

Integrating PORTS[®] Data into the USCG AIS

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Physical Oceanographic Real-Time System

PORTS[®]

Data Collection Platform

ATON Mounted ADCP

Air Gap

Meteorological

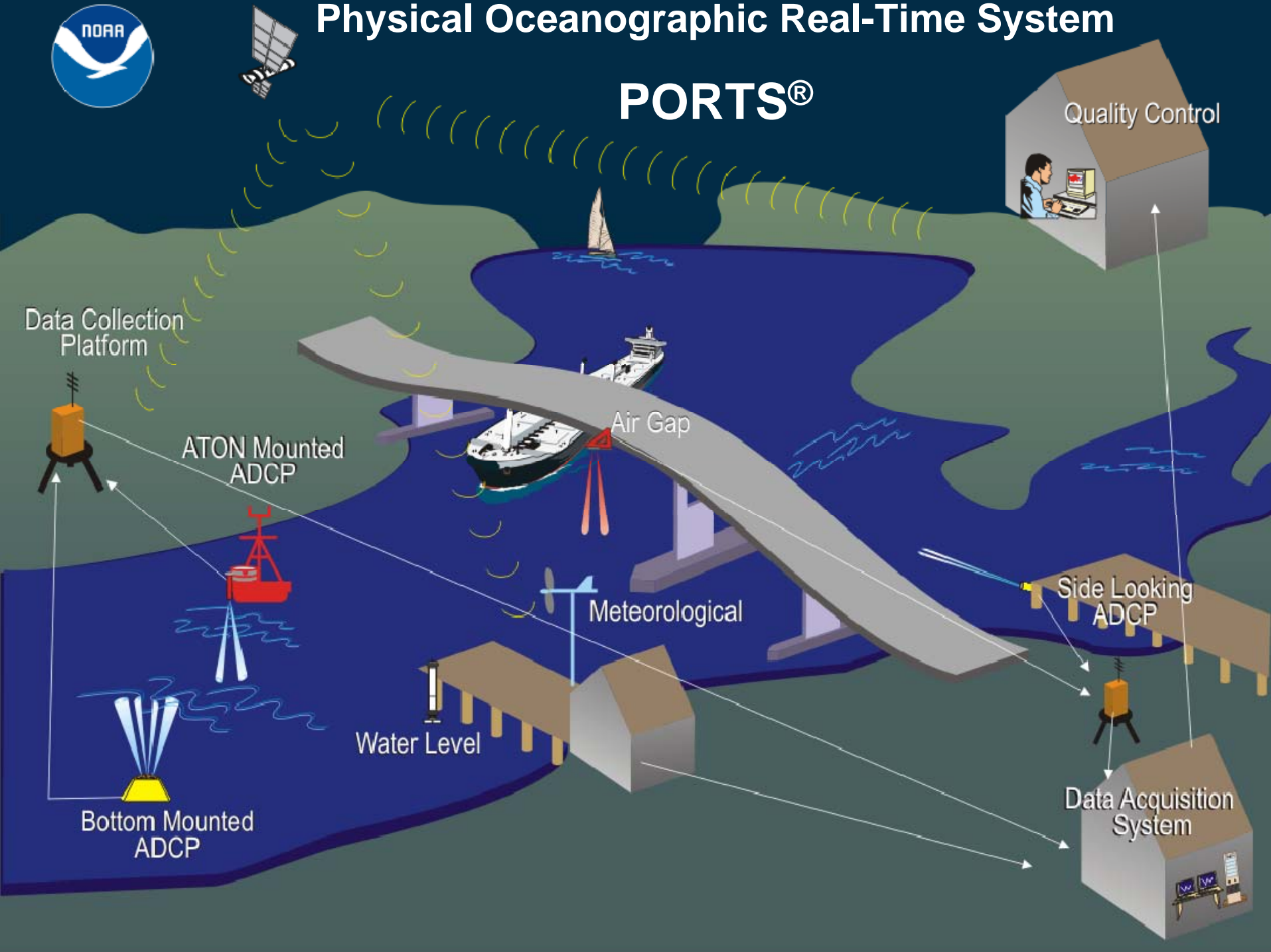
Water Level

Bottom Mounted ADCP

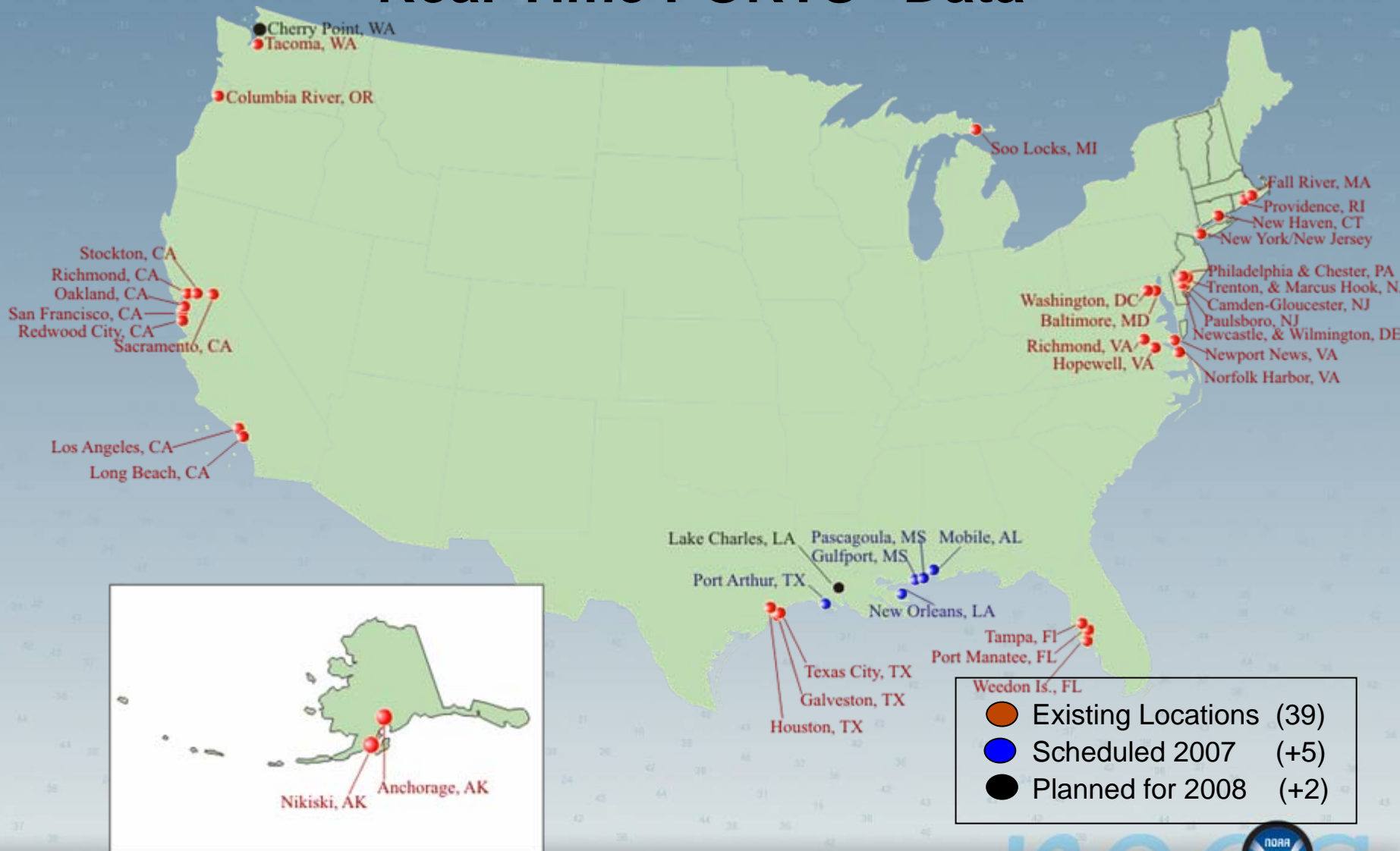
Quality Control

Side Looking ADCP

