United States Coast Guard
Office of Navigation Systems

“We Help Mariners Get There”

Expanding AIS Carriage and New Operating Requirements

Jorge Arroyo | USCG Headquarters | Washington, DC
December 3rd, 2015 * New Orleans, LA
AIS Rulemaking Timeline

- 07/01/03 published Temporary Interim Rule and Request for Comments
- 10/23/03 current AIS requirement (33 CFR 164.46)
- 07/01/03-01/09/04 sought AIS expansion comment
- 10/31/05 notice expansion of AIS to all waters
- 12/16/08 NPRM ... 4/15/09 comment deadline
  - 3 Public Meetings, 80 submissions, 300+ comments
- 01/30/15 Final Rule ... 4/15/09 comment deadline
New AIS Carriage Requirements...

Effective March 2nd, 2015, these commercially self-propelled vessels, operating on U.S. navigable waters, must have a properly installed, operational Automatic Identification System (AIS) no later than March 1st, 2016

- vessels of ≥65 feet in length
- towing vessels of ≥26 feet in length & >600 hp
- vessels certificated to carry ≥150 passengers
- dredges and floating plants that operate in/near a commercial channel
- vessels engaged in the movement of certain dangerous cargo, flammable or combustible liquid cargo in bulk

<table>
<thead>
<tr>
<th>Effected Vessels by Type</th>
<th>2003</th>
<th>2015</th>
<th>Total Vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLAS</td>
<td>Domestic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign ship &gt;65'&lt;300GT</td>
<td>1,119</td>
<td>1119</td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td>1</td>
<td>-</td>
<td>2,906</td>
</tr>
<tr>
<td>Towing</td>
<td>13</td>
<td>2,212</td>
<td>1,429</td>
</tr>
<tr>
<td>Passenger</td>
<td>81</td>
<td>171</td>
<td>288</td>
</tr>
<tr>
<td>Cargo</td>
<td>154</td>
<td>77</td>
<td>247</td>
</tr>
<tr>
<td>OSV</td>
<td>55</td>
<td>432</td>
<td>151</td>
</tr>
<tr>
<td>MODU</td>
<td>1</td>
<td>-</td>
<td>31</td>
</tr>
<tr>
<td>Industrial</td>
<td>21</td>
<td>11</td>
<td>220</td>
</tr>
<tr>
<td>Research</td>
<td>10</td>
<td>11</td>
<td>54</td>
</tr>
<tr>
<td>School</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Tank Ships</td>
<td>102</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>Unknown</td>
<td>16</td>
<td>134</td>
<td>150</td>
</tr>
<tr>
<td>Unclassified</td>
<td>16</td>
<td>326</td>
<td>339</td>
</tr>
<tr>
<td>Dredges</td>
<td>-</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>U.S. Total</td>
<td>438</td>
<td>5,848</td>
<td>9,249</td>
</tr>
<tr>
<td>Total</td>
<td>4,520</td>
<td>5,848</td>
<td>10,368</td>
</tr>
</tbody>
</table>
Noteworthy AIS Provisions…

• AIS does not relieve you of navigation rules signaling or radiotelephone requirements

• AIS (& assoc. sensors) shall remain on when:
  o Underway, at anchor, and at least 15 min. prior to unmooring
  o Except if it compromises safety or security
  o Securing it must be logged, reported, promptly restored

• Inoperative AIS is now a reportable deficiency, but, not a ‘no sail’ item

  Prohibits mobile AIS from air, ashore or on non-self propelled vessels
Noteworthy AIS Provisions…

• Spells out ‘effective operating conditions’ to include:
  o the ability to reinitialize the AIS | know password
  o the accurate broadcast of an official MMSI
  o the accurate input, upkeep, and updating
  o the ability to access AIS info from conning position

• AIS is primarily for the person controlling the vessel, who must maintain a periodic watch

• AIS text messaging solely in English & for navigation safety

• Permits the use of approved AIS Application Specific Messaging (ASM) for vessels (<1/min.)
Noteworthy AIS provisions...

