

## HOW DOES AIS COMPARE AND CONTRAST WITH VMS?

QUESTION: How does AIS compare and contrast with VMS?

ANSWER: AIS and VMS are dissimilar and independent 'tracking systems,' but with the appropriate shore based infrastructure, information from both can be used to create a common operating picture for Maritime Domain Awareness.

	Automatic Identification System (AIS)	Vessel Monitoring System (VMS)
System Type:	Digital VHF-based radio system	Satellite-based
Service Provider:	Open, non-proprietary protocol	Closed, proprietary protocols
Range:	2-way exchange of info between ships and ship-shore	Primarily 1-way (ship-shore) either scheduled or manual
Use:	Line of Sight (20-40 nm)	Line of Sight (with satellite, not ground station)
Applicability:	REQUIRED per SOLAS V/19.2.4 or 33 CFR 164.46 (NLT 2005 on certain vessels)	REQUIRED on some fishing vessels (~2000)

### **BACKGROUND:**

Vessel Monitoring Systems (VMS) and Automatic Identification System (AIS) are excellent tools for tracking vessels, however, differ in their purpose. VMS provides remote monitoring of fishing vessel positions in relation to regulatory areas, maritime boundary lines, and other position-critical enforcement schemes. As such, they significantly reduce the resources (cutter and aircraft) required to provide at-sea monitoring of these types of regulatory regimes.

AIS is primarily intended as a situational awareness tool and as means to exchange pertinent navigation information in near real-time, via ship-to-ship or ashore (e.g. Vessel Traffic Service). Newly enacted regulations (domestically and internationally) requires most vessels over 300 GT or 65' to have AIS, as well as most commercial tugs and certain passenger vessels domestically. Currently fishing vessels (not tenders or processor) are exempted of this requirement. The Coast Guard is embarking on a major acquisition effort to provide nationwide tracking of AIS to make full use of this AIS information, and thus increase our ability to utilize this information to provide for Maritime Domain Awareness and help ensure our Nation's security.

Both AIS and VMS are communication protocols. AIS is a digital VHF-based radio system that relies upon an open, standardized, internationally adopted, non-proprietary communication protocol that permits two-way exchange of information between ships and ship-to-shore; in a continuous, autonomous, and dependent on the information being transmitted, near real-time (2 sec. – 6 min.) manner. VMS is a satellite based communication system that operates using a variety of closed, proprietary (IMMARSAT-C) communication system protocols, that operate predominately as a one-way system (ship-to-shore) in either an assigned (scheduled) or manual mode. VMS and AIS are considered line-of-sight systems, VMS having the advantage of having receiving antennas on satellites requiring only that both the transmitting and receiving site are within range of the same satellite thus having a long range potential, while AIS (currently) relies upon ship-to-ship or shore-to-ship VHF radio range typically 20-40 nm. Efforts are underway, internationally, to adopt a common long range tracking system and to improve upon of AIS's long- range interfacing options.

AIS is required— per Chapter V, Regulation 19 of the Safety of Life at Sea Convention (SOLAS V/19) —on all tankers, passenger vessels and cargo ships (over 300 GT, internationally; 500 GT, domestically) no later than 2005; over 28,000 vessels. The MTSA expands upon this carriage domestically to all commercially vessels over 65 ft, towing vessels over 26 ft. and 600 hp; an additional 16,000 vessels. NOAA through it's regional Fisheries Councils requires VMS reporting on vessels engaged in fishing certain highly migratory species; approximately 2000 vessels.