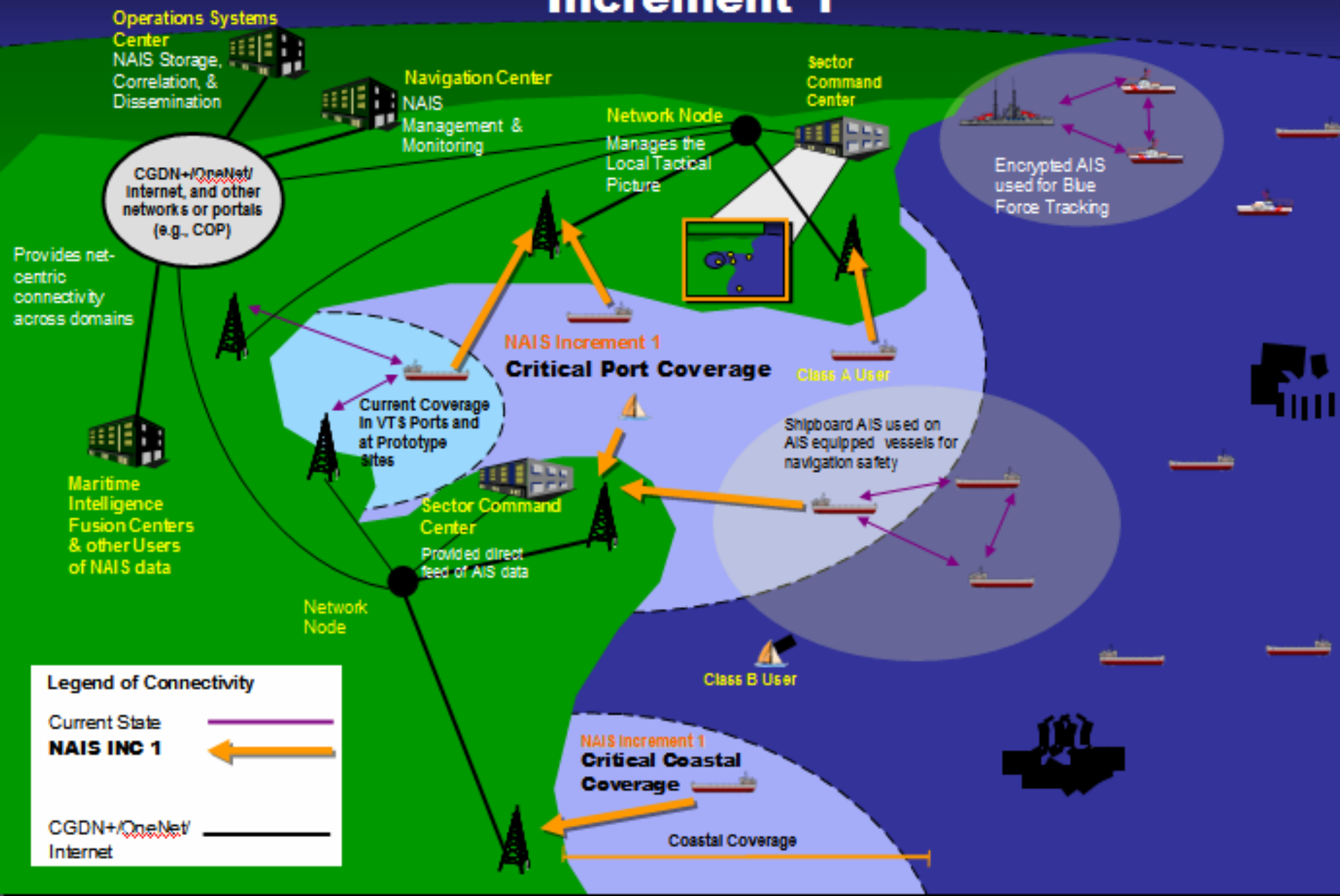
Data Acquisition System



Seaports with Access to NOAA's Real-Time PORTS® Data



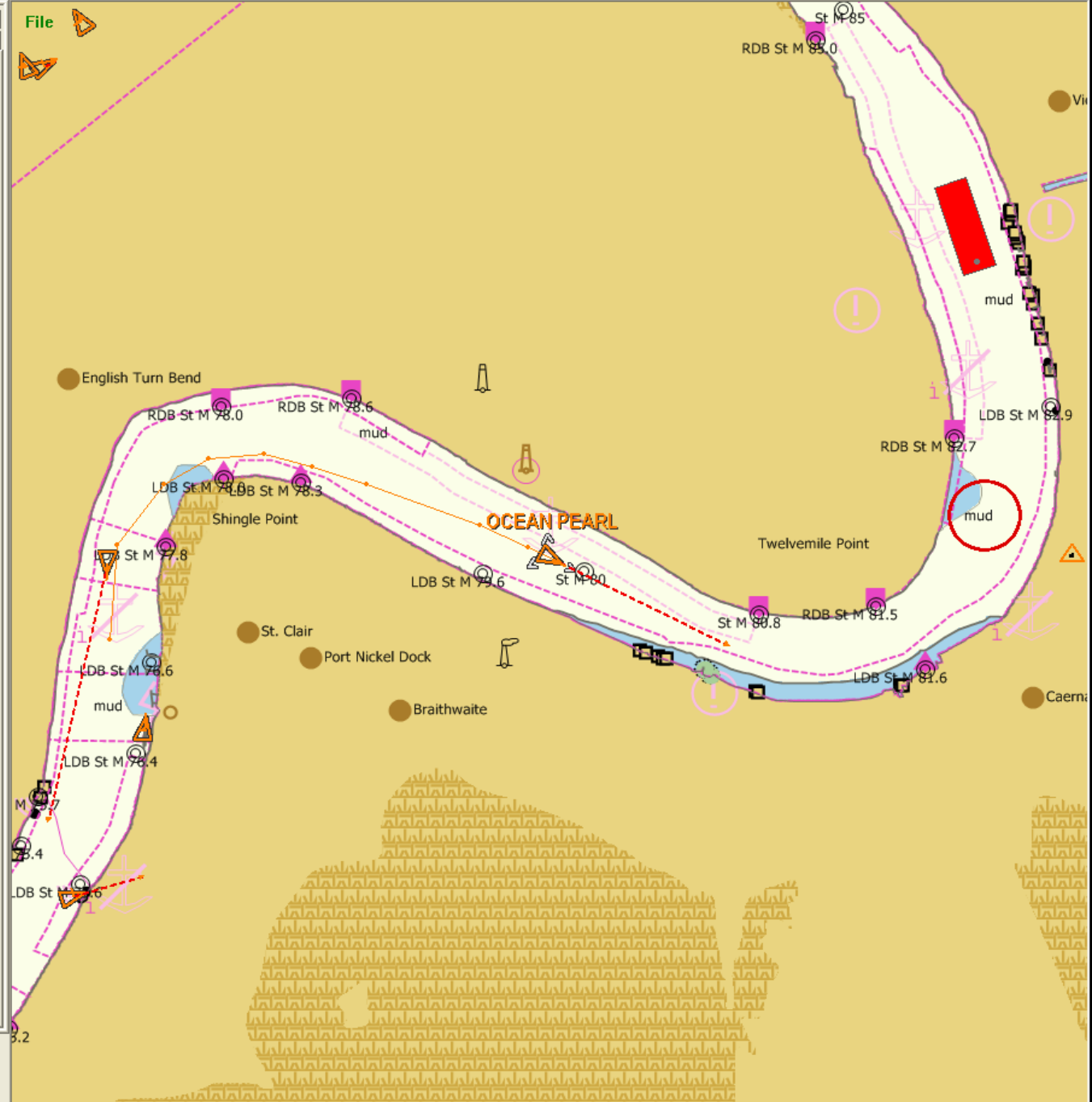
National Automatic Identification System (NAIS) Increment 1



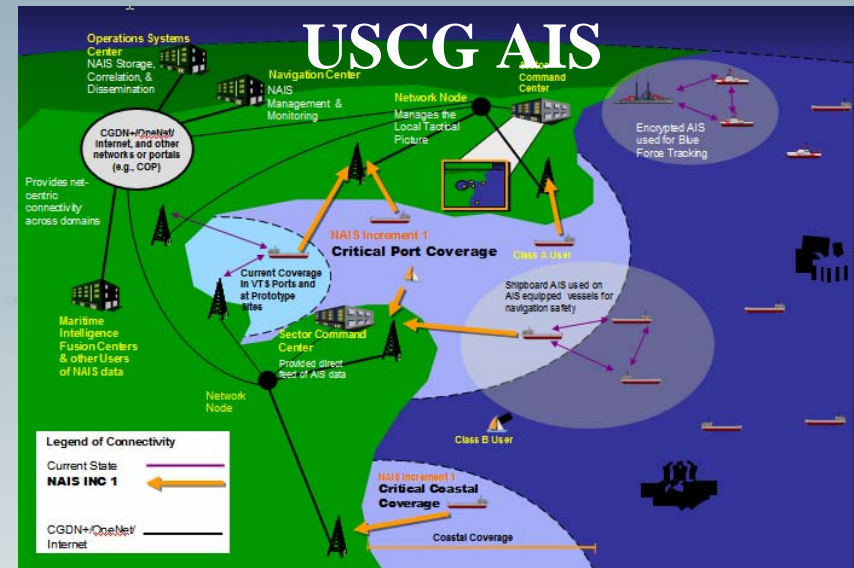
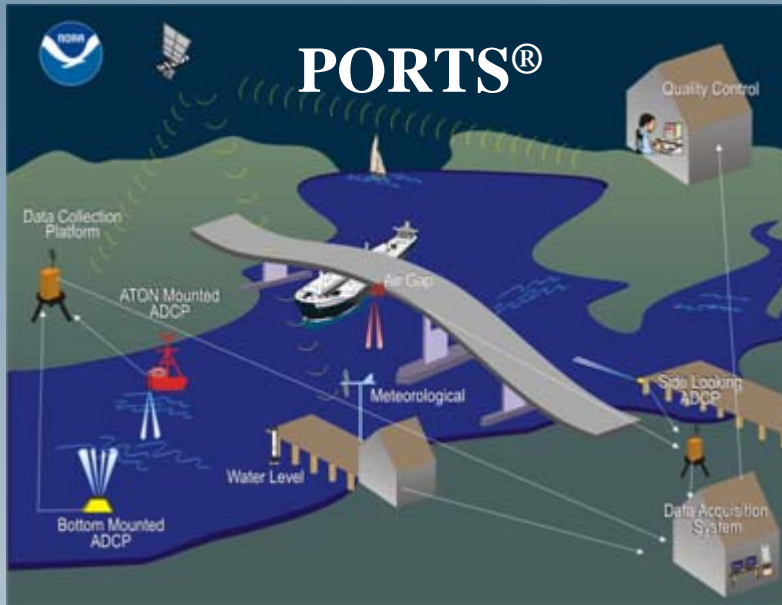
AIS Rx	All Targets	S57	S57 ?	S57 Lists	New
Nav	Route	GPS	AIS Info	AIS ?	AIS Tx

