NATIONAL REPORT
of
EGYPT

EGYPTIAN NAVY HYDROGRAPHIC DEPARTMENT

ENHD

24th CONFERENCE OF THE MEDITERRANEAN AND BLACK SEAS HYDROGRAPHIC COMMISSION
(MBSHC-24th)

Constanta, Romania
2-4 July 2024

24th Conference of the Mediterranean and Black Seas Hydrographic Commission (MBSHC-24)
Constanta, Romania, 2 - 4 July 2024

NATIONAL REPORT FORM *EGYPT* TO THE MBSHC 24th

Executive summary

1. Hydrographic Office / Service:

Name of the institution:

Egyptian Navy Hydrographic Department (ENHD)

a) Description:

Established in 1952 under the chain of command of the Egyptian Navy HQ, Ministry of Defense, the ENHD has been dedicated to ensuring maritime safety and providing accurate hydrographic information.

In 2015, ENHD initiated a strategic mission to become one of the leading hydrographic offices in the region by 2030. This ambitious goal is pursued through a three-phased approach centered on key missions. However, **these phases are designed to be continuous and evolving beyond their initial targets** to meet emerging needs and challenges.

Key missions of ENHD:

1- **Provision of Product as a Service (PaaS):** ENHD prioritized fulfilling its obligations under the SOLAS convention by providing **hydrographic services** and delivering **accurate, consistent, and reliable nautical products.** This phase involved providing an ENC and Paper Chart folios that covers a vast area, which includes the Suez Canal, one of the most trafficked waterways globally, the expansive marine environment of the Red Sea (90,000 km^2), and the Mediterranean Sea (188,000 km^2), which has extensive oil and gas exploration activities. ENHD has successfully achieved this key objective in 2020. As the organization continues to maintain its folio and ensures all products remain up to date, it diligently prepares for the **next generation of navigation services**.

2- **Information as a Service (IaaS):** Leveraging ENHD's **Multi-Dimensional Hydro-spatial Data**, expertise and **exposure to Egypt's maritime domain and stakeholders needs**, we aim to support **evidence-based decision-making** processes. This aligns with the worldwide evolution of hydrographic offices, which now go beyond their traditional roles to explore the potential of the blue economy. Our emphasis lies in unlocking this potential by maximizing the utilization of hydro-spatial data across various sectors, including naval fleet operations, oil and gas, port development, offshore energy, tourism, archaeology, and environmental conservation.

3- **Service as a Service (SaaS):** The final phase focuses on providing seamless access to data needed for decision-making through implementing the **National Marine Spatial Data Infrastructure (NMSDI)** of Egypt. This strategic move aims to streamline access to crucial maritime data and empower stakeholders with actionable insights.

Through this strategic vision and proactive approach, ENHD continues to play a vital role in **guiding maritime excellence** and maintaining safety of navigation within Egyptian waters while **contributing to the broader goals of the blue economy.**

b) Submitted by: *Cdr. Karam El Beltagy*
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Input to the IHO Publication P-5 (*Yearbook*)
Country: ***EGYPT***
Organization: Egyptian Navy Hydrographic Department (ENHD)

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-Website	www.enhd.gov.eg
Country information	
-Declared National Tonnage	Tonnage: 957,378 Date: 2022
-National day	No change
-Date of establishment and Relevant National Legislation	No change
-Date first joined IHO	No change
-Date ratification Convention	No change
Agency information	
-Top level parent organization	No change
-Principal functions of the organization or the department	No change
-Number of INT charts published	12
-Total number of paper charts published	21
-Number of ENC cells published	61 ENCs including leisure charts

2. Surveys:

Coverage of new surveys:

Egypt is currently undergoing significant development in all areas to align with the United Nations' Sustainable Development Goals (SDGs) for 2030 and its own national vision. This includes the development of ports and water transits, which are critical for economic growth and international commercial relations.

a) Port Developments:

Acting as a consulting partner in these developments, ENHD provides comprehensive guidance to stakeholders throughout all project stages, from planning to completion, ensuring access to high-quality hydrographic data and effective marine spatial planning. **ENHD enables evidence-based decision-making** by maximizing the utilization of its Multi-dimensional Hydro-spatial Database to support these endeavours yielding reliable depth information prominently displayed in our products. ENHD's supervisory role in these projects is crucial for **supporting the country's blue economy,** enhancing navigational safety, boosting port efficiency, safeguarding marine ecosystems, and promoting sustainable development, thereby **contributing to the long-term prosperity of Egypt's maritime sector.**

(1) Gargoub Port new Extension

The development and expansion of Gargoub port, situated in the northwest of Egypt, capitalize on its strategic position as the closest location to Europe, facilitating trade between Africa and Europe. This area holds significant potential for **establishing a wind and solar farm to produce energy, as well as creating a green hydrogen hub**. These initiatives aim to harness renewable energy resources and enhance the port's role in sustainable development and international trade. This extension includes the construction of 3,500 meters of piers, divided into three phases of dredging operations. The construction aims to significantly enhance the port's capacity and accessibility, with a target depth of 17 meters in front of the piers and a turning circle with an 18.5-meter depth. These improvements will facilitate the accommodation of larger vessels and maximize the port's operational efficiency.

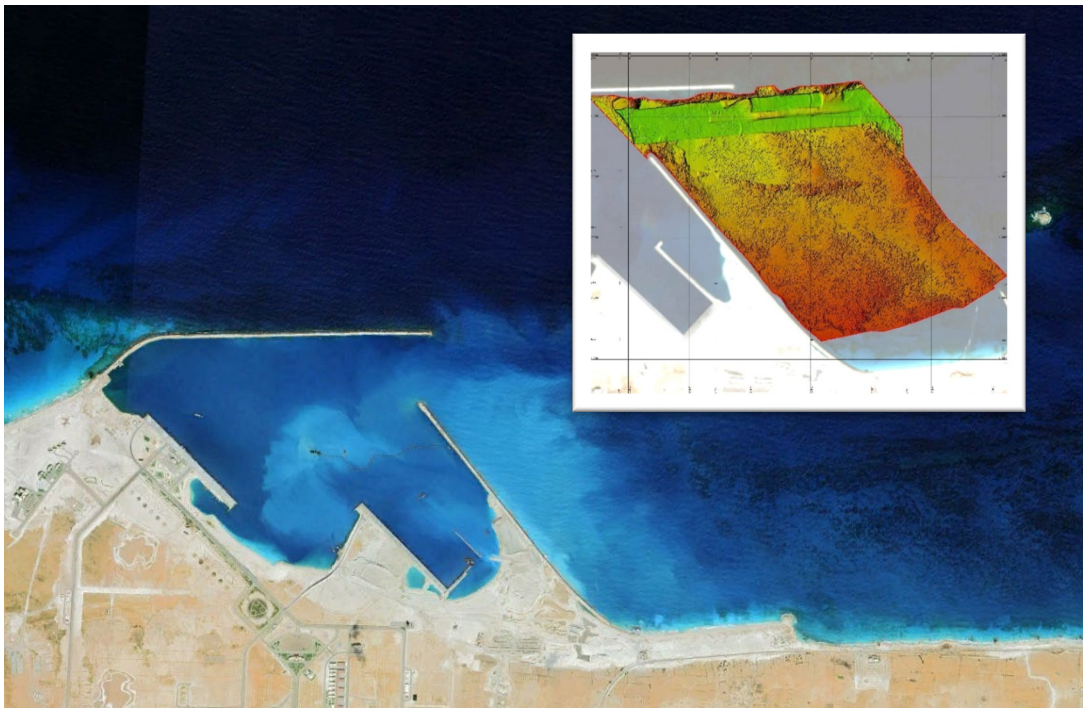

Fig-1: Gargoub Port New Extension

(2) Alexandria And Dekhiela port

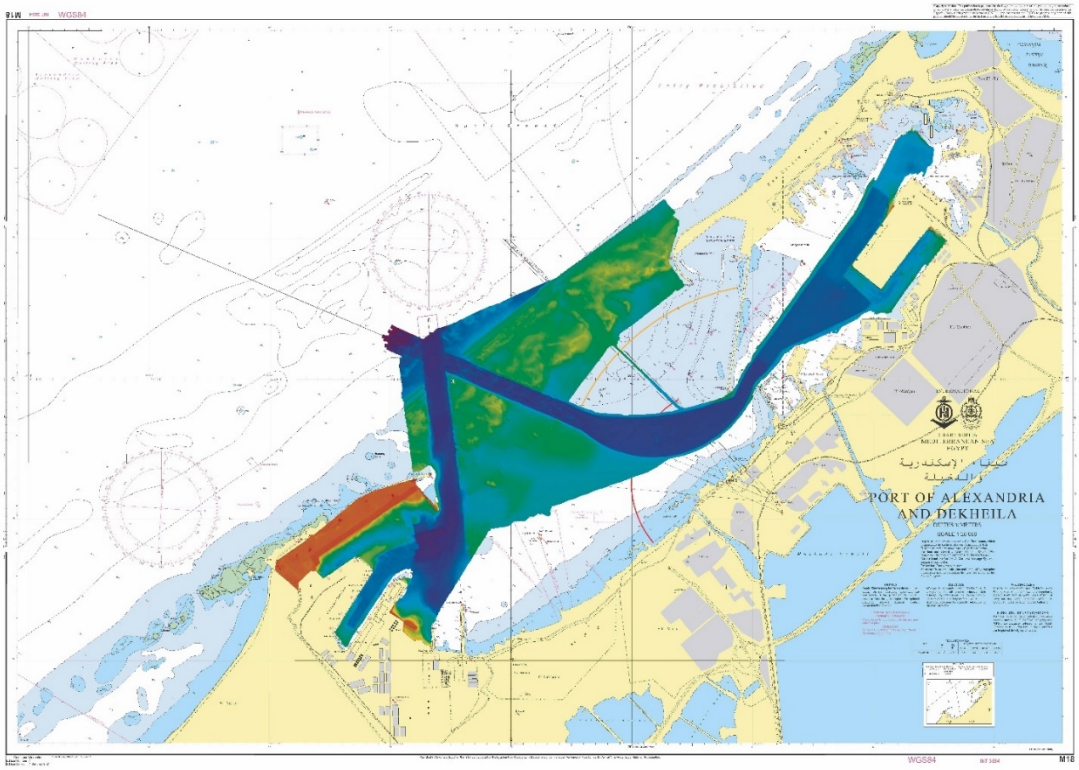

Fig-2: Alexandria And Dekhiela port

Alexandria port, a pivotal hub in Egypt's maritime network renowned for its significance and heavy traffic, it is the most important and largest port of Egypt, in terms of trade volume, handle approximately 60% of the country's foreign trade. This port is critical hub for international commerce, significantly contributing to Egypt's **economic growth and global trade connections**. An extensive seafloor survey has been conducted aiming to deepen the fairway to reach 18.1 depth and the navigational channel to reach 19.6 depth, noteworthy advancements include **the completion of a new container terminal** within Alexandria's inner harbor. Additionally, developments of El-Dekheila port, particularly in the dry bulk and multipurpose pier sectors, these proactive endeavors underscore our commitment to enhancing navigational safety and operational efficiency across critical maritime facilities, ensuring seamless and secure operations in the region.

(3) Damietta port new survey 2024

Damietta port is critical hub for international commerce, significantly contributing to Egypt's **economic growth and global trade connections**, Port development includes the construction of a **new outer container terminal** on the west side and enhancements to the quay wall of the inner container terminal, alongside dredging for the creation of a new terminal. Additionally, new breakwaters measuring 5400 meters and 1055 meters has been constructed for the western piers, aiming to widen and deepen the fairway to 18 meters depth. The overarching goal of this endeavor is to bolster navigational safety within this vital region. new navigational aids will be deployed to further enhance safety and expand waiting areas, **updating navigational information for all maritime stakeholders.**

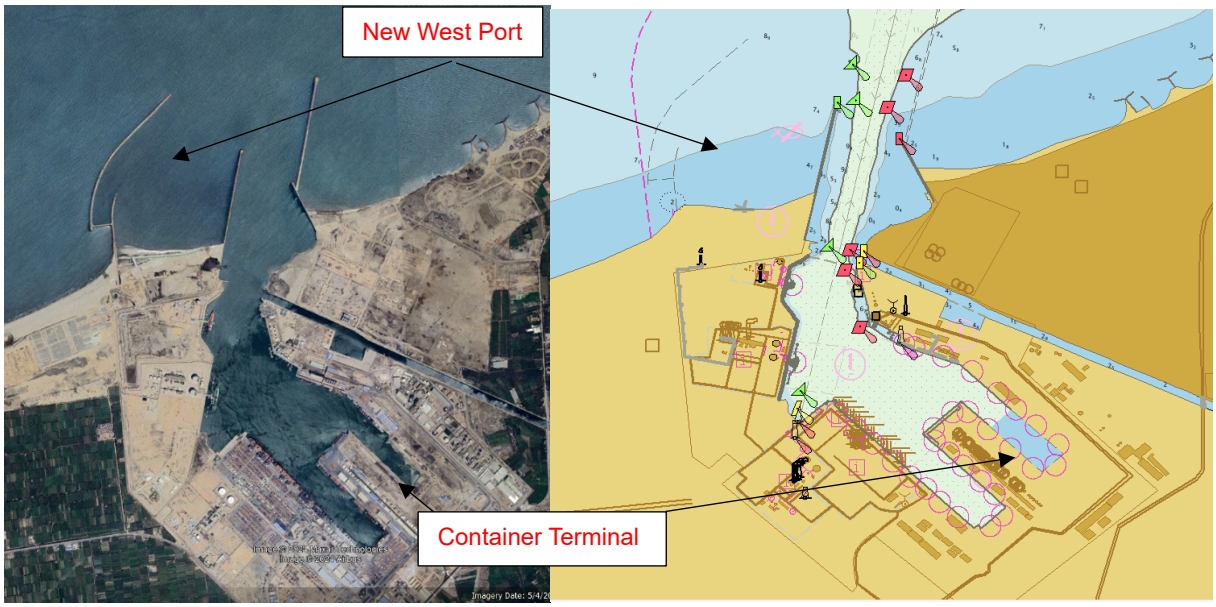

Fig-3:Damietta port new survey

(4) EAST PORTSAID NAVAL BASE

Port Said Naval Base is one of the most important ports due to its strategic location at the entrance of the Suez Canal and on the northwest Sinai Peninsula, providing **security** within the SC and the northern approach area and easy access to the Suez Canal **ensuring swift responses to any incidents.** A new port and a container terminal on the west side have been established, accompanied by a comprehensive full seafloor survey coverage for East Port Said.

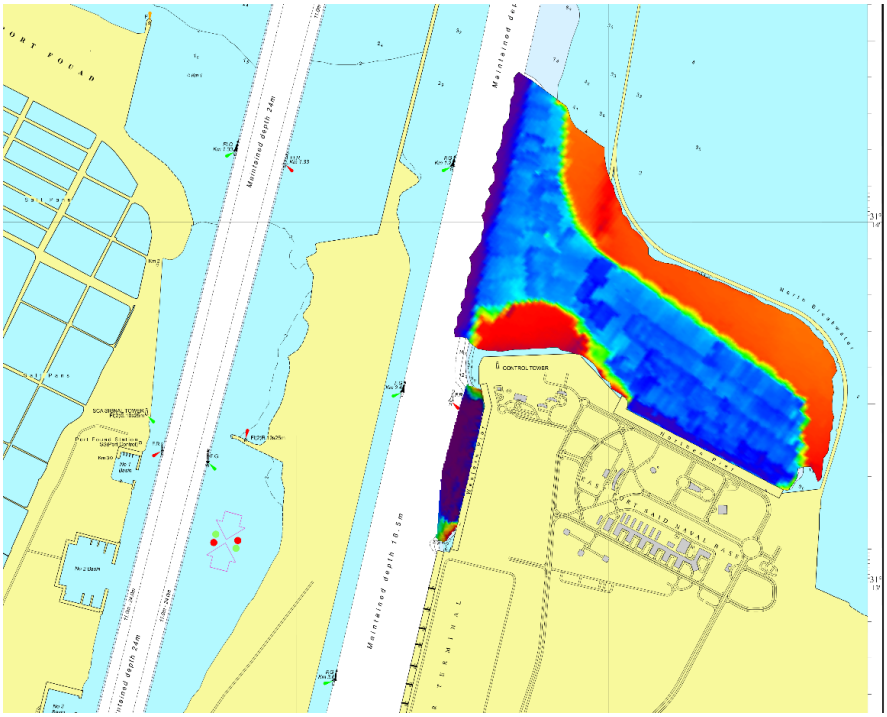

Fig-4:EAST PORTSAID NAVAL BASE

(5) El-Dabaa special purpose port new survey

El-Dabaa port represents a significant addition to Egypt's maritime infrastructure, serving as a specialized port facility commissioned by the Egyptian maritime authority. Designed specifically to function as a service pier for the country's nuclear power plant, the port plays a crucial role in **supporting the energy sector's operations**, Energy Production supporting Economic Development, the power plant will have a capacity of 4.8GW, providing a substantial source of clean energy. Full seafloor coverage survey has been meticulously conducted, covering both the inner berth and outer approach of the port. operational efficiency within the port's vicinity, thus laying a solid foundation for its successful functioning.

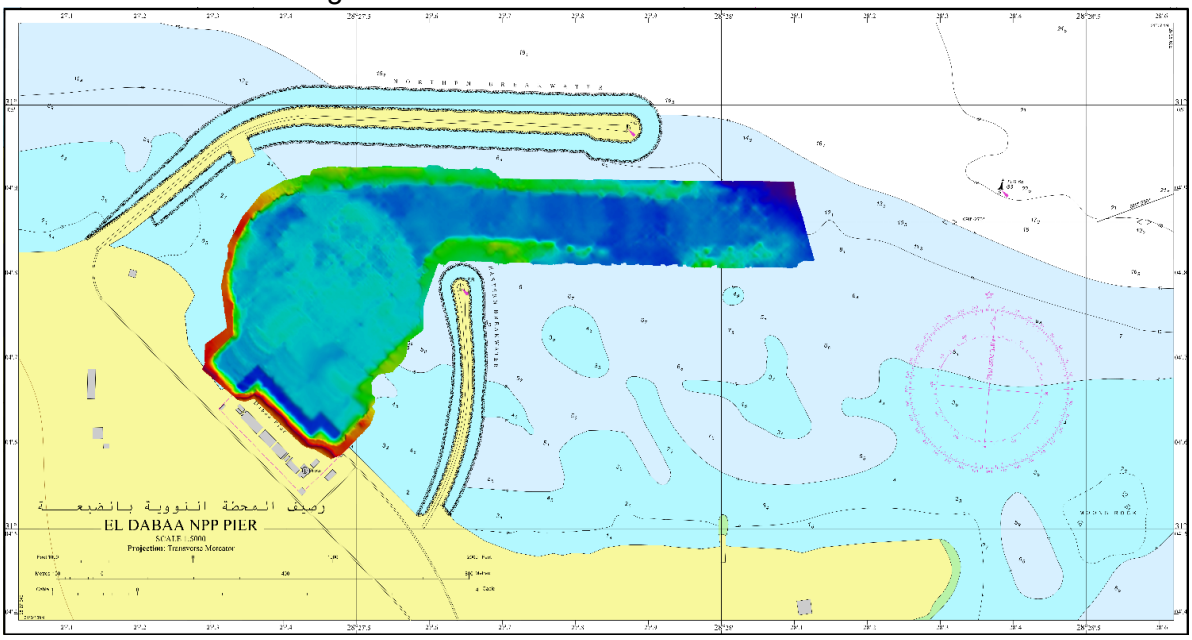

Fig-5:El-Dabaa special purpose port new survey

(6) El-Arish port new survey

El-Arish port, located in the northeast of Egypt, leverages its strategic position to facilitate trade between Asia and Europe. Enhancing the port's role in **sustainable development and international trade**, the development and expansion of El-Arish port is being undertaken in cooperation with the Armed Forces Engineering Authority and the Suez Canal Authority (SCA). This extension includes the construction of 1500 meters of piers. The construction aims to significantly enhance the port's capacity and accessibility, with a target depth of 12 meters in front of the piers and a navigation channel with a depth of 13 meters. These improvements will facilitate the accommodation of larger vessels and boost the port's operational efficiency.

