

Federal Technology Coordination in Support of Navigation Safety



CMTS National Strategy - Safety of the Marine Transportation System

National Strategy
for the
Marine Transportation System:
A Framework for Action



By the
Committee on the Marine Transportation System
July 2008

The *National Strategy* recommended the following actions:

- **Coordinate existing Federal navigation technology services and programs** to ensure collaboration, reduce duplication and standardize terminology and presentation;
- **Deliver timely, relevant, accurate navigation safety information to mariners**, including real time information systems such as the Physical Oceanographic Real Time Systems (PORTS), e-navigation, under keel clearance, High Frequency Radar, air gap technology, real-time current velocity systems at locks, and those associated with development of the Integrated Ocean Observing System to improve navigation safety and efficiency and reduce the risk of accidents;

Previous MTS Reports

- Have identified the need for better coordination between Federal agencies.
- Supported combining technologies like VTS, DGPS, ECDIS, radar and voice communications.
- Encouraged collaboration between federal agencies to share information to improve navigation safety.
- Identified benefits to be derived from providing accurate, real-time environmental information.

Navigation Technology IAT

- CMTS Coordinating Board established the Navigation Technology IAT October 2006.
- Coordination between CMTS Agencies for the integration of their technologies, data, and services to enhance navigational safety and efficiency.

Navigation Technology IAT – Focus

- Improved Delivery of Information
- Enhanced Safety - Improved Accuracy of Navigational Products
- Improved Efficiency – Data Sharing

Other Safety-Related Work Items

- Extension of the Physical Oceanographic Real Time Systems
- Federal strategy in support of E-Navigation
- Federal collaboration to create navigation “fairways” in the Arctic

CMTS - Navigation Technology IAT

- **Improved Delivery of Information**

- USCG and NOAA collaborating on distribution of PORTS data through AIS
- USCG and USACE collaborating on distribution of lock current meter information via AIS
- USACE in collaboration with other Federal Agencies to develop CRIS (Coastal and River Information System)

- **Enhanced Safety - Improved Accuracy of Navigational Products**

- USCG and NOAA collaborating on development of database of precise positions for aids to navigation
- USACE and NOAA collaborating on the development and charting of precise channel limits and controlling depths

- **Improved Efficiency – Data Sharing**

- USACE to provide NOAA digital depth survey data in standard data exchange format to update nautical charts
- USACE and NOAA adopted a common standard for water level datums
- USACE and NOAA collaborating on making wave data available to mariners via PORTS displays
- NOAA/USACE/ and USGS to adopt common standards for the measurement of tides and currents
- NOAA and USACE to collaborate on the development of VDatum (datum transformation tool).
- USACE/NOAA/and Navy to develop and implement standards for bathymetric and topographic data collected with LIDAR technology.

Accuracy of Channel Depths Improved

GALVESTON BAY AND HOUSTON SHIP CHANNEL DEPTHS

TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - REPORT OF DEC 2000

CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOW TIDE (MLT)						PROJECT DIMENSIONS		
NAME OF CHANNEL	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH MLLW (FEET)
GALVESTON HARBOR:								
ENTRANCE CHANNEL	46.0	47.0	48.0	43.0	9-00	800	4.2	42
OUTER BAR CHANNEL	45.0	47.0	47.0	43.0	9-00	800	1.5	42
INNER BAR CHANNEL	43.0	45.0	45.0	42.0	9-00	800	2.9	40
BOLIVAR ROADS CHANNEL	43.0	43.0	41.0	36.0	10-99	800	0.78	40
HOUSTON SHIP CHANNEL								
BