

Automatic Identification System (AIS): An initiative in purse seine fisheries along Mumbai coast

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Automatic Identification System (AIS) is a significant development in navigation safety since the introduction of RADAR. It was originally developed as a collision avoidance tool for commercial vessels to improve the helmsman's information about his surrounding environment. AIS does this by continuously transmitting a vessel's identity, position, speed and course along with other relevant information to all other AIS equipped vessels within range. Combined with a shore station, this system also offers port authorities and maritime safety bodies the ability to manage maritime traffic and reduce the hazards of marine navigation. Nowadays, it is used in fishing vessels for fishing gear operation, safety of vessel and identification of other vessels in the vicinity. AIS was made compulsory throughout the world in 2002 for all passenger ferries and vessels over 300 gross tonnes.

In Maharashtra mechanised crafts contribute significantly to the total fish landings. 228 purse seiners operate from Sassoon Dock Fishing Harbour of which 37 vessels are using AIS units purchased from Mayan Communication costing around ₹ 55000 per unit. The company has its own ground station and receiver at Mumbai and Ratnagiri. An AIS uses

VHF radio and GPS technology to communicate with other ships nearby. An AIS transponder determines its own position, speed and course using a built in GPS receiver. This information is combined with other important navigation information and automatically communicated between AIS equipped vessels without any user interaction. AIS transponders on other vessels and coast stations receive this information and use it to build up a live graphical display of traffic in the area. The transponder can be connected to many types of chart plotter or PC charting software to give a RADAR type display of vessel positions. AIS does not require RADAR, but can offer similar capabilities and even enhance a RADAR image if RADAR has already been fitted to the vessel. The range or coverage of the system is similar to a VHF radio.

With FindShip, an android app available in google playstore or webpage (<http://www.findship.co/>) one can track movements of all type of vessels in real-time on the map. With the help of Vessel Name, Call sign, Maritime Mobile Service Identity (MMSI), International Maritime Organization (IMO) or Port name one can track the vessel, distance from shore and its activity. The benefits of AIS are thus

- “See and be seen”. Combined with RADAR, AIS gives the best possible picture of the surroundings dynamic environment (moving vessels).
- The 12 nautical mile boundary at sea can be demarcated.
- Safety at night and in poor weather conditions.
- Safety in high traffic / commercial shipping areas.
- Position transmission to authorities / nearby vessels in case of emergency.
- Positively identify the identity of a target with name, callsign and MMSI number available - then easily establish VHF voice contact or initiate a Very High Frequency Digital Selective Calling (VHF DSC) call.

As per Maharashtra Fisheries Department notification MatsyaVi-1116/98/14 dated 5th July 2016, it is mandatory to install Vessel Tracking System (VTS) or AIS on all purse seiner operating beyond 12 nautical miles. The permission for the same should be taken from Ministry of Telecommunication, Wireless, Planning and Coordination Wing, Government of India. AIS installation should be done from agencies identified by the Central Government. After installation they have to set electronic fencing for marine boundaries as mentioned in Marine Fisheries Regulation Act of Maharashtra.

Fishermen have given a positive feedback about AIS as they can find and inform nearby fishermen in case of abundant catch. AIS will be also be useful for fisheries management agencies to track and keep a record of the number of fishing vessels at sea.