Automated Identification System

LCDR Bob Hendrickson
USCG Liaison Officer, NOAA Fisheries
What is AIS?

- Part of IMO GMDSS System
- Primarily for safety of life at sea – MDA benefit
- VHF-FM Open Communications Protocol
- Self-reports every 2-10 seconds
  every 3 minutes when anchored/DIW
- Required by Congress under MTSA 2002
- All commercial vessels 65 feet or greater *
AIS “Report”

- Position with accuracy indication
- Position time stamp
- Course over ground
- Speed over ground
- Heading
- Navigational status (manually entered)
- Rate of turn *
Massive Freighter Ends Fishermen's Bountiful Excursion

By Brian Ballou
Monday, May 24, 2004

Until the time a mammoth 700-foot freighter sliced their puny boat in half Saturday morning, three Connecticut fishermen were grabbing quite a haul of monkfish off the coast of New York.

``It was looking pretty good for us,” Geal Roderick, 29, of Mystic, Conn., said yesterday. He and Benjamin Schober...

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March 2, 2004

Formal Investigation of Lee III Incident Begins

The Coast Guard was scheduled to convene a formal investigation today to gather information into the collision between

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Causes of Vessel Loss While Underway & Maneuvering
Calendar Years 1994 - 2000

<table>
<thead>
<tr>
<th>Cause</th>
<th>Vessels Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooding</td>
<td>113</td>
</tr>
<tr>
<td>Allisions, Collisions &amp; Groundings</td>
<td>138</td>
</tr>
<tr>
<td>Fire &amp; Explosion</td>
<td>61</td>
</tr>
<tr>
<td>Capsized</td>
<td>49</td>
</tr>
<tr>
<td>Structural Failure</td>
<td>14</td>
</tr>
<tr>
<td>Loss of Power or Propulsion</td>
<td>14</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
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</tbody>
</table>

Vessels lost while Underway & Maneuvering = 423
Vessels lost from all operations = 907
U.S. Maritime Security

- Coast Guard is the lead federal agency for U.S. Maritime Security

- Maritime Transportation Security Act (MTSA) Nov 2002
  - AIS carriage
  - Direction to CG on carrying out Maritime and Homeland Security

- The MTSA directs the Coast Guard:
  
  "to collect, integrate, and analyze information concerning vessels operating on or bound for waters subject to the jurisdiction of the United States, including information related to crew, passengers, cargo, and intermodal shipments."
Why Not VMS?
AIS and VMS Comparison

- IMO System
- For SOLAS & MDA
- Open Comms Protocol
- Self-reports every 2-10 seconds (3 mins <3kts)
- Mandated by Congress under MTSA 2002
- Most commercial vessels:
  - 19,000 US
  - 60,000 World-wide
- VHF-FM

- US System
- For fisheries management & enforcement
- Closed Comms Protocol - Proprietary
- Interrogated every 10-60 minutes
- Required by FMCs for various FMPs; strict data usage rules under MSA
- Some Fishing vessels:
  - 2000 Atlantic
  - 1500 Pacific
- Satellite
Who, When, How Much?

- All commercial vessels 65 feet or greater, certain other “small entities”
- “Reasonable time”
- $2,500 - $7,000
AIS Timeline

- OPA '90
- ADSSE ITU-R M.825-3
- National Dialog Group
- Marine Board Ports & Waterways Study
- VTS LMR Public Meeting
- 105th Congress
- IMO MSC 74 (69) Performance
- WRC’97 AIS1 Ch.87B AIS2 Ch.88B
- ITU-R M.1371-1 Technical
- SOLAS V/19.2.4
- IEC 61993-2 Testing & Certification
- IMO Diplomatic Conference


- FCC Notice DA-02-1362
- MTSA
  - Interim
  - Final
Binary Messages and Functional Identifiers

• AIS allows the transfer of Binary Messages
  • a means for communication for external applications
    • General broadcast
    • Addressed to specific MMSI
      • Results in a Binary Acknowledgement to confirm that the addressed binary message was received
  • All binary messages are composed by
    • an external application on the transmission side
    • can only be used by the same external application connected to the AIS on the receiver side.
AIS Rules...

- Marine Transportation Security Act: 11/25/02
- Safety of Life at Sea Convention (SOLAS), 12/09/02 (amended)
- AIS Interim Rule: 07/01/03
  - Implements SOLAS (int’l) & MTSA (domestic) in VTS areas
- AIS Final Rule: 10/22/03, effective 11/24/03, deadline: 12/31/04
  - Deferred requirements on F/V and small passenger vessels
  - Letter to Congress re: unreasonableness & costs
- Request for Comments: 10 questions on AIS Expansion
  - 3 Public Meetings: New Orleans, New Bedford, Seattle
    - Comment period closed 1/9/04, 180+ commenters
- Additional USCG regulations forthcoming…2006
Maritime Transportation Security Act

46 U.S.C. 70114 - Automatic identification system

On the navigable waters of the United States, each…

- Self-propelled commercial vessel of at least 65 feet,
- Towing vessel of more than 26 feet and 600 hp,
- Passenger vessels as determined by the USCG,
- Any other vessel deemed necessary for the safe navigation of the vessel.

shall be equipped with and operate an AIS under regulations prescribed by the USCG.
AIS Carriage Regulations 33 CFR 164.46

The following must have a properly installed, operational, type-approved AIS

- **On international voyage:**
  - ✓ Tankers, Passenger $\geq 150$ GT, all others $\geq 300$ GT
    - ❏ IAW SOLAS Regulation V/19.2.4
  - ✓ Self-propelled commercial vessels $\geq 65$ ft.
    - ❏ Except fishing and small passenger vessels (> 150 passengers)

- **Within a VTS area:**
  - ✓ Self-propelled commercial vessel 65+ feet
    - ❏ Except fishing & small passengers vessels
  - ✓ Towing vessel $\geq 26$ ft. and $\geq 600$ hp
  - ✓ Vessel certificated to carry 150+ passengers
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National AIS Projects

- R&DCEN: FL, HI, CT/NY
- NOAA/NDBC buoys
- Contracts / Feasibility Testing
  - Port Graham Corp. / MarEX AK
  - ORBCOMM Satellite
  - Co-ops Ventures
  - VTS LMR & Port Arthur
  - CVTS Tampa Bay / TPA
  - CVTS LA/LB - Channel Is. NMS
    - MarEX, NOAA, USN, NPS, OSPR
    - Corpus Christi Port Authority
    - D8/VTS/PetroCOM oil

Platforms

Homeland Security
Common Operational Picture
- AIS tracks only