Navy is the responsible body to meet the hydrographic and cartographic requirements of the Israeli Navy. Navy Branch has the capacity to do surveys with a low resolution multi beam and produce ENCs with 3 hydrographers and 4 cartographers.

Israel Oceanographic & Lumnological Research has the capability of bathymetric survey in Israeli waters with its research vessel but focused on the exploration of gas and oil.

4.3 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 organisations. In the case of the State of Israel, these contacts would include the IHO, MBSHC, the PCA and other countries and agencies that might support hydrographic development and assistance in Israel.

SOI with its Hydrographic Branch seems to be the most appropriate body to be the National Hydrographic Authority. Such an arrangement is similar to that adopted in many other maritime states. SOI must seek a formal arrangement in order to establish a national legal framework by means of a law, decree or equivalent.

4.4 Maritime Safety Information (MSI)

There is clearly established MSI infrastructure that coordinates its activities with the Worldwide Navigation Warning Service (WWNWS) implemented globally by the IMO, WMO and IHO. Administration of Shipping and Ports represents itself as the primary MSI authority in Israel. Nevertheless, the maritime safety information is not sent to PCA.

The three paper charts and 7 ENCs of Israel published by the PCA (UKHO and SHOM) have not been subject to regular NtMs. Currently there is no liaison between the Administration of Shipping and Ports and the PCA. 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.

4.5 Hydrographic Surveying

The Israeli waters have been surveyed to modern standards except for the survey of shallow waters. SOI does the surveys by contract with limited allocated budget. Oceanographic & Lumnological Research of Israel has been conducting multi-beam echo sounder surveys in support of scientific and environmental activities in off-shore areas by scientific research vessel. The survey plan of Oceanographic & Lumnological Research of Israel is to complete the multibeam survey of the EEZ in 2015. 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 SOI.

There is no mechanism in order to coordinate the surveys done in Israeli waters by various authorities and industry. There is no data centre to manage the data received by various sources. There is no legal procedures how to get the survey data collected by foreigners within the Israeli waters.

The current state of surveys as summarized in IHO Publication C-55 "Status of Hydrographic Surveying and Nautical Charting Worldwide" (updated by SOI) is in the table below:

Survey Coverage	**A**	**B**	**C**

Depths < 200m	85	15	10
Depths > 200m	40	0	60

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.

4.6 Nautical Charting

Israel has limited national capability for nautical chart or publication production at this stage. The Israeli coasts are currently covered by one French chart and 2 British charts belonging to the international portfolio, and ten ENCs which are carried out by Italy (2), Turkey (1) and United Kingdom (7). The existing charts published and maintained by the IIM, ONHO and UKHO do not necessarily contain the latest navigationally significant information. There are 12 national paper charts produced since 2001.

Annex E presents the summary of the cartographic information (C-55) and Annex F the analysis of the charts of the Israeli Waters.

4.7 Hydrographic Resources

The government of Israel has trained hydrographers in the Navy and nautical cartographer in SOI. Tide gauges have been installed in the country. Hydrographic resource of Israel:

IOLR has been conducting multi-beam echo sounder surveys in support of scientific and environmental activities in off-shore areas by scientific research vessel. IOLR operates scientific research ship BAT GALIM equipped with Kongsberg EM 302&EM 2040-04 Multi-beam Echo Sounder System with the full suite of supporting devices.

4.8 Additional stakeholders

The Ministry of Environment was identified as a very important stakeholder in Israel 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.

5. A Way Ahead

5.1 Maritime Safety Information

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 that the national MSI system is functioning efficiently. Notices to mariners are issued when necessary. However, the technical visit team is in the view that clarification is needed to define what are the official charts covering Israeli waters, whether they are BA charts or Israeli national charts, or both.

5.2 National Hydrographic Surveying and Charting

Considering the coastline length of Israel, the nature of coastal waters with few hazards and dangers, together with the existing multibeam coverage, it seems that there is not that much to do for Israel to reach a very good state in the worldwide hydrographic community. A minimum investment seems however necessary to organize the whole maritime picture as it will prepare the necessary geospatial foundations for the maritime integrated policy.

5.3 Bilateral Arrangements for Surveying and Charting

Bilateral agreements with established hydrographic services are a valuable means of fulfilling SOLAS obligations for countries with a limited and or developing hydrographic capability. Israel'scharts are currently produced and published by SHOM and UKHO but the visiting team could not identify any formal arrangement. It is recommended to Israel to formally designate the PCA and to establish a formal bilateral agreement as an interim solution until the in-house chart production is established.

5.4 National Hydrographic Authority

In Israel SOI is the lead authority for maritime safety and the recognized point of contact for the IHO. Nonetheless it was clear to the IHO Technical Team that SOI has the support of the Administration of Shipping and Ports as the hydrographic authority. So it is recommended that hydrographic responsibilities seem a little bit fragmented in the absence of a set of national regulations addressing hydrographic issues (data and maritime safety information collection, surveys management, standards, database management, nautical charts production, production of maritime services, etc.). Israel should consider the **creation of a national hydrographic committee** at the first stage, under the leadership of Survey of Israel, with the participation of:

- The Division of Marine Coastal Environment
- The Administration of Shipping and Ports
- The Navy
- The Israeli Oceanographic and Limnological Research centre

(3) Then, Israel should consider that, if the responsibility of hydrography should remain within the Survey of Israel –which seems the most appropriate organization so far -:

- To change the name of Survey of Israel for getting more visibility and legitimacy as the custodian of national hydrographic matters (National Geographic and Hydrographic Institute of Israel for instance);
- To allocate a specific budget to the hydrographic branch so it can reach the "critical mass" in line with the new "blue" priorities otherwise they will be handled by other bodies by default;
- To adopt a mid-term strategic plan for staff resources in hydrography and related training (at least for mid-term: 1 cat A in hydrography and charting, 2 cat B in charting and surveying);
- To participate in IHO meetings as appropriate;
- To accompany the designation of a National Hydrographer by an ad hoc communication plan and relevant implementation procedures.

5.5 National Hydrographic Committee

It was evident to the visiting team that Israel 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 Israel to build a solid maritime infrastructure to support the safety of navigation and the economic growth.

To coordinate hydrographic effort for the effective fulfilnes of SOLAS responsibilities and the efficient management of a State's maritime area the IHO recommends the establishment of a National Hydrographic 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. Israel has currently no established National Hydrographic Committee (NHC).

All hydrographic stakeholders need to be involved in contributing to Israel national hydrographic programme. This is not only to identify and prioritise 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.

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 Israel's valuable hydrographic assets.

5.6 National Hydrographic Capability Development

Israel 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 NHS review this situation and propose first a coordinated plan to obtain a Category B hydrographic surveyor in order to gain the necessary professional experience. Secondly that the NHS 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.

There are limited opportunities for international hydrographic training. 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".

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.

6. Technical Visit Conclusions

Based on discussions and the facts obtained, the following principal conclusions have been reached:

(1) There is generally good awareness of national hydrography in Israel and a desire to improve it.

(2) SOI is potentially the most effective means of improving awareness of hydrography within government and at national level. In the near future it is expected from SOI to take the main responsibility as the National Hydrographic Authority.

(3) An effective MSI service is in place in order to support the safety of navigation, the safety of life at sea and the protection of the marine environment.

(4) The charts covering Israel could be improved with data held in Israel in addition to the needs to be identified by the Survey Priority Plan.

(5) The establishment of the National Hydrographic Committee can provide the framework to enhance cooperation amongst the various stakeholders.

(6) The Israeli government and in particular SOI has committed significant resources to the establishment and maintenance of the NHS for the safety of navigation in Israel's waters and the economic development and the marine environmental protection of the nation.

(7) IOLR has a well manned, maintained and equipped survey vessel (BAT GALIM) capable of meeting all of the nation's hydrographic immediate requirements. But the priority of IOLR is to do multi beam survey in the continental shelf for the prerequisite of oil and gas explorations. SOI and IOLR should co-operate to use the data collected by IOLR.

(8) A capacity building plan is necessary in order to provide the human resources to the operation of the SOI and achieve the goals envisioned by SOI.

7. Technical Visit Recommended Actions

Considering the high level of expertise, equipment, technological development available in Israel,

Considering the existence of several organizations and institutions dealing with maritime issues, marine knowledge, marine environment, safety of navigation, geospatial information, marine research,

Considering the high level of awareness on hydrographic issues and responsibilities in most of these organizations,

Considering the forthcoming development of an integrated maritime policy for the waters under the jurisdiction of Israel,

Considering the development of the oil and gas offshore industry,

Considering the extension of the major harbours,

And in order to improve the situation on hydrographic matters,

The IHO technical visit team provides the following recommendations for the consideration of Israeli relevant authorities:

(1) Most of the necessary "components" for addressing hydrographic issues, in relation to SOLAS Chap. V regulations in particular, are in place in Israel. Israel, as contracting Party to the SOLAS convention and IMO Member, is already in the position to play a key role in the IHO and within the Mediterranean and Black Sea Hydrographic Commission in particular. **Israel should consider becoming an IHO Member and making an application in accordance with the IHO Convention in the appropriate timeframe.**

(2) The IHO technical visit team is in the view that hydrographic responsibilities seem a little bit fragmented in the absence of a set of national regulations addressing hydrographic issues (data and maritime safety information collection, surveys management, standards, database management, nautical charts production, production of maritime services, etc.). Israel should consider the **creation of a national hydrographic committee** at the first stage, under the leadership of Survey of Israel, with the participation of:

- The Division of Marine Coastal Environment
- The Administration of Shipping and Ports
- The Navy
- The Israeli Oceanographic and Limnological Research centre

(3) Then, Israel should consider that, if the responsibility of hydrography should remain within the Survey of Israel –which seems the most appropriate organization so far -:

- To change the name of Survey of Israel for getting more visibility and legitimacy as the custodian of national hydrographic matters (National Geographic and Hydrographic Institute of Israel for instance);
- To allocate a specific budget to the hydrographic branch so it can reach the "critical mass" in line with the new "blue" priorities otherwise they will be handled by other bodies by default;
- To adopt a mid-term strategic plan for staff resources in hydrography and related training (at least for mid-term: 1 cat A in hydrography and charting, 2 cat B in charting and surveying);
- To participate in IHO meetings as appropriate;

- To accompany the designation of a National Hydrographer by an ad hoc communication plan and relevant implementation procedures.

(4) The coordination between the Survey of Israel and the Administration of Shipping and Ports for the provision of hydrographic services (SOLAS, Chap. V, Reg. 9) seem very good and no shortfall has been identified during the visit. Notices to mariners are issued when necessary. However, the technical visit team is in the view that clarification is needed to define what are the official charts covering Israeli waters, whether they are BA charts or Israeli national charts, or both.

(5) The project of creation of a national data center under the umbrella of the Ministry of Interior gives the evidence that maritime awareness is at the top level. However, the IHO technical team believes that maritime referenced data might be at a better place if managed by the "future" national Hydrographic service of Israel (refer to IHO publication C-16 for examples abroad) so this future hydrographic service could provide "much more than nautical charts" to all parties interested (maritime portal, bespoke maps, recognized marine database, qualified data, etc.). For interoperability, it is important that the future hydrographic service adopts as soon as possible the relevant standards and be aware of the emerging S-100-compliant standards so it can get prepared.