AIS Class B devices permissible on:

- dredges,
- fishing industry vessels, and
- vessels certificated to carry <150 passengers that do not operate in:
  - Vessel Movement Reporting/Traffic System area, or
  - at speeds >14 kts
Noteworthy AIS Provisions…

- Applies to all navigable waters, no exceptions.

- Individual deviations (waivers) are permissible, but, only for vessels:
  - that solely operate within a very confined area
    e.g. shipyard, fleeting area, etc.
  - on short & fixed schedules
    e.g. a bank-to-bank river ferry service
  - otherwise not likely to encounter other AIS users

Extends the deviation period from 1 to 5-years and broadens it to vessels on which AIS would be impractical, i.e. lack of display, power, open exposed conning position, etc.
AIS FREQUENTLY ASKED QUESTIONS

1. What is AIS?
2. What is an MMSI, how do I get one, and how do I program my AIS?
3. What is the AIS rule and are there alternatives to the rule for small businesses?
4. Do AIS Class B devices meet current USCG AIS carriage requirements?
5. How does AIS help to increase security (and what is NAIS)?
6. When must AIS be in operation?
7. Does the installation of the AIS require additional equipment in order for the AIS to operate properly?
8. Will it be necessary to have electronic navigational charts for use with the AIS?
9. Are fishing vessels subject to AIS carriage, and is onboard Vessel Monitoring System (VMS) an acceptable substitute for the AIS?
10. Why have some AIS units stopped broadcasting valid position reports?
11. Why am I unable to see an AIS vessel’s name or other static information (dimensions, call sign, etc.)?
12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e., NAUT)?
13. I just purchased and installed an AIS Class B, will AIS Class A user ‘see’ me?
14. Do AIS Class B devices meet current USCG AIS carriage requirements?
15. Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
16. How can I get a copy of an AIS presentation I saw (or heard about) that was given at…?
17. Where can I get AIS data?
18. Reserved for future use.
19. What is AIS Channel Management?
20. Can I use my AIS in an emergency or for distress messaging?
21. Is the Coast Guard broadcasting AIS Aids to Navigation Reports?
22. Have an AIS question not answered here?

1. What is AIS? Per 47 CFR §90.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel’s identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships, monitors and tracks ships; and exchanges data with shore-based facilities. Read more on what it is, how it works, what it broadcasts, and the messages it uses, etc.
AIS FREQUENTLY ASKED QUESTIONS

1. **What is AIS?**
2. **What is an MMSI, how do I get one, and how do I program my AIS?**
3. **What is the AIS rule and are there alternatives to the rule for small businesses?**

15. **Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?** Yes. On January 30th, 2015 the Coast Guard published a Final Rule (80 FR 5281), which on March 2nd, 2015, expands AIS carriage (68 FR 60599) to most commercial vessels (see those affected here) operating on any U.S. navigable waters, and harmonizes U.S. AIS requirements with Regulation V/19.2.4 of the Safety of Life at Sea Convention and § 102 of the Maritime Transportation Security Act of 2002. The docket containing comments submitted, supporting documents, and the regulatory analysis to this and our proposed rulemaking (73 FR 76295) can be found at www.regulations.gov [Search: USCG-2005-21869]. Printer-friendly PDF formats of these 2015 requirements, our 2008 proposed rule, an amalgamation of both, our 2003 requirements, and, a chart-comparison of all three.