ENHD has produced a new M15 ENC and Paper Chart, which have already been accepted as INT products in a remarkably short time, thereby enhancing the reliability of our chart folio.

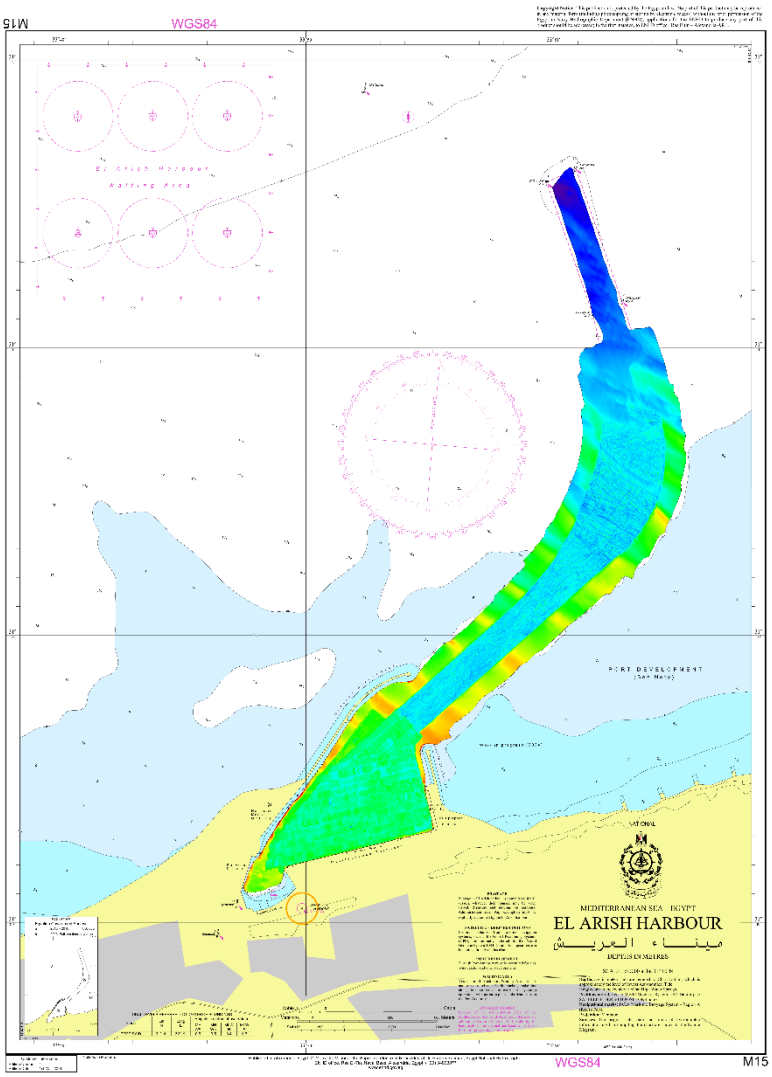

Fig-6:El-Arish port new survey

b) Offshore Energy Projects (Mega Importance Projects)

Providing essential data and facilitating evidence-based decision-making in the offshore energy are crucial for the country's development. This ensures that **operations are conducted efficiently and safely,** minimizing risks and costs. Furthermore, reliable data aids in regulatory compliance, environmental protection, and resource management, which are vital for **sustainable development.** By enabling informed decisions, the ENHD plays a pivotal role in enhancing the operational efficiency and economic viability of these projects, by cooperation with oil& gas sector acquainting Geophysical survey covering 66,000 km of the Egyptian waters in the Mediterranean Sea **exploring potential for a blue economy**, which is critical step in leveraging the country's natural resources for **economic development**. Additionally, updating our **hydrospatial database** significantly impacts the safety of navigation in our products.

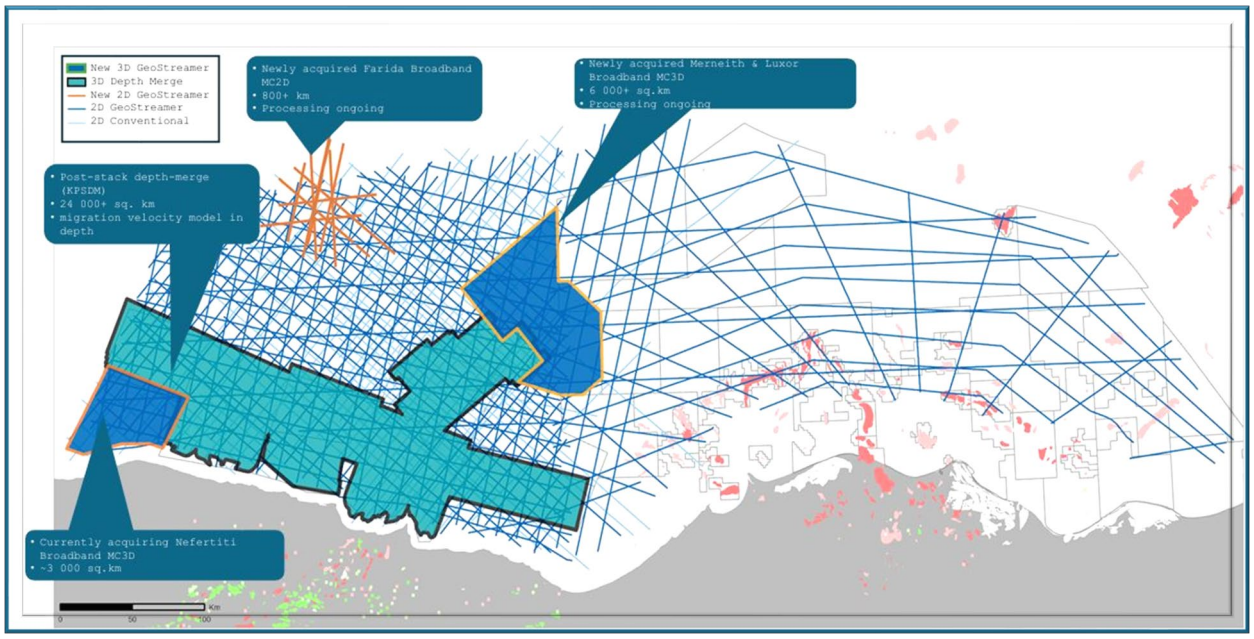

Fig-7: West Mediterranean Sea 3D Seismic operation

c) Archaeological Explorations

ENHD plays a pivotal role in **ensuring the efficiency of various maritime activities,** including archaeological explorations and the **preservation of Egypt's heritage sites.** Exemplified by our recent collaboration with the University of New Hampshire and Ocean Exploration Trust, our strategic vision contributes in several significant ways: we deliver the **high-resolution data and essential products** necessary to achieve the project's objectives, and our involvement provides the research team with a comprehensive understanding of the site's geophysical context, enabling remarkable discoveries that **enrich Egypt's heritage and historical knowledge.**