(6) There is a need to clarify the production of ENC and up-dates mechanism following notices to mariners (Jeppesen, UKHO, both?), in order to make sure that responsibilities are clearly defined and that there are no discrepancies between ENCs and paper charts in use by the mariners in the waters of Israel. In the future, Israel is encouraged to distribute its (official) ENCs(under the country code IL) through a RENC (IC-ENC or PRIMAR) in order to ensure high quality and harmonization and get prepared to the new standard S-101 for ENC production. In the future, national paper charts might also be considered by the IHO to replace INT paper charts (in accordance with S-11). Israel should therefore participate in the meetings of the IHO Mediterranean and Black Sea Hydrographic Commission.

(7) With the other ministries in charge (Defence, Foreign Affairs), the Survey of Israel should design the procedure to get the data from foreign surveys carried out in the waters under its national jurisdiction. These data should be given to the national centre in charge of hydrography (Survey of Israel today).

(8) Maritime spatial planning is developing (marine cadastre). The IHO technical visit team is in the view that there is an opportunity for the Survey of Israel to become the "hub" from which all recognized and qualified geophysical and marine data could be provided by the future hydrographic service of Israel. This service should become therefore the trusted source of information for all marine geospatial information, and not only nautical charts.

(9) Considering the coastline length of Israel, the nature of coastal waters with few hazards and dangers, together with the existing multibeam coverage, it seems that there is not that much to do for Israel to reach a very good state in the worldwide hydrographic community. A minimum investment seems however necessary to organize the whole maritime picture as it will prepare the necessary geospatial foundations for the maritime integrated policy.

(10) Finally, Israel should consider, as soon as possible, the participation in the 19th MBSHC Meeting (July, 2015) as it is a great opportunity to remain abreast of most of the IHO strategic issues and of progress made in new technologies, coordination, capacity building and standards. Many stakeholders will be present including the RENCs.

Technical Visit Programme (1-3 July 2014)

Day	Time Frame	Event	Explanation	
Monday, June 30		Arrival in Tel Aviv Ben Gurion Airport		LCDR. Bülent GÜRSES (TR) Lt. Andreas MİCHOPOULOS (GR)
Tuesday, July 01	08:30-08:40 09:00-09:40 10:00-10:40 11:00-12:30		*representatives short Introduce Fishing association (in the Ministry of Agriculture and Rural Development), Israel meteorological service Jaffa port	*Hotel Mr. Josef Meltzer
	13:30 14:00-15:00 16:15-17:00 17:30-	Lunch	Picking up Assistant Director Yves GUILLAM (IHB) from the Airport AirPort city Dr. John K. Hall Tour and snacks in Jerusalem	
Wednesday, July 02	09:00	Beginning of the Tech.Visit	IHO activities in general and benefits of being IHO member	Lt. Andreas MİCHOPOULOS Assistant Director Yves GUILLAM (IHB)
	09:00-09:45	Coming together with the representatives of the Hydrographic Committee and short presentations	Capacity Building Activities	LCDR.Bülent GÜRSES (TR)
	09:45-10:15	Visit to the Survey of Israel	presentation of SOI	Mr. Ronen Regev - Director General
	10:15-10:30		Law of the sea and	Prof. Yaron Felus - Chief scientist, research

			maritime boundary	and development
	10:45-11:30		Visiting several departments in the survey of Israel (GIS, Geographic Portal , Geodetic Research (including sea level), Section management of data for Land surveyors (Maps and air photo archive)	Mr. Josef Meltzer, Mr. Yaakov Bar-Lavi, Mrs. Claudia Evlagon
	11:30-13:30		Hydrographic department (Plus refreshments)	Mr. Baruch Peretzman, Mrs. Limor Gur-Arieh
	14:30-15:15		Hadera Port	
	16:00-16:45		The Mediterranean Sea Research Center of Israel Haifa University	
	16:30-17:00		Short Tour in Haifa	
Thursday, July 03	08:00-			North of Israel (Haifa)
	09:30-11:30		Environmental protection agency Administration of Shipping and Ports (MSI, NTM) Israeli navy	
	11:30-12:30		Harbour Masters of Port of Haifa (Pilot association And Coast Guard)	
	12:30-13:30	Lunch		
	14:00-15:00		Israel Oceanographic & Limnological Rsesarch Ltd (IOLR)	

