State of Israel
Ministry of Construction
Survey of Israel
Geodesy, Cadastre, Hydrography, Mapping and GIS

ISRAEL
NATIONAL REPORT 2015

to the

19th MEDITERRANEAN AND BLACK SEA HYDROGRAPHIC COMMISSION (MBSHC)

Batumi, Georgia
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1Lincoln St., Tel-Aviv-Jaffa 6522034, POB 14171 Tel-Aviv-Jaffa 6522034

Summary

The following document presents the Hydrographic department in the Survey of Israel. Since 1998 the Hydrographic department begins its activities with the purpose to collect new marine data and the production of nautical charts for marine safety and usage of the accumulated data for additional purposes. In recent years the activity of the Hydrographic Department has grown considerably. This growth process requires adding personnel to the division, and training the new employees in the subjects of marine cartography, hydrographical surveys and data processing. These areas of study as are recognized by the International Hydrographic Organization (IHO) are not taught by the educational institutions in Israel.

The Hydrographic department's activities include surveys, producing and updating paper charts and beginning of the process of ENCs production. Each one of those activities has his difficulties: lack of training (Nautical Cartography, processing of data, ENCs) and dependency on external resources (in surveying and processing data).

Technical visit to Israel was held on the beginning of July 2014 with participation of experts from Turkey, Greece and IHB

General

Survey of Israel

The Survey of Israel (SOI) is a professional sub-unit of the ministry of construction whose tasks are mapping, cadastre and creating geographic information.
The primary responsibilities of SOI are: analogical and digital information systems including cadaster and geographic data.
The mapping of Israel has begun during the British mandate through the establishment of the state of Israel up to the present.
Since the nineteen fifties until today the mapping is carried out by the military and other civilian agencies. The main uses of civilian mapping are making maps, land settlement, planning and construction. The technological breakthrough has enabled mapping using air photography technology which helped to overcome the demand and to enrich the existing products.
With the development of computers and the ability to accumulate information the data bases have begun to emerge and with them the development of advanced digital products.
The Survey of Israel headquarters was originally built in 1931 at the rim of the German colony Sharona and still continues to function at 1, Lincoln St. Tel-Aviv.

Hydrographic Department

In the year 1998 the Hydrographic Department of the Survey of Israel was established with the purpose to collect new marine data (through a new full survey of the seabed) and the production of nautical charts for marine safety and usage of the accumulated data for additional purposes. The partners for the establishment of the Hydrographic Department were Survey of Israel (SOI), the Shipping and Ports Authority, the Institute of Oceanographic and Limnological Research, the institute of Geological Survey and the Israeli Navy.
The planned activities for the Hydrographic Department is defined in annual and a multi annual planning and includes setting standards, collecting data in all the areas of the territorial waters and EEZ of the state of Israel, data processing and production of nautical charts by charts indexes.
All the activities in the Hydrographic Department are performed by four full time employees and external contractors.
Training and Instruction: in recent years the activity of the Hydrographic Department has grown considerably. This growth process requires adding personnel to the division, and training the new employees in the subjects of marine cartography, hydrographical surveys and data processing. These areas of study as are recognized by the International Hydrographic Organization (IHO) are not taught by the educational institutions in Israel.

Surveys

Coverage: to date in the framework of the common activities the following marine surveys were performed with the coverage of the following areas.

- A survey of 85% of the territorial waters of Israel in the Mediterranean Sea has been completed in both single beam and multi beam systems (1999 – 2012).
- A survey of 25 additional miles over the territorial waters of Israel in the Mediterranean Sea has been completed.
- A survey of the gulf of Eilat has been completed (2007).
- A survey of the Dead Sea has been completed (2009).
- A survey of the Sea of Galilee has been completed (2010).

Survey activities

A new survey activities is going to start in the near future in the south part of the Israeli Territorial Waters.

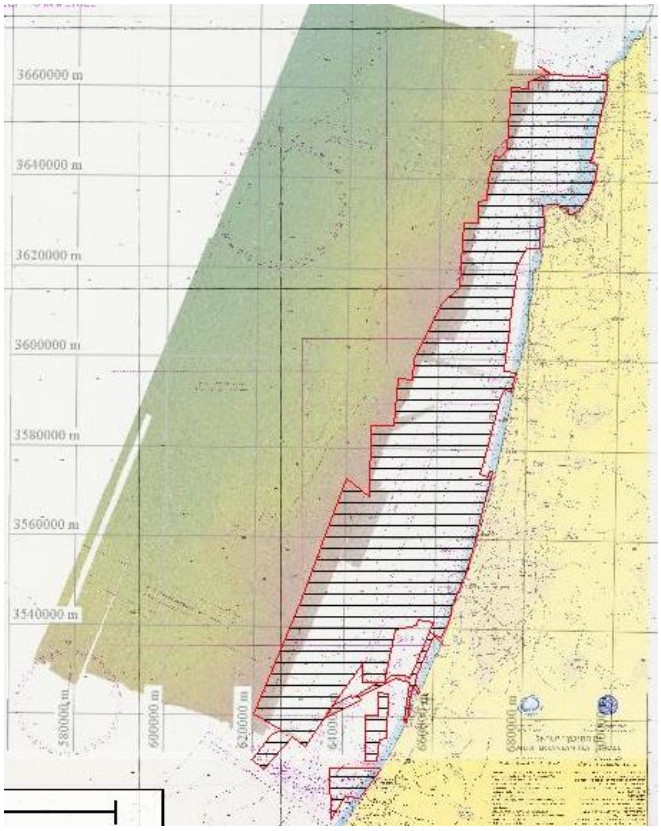
Technologies:

Technologies and Hydrographic Vessels: the equipment used for the performance of marine surveys is Single beam and Multibeam systems. These systems and the hydrographic vessels used for these surveys are owned by the external contractors hired through tenders for the performance of the aforementioned surveys and are not owned by SOI.

Problems:

1. Surveys: in the territorial waters area there is no full coverage of the seabed (a completion of the areas of shallow water is required between 0 to 40 meters), and an ongoing update of problematic areas.
2. The data processing is performed by en external contractor (dependency on external resources).

MB Coverage:



Production of new charts and updates

Electronic navigational charts (ENCs) - Currently there are no ENCs available.
We are in the initial stages of the process of ENCs production.
This process is performed using ESRI Nautical Solution software.
Paper Charts – there is a full coverage of the territorial waters of Israel in bilingual (Hebrew/English) paper charts.
including:
A list of paper charts according to the National Chart Number – created from new information gathered since 1999 and on.

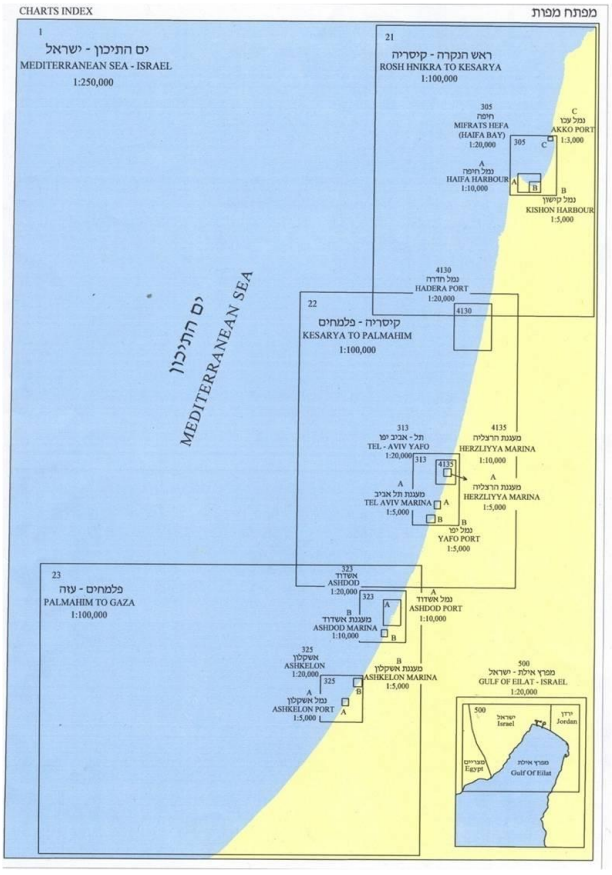
National Paper Charts

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)	1:20,000	2014
305A (U)	Haifa Harbour	1:10,000	2014

305B (U)	Kishon Harbour	1:5,000	2014
305C (U)	Akko Port	1:3,000	2014
310 (NC)	Approach to Hadera Port	1:30,000	2015
313	Tel-Aviv Yafo	1:20,000	2006
313A	Tel Aviv Marina	1:5,000	2006
313B	Yafo (Jaffa) Port	1:5,000	2006
323(NE)	Ashdod	1:20,000	2014
323A(NE)	Ashdod Port	1:10,000	2014
323B(NE)	Ashdod Marina	1:10,000	2014
325	Ashkelon	1:20,000	2002
325A	Ashkelon Port	1:5,000	2002
325B	Ashkelon Marina	1:5,000	2002
500(NC)	Gulf of Eilat-Israel	1:20,000	2015
500A(NC)	Port of Eilat	1:10,000	2015
500B(NC)	Eilat Marina	1:5,000	2015
4130	Hadera Port	1:20,000	2007
4135	Herzliyya Marina	10,000	2001
4135A	Herzliyya Marina	1:5,000	2001
1000	Student Charts		2013

NC - New Charts
NE – New edition
U - Updated

<u>Chart Index:</u>



Problems: Instruction, guidance and enforcement of the professional knowledge are required in the area of electronic navigational charts (ENCs) preparations.

Publications and publication updates

A bilingual (Hebrew/English) publication of symbols and abbreviations used on nautical charts was produced.
Planned future publications include tide tables, list of lighthouses, etc.

MSI

Under the responsibility of the Shipping and Ports Authority.

NMs

Under the responsibility of the Shipping and Ports Authority.

S-55

A full report was submitted to IHO.

