A research ship of the National Institute of Ocean Technology (NIOT), ORV Sagar Manjusha is a multi-disciplinary research vessel, designed by the Indian Maritime University (IMU) Visakhapatnam formerly known as National Ship Design and Research Centre (NSDRC), and constructed by M/s. Hindustan Shipyard Ltd., Visakhapatnam.

It has an overall length of 60 m, breadth of 11 m and draught of 3.2 m. It has a gross weight of 1075 Mt (metric tonne) and a cruising speed of 6 m/s at 90% MCR (Maximum Continuous Rating). It can accommodate 11 scientists, 8 officers and 10 crew members and has an endurance of 20 days.

Two articulated electro-hydraulic cranes each having 5 t Safe Working Load (SWL) with an outreach of 8 m and an A-Frame of SWL 12.5 t especially serves the need of buoy deployment and retrieval operations.

This vessel has many sophisticated facilities viz. a winch of 6000 m capacity for launching/retrieval of portable scientific equipments; a CTD (conductivity, temperature and depth) winch of 800 m capacity to collect the water samples at different depths; microscope, centrifuge, deep freezer to collect, analyse and store core samples, sediment grab samples and other marine biological and chemical samples. The vessel is also facilitated with survey equipments like single beam and multi-beam echo sounders, used for bathymetry survey at Indian EEZ (Exclusive Economic Zone).
the situation. After making sure that the signal was genuine, a rescue plan with an objective to rescue and tow the distressed vessel to a safe location was prepared and executed.

**Strategy for Operation**

Past experience has shown that each rescue operation has unique features and even well made plans will need to be adapted to fit the situation prevailing at that time. Hence, various circumstances were reviewed by VMC-Scientists while making a search-and-rescue plan, which includes:

- Risks posed to ship, crew and people to be rescued
- Preparedness of the ship for towing
- Nearest Maritime Rescue Coordination Centre (MRCC), coast guard and port control contact points
- Weather parameters like wind speed, wind direction, swell and visibility.

Scientists of the Vessel Management Cell (VMC) at NIOT ensured that the safe navigation of ship was considered and other vessels in the area were advised accordingly before starting the operation. It was also ensured that appropriate navigation lights and shapes as required by the IMO Collision Regulations were displayed.

In addition, efforts were made by VMC-Scientists to make sure that every crew member involved in the rescue was properly prepared and equipped. Crew members were instructed and provided access to appropriate Personal Protective Equipments (PPE) at all times and to use it whenever necessary.

The crew were briefed by VMC-Scientists on how to establish and maintain communication with the disabled vessel and to establish a communications schedule on a mutual working frequency. Since the nature of distress call was “Flooding in fish hold”, the distress vessel was asked to pump out the water using a portable pump to maintain the stability and to get rid of nets, fishes and other loose items to further improve stability.

It was also ensured that the people on board the disabled vessel stayed clear of the towline and that the towline attachment point was kept as low and as close to the centre-line of the tow as possible.

While the operation was in progress, situation reports were sent at regular intervals to the Joint Rescue Co-ordination Centre. One crew was assigned to monitor the towline and stricken vessel at all times. A close eye was kept on the weather, visibility and the sea conditions.

**The Rescue**

On receiving the distress signal from FV Kesavan, the rescue plan was put into operation immediately.

Around 19:36 LT, ORV Sagar Manjusha deviated from course searching for the distressed vessel but finally
sighted the lights of the distressed vessel at a distance of 3 NM. Communication was established with the distress vessel.

The entire operation was very challenging. There were 12 fishermen onboard who were struggling for life as their vessel was taking enormous water into the fish hold which could not be controlled. There was no other ship in the vicinity for support, the sea was not conducive and it was pitch dark. Though the fishermen were requested to leave...
their vessel and board Sagar Manjusha, they refused saying that their vessel was the livelihood and they could not abandon the vessel. They even said that there was no meaning in returning to the shore alive without their vessel.

It was then decided to tow the vessel. The tow line was passed from Sagar Manjusha at 20:10 LT. VMC-Scientists onboard played a major role in establishing communication as the fishermen could speak only the regional language which the ship’s crew could not understand.

Towing is an operation that often includes long hours of tedious routine and intense activity. In order to reduce the risk of accidents everyone must be ready to act. In this case, the towing operation was carried out for almost ten hours in pitch dark condition and hence the crew was advised to be diligent and cautious because the slightest lapse in attention or effort would have resulted in an accident.

Finally, on 25th January at 09:00 LT the vessel arrived at the Nagapattinam port limit. The tow line was disconnected from FV Kesavan and it was handed over to FV Dolphin (appointed by the Fisheries Department) along with the 12 fishermen on board.

The job done, Sagar Manjusha quietly continued on her scientific cruise.

Sagar Manjusha was awarded the Indian Coast Guard M/s ESSAR SAR Award in the category of Government Owned SAR Unit for having saved a sinking fishing vessel and 12 human lives off Nagapattinam on the night of 24th January 2015.

The entire operation was professionally and successfully handled by VMC scientists of ESSO-NIOT, D. Rajasekhar, P.S. DeepakSankar, K. Ramasundaram, Ananthakrishna, T. Babu and C. Mohan Raj.

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