	15:00-17:00	Meeting End of the tech. Visit	Final assesment with the relevant participants Work on C-55 and Yearbook Additional visits not foreseen in the planning phase, work in the assessment and report.	
	19:30-	dinner		Tel Aviv
Friday, July 04		Transport from hotel to airport Departure from Tel Aviv Ben Gurion Airport		LCDR.Bülent GÜRSES Assistant Director Yves GUILLAM (IHB) Lt.Andreas MİCHOPOULOS

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Israel Dependency on Hydrography and Charting

1. Introduction

Israel lies to the north of the equator around 31°30' north latitude and 34°45' east longitude. It measures 424 km from north to south and, at its widest point 114 km, from east to west. At its narrowest point, however, this is reduced to just 15km. It has a land frontier of 1,017 km and a coastline of 273 km. Modern Israel is bounded to the north by Lebanon, the northeast by Syria, the east by Jordan and the West Bank, and to the southwest by Egypt. To the west of Israel is the Mediterranean Sea, which makes up the majority of Israel's 273 km coastline and the Gaza Strip. Israel has a small coastline on the Red Sea in the south. The southernmost settlement in Israel is the city of Eilat whilst the northernmost is the town of Metula. The territorial waters of Israel extend into the sea to a distance of twelve nautical miles measured from the appropriate baseline.[1]

Israel

2. Ports and Harbours

The **Port of Haifa** is the largest of Israel's three major international seaports, which include the Port of Ashdod, and the Port of Eilat. It has a natural deep water harbor which operates all year long, and serves both passenger and merchant ships. It is one of the largest ports in the eastern Mediterranean in terms of freight volume and handles about 26 million tons of cargo a year. The port employs over 1,000 people, with the number rising to 5,000 when cruise ships dock in Haifa. The Port of Haifa lies to the north of Haifa's downtown quarter on the Mediterranean, and stretches to some 3 kilometers along the city's central shore with activities ranging from military, industrial and commercial next to a nowadays-smaller passenger cruising facility.

Port of Haifa

The **Port of Ashdod** is one of Israel's two main cargo ports. The port is located in Ashdod, about 40 kilometers south of Tel Aviv, adjoining the mouth of the Lachish River. Its establishment significantly enhanced the country's port capacity. It is a major point of entry for both cargo and tourists in and out of Israel, as well as imported military equipment. Ships carrying humanitarian aid for the Gaza Strip also unload their cargo at the port.

Port of Ashdod

The **Port of Eilat** is the only Israeli port on the Red Sea, located at the northern tip of the Gulf of Aqaba. The Port of Eilat opened in 1957 and is today mainly used for trading with Far East countries. It allows Israeli shipping to reach the Indian Ocean without having to sail through the Suez Canal. Ship traffic at Eilat is relatively low (compared to Israel's two large seaports on the Mediterranean). One reason is that Eilat is situated at a considerable distance from the center of the country. Another is the fact that unlike the country's other main seaports, Eilat's is yet to be served by a railway line (the nearest railhead is located hundreds of kilometers to the north). Also, coastal tourism uses compete with any prospects of expanding the port's facilities.

Port of Eilat

Port of Hadera is the largest energy port in Israel. Coal and LNG ships use Port of Hadera.

Port of Hadera

3. Cruise Ship Operations

Port of Haifa and Ashdod contains passenger terminals serving cruise and ferry passengers.

4. Offshore Oil and Gas

Unlike much of the Middle East which is rich in lucrative crude oil, Israel has limited natural resources. These include copper, phosphates, bromide, potash, clay, sand, sulfur, asphalt, and manganese. Small amounts of natural gas and crude oil are present, often too little to merit commercial extraction. In 2009, significant reserves of natural gas were discovered at the Tamar 1 offshore drilling site, 90 kilometers west of Haifa. It is the largest natural gas reserve ever discovered in Israel.