12. **Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?**
13. **I just purchased and installed an AIS Class A user ‘see me’?**
14. **Do AIS Class B devices meet current USCG AIS carriage requirements?**
15. **Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?**
16. **How can I get a copy of an AIS presentation I saw (or heard about it) that was given at...**
17. **Where can I get AIS data?**
18. **Reserved for future use.**
19. **What is AIS Channel Management?**
20. **Can I use my AIS in an emergency or for distress messaging?**
21. **Is the Coast Guard broadcasting AIS Aids to Navigation Reports?**
22. **Have an AIS question not answered here?**

1. **What is AIS?** Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel’s identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. Read more on what it is, how it works, what it broadcasts, and the messages it uses, etc.
AIS Frequently Asked Questions

1. What is AIS?
2. What is an MMSI, how do I get one, and how do I program my AIS?
3. What is the AIS rule and are there alternatives to the rule for small businesses?
4. Do AIS Class B devices meet current USCG AIS carriage requirements?
5. How does AIS help to increase security (and what is NAIS)?
6. When must AIS be in operation?

14. Do AIS Class B devices meet current USCG AIS carriage requirements? Maybe. Per 33 CFR 164.46(b)(2), use of an AIS Class B device, in lieu of a mandatory Class A device, is permissible, but, only on: dredges; fishing industry vessels; and, vessels certificated to carry less than 150 passengers, that do not operate in a Vessel Movement Reporting System (VMRS) area defined in Table 161.12(c) or at speeds in excess of 14 knots. See a comparison of Class A and Class B/CS AIS.

11. Why am I unable to see an AIS vessel's name or other static information (dimensions, call sign, etc.)?
12. Why do I sometimes see more than one vessel with the same MMSI or vessel name (i.e. NAUT)?
13. I just purchased and installed an AIS Class A Unit 'see' me?
14. Do AIS Class B devices meet current USCG AIS carriage requirements?
15. Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?
16. How can I get a copy of an AIS presentation I saw (or heard about it) that was given at:  
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18. Reserved for future use.
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1. What is AIS? Per 47 CFR §30.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. Read more on what it is, how it works, what it broadcasts, and, the messages it uses, etc.
Comparison of AIS mobile devices...

<table>
<thead>
<tr>
<th>Shipboard AIS</th>
<th>Class A</th>
<th>Class B/SO</th>
<th>Class B/CS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmit Power (Watts)</td>
<td>12.5 W / 2 W (low-power)</td>
<td>5 W / 2 W (low-power)</td>
<td>2 W</td>
</tr>
<tr>
<td>Primary Access Scheme</td>
<td>Self-organizing Time-Division Multiple Access (SOTDMA)</td>
<td>SOTDMA</td>
<td>Carrier-sense TDMA non-competing with SOTDMA units</td>
</tr>
<tr>
<td>Position Reporting Rate</td>
<td>Either every 2, 3 ½, 6 or 10 s based on speed and course change. Every 3 min. when ≤ 3 kts.</td>
<td>Either every 5, 15 or 30 s based on speed (2-14, 14-23, ≥23 kts) Every 3 min. when ≤ 2 kts.</td>
<td>Every 30 s Every 3 min. when ≤ 2 kts.</td>
</tr>
<tr>
<td>Static Data Reporting Rate</td>
<td>Every 6 min</td>
<td>Every 6 min</td>
<td>Every 6 min</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>25 kHz bandwidth between 156.025 MHz to 162.025 MHz</td>
<td>25 kHz bandwidth between 156.025 MHz to 162.025 MHz</td>
<td>25 kHz bandwidth at minimum between 161,500 MHz to 162,025 MHz</td>
</tr>
<tr>
<td>Dedicated DSC Receiver for Channel Management</td>
<td>Yes</td>
<td>Yes</td>
<td>Time-shared</td>
</tr>
<tr>
<td>Position Source / WGS-84 to 1/10,000 of minute of arc</td>
<td>Internal Global Navigation Satellite System &amp; connection to an External Electronic Positioning System (EPFS)</td>
<td>Internal GNSS</td>
<td>Internal GNSS</td>
</tr>
<tr>
<td>Digital Interfaces</td>
<td>2 Input-Output &amp; Multiple Presentation Outputs</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Display</td>
<td>Multiple Keyboard Display (MKD)</td>
<td>MKD</td>
<td>Optional</td>
</tr>
<tr>
<td>Safety Text Messaging</td>
<td>Receive &amp; Transmit</td>
<td>Receive &amp; Transmit</td>
<td>Transmit Optional, and only with non-alterable pre-configured messages</td>
</tr>
<tr>
<td>Application Specific Messaging</td>
<td>Receive &amp; Transmit</td>
<td>Receive &amp; Transmit (up to 3 slots)</td>
<td>Receive Optional, cannot Transmit</td>
</tr>
<tr>
<td>Transmit Data</td>
<td>All</td>
<td>No Rate of Turn, Navigation Status, Destination, ETA, Draft, or IMO#</td>
<td>No Rate of Turn, Navigation Status, Destination, ETA, Draft, or IMO#</td>
</tr>
<tr>
<td>International Electrotechnical Commission (IEC)</td>
<td>IEC 61993-2</td>
<td>IEC 62287-2</td>
<td>IEC 62287-1</td>
</tr>
<tr>
<td>Certification Standard</td>
<td>IEC 61993-2</td>
<td>IEC 62287-2</td>
<td>IEC 62287-1</td>
</tr>
</tbody>
</table>
1. What is AIS? Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. Read more on what it is, how it works, what it broadcasts, and, the messages it uses, etc.

