



**UNITED ARAB EMIRATES
NATIONAL REPORT**

**ROPME SEA AREA HYDROGRAPHIC COMMISSION (RSAHC)
2015**

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Military Survey Department
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Table of Contents

I.	INTRODUCTION	3
II.	HYDROGRAPHIC SURVEYS.....	3
A.	MILITARY SURVEY DEPARTMENT	3
B.	HYDROGRAPHIC SURVEYS.....	3
III.	PUBLICATIONS.....	5
A.	Tide Tables	5
B.	Digital Maps Technology	5
C.	Paper Charts	5
D.	Electronic Navigational Charts	6
IV.	CAPACITY BUILDING.....	6
A.	Workshop on Port and Shallow Water Surveys	6
V.	AFFILIATIONS.....	6
VI.	UPCOMING ACTIVITIES	6

I. INTRODUCTION

Situated in the Northeast of the Arabian Peninsula, United Arab Emirates (UAE) is bordered by the Kingdom of Saudi Arabia in the west, the Sultanate of Oman and Gulf of Oman in the east and Arabian Gulf to its north. UAE's coastline stretches over 650 kilometers along the Arabian Gulf which has taken a fundamental part of the nation's progress and development comprising of various ecosystems, natural harbors and dredged ports.

II. HYDROGRAPHIC SURVEYS

A. MILITARY SURVEY DEPARTMENT

The Military Survey Department (MSD) was established in January 1974 as a military technical unit responsible for fulfilling mapping and surveying needs of the UAE Armed Forces. It is responsible for coordinating, processing and disseminating up-to-date topographic, aeronautical and nautical information over the whole UAE territory. In order to achieve these objectives, MSD strategically focused on building the national technical capacity consisting of qualified personnel and well-defined integrated production processes. Performing its leading role as the national geospatial data provider, MSD is actively participating in physical developments in the country. During the short span of time, MSD has attained a high professional level through its competent personnel, up-to-date equipment and outstanding mapping infrastructure. MSD's efforts is undoubtedly fulfilled without the honest efforts under the wise leadership of His Highness Sheikh Khalifah Bin Zayed Al Nahyan, the Supreme Commander of the Armed Forces (May Allah protect him).

B. HYDROGRAPHIC SURVEYS

For over three decades, UAE is developing with a fast-pace changing environment with various large scale construction projects along the coastline. Safety maritime activities have been the top priority of MSD most specially that UAE comprises inter-tidal zones. Hydrographic surveys are performed for the following purposes:

- Deep sea survey and data analysis
- Production of Hydrographic maps and charts at different scales
- Establishment and maintenance of Tide Monitoring Stations and adjustments to National Vertical Datum
- Preparation and Dissemination of Annual Tide Tables for main Sea Ports throughout UAE
- Providing Technical Consultancies
- Establishment of Hydrographic Database

Since MSD owned one of six Airborne LiDAR systems all over the world, MSD had started carrying out LiDAR surveys covering vast areas of the country's coast and territorial waters. In 2010, MSD initiated the creation of Hydrographic Instruction Project in support to national requirement to provide high quality bathymetric data for more safety navigation and

environment. Marking the project's fourth year from its commencement, MSD continues to progress in hydrographic survey by achieving the target area coverage.

Apart from Airborne LiDAR, MSD had invested on latest survey equipment such as Echosounder, positioning systems, motion sensors, sound velocity profilers, tide gauges, CTDs and other equipment for ancillary observations.

