

Automated Identification System

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Homeland
Security



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 Class A



AIS “Report”

- Position with accuracy indication
- Position time stamp
- Course over ground
- Speed over ground
- Heading
- Navigational status (manually entered)
- Rate of turn *



759 ft

Rte:3-Newport News In
Dest:MMBT
Tag: RG-93

DGPS

IN TO TSC22
TSC22-THIMBLE

TIME 05:50:04
TUE 19 OCT

ETA 07:32

SATS	BCN	289.0
Used: 7	SS	80
Recd: 10	SNR	19
	AGE	7

Ant. Off.: Port 50.0 ft
Vector: 6.00 min

HDG 253°

COG 260°

SOG 4.6 KT

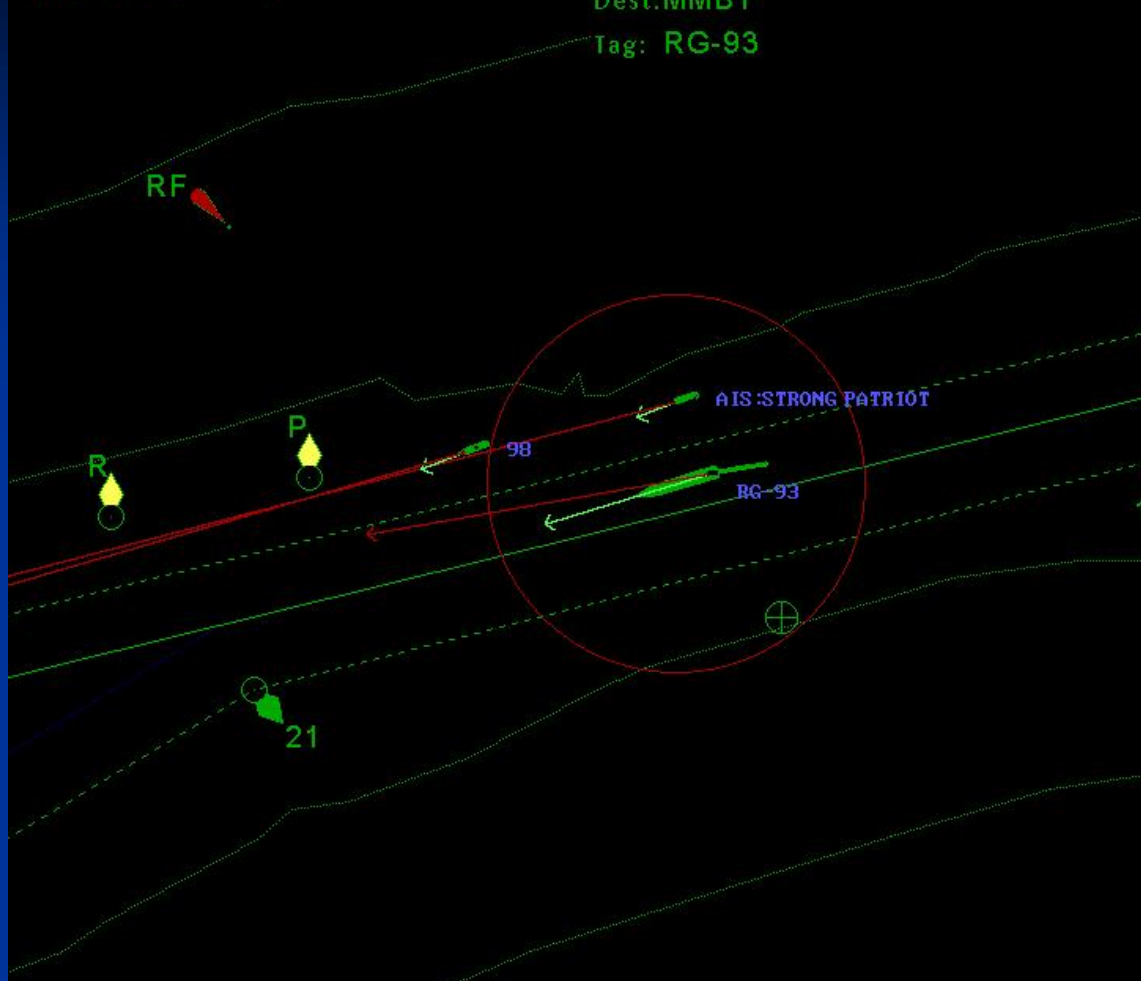
ROT Deg/Min +0.0°

BRG 254°

TTG 00:18

DIST 1.384 NM

X R 239 FT



Cursor N 37 0' 9.778" RNG 0.214NM TTG 00:03
Position W 76 16' 9.724" BRG 152°



Massive freighter ends fishermen's bountiful excursion

By Brian Ballou

Monday, May 24, 2004

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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...

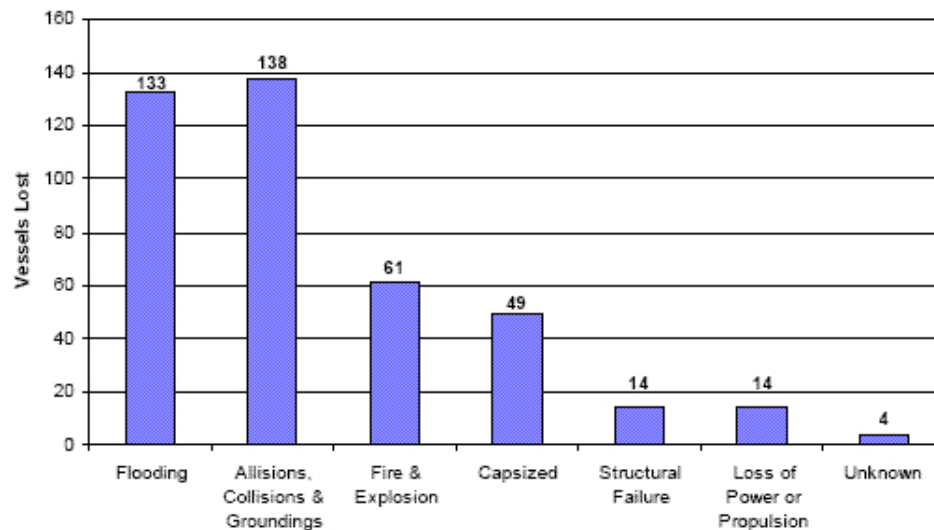


March 2, 2004

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

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



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?