1. Hydrographic Surveying

1.1 Status of hydrographic survey of all navigable waters, including internal waters, out to the limits of the EEZ: *(Please refer to the guidance given in the introductory text "Analysis of the Status of Surveys".)*

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

Amplifying information:

1. Special national circumstances which influence the statistical break-down above (e.g. geographical factors such as narrow continental shelf or fringing reefs, or constraints such as areas of unstable seabed which require a routine resurvey programme): We started the new Israeli Territorial water survey 14 years ago, to date, we cover the area as you can see above, the areas that we 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.

2. Nautical Charting

If you do have a nautical charting capability, complete the details below *(Please refer to the guidance given in the introductory text "Analysis of the Status of Charting".)*:

2.1 Status of nautical charting within the limits of the EEZ

Purpose/Scale	A	B	C
Offshore passage/Small			
Landfall and Coastal passage/Medium	100		

Approaches and Ports/Large	100		
Percentage of Group A showing depths in metres	100		
Percentage of Group A referenced to a satellite datum	100		

3. Maritime Safety Information (MSI)

Fill in the tables to indicate the status of implementation of the services: Yes, No, Partial.

Use the Notes Columns to indicate services which are provided by another state, and facilities co-ordinated and/or shared with other coastal states.

(Please refer to the guidance given in the introductory text "Analysis of the status of MSI".):

NAVIGATIONAL INFORMATION (S-53)

SERVICE	Yes	No	Partial	NOTES
LOCAL WARNINGS	yes			
COASTAL WARNINGS	yes			
NAVAREA WARNINGS	yes			
INFORMATION ON PORTS AND HARBOURS[i]	yes			

GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook[ii])

SERVICE	Yes	No	Partial	NOTES
Master Plan	yes			
A1 Area[iii]	yes			
A2 Area[3]		no		
A3 Area[3]		no		
NAVTEX	yes			
SafetyNET		no		

Capacity Building

Required: courses in the following topics: 1) marine cartography 2) data processing for hydrographic surveys 3) electronic navigational charts (ENCs),
There is no possibility to study these areas in Israel.

Oceanographic activity

- The Israeli Institute of Oceanographic and Limnological Research operates independently from SOI. Some collaboration exists in some areas, and the last collaborative work was the National Bathymetric project - marine surveys with a Multibeam system.
- A new survey ship "Bat Galim" is now in the process of equipping with a new 2 Multibeam, Sub-bottom profiler end other equipment.

The Tide gauges network

The Mediterranean Sea – Survey of Israel operates 5 tide gauges located at Acre port, Jaffa port, Ashdod port, Haifa port (new Tide gauge) and Ashkelon port.
Gulf of Eilat –Survey of Israel operates 2 tide gauges
Dead Sea –Survey of Israel operates 1 tide gauge intermittently.
The tide gauges are manufactured by OTT and Campbell.
Two tide gauges are connected to the MedGLOSS system.

- Goals:
    1. Set up the "zero value" for the orthometric national frame.
    2. Provision of sea level data for nautical charting (or hydrographic) purposes.
    3. Data processing for the purpose of set up of the coastline SOI (2005) and its update.
    4. Multi annual monitoring of the changes in sea levels in Israel.

  The activity includes research and support of research

- In addition, the stability of the facilities is measured and tied to the national balance (horizontal) network in geometrical and engineering balance.

- Annual maintenance is performed independently which also includes measurements of facilities stability and the concurrent balance points.

**The Israeli Institute of Oceanographic and Limnological Research operates 2 tide gauges connected to the MEDGLOSS system in Hadera and in Ashkelon.

Other Activities

Magnetometry:

In the state of Israel there are 3 magnetic observatories operated by Survey of Israel

Goals:

1. Set up of the magnetic north (declination), the angle between the magnetic field direction and the geographic meridian at any place and time in the territory of Israel (including the annual change rate).
2. Performing magnetic measurements for specific projects.
3. Providing data of the magnetic field from Israelis magnetic observatories to the international magnetic organization IAGA.
4. Providing data of the magnetic field for work and research in the areas of earth sciences: Geology, geophysics, as well as archeology.
5. Research: The Dead Sea sinkholes, earthquakes (international project Super Grad) and others.

Products:

1. Database of the magnetic field components measured in the observatories.
2. Digital database of the magnetic field components of the national grid.
3. Declination charts in the territory of Israel and information about the annual change rate.
4. Information about the declination by cross sections of time and place.
5. Papers and knowledge in the topics of the research (Dead Sea sinkholes, magneto metrics and earthquakes).

Research:

1. International project (Israel – Canada) "Super Guard" on the topic of predictions of earthquakes through changes in the magnetic field and discharge of radon gas. Measurement of the magnetic field with a new and

advanced magnetometer which is 1000 times more accurate than the equipment existing in the observatories today.
2. Detection of sinkholes on the coast of the Dead Sea using magnetic methodologies, an ongoing collaboration with the Geophysics Institute.

Agreement:

1. We have a bilateral agreement with the UKHO.
2. We signed an agreement with Cyprus after defining the median line for the EEZ.

What is missing

Membership in the international Hydrographic organization (IHO)

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