

Search and Rescue Area 1 - SAR

(Research on Establishing a Marine Search and Rescue Center)

Ibrahim A Meshari

Navigation Department, Higher Institute of
Telecommunication and Navigation, Paaet, Kuwait

Abstract:-

➤ Marine Rescue Center

After the Titanic incident on April 14, 1912, which led to its complete sinking and the death of 1,500 people on board, the world began to realize the importance of this incident, and the need to organize search and rescue operations.

The idea of the research is summarized around activating the establishment of marine search and rescue centers for coastal countries, according to what was approved in 1958, which is the "International Convention on the High Seas 1958".

And determining the appropriate location for building this center, and the requirements required for the center.

Keywords:- Watchtowers and Search and Rescue Services through Helicopters, Fast Marine Boats and a Crew Prepared for Rescue Operations and Receiving Communications.

I. INTRODUCTION

The goal of maritime rescue operations is the human element, and therefore the United Nations was interested in establishing the International Maritime Organization with the aim of issuing international treaties that oblige all countries of the world to implement them.

➤ Accordingly, the Following Treaties were Concluded:

- The First International Treaty "Safety of Life at Sea 1914".
- The Second International Treaty "Safety of Life at Sea 1929".
- The Third International Treaty "Safety of Life at Sea 1948".
- The Fourth International Treaty "Safety of Life at Sea 1958".
- The Fifth International Treaty "Safety of Life at Sea 1974".

With the development of the establishment of satellites, the Inmarsat system was established, which covers the globe with 4 satellites.

They are the Pacific Ocean, the Indian Ocean, the Atlantic Ocean-east, and the Atlantic Ocean-west.

In 1982, the United Nations passed a law so that each coastal state would promote the establishment of a maritime search and rescue center.

In 1992, the International Maritime Organization established the Global Distress System, to be implemented finally on February 1, 1999.

The Global Distress System constitutes the speed in sending distress calls, which is called the term MAYDAY For ships or aircraft within seconds.

But we need speed in rescuing people on board the ship, and this is what prompts us to create the idea of establishing a maritime rescue center, especially for coastal countries.