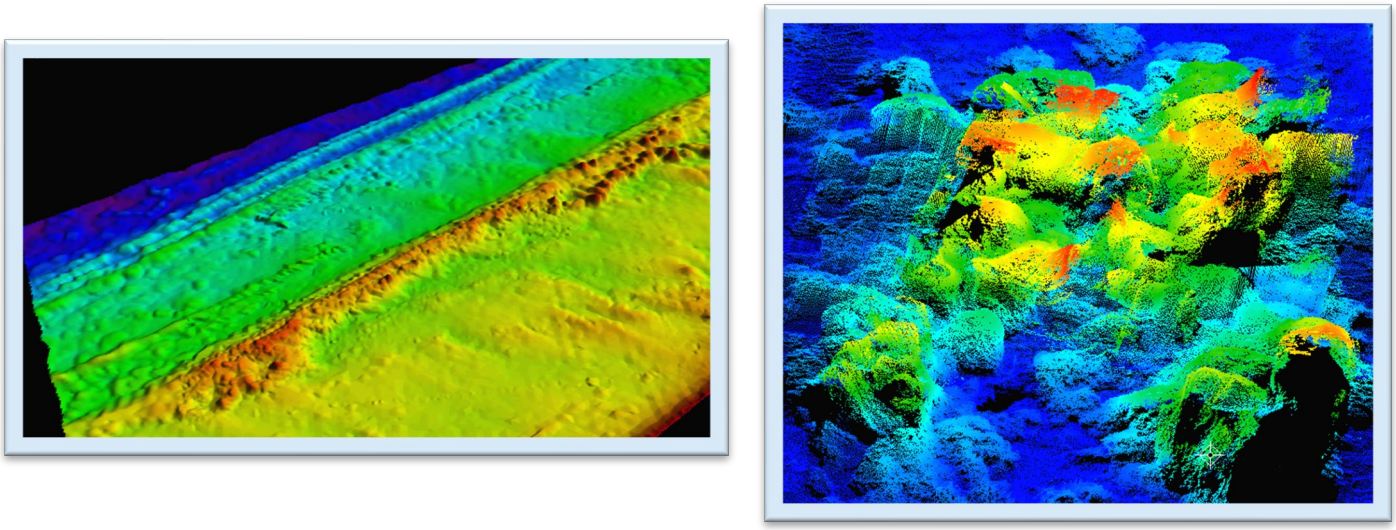

Fig-8: remarkable discoveries in Taposiris Magna Project

D) Satellite-derived bathymetry - National policy.

ENHD has conducted research to validate the **SDB statistical approach** in Marsa Matrouh Harbour, Egypt. The findings indicate that while the SDB method has achieved a degree of accuracy in terms of Total Vertical Uncertainty (TVU) for special survey order, its frequent occurrences in the lower survey orders raises concerns about its suitability for areas where under keel clearance (UKC) is critical.

Consequently, ENHD have established a policy asserting that the SDB method can effectively serve as reconnaissance tool for survey planning or to fill gaps in charting non-navigable shallow waters, including areas inaccessible to survey boats. This strategy aligns with the guidelines outlined in the B-13 - Edition 1.0.0 SDB reference guide.

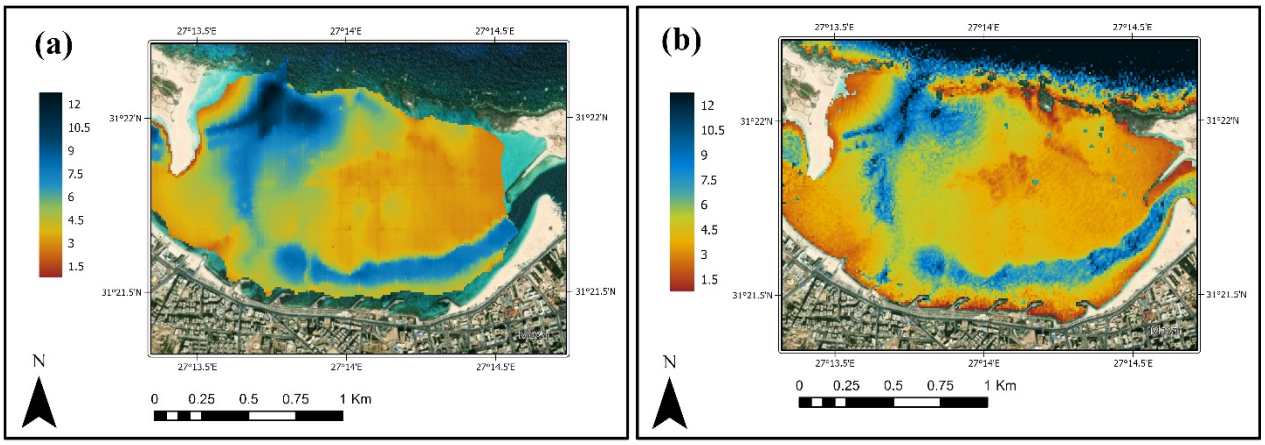

Fig-9: (a) Surveyed Depths, (b) SDB Output.

3. New charts & updates:

α) ENCs

The ENHD diligently maintains the consistency of all Egyptian ENCs, ensuring comprehensive coverage of Egyptian waters. This commitment guarantees that mariners receive up-to-date and consistent information, thereby ensuring the safety of navigation within Egyptian waters. **ENHD maintains 21 ENCs within Region F**.