2. What is an MMSI, how do I get one, and how do I program my AIS? A unique and official 9-digit Maritime Mobile Service Identity (MMSI) number is required for every AIS station. To obtain one see our MMSI page. While special attention should be taken in installing an AIS (see IMO Safety of Navigation Circular 227, GUIDELINES FOR THE INSTALLATION OF A SHIPBORNE AUTOMATIC IDENTIFICATION SYSTEM), its initial programming is relatively straightforward; please see our USCG AIS Encoding Guide for further instructions. Note, AIS information programmed into the unit (i.e. MMSI, call-sign, name, etc.) should reflect the vessel's official data as provided in its radio station license or state registration (for those vessels licensed by rule).

3. What is the AIS rule and are there alternatives to the rule for small businesses? 

4. Do AIS Class B devices meet current USCG AIS carriage requirements? 

5. How does AIS help to increase security (and what is NAIS)? 

6. When must AIS be in operation? 

7. Does the installation of the AIS require additional equipment in order for the AIS to operate properly?

8. Can I use my AIS in an emergency or for distress messaging? 

9. Is the Coast Guard broadcasting AIS Aids to Navigation Reports? 

10. Have an AIS question not answered here?
E.g. Proper encoding of
- Name
- Number
- Dimensions

Minimizes Updates for
- Draft
- Destination
- ETA

1. See http://www.fcc.gov/services/index.htm (Ship Radio Stations)
2. Obtained at www.imonoweb.info/fmplay/Database.aspx
3. Per IMO SM/Circ. 227 & 234 or MMSI 040 Installation Guidelines
4. Any port or offshore place in which a vessel is bound to embark or disembark cargo or passengers, or anchor or maintains station for considerable period of time (i.e. Outer Continental Shelf activity)
6. Find U.S. Geographic Unique Identifiers (US/GUIDS) for ports, plwes, berths, routes, and waterways at www.navcen.uscg.gov/digitalmariners
7. If AIS lacks angle brackets ([ ]) substitute with parentheses
8. See 47 CFR 80.1109-Distress, urgency, and safety communications
<table>
<thead>
<tr>
<th>1st digit</th>
<th>2nd digit</th>
<th>[3x] others “engaged in”</th>
<th>[5x] special craft</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>30 – Fishing industry vessels, including fish processors and fish tenders*</td>
<td>50 – Pilot vessel</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>31 – Carrying DG, HS, or MP, IMO hazard or pollutant category X</td>
<td>51 – Search and rescue vessels, i.e. USCG boats, USCG Auxiliary boats, assistance towers, first-responders, standby vessels</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>32 – Wing-in-ground (WIG) craft</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>33 – Other vessels engaged in operations that may obstruct navigation (such as dredging, exploration, ice breaking, production, salvaging, surveying, or other similar activities, but, not diving, wrecking or military operations)*</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>34 – HSC (Hi-speed Craft) or passenger ferries</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>35 – Special craft per column [3x]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>36 – Passenger ships other than passenger ferries; not including fishing vessels or offshore supply vessels (see column [3x])</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>37 – Cargo (freight) ships, including non-articulated (ATB) and integrated tug barge (ITB) vessels</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0</td>