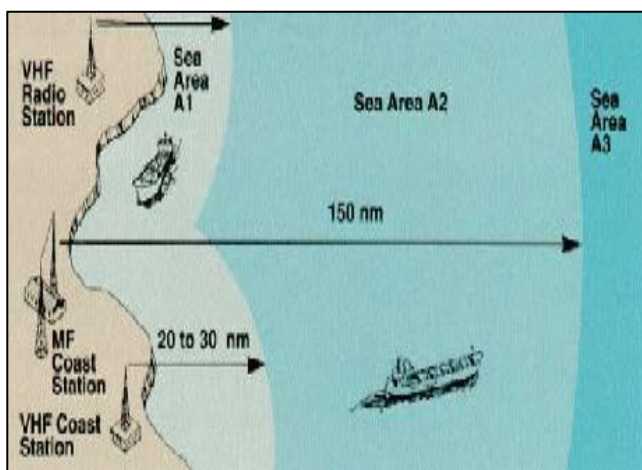


Fig 1: GMDSS Concept

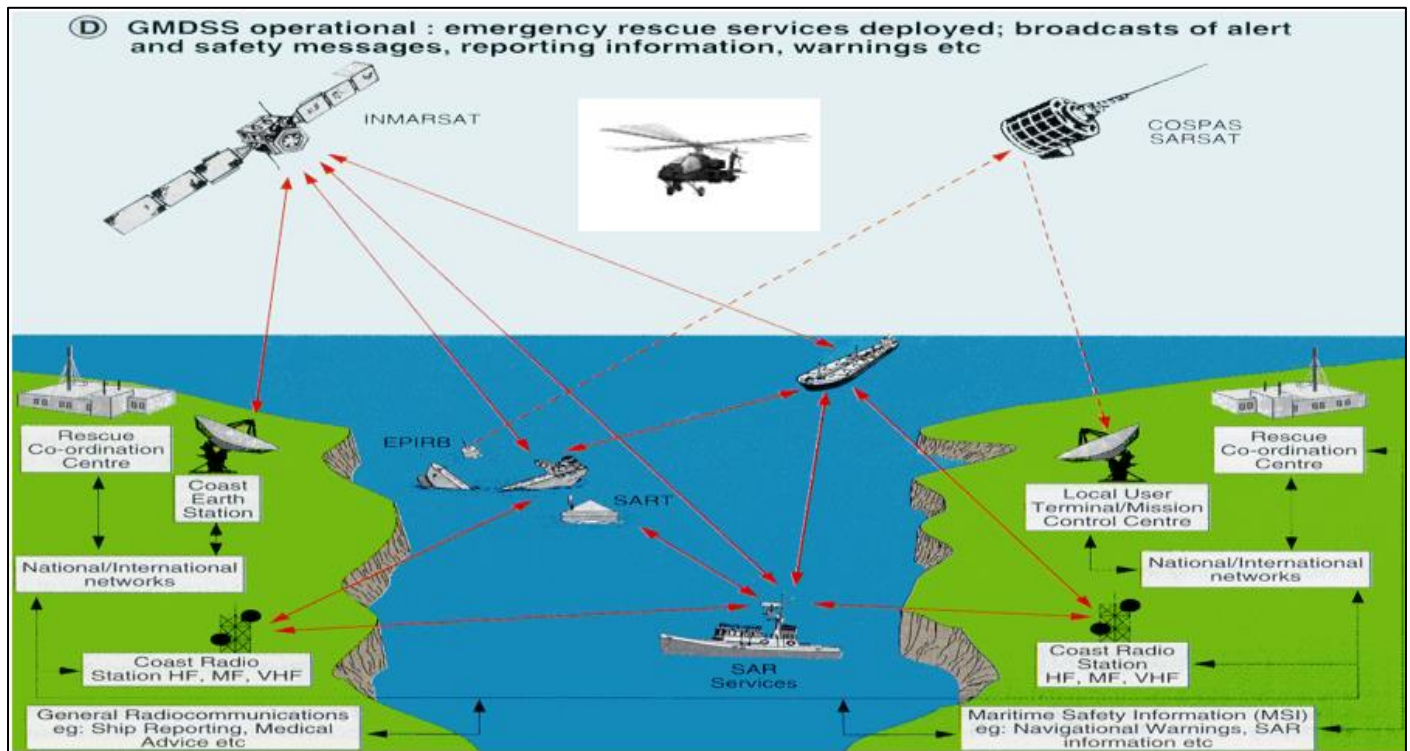


Fig 2: GMDSS Operational: Emergency Rescue Services Deployed; Broadcasts of Alert and Safety Messages, Reporting Information, Warnings etc.

II. OBJECTIVE

The main objective of this research is to start establishing a maritime rescue center for coastal countries, as approved by the United Nations in 1958.

Since the State of Kuwait is a member of the United Nations and the International Maritime Organization and is a coastal country (the length of the Kuwaiti coastline with the marine islands is about 500 kilometers), it has 5 effective ports, which are Al-Ahmadi Port, Shuaiba, Shuwaikh and Doha, and Mubarak Port is under construction.