Usage Band	Produced Cells	Total Cells (Include planned)	Notes related to the usability of products
Overview (1)	0	0	
General (2)	3	3	
Coastal (3)	1	1	
Approach (4)	5	5	
Harbour (5)	9	10	
Berthing (6)	3	3	Including 2 ENCs for The Northern Entrance of Suez Canal waterway providing details required to berth, maneuver, and navigate through it.
Total	**21**	**22**	

Newly added ENC coverage within area F:

No.	Number	Usage Band	Scale	Title
1	EG4EGM12	Approach	45000	Approaches to Gulf of Abu-Qir
2	EG4EGM14	Approach	22000	Approaches to Dabba NPP Pier
3	EG5EGM15	Harbour	12000	Al-Arish Port
4	EG5EGM11	Harbour	12000	Abu-Qir Port
5	EG5EGM14	Harbour	12000	Dabba NPP Pier
6	EG6EGPSD	Berthing	4000	Port Said Berths
7	EG6EGSCT	Berthing	4000	SCCT and East Port-said Berths
8	EG6EGM19	Berthing	4000	El-Madiya Port

Production Plan of ENCs:

No.	Number	Usage Band	Scale	Title
1	EG5EGM25	Harbour	8000	Marsa Matruh

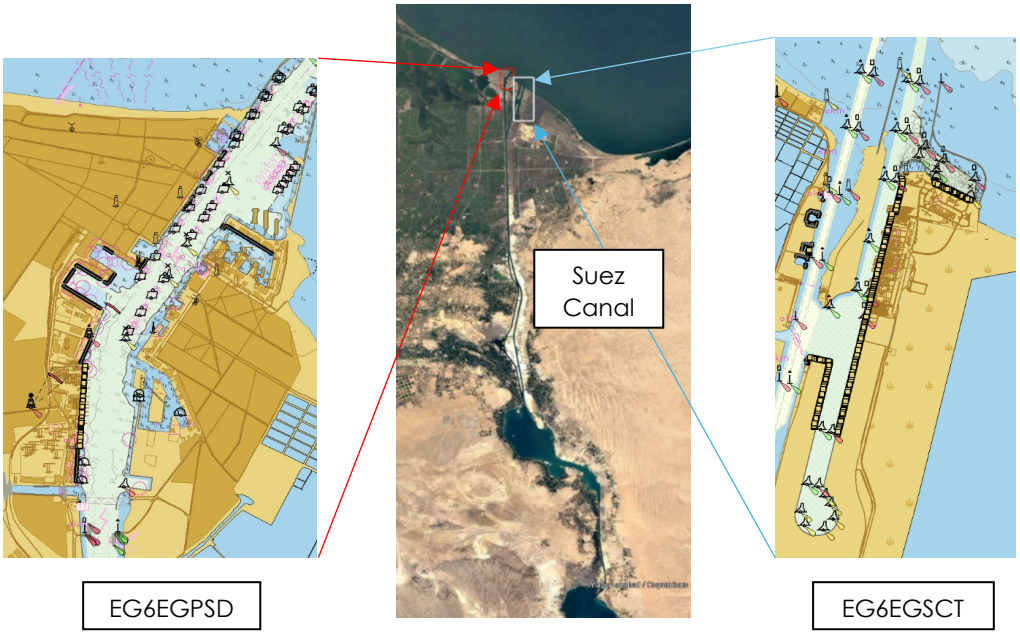

Fig-10: General Location of both berthing band ENCs of the northern entrance of Suez Canal; EG6EGPSD (portsaid Berths) and EG6EGSCT (SCCT and East Port-said Berths)

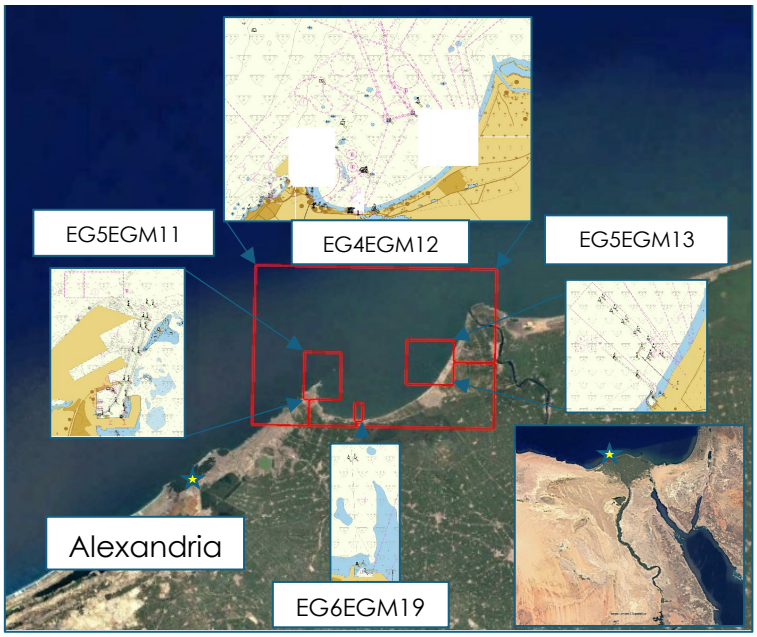

Fig-11: General Location of New and Existed Abu-Qir Gulf ENCs; EG4EGM12(Approaches to Gulf of Abu-Qir), EG5EGM11 (Abu-Qir Port), EG5EGM13 (IDKU and LNG), EG6EGM19 (El-Madiya Port).

ENC distribution method.

ENHD has formed a collaborative partnership with IC-ENC as a RENC, aligning with the principles of the IHO Worldwide Electronic Navigational Chart Database (WEND). Since 2015,

this collaboration has resulted in noteworthy achievements, including a significant increase in our annual distribution of Electronic Navigational Charts (ENCs). At the end of 2023, ENHD achieved the distribution of 623K ENCs, showcasing an approximately 500% in our revenue growth rate.

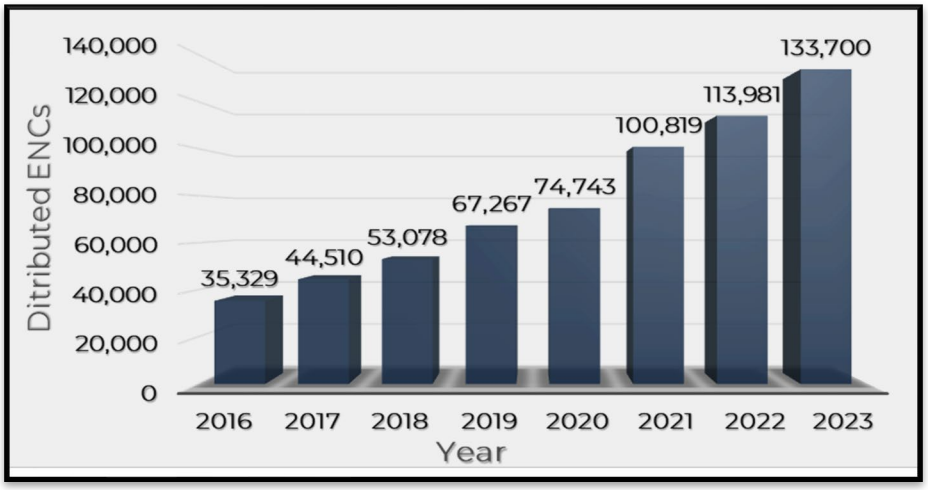

Fig-12: ENCs' Annual Distribution

INT charts.