<td>38 – Tankers, including artificated or integrated tug tank barge vessels</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>39 – Other types of ship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>50 – Measure craft</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>51 – Search and rescue vessels, i.e. USCG boats, USCG Auxiliary boats, assistance towers, first-responders, standby vessels</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>52 – Tugs or workboats, that do not regularly engage in towing</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>53 – Port tenders, yacht tenders, dive tenders, attending and off-shore supply vessels, etc.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>54 – Vessels with anti-pollution facilities or equipment</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>55 – Law enforcement vessels in U.S. Customs and Border Protection</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>56 – Spare for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall dimensions of the vessel not including its tow*</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>57 – Spare for assignments to local vessels that are engaged in towing ahead or alongside, and whose dimensions (ABCD values) represent the overall rectangular area of the vessel including its tow*</td>
<td></td>
</tr>
</tbody>
</table>

*Remember to also update your Navigation Status accordingly, i.e. Status: 3 = restricted maneuverability; 7 = engaged in fishing; 8 = under sail; 11 = towing astern; 12 = pushing ahead/alongside, etc.

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Static Data...should reflect the vessel's official radio license or documentation, be inputted at installation, and be password protected.

Names exceeding 20 characters (the parameter limit) should be truncated, not abbreviated, and include all unique distinguishing characters. For example, the tug JOLLY ROGER OF THE SEA 123456 should be input as JOLLY ROGER 0-123456. Names should not include vessel type precursors, e.g., T/S/V, M/Y, M/L, D/W. P/V, REC, S/V, TUG, except public vessels, i.e., CLS/CRB, S/K, S/P, LAPD, NYFD, etc. If your vessel is not officially named, input 'USAPA' followed by your state registration number, e.g., USAPA123456. If unnumbered (e.g., associated craft, tenders), use your parent vessel's name followed by a dash (-) and a numerical designator that distinguishes you from others. For example, the first tender for the cruise ship POSEIDON should be input as POSEIDON-1.

Maritime Mobile Service Identity (MMSI) should reflect the MMSI assigned to the vessel by the FCC or one of its agents.

Call-sign should reflect the call-sign assigned to the vessel by the FCC; absent a call-sign, input 00000000.

IMO Number should reflect the assigned 7-digit IMO number. Use leading zeroes (not trailing zeroes) to fill the parameter, e.g., 0001234567. Absent an IMO assignment, input your U.S. official documentation number preceded by either '100 or 1001', e.g., 1001234567, 1000123456.

Type of positioning source should reflect the actual system in use, i.e., GPS, combined GPS, GLONASS, etc.

Type of vessel should reflect the appropriate Ship Type (see accompanying table).

Antenna Position | Vessel Dimensions should be input in meters (not feet) and reflect the overall dimensions of the vessel, expressed as the distance fore (A), aft (B), port (C), and starboard (D) to the positioning-system antenna used by AIS; the intersection of the two white lines in the diagram.

For U.S. Ship Type 57 (see Table) dimensions should reflect the overall rectangular area of the vessel and its tow—as portrayed by the extended dark arrows within the rectangles in the diagram.

Voyage Related Data...should be inputted.

Navigation Status, i.e., at anchor, underway, engaged in fishing, etc., should always be up-to-date.