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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



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AIS Timeline

IMO
MSC 74 (69)
Performance

SOLAS
V/19.2.4

IMO
Diplomatic
Conference

WRC'97
AIS1 Ch.87B
AIS2 Ch.88B

ITU-R M.1371-1
Technical

IEC 61993-2
Testing &
Certification

1990-----1994-----1997----1998----1999----2000----2001----2002---2003

OPA
'90

ADSSE
ITU-R
M.825-3

National
Dialog
Group

105th
Congress

Marine Board
Ports &
Waterways
Study

VTS LMR
Public
Meeting

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 ≥ 150 GT, all others ≥ 300 GT
 - IAW SOLAS Regulation V/19.2.4
 - ✓ Self-propelled commercial vessels ≥ 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 ≥ 26 ft. and ≥ 600 hp
 - ✓ Vessel certificated to carry 150+ passengers

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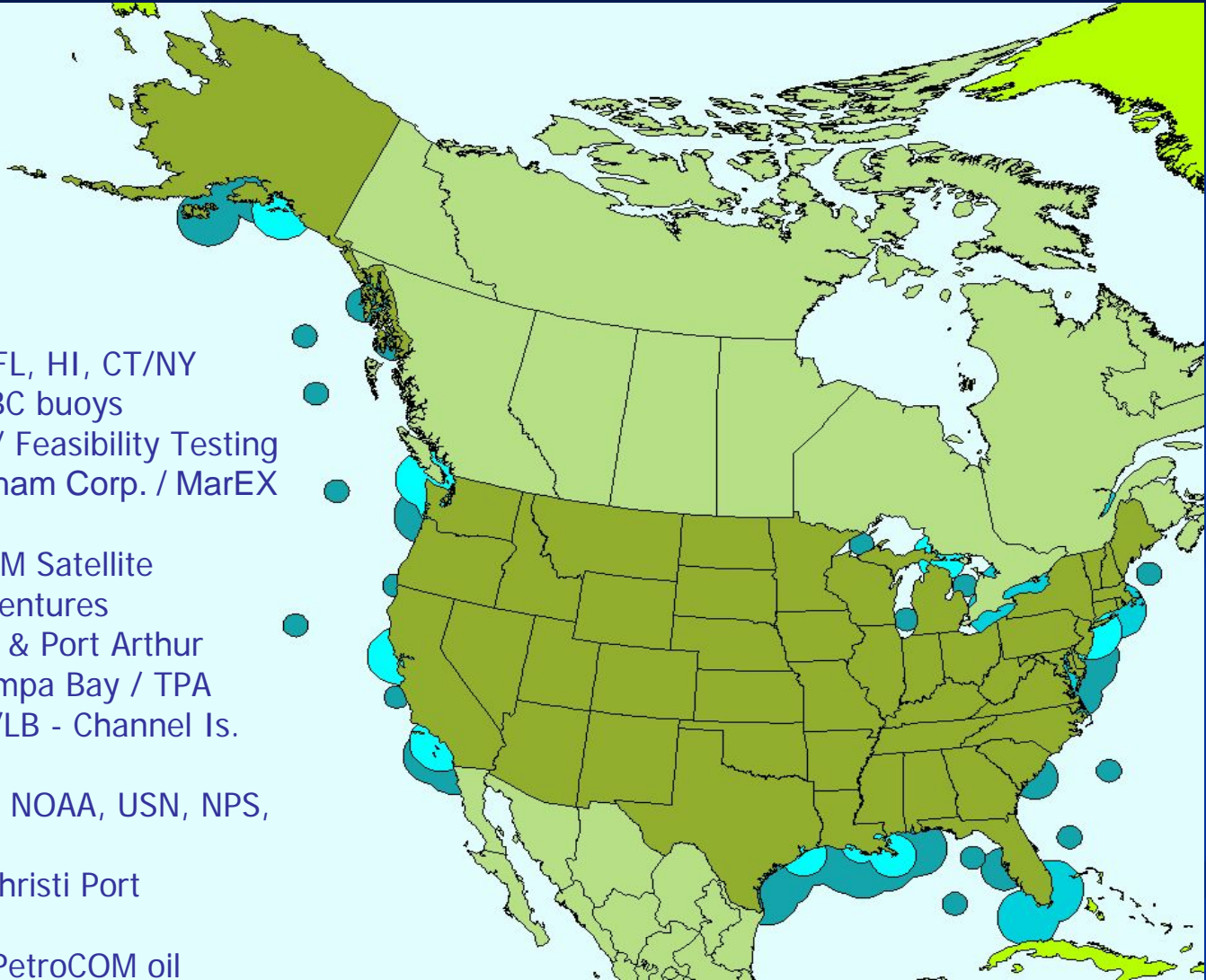
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National AIS Projects



- 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
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**Common
Operational
Picture
-AIS tracks only**



Security