5. Maritime Claims

Israel claims a 12 mile territorial sea. Israel has not ratified the United Nations Convention on the Law of the Sea (UNCLOS).[1]

[1] http://www.un.org/Depts/los/index.htm[Accessed 19 May 15]

6. Defence including Coastguard

The Israeli Navy has 3 corvettes, 10 missile boats, 5 submarines, 45 patrol boats and 2 support ships in its inventory. The Navy enforces the law and the State authority in Israeli Territorial Waters. The Israeli Navy assists ministries and agencies in their duties at sea like, search and rescue operations, protecting natural resources and national interests along the coast. There is no coastguard in Israel.

Israel Navy has a hydrographic unit which has 3 hydrographers, 4 cartographers and 3 METOC staff in order to support the navy. This unit has 50 ENCs.

7. Sea Fishery

The total consumption of fish of the State of Israel in 2004 was 65,000 tons of sea fish 65% imported, with most local produce indoor fish ponds. All attempts were made to expand the state space marine fishing ceased attempts failed after Michmoret sea fishing - the end, fishing companies The oceans are bankrupt and Mimi Turkey and Egypt have been blocked for fishing. Today the private fishermen prefer to sell their produce in markets where fish dealers Tnuva as in the past.

Fishing and Agriculture Division of Water Ministry of Agriculture is responsible for granting fishing licenses and fish populations in rehabilitation programs, developing Ahmadgiah attempts to improve fishing technology to reduce the costs of fishing. Fishing areas in Israel are limited by the protection of environment and the gas explorations.

8. Marine Reserves[2]

Marine protected areas (% of territorial waters) in Israel was 0.45 as of 2010. Its highest value over the past 20 years was 0.45 in 2010, while its lowest value was 0.38 in 1990.

9. Tourism and Coastal Recreational Amenities

Tourism in Israel is one of Israel's major sources of income, with a record 3.54 million tourist arrivals in 2013. Israel offers a plethora of historical and religious sites, beach resorts, archaeological tourism, heritage tourism and ecotourism. Israel has the highest number of museums per capita in the world. In 2009, the two most visited sites were the Western Wall and the grave of Rabbi Shimon bar Yochai; the most popular paid tourist attraction is Masada. The most visited city is Jerusalem and the most visited site was the Western Wall.

10. Education and Science

There do not appear to be any educational or scientific programmes sponsored by Israeli government requiring or including the gathering of hydrographic data.

11. Planned Maritime Developments in Israel Waters

Gas explorations force the relevant authorities to survey the EEZ with multi beam systems. There are some plans to develop the ports facilities in Israel.

[2] http://www.indexmundi.com/facts/israel/marine-protected-areas

Status of hydrographic survey of all navigable waters, including internal waters, out to the limits of the EEZ.

Survey coverage, where:

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.

	A	**B**	**C**
Depths < 200m	85	15	10
Depths > 200m	40	0	60

Amplifying information:

Israel has started the territorial water survey since 14 years. The survey coverage is in the above table.

The areas where there is lack of data is in parts of the shallow water between 0-10 metres. The process of collecting the data is made by multibeam system.

Status of Nautical Charting Information

If you do have a nautical charting capability, please complete the details below:

Status of nautical charting within the limits of the EEZ.

Coverage of charts published by your organisation, where:
A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.
B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.
C = percentage covered by ENCs meeting the standards in S-57.

	INT Charts	RNC	ENC
Offshore passage/Small scale	0	0	NA
Landfall and Coastal passage/Medium scale	100	0	0
Approaches & Ports /Large Scale	100	0	0
	A	**B**	**C**

Amplifying notes:
The detailed information regarding the chart coverage in Israel is in Annex F.

Status of Marine Safety Information

Does your appropriate authority provide any of the following services?