Note, vessels engaged in towing should use: Navigation Status '11' when towing astern, or '12' when pushing ahead or alongside.

10 seconds to once every 3 minutes; which mitigates network congestion and improves overall AIS range.

Static Draft should be inputted in meters (not feet) and the vessel's actual or maximum draft.

Time of Arrival (ETA) should be inputted in the Time Coordinated (UTC), not local time; and, the ETA to your destination or voyage departure moored or anchored. Not applicable to vessels on or variable schedules (i.e., workboats).

and your origination should be inputted character UNI location codes (UNICODE) for SN/CIR: 244.1 or 4-character U.S. GUID codes, e.g.

Destination using UNICODE only

Distance...one-way voyage New York City to Rotterdam

Distance...a voyage to and fro, e.g., dinner cruise

Distance...operating solely within a well-defined area, e.g., floating area, vessel traffic service area, etc.

Destination using UNICODE and USGUID

Destination using USGUID only

Destinations...a scheduled route, e.g., Staten Island Ferry

Destinations...a voyage to and fro, e.g., dinner cruise

Destinations...an anchored, moored, or on station (e.g., MODU, PSO)

The difference in symbology {'A' | 'B' | 'C' | 'D' | 'E' | 'F' | 'G' | 'H' | 'I' | 'J' | 'K' | 'L' | 'M' | 'N' | 'O' | 'P' | 'Q' | 'R' | 'S' | 'T' | 'U' | 'V' | 'W' | 'X' | 'Y' | 'Z'}

New Nav Status

* Vessel/ABCD Dimensions For Vessel or Vessel+Tow
The ultimate goal of e-Navigation efforts in the U.S. is to use timely and reliable information to make the U.S. Marine Transportation System operate better.

“The U.S. vision for e-Navigation is to establish a framework that enables the transfer of data between and among ships and shore facilities, and that integrates and transforms that data into decision and action information.”
We’re Leveraging Our Nationwide AIS System For our 1st Phase of eNAV to do eATON & eMSI
eATONS were used during 2014 America’s Cup
Adding eATONs to the ATON Family

Virtual AIS

Synthetic AIS

Potential Physical AIS

Virtual AIS

Missing
eATON provide greater visibility & AIS provide a constant bearing & range
NOAA PORTS Locations...
<table>
<thead>
<tr>
<th>River No.</th>
<th>Name and Location</th>
<th>Mile</th>
<th>Bank</th>
<th>Characteristic</th>
<th>Structure (Up/Down)</th>
<th>Remarks</th>
<th>Mile</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>XLS</td>
<td>SORIND OBJNAM (1)</td>
<td>OBJNAM (2)</td>
<td>LITCHR</td>
<td>SIGGRP</td>
<td>COLOUR</td>
<td>SIGPER</td>
<td>INFORM (1)</td>
<td>INFORM (2)</td>
<td>STATUS</td>
</tr>
</tbody>
</table>

**Western Rivers Buoy Data**

**XML**

**KML**

**PDF**

**Analog-to-Digital Navigation Data**
AIS FREQUENTLY ASKED QUESTIONS

16. How can I get a copy of an AIS presentation I saw (or heard about it) that was given at... You can download recent presentations given by Coast Guard Office of Navigation Systems personnel here:

- Arroyo@RTCM_2013_09_24 (PDF, 520KB)
- Arroyo@GMDSS_TF_2013_09_26 (PDF, 777KB)
- Arroyo@IALA_VTS_Symposium_on(2012_09_11) (PDF, 5,243KB)
- Arroyo@Mid_Atlantic_Waterways_Conference(2012-4-20) (PDF, 6MB)
- Arroyo@USACE_IENCP_Meeting(2012-04-19) (PDF, 7.74MB)

1. What is AIS?

1. What is AIS? Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities. Read more on what it is, how it works, what it broadcasts, and the messages it uses, etc.
Questions

Thank You

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