Table 1: MSD's List of Equipment for Hydrographic Survey

Description/Capacity/Size	Quantity
Platform	
Beechcraft King Air 850	2
Vessel	
Hussn Al Khaleej Vessel - 13m (L) by 3.6m (W)	1
Hareb Vessel - 12m (L) by 4.5 meter (W)	1
Misbar Catamaran Vessel – 15m (L) by 5m (W)	1
Saqr Al Khaleej - 13m (L) by 3.6m (W)	1
Light Detection and Ranging (LiDAR)	
SHOALS 3000	1
Echosounders	
Kongsberg EM2040D Multibeam Echosounder	2
Kongsberg EM2040 Multibeam Echosounder	1
Kongsberg EM3002D Multibeam Echosounder	1
Kongsberg EM3002 Multibeam Echosounder	1
Kongsberg EA400 Singlebeam Echosounder	1
Kongsberg EA400SP Singlebeam Echosounder	1
Edgetech 4125 Sidescan Sonar System	2
Positioning Systems	
Trimble 5700 GNSS Receiver	1
Trimble DSM 232 (DGPS + Position)	1
Hemisphere VS111 Position system	1
Seatech Seapath 200 positioning system with heading	1
Motion sensors	
TSS MAHRS (Motion + Heading)	2
Teledyne Heave sensor DMS-H	1
Setex MRU 5 (for Heave)	1
Other Equipments (SVP, SVS, Tide Gauges)	
Teledyne Acoustic Doppler Current Profiler (ADCP) 1200	1

Description/Capacity/Size	Quantity
Teledyne Acoustic Doppler Current Profiler (ADCP) 600	2
Valeport 740 Tide Gauge (Pressurized)	1
Valeport VRS-20 Tide Gauge (Radar)	2
Valeport Tide Master Tide Gauge (Pressurized)	10
RBR Data Logger	2
MIDAS CTD Probe	1
Valeport Mini Sound Velocity Profiler	2
Valeport Mini SVS Sound Velocity Sensor	2

III. PUBLICATIONS

A. Tide Tables

MSD has released the 15th edition of the *Tidal Data Booklet*, which complements the previously published editions from 2001. The tidal data for each edition has been revised and enhanced according to the output of the newly installed tide stations along the coast and selected islands. The newly tide stations were operated to support the main tide stations in order to ensure the optimum quality of the provided data.

The *Tidal Data Booklet* also comprises of Annual Moon Time Rise/Set.

B. Digital Maps Technology

This was one of the books published by the MSD and released in 2002. This book accounts the technology of using digital maps. This book is available in Arabic language only.

C. Paper Charts

Several paper charts both in small and large scales were produced by MSD for military purposes. The first batch of production includes the upper coast of Abu Dhabi Emirate.

Table 2: Rate of Produced Charts

Chart Scale	Quantity
1:10,000	18
1:25,000	3
1:35,000	8
1:75,000	1
1:350,000	4

1:750,000	1
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D. Electronic Navigational Charts

ENCs are still under process.

IV. CAPACITY BUILDING

The key for maintaining the integrity of charts and assure its quality is aligned with the international standards are the main workers behind the survey and production. MSD puts a special importance on capacity building. MSD Officers are being sent to undergo overseas training for Hydrographic courses and attends local and international forums or exhibitions for up-to-date awareness of new technologies in global market related to Hydrography.

A. Workshop on Port and Shallow Water Surveys

Workshop on Port and Shallow Water Surveys was hosted in Abu Dhabi 22 - 26 September 2014 which took place in the Abu Dhabi Officers Club. Instructors for this course were two officers from Pakistan Navy Hydrographic Department (PNHD). This workshop was conducted in the Officer Club for the theoretical part and the Abu Dhabi Marine Sports Club for the practical part. Twelve trainees were attended the workshop as follows: seven trainees from UAE, two trainees from Oman, one trainee from KSA, one trainee from Bahrain and one trainee from Islamic Republic of IRAN. An Introduction to the Hydrography, Singlebeam, Multibeam, Side Scan, Tide and other basic elements for the hydrography along with processing of the singlebeam data were covered in this workshop. In addition, trainees were invited to visit Military Survey Department (MSD) and Bayanat for Surveying and Mapping Services to discover the capabilities of these entities. At the end of the workshop a closing ceremony was held in the Abu Dhabi Officers club under the auspices of the RSAHC Chairman and certificates were submitted to the Instructors and trainees.

V. AFFILIATIONS

MSD has been actively participating along with other countries around the globe through Hydrographic communities such as:

- International Hydrographic Organization (IHO) – member
- International Maritime Organization (IMO) – member
- ROPME Sea Area Hydrographic Commission – member

VI. UPCOMING ACTIVITIES

For the coming years, MSD will continue executing hydrographic surveys to cover UAE's territorial waters.