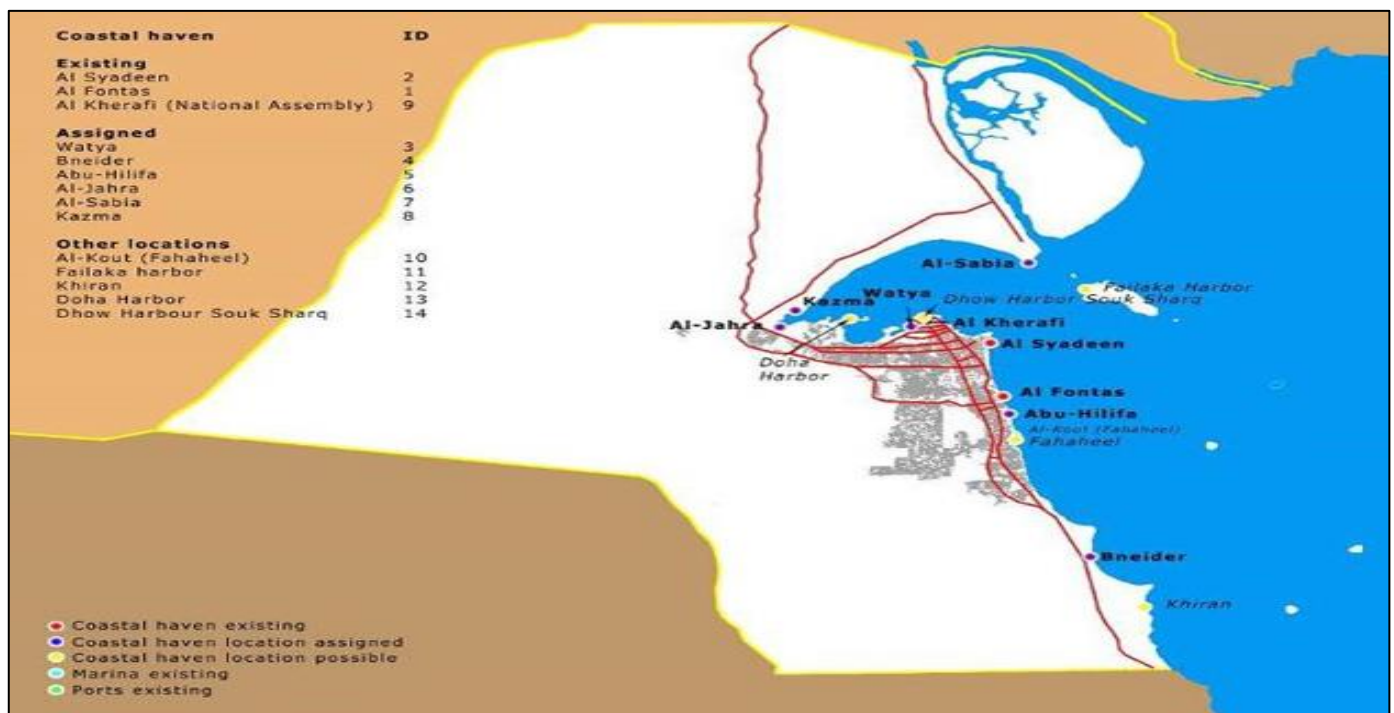


Fig 3: Kuwait Coastal

It must have a main search and rescue center, and no less than 4 sub-centers. The center must be under the supervision of the Coast Guard, and the marine rescue center of the Fire Force must be under its umbrella.

III. CONTENT

In order to establish marine centers for searching and rescuing lives and to be able to perform their tasks efficiently and effectively, the tasks that they will perform must be determined, so that the demands of these marine centers can be determined through those tasks.

The main tasks of marine centers for searching and rescuing lives are that they are a means of warning and searching for ships and people facing an emergency situation that requires distress or an emergency situation that may require distress and taking the necessary measures to rescue them.

The responsibility for the search and rescue service is assigned to the Coast Guard Department of the Ministry of Interior.

➤ *In Order for the Search and Rescue Center to Perform the Tasks Assigned to it, it is Necessary to:*

- Develop a search and rescue plan.
- Determine the area of responsibility of the search and rescue service.
- Sign agreements with the bodies that can participate in search and rescue operations, and these bodies are represented by the Fire Force, the Kuwait Ports Authority, and the Kuwait Oil Company.

➤ *Basic Requirements for Establishing Marine Centers for Searching and Rescuing Lives:*

- Establish a main center for search and rescue and establish sub-centers for it.
- The search and rescue operation shall be carried out under the supervision of the Coast Guard as the mission coordinator.
- Availability of the necessary facilities for the search and rescue operation from helicopters and fast boats.
- The nature of the work is 24 hours.
- A staff trained in maritime navigation and maritime communications with the global distress system.
- Marine maps showing the search and rescue areas.
- Communication devices for the maritime distress system.

➤ *Basic Requirements for Marine Search and Rescue Center Employees:*

- Ability to work on communication devices between ships and ground stations.
- Providing communications between ships, helicopters and speedboats in rescue operations.
- Ability to work on marine distress devices.

- Ability to participate in the rescue team in case of distress for the ship under the command of the captain.
- Ability to send weather bulletins.
- Ability to work on marine distress devices.
- Ability to use drone camera.

➤ *Maritime Search and Rescue Center Devices:*

- VHF Marine
- DSC VHF
- RADAR
- AIS
- GPS
- VTS
- INMARSAT- Area 1
- EPIRB
- SART
- NAVTEX
- VDR
- VSAT
- Camera Drones

IV. CONCLUSION

The main idea of the research is to direct the responsible authorities in the country to establish a search and rescue center, due to its utmost importance in saving people.

The goal of establishing the search and rescue center is not to rescue people on ships, but rather any person who drives a marine vessel, whether small or large.

Many accidents have occurred due to seafarers' lack of knowledge of procedures and laws, perhaps the simplest of which is how to use the marine radio, Channel 16, to call for help. He put on a life jacket when he went out to sea.