ENHD produced 4 paper charts in the Mediterranean Sea, this region of Egyptian waters is well-known for its heavy maritime traffic, but it is also hosts a variety of other activities, including oil and gas exploration and exploitation and tourism. Furthermore, it is critical to recognize the environmental concerns around pollution and ecosystem preservation. Producing reliable, accurate data for those charts promotes the long-term development and safety of navigation in this sensitive area.

No.	Local number	Usage Band	Scale	Title	INT Number
1	M43	General	300.000	EL- Dabaa to EL- Salum	3504
2	M33	General	300.000	EL- Burulls to Dabaa	3502
3	M23	General	300.000	EL- Burulls to Rafah	3500
4	M22	Harbour	12500	Port Said and East Port Said	3549

In addition to the recent production of 4 INT charts, ENHD has received formal approval for the submission of INT chart M15 (Arish port) as per the directives outlined in MBSHC circular letter 09/2024.

No.	Local number	Usage Band	Scale	Title	INT Number
1	M15	Harbour	10000	AL-Arish Port	XXXX

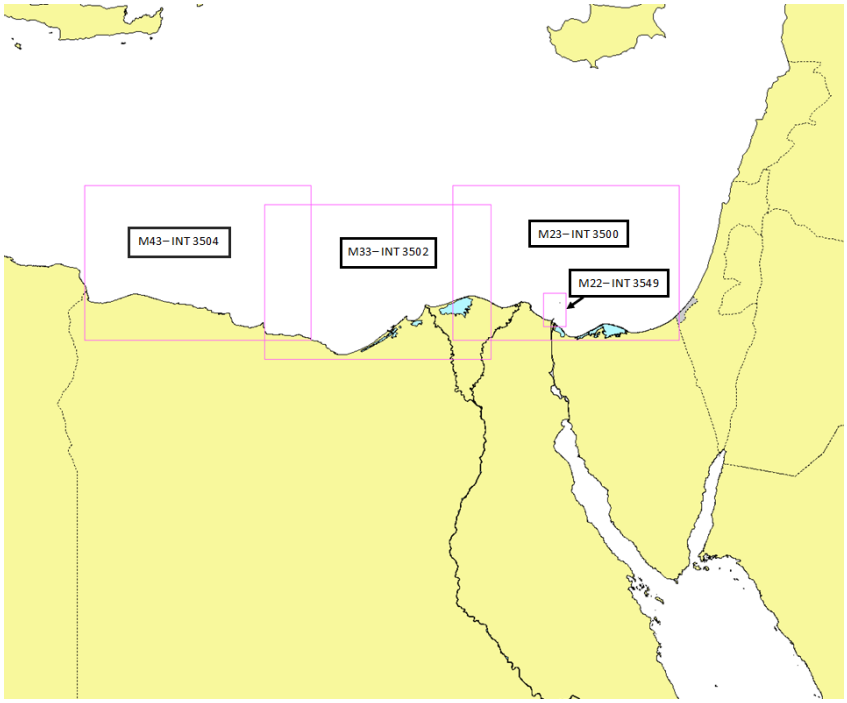

Fig-13: New INT Charts Scheme

Other charts, e.g. for Leisure Charts.

ENHD Recognize the **importance of tourism** and its effect on the country's sustainable development SD in this context, driven by our role. ENHD offers the **Leisure Chart Folio service**. This service specifically supports superyachts, yachts, and small craft mariners by providing customized chart-size coverage of approach and harbour usage bands to enhance the safety of navigation.

MARRASSI Marina stands out as the **first Egyptian international marina** in the Mediterranean Sea, and it is considered a premier destination for leisure and recreation. A survey was undertaken to produce leisure charts.

The folio currently comprises a total of 11 leisure charts, **with 8 of them falling within Region F** including the Approaches to Marrassi Marina and Marrassi Marina ENC (EG5MRSIS & EG6MRSIL) and Chart (L4M337 & L5M338)