Please indicate the status of implementation of the services; (YES, NO, Partial, Unknown).
Use the Notes input boxes to indicate services which are provided by another state, and facilities co-ordinated and/or shared with other coastal states.

MSI Service	
a. Local Warnings	YES
b. Coastal Warnings	YES
c. NAVAREA Warnings	YES
d. Port Warning	YES

MSI Notes
Please indicate, to which service above the note refers.

GMDSS[2]	
a. Master Plan	YES
b. A1 Area	YES

c. A2 Area	NO
d. A3 Area	NO
e. NAVTEX	YES
f. SafetyNET	NO

GMDSS Notes

Please indicate, to which service above the note refers.

National priorities for international and or regional co-operation or assistance.

1 If international or regional projects are underway in your waters, please indicate here:

2 Indicate below any priorities for co-operation or assistance:

2.1 Projects meriting IHO liaison with international funding agencies:

a. Regional co-operative projects: *(Indicate involvement of RHC, or other Member and non-Member states)*

b. National projects: *(Indicate any bilateral co-operation with Member or non-Member states).*

2.2 Requirements for training assistance:
(Use M-5 and S-47 to identify level of qualification and course required).

a. Hydrographic surveying:

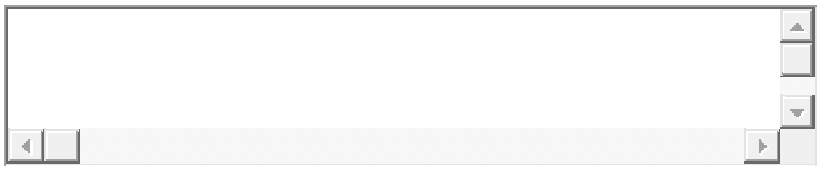
b. Nautical cartography:

c. MSI:

2.3. Requirements for assistance with procurement of equipment:

a. Technical advice on procurement options:

b. Transfer of equipment:



Date: Format: DD/MM/YYYY

Charting Analysis of Israel Waters

1. Israel Chart Coverage

Israel does have a chart production capability and is at the beginning stage to fulfil this function. The resume of chart coverage for Israel shown in IHO Publication C-55- *Status of Nautical Charting* (updated April 2015) is shown in the table below.

Chart Type	**% Covered by INT Charts**	**% Covered by RNCs**	**% Covered by ENCs**
Small Scale: Offshore Passage	0	0	0
Medium Scale:Landfall, Coastal Passage	100	0	0
Large Scale:Approaches and Ports	100	0	0

IHO C-55 Status of Chart Coverage

While C-55 shows that Israel is covered by charts.

There are 12 national charts produced since 2001 shown in table below.

Number	**Title**	**Scale**	**Date**
1	Mediterranean Sea - Israel	1:250.000	2008
21	Rosh Hanikra to Kesarya	1:100.000	2008
22	Kesarya to Palmahim	1:100.000	2007
23	Palmahim to Gaza	1:100.000	2008
305	Mifrats Hefa (Haifa Bay) A-Haifa Harbour B-Kishon Harbour C-Akko Port	1:20.000 1:10.000 1:5.000 1:3.000	2014
310	Approach to Hadera Port	1:30.000	2015
313	Tel-Aviv Yafo A-Tel Aviv Marina B-Yafo (Jaffa) Port	1:20.000 1:5.000 1:5.000	2006
323	Ashdod A-Ashdod Port B- Ashdod Marina	1:20.000 1:10.000 1:10.000	2014
325	Ashkelon A-Ashkelon Port	1:20.000 1:5.000	2002

	B-Ashkelon Marina	1:5.000	
500	Gulf of Eilat-Israel A- Port of Eilat B-Eilat Marina	1:20.000 1:10.000 1:5.000	2015
4130	Hadera Port	1:20.000	2007
4135	Herzliyya Marina A- Herzliyya Marina	1:10.000 1:5.000	2001