Due to the frequent use of small marine vessels and jet skis in Kuwait, the Coast Guard Administration issued a decision not to use any small or large marine vessel unless it obtains a license for a captain A or a captain B.

In addition to installing the self-identification device for the marine vessel AIS.

RECOMMENDATIONS

➤ *The Research Recommendations are Summarized as Follows:*

- Selecting the appropriate location to build search and rescue centers.
- Installing global distress system devices.
- Installing the drone camera.
- Equipping a helicopter.
- Equipping fast marine boats.
- Equipping a specialized work team to manage search and rescue centers.
- Media awareness through training courses and guidance.

- Not to drive any Marine Vessel unless he obtains a license A or B.
- Cooperating with the Public Authority for Applied Education and Training to provide special training courses to obtain a marine license.

ABBREVIATIONS

- AIS: Automatic Identification System
- DSC: Digital Selective Calling
- EPIRB: Emergency Position Indicating Radio Beacon
- GMDSS: Global Maritime Distress and Safety System
- GPS: Global Positioning System
- IMO: International Maritime Organization
- INMARSAT: International Maritime Satellite
- ITU: International Telecommunication Union
- NAVTEX: Navigational Telex
- SAR: Search and Rescue
- SART: Search and Rescue Transponder
- SOLAS: Safety of Life at Sea
- VDR: Voyage Data Recorder
- VHF: Very High Frequency
- VTS: Vessel Traffic Systems

REFERENCES

- [1]. United Nation, “United System” www.un.org/en/about-us/un-system
- [2]. International Maritime Organization, “Search and Rescue” <https://www.imo.org/en/OurWork/Safety/Pages/SearchandRescue-Default.aspx>
- [3]. International Maritime Organization, “Radiocommunications and Search and Rescue” <https://www.imo.org/en/OurWork/Safety/Pages/RadiocommunicationsSearchRescue-Default.aspx>
- [4]. International Maritime Organization, “Fishing and Vessels Safety” <https://www.imo.org/en/OurWork/Safety/Pages/Fishing%20Vessels-Default.aspx>
- [5]. International Maritime Organization, “Safety of Navigation” <https://www.imo.org/en/OurWork/Safety/Pages/NavigationDefault.aspx>
- [6]. International Maritime Organization, “Shipping Emergencies - Search and Rescue and the GMDSS”- March 1999 chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.wcdn.imo.org/localresources/en/OurWork/Safety/Documents/GMDSSandSAR1999.pdf
- [7]. International Telecommunication Union, “TECHNICAL CHARACTERISTICS OF VHF RADIOTELEPHONE EQUIPMENT OPERATING IN THE MARITIME MOBILE SERVICE IN CHANNELS SPACED BY 25 kHz” chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.489-2-199510-I!!PDF-E.pdf
- [8]. International Telecommunication Union, “Digital selective-calling system for use in the maritime mobile service” chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.493-11-200405-S!!PDF-E.pdf
- [9]. International Civil Aviation Organization, “INTERNATIONAL AERONAUTICAL AND MARITIME SEARCH AND RESCUE MANUAL”- Bangkok, Thailand, 03 – 07 August 2015. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.icao.int/APAC/Meetings/2015%20ATMSG3/AI6%20WP29%20International%20Aeronautical%20and%20Maritime%20Search%20and%20Rescue%20Manual%20(USA).pdf
- [10]. International Civil Aviation Organization, “ENTRY INTO A STATE’S TERRITORY FOR SAR”- Bangkok, Thailand, 07 – 10 May 2024. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.icao.int/APAC/Meetings/2015%20ATMSG3/AI6%20WP29%20International%20Aeronautical%20and%20Maritime%20Search%20and%20Rescue%20Manual%20(USA).pdf
- [11]. INMARSAT, “Rescue Net” <https://www.inmarsat.com/en/solutions-services/maritime/solutions/safety/rescuenet.html>
- [12]. INMARSAT, “Safety NET I and Safety NET II” <https://www.inmarsat.com/en/solutions-services/maritime/solutions/safety/safetynet.html>
- [13]. INMARSAT, “Inmarsat to provide satellite connectivity for the Ocean Gate Expeditions 2022 Titanic Expedition”- 02 May 2022. <https://www.inmarsat.com/en/news/latest-news/maritime/2022/inmarsat-to-connect-oceangate-expeditions-titanic.html>
- [14]. Royal Haskoning DHV, “Kuwait Coastal Harbours Nikas Development” <https://www.waterfrontsnl.com/project-kuwait-coastal-harbours-nikas>