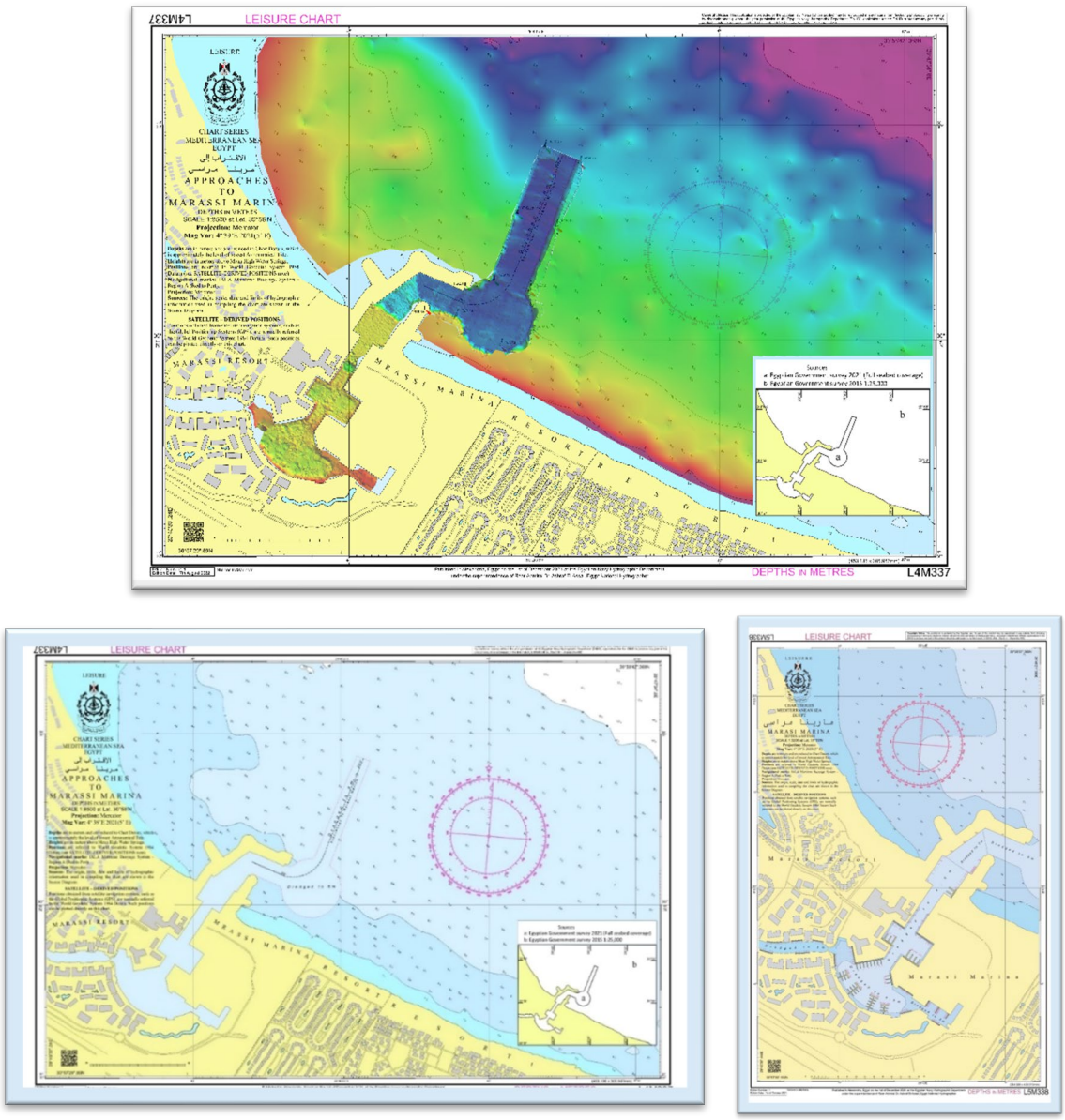

Fig-14: Marrassi Leisure Charts

4. MSI:

a) Existing infrastructure for MSI dissemination

In compliance with Regulation 4 &9 of Chapter V of the International Convention on the Safety of Life at Sea (SOLAS V), Egypt ensure timely dissemination of MSI by robust national Maritime Safety Information infrastructure through active 3 NAVTEX stations located at (Alexandria, Quseer, and Ismailia) are transmitting MSI warnings in English on 518 KHz.

Fig-15: MSI Stations

KHz	Call	Station Name	Range (NM)	Transmission Time (UTC)						Area
518.0	SU H	Alexandria	350	0210	0610	1010	1410	1810	2210	*III*
518.0	SU K	Quseer	350	0330	0730	1130	1530	1930	2330	*IX*
518.0	SU Z	Ismailia	400	0350	0750	1150	1550	1950	2350	*IX*

b) Operational Issues:

Alexandria Station is currently out of service due to maintenance issues.

5. **C-55:** online form has been updated.

6. **Capacity Building:**

a) Training Needed.

i. S-100 Production Course (S-57 to S-100 Conversion) (2025).
ii. SDB workshop (2025).
iii. Marine Spatial Planning (2025).
iv. MBES Processing Course (2026).

b) Training Offered

ENHD is proudly introducing to region-F member states for the first time a capacity building training **(CAT-B Hydrographic Survey Program).**

c) Training Provided

The ENHD proudly conducted the first IHO/FIG/ICA certified Category-B Hydrographic Survey program in Egypt. The course welcomed seven Egyptian students and one

Figure 7: Cat B Hydrographic Survey Course

international student from **India.** This training opportunity marks a significant milestone in our commitment to advancing hydrographic expertise both nationally and internationally.

This course has equipped the hydrographic community in Egypt and the region with professional personnel possessing fundamental knowledge of hydrographic survey standards. This will undoubtedly have a **positive impact on operations conducted within the region**, ensuring they align with IHO standards and guarantee the safety of navigation.

Fig: Cat B Hydrographic Survey Course

7. Marine Spatial Data Infrastructure (MSDI).

In the last two years, ENHD has recognized the need for a structured approach to managing hydro-spatial information, leading to the development of the **National Hydro-spatial Programme.** This strategic framework aligns with the **Integrated Geospatial Management Framework (IGIF)**. It serves as the framework for the next phase of ENHD's 15-year plan "Service as a Service" and maintains adherence to international guidance.

A key element of this Mega project is the development of the National Marine Spatial Data Infrastructure (NMSDI) of Egypt, which, aligned with IGIF aims to facilitate **integrated hydro-spatial information** management, thereby preparing the MSDI to be DT-Ready. The project will be implemented in phases. Initially, ENHD will implement an Organizational MSDI, focusing on the base reference layer utilizing hydrographic data, with a long-term vision of transitioning to a comprehensive National MSDI encompassing all relevant data themes involved in the maritime domain.

ENHD's Strategic Approach was recognized as one of the 2023 ESRI Special Achievement in GIS (SAG) Award winners.

Fig: Esri NA, CEO, awarded ENHD with the SAG award 2023.

ENHD Found Implementing a MSDI within the framework of Strategic implementation Plan (**SIP**) utilizing a **thematic** phased approach is imperative to attract stakeholder investment is necessary for securing financial resources. Efforts are underway to address these challenges.

8. Other activities:

a) Meteorological data collection:

Varieties of Meteorological datasets are being collected, analyzed and utilized be

ENHD metrological division

b) Preparation for responses to disasters:

A complete contingency plan between Egyptian Authority for Maritime Safety and the Egyptian Search and Rescue Center (ESARC). ESARC under the Egyptian Ministry of Defense provides its services using Helicopters, Maritime units, Fixed-wing aircraft for Search operations, medical evacuation, and providing rescue boats-first aids.

c) Aids to Navigation matters:

ENHD plays a crucial role in standardizing Aids to Navigation (AtoNs) within the Egyptian domain. Our responsibilities towards ensuring the reliability of all AtoNs encompass several key aspects:

- **Positions:** We ensure that all navigational aids are accurately positioned to provide precise guidance to mariners, enhancing the safety and efficiency of maritime navigation.
- **Lights:** We maintain and standardize the lighting of AtoNs to guarantee they are visible and effective under all conditions, aiding in the safe passage of vessels.
- **Adherence to IALA Standards:** We adhere to the standards set by the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), ensuring that all our Navaids meet international requirements.

9. Conclusions

a) ENHD is keep fulfilling its international obligations by maintaining a **seamless coverage folios** of Egyptian Water, promoting the Safety of Navigation

b) ENHD is dedicated to support **Evidence-Based Decision-Making and Zero Down-Time Operations concepts** through its **multi-dimensional database** delivering information as a service to all engaged in the maritime activities within Egyptian water.

c) ENHD is currently developing the IGIF aligned national marine spatial data infrastructure **NMSDI of Egypt** under the **SaaS** context to support Integrated Hydro-spatial Information Management and Efficient Maritime Activities.

d) ENHD's efforts extend to producing **leisure charts**, contributing to the promotion of navigational safety for yachts in Egypt's premier leisure destinations.

e) ENHD's successful completion of the first **Category B Hydrographic Survey program** in Egypt highlights its commitment to advancing hydrographic expertise nationally and internationally.