2. SHOM Charts

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

SHOM Chart INT Chart	Title	Scale	Latest Edition Date
7256 INT 3608	De Soûr à Al Arish	1:258.000	1991

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	Scale	1St Edition/New Edition Date
1585 INT 3680	Ḫefa (Haifa) and approaches A-Ḫefa (Haifa)	70 000 20 000	1998/2009
1591 INT 3681	Ports on the Coast of Israel A- Hadera B-Tel Aviv – Yafo C – Ashdod Plan D – Ashquelon Plan E – Tel Aviv to Ashquelon	Various 25 000 25 000 25 000 25 000 100 000	1998/2009

Summary of British Admiralty Charting

4. ENCs

There are 10 ENCs produced by Italy, Turkey and UK covering the Israeli waters.

ENC No	Title	Published	Scale	Usage Band
IT100360	Black Sea, Northern and Eastern sides	2004	4.200.000	Overview
IT100350	Mediterranean Sea-Eastern basin and Southwestern Black Sea	2006	1.500.000	Overview
TR100030	Eastern Mediterranean	2014	1.500.000	Overview
GB302634	Gaza to Hefa (Haifa)	2015	180.000	Coastal
GB401585	Hefa (Haifa) and Approaches	2011	45.000	Approach
GB41591A	Ports on the Coast of Israel-Hadera	2011	22.000	Approach
GB41591B	Ports on the Coast of Israel - Tel Aviv-Yafo	2014	22.000	Approach
GB41591C	Ports on the Coast of Israel - Ashdod	2014	22.000	Approach
GB41591D	Mediterranean Sea – Israel - Ashqelon	2014	22.000	Approach
GB40801A	Red Sea-Gulf of Aqaba-Approaches To Eilat and Al'Aqaba	2014	45.000	Approach

Summary of ENCs

IHO Yearbook Revision

ISRAEL

ADMINISTRATION OF SHIPPING AND PORTS

Contact information/ Informations de contact / Información de contacto

National Hydrographer or equivalent **-Directeur du service hydrographique ou équivalent** **-Director del Servicio Hidrográfico o equivalente**	Deputy Director Capt. E. STERNBERG Postal address: 15a Pal Yam Street, P.O. Box 806, HAIFA, 31999, Israel Tel: +972 4 8632080, +972 4 8632085 Fax: +972 4 8632118 E-mail: techni@mot.gov.il

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

Date of establishment and Relevant National Legislation **-Date de mise en place et législation nationale pertinente** **-Fecha de constitución y legislación nacional pertinente**	1948
Top level parent organization **-Organisme mère** **-Organización asocieda de nivel superior**	Administration of Shipping and Ports, Ministry of Transport.
Principal functions of the organization or the department **-Attribution principales de l'organisme ou du département** **-Principales funciones de la Organización o el departamento**	Publishing of Notices to Mariners, Maintenance of lighthouses and aids to navigation. Maps, Nautical charts and Tidal information.
Total number of staff employed **-Effectifs totaux** **-Número total de personal empleado**	

SURVEY OF ISRAEL

Contact information/ Informations de contact / Información de contacto

National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Head of Cartographic department Mr. Baruch PERETZMAN Postal address: 1 Lincoln Street, P.O. Box 14171, TEL-AVIV, 61141, Israel Tel: +972 3 6231911, +972 3 6231804 Fax: +972 3 5610866 E-mail: baruch_p@mapi.gov.il

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

Date of establishment and Relevant National Legislation -Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional pertinente	1948
Top level parent organization -Organisme mère -Organización asocieda de nivel superior	Administration of Shipping and Ports, Ministry of Transport.

ISRAEL NAVY

Contact information/ Informations de contact / Información de contacto

Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	Postal address: Hydrographic Branch, M.P.O.B., IDF, 01086, Israel

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

Date of establishment and Relevant National Legislation -Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional pertinente	1948
Top level parent organization -Organisme mère -Organización asocieda de nivel superior	Administration of Shipping and Ports, Ministry of Transport.
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