AIS Targets	CPA	Type
CAPT RONNIE ...	N/A	Cla...
JACKIE B	N/A	Cla...
MARTIN COMM...	N/A	Cla...
REGINA H.	N/A	Cla...
AARON C MCKI...	N/A	Cla...
CROSBY HUST...	N/A	Cla...
SIM SHIRAH	N/A	Cla...
NED MERRICK	N/A	Cla...
MR T	N/A	Cla...
SEBRING	N/A	Cla...
DELTA STAR	N/A	Cla...
CREOLE QUEEN	N/A	Cla...
CREAT CLOAK	N/A	Cla...

Remote Name OCEAN PEARL
MMSI Number 271000767
Call Sign TCCZ4
Latitude 29° 52' 21.06" N
Longitude 089° 56' 24.36" W
Range 2.208 Nm
Bearing 234.2° T
COG 117.0° T
SOG 9.55 mi
Nav Status Under Way Engine
Destination NEW ORLEANS
Length 179.0 m
Beam 32.0 m
Type of Ship Cargo ship
Hazardous Cargo N/A
Time Since Last Update 00h 02m 13s
Draught 0.0
ETA 2/1/2006 8:00:00 AM



Integrating PORTS[®] Data into AIS



AIS 26 Messages Types

ID#	ITU-R M.1371-1 AIS Message Descriptions	AU	A S	IN	Slots
1,2,3	Position Reports - autonomous (au), assigned (as), or interrogated (in)	x	x	x	1
4	Base Station Report - UTC/date, position, slot nr.		x		1
5	Class A Report - static and voyage related data	x	x	x	2
6,7,8	Binary Message - addressed, acknowledge or broadcast	x	x	x	5/2
9	SAR aircraft position report	x	x	x	1
10,11	UTC/Date - enquiry and response		x	x	1
12,13,14	Safety Text Message - addressed, acknowledge or broadcast		x	x	5/2
15	Interrogation - request for specific messages		x	x	1
16	Assignment Mode Command	x	x		1
17	Binary Message - DGNSS Correction		x		1
18,19	Class B Reports - position & extended	x	x		2
20	Data Link Management - reserve slots		x		1
21	ATON Report - position & status	x	x	x	2
22	Channel Management		x		1
23	Group Assignment				1
24	Class B-CS Static Data			x	1
25	Binary Message - single-slot				1
26	Binary Message - multi-slot (STDMA)				5

Binary Messages and Functional Identifiers

AIS allows the transfer of Binary Messages

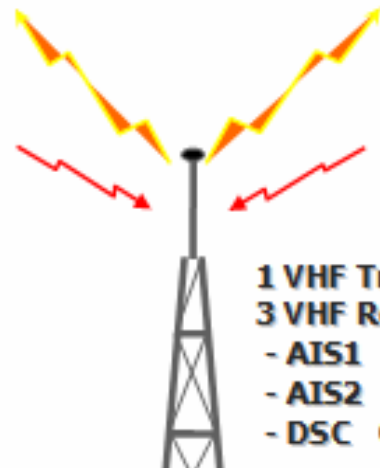
- a means for communication for external applications
 - General broadcast
 - Addressed to specific MMSI
 - Results in a Binary Acknowledgement to confirm that the addressed binary message was received

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 how...

Time-Division Multiple Access (TDMA)



- 1 VHF Transceiver
- 3 VHF Receivers
- AIS1 Ch.87B
- AIS2 Ch.88B
- DSC Ch.70



GNSS
dGPS



Inputs



Gyro/Heading
Rate of Turn
per SOLAS
requirements



←!AIVDM,2,2,7,A,2220<5<PTq2r7P2222220p4q@T<dE2r'P0,2*4E...

NMEA-0183

!ECBBM,2,2,0,0,8,>@fQp0PPPPPP>1>D93?:5@fb80,0*64→



COMMUNICATE

Broadcasts and manages the flow of AIS data sentences

ASSEMBLE

Gathers positioning, heading, vessel data and assembles it into an AIS compliant data sentences

READ

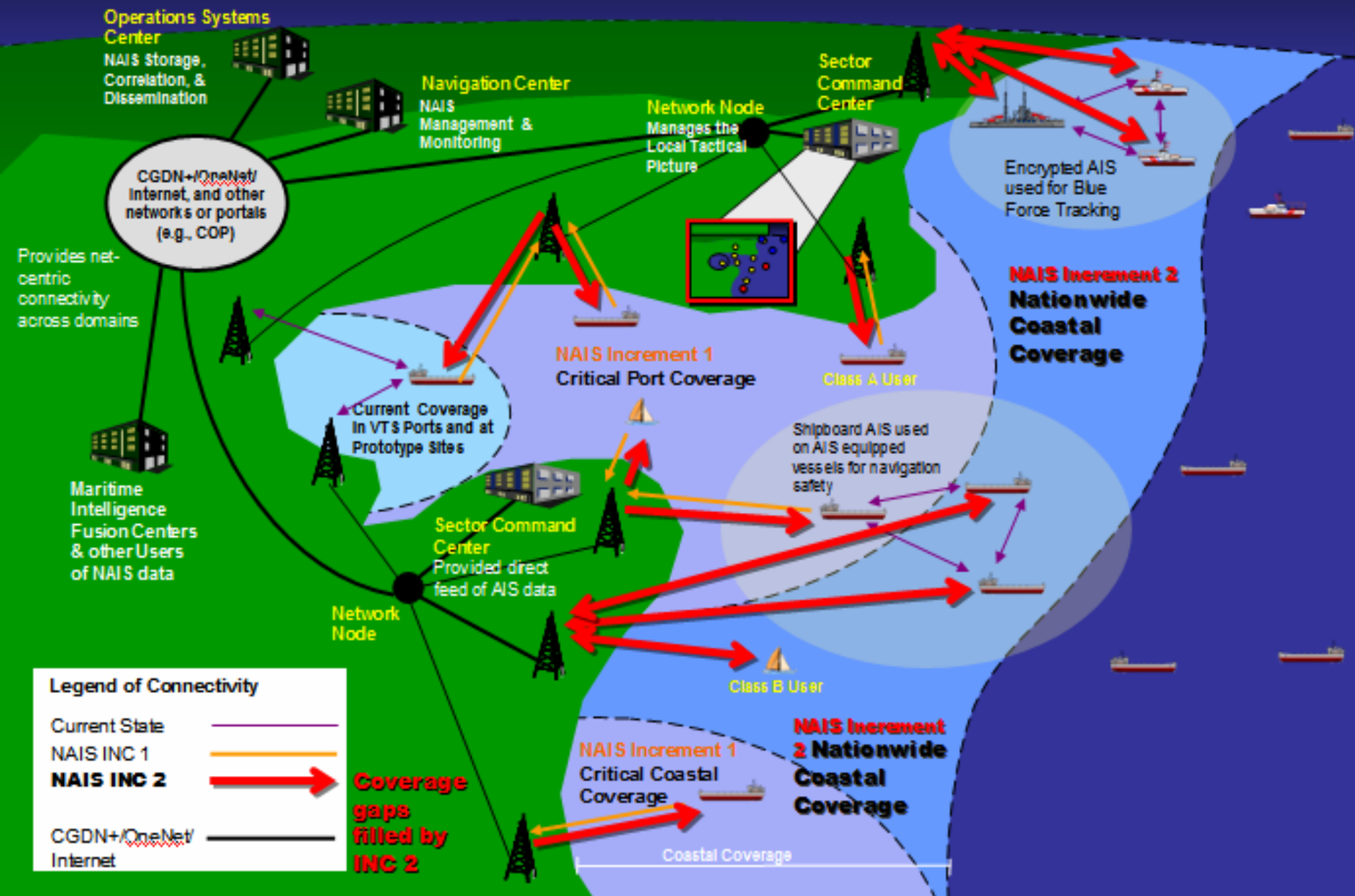
AIS data sentences may be read/sent on/to multiple devices



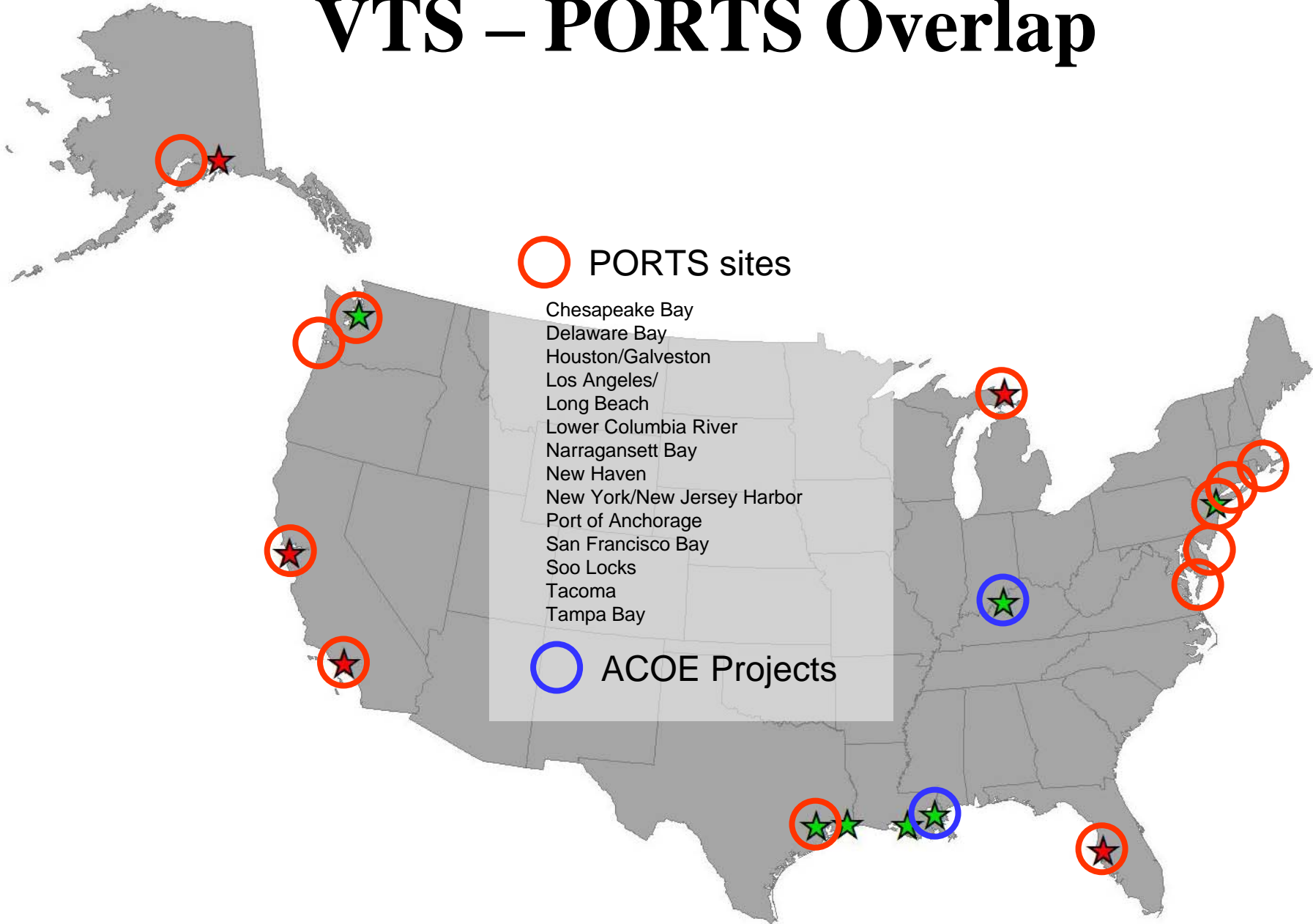
Homeland Security



NAIS Increment 2 – Transmit + Receive Nationwide



VTS – PORTS Overlap

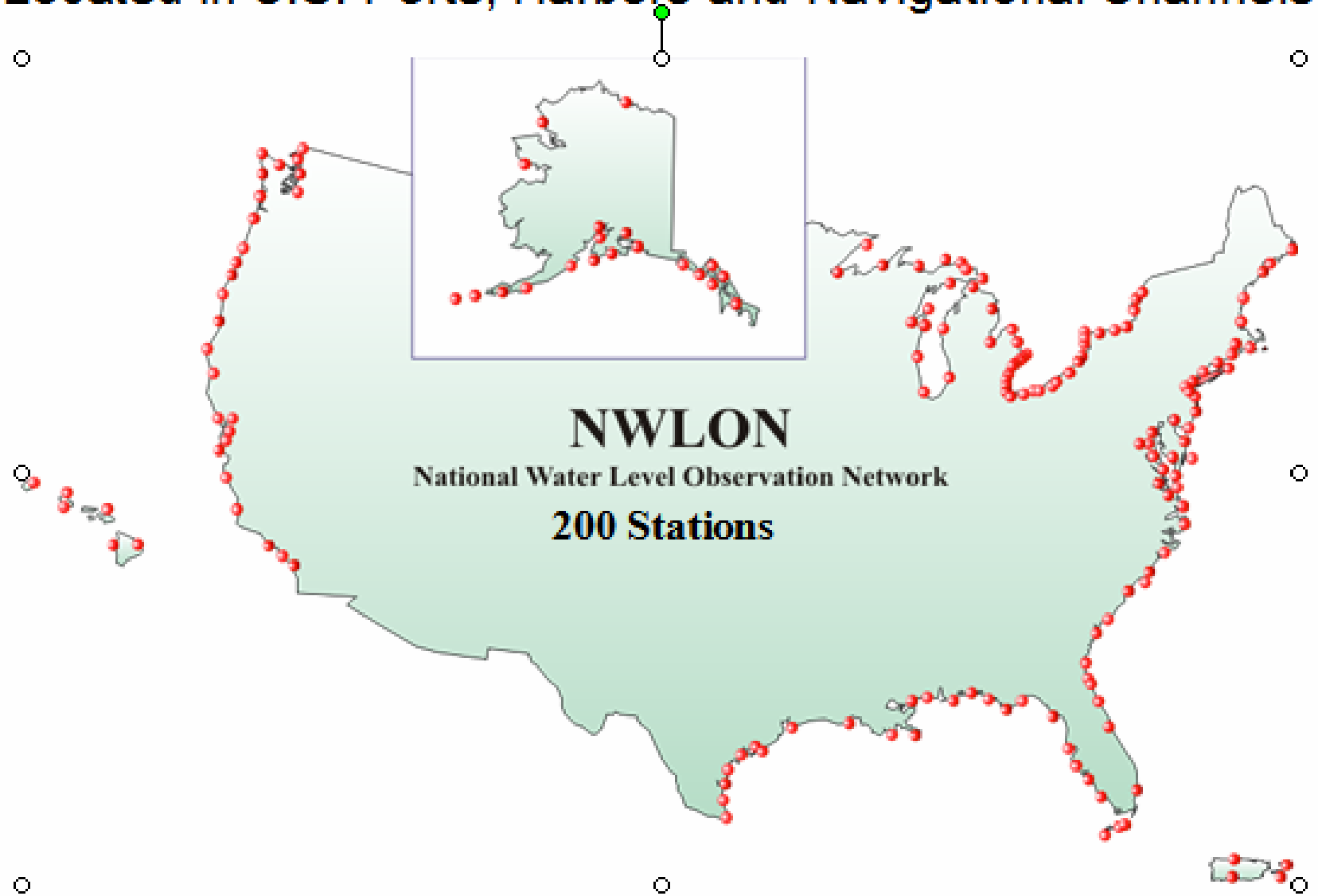




National Ocean Service

National Water Level Observation Network

Located in U.S. Ports, Harbors and Navigational Channels



Are We Going in the Right Direction?

- PORTS[®] data into AIS message during Increment 2 of the National Automatic Identification System (NAIS) with coexisting VTS centers.
- Once PORTS[®] data integration has been completed, work will begin on the integration of the National Water Level Observation Network data into the NAIS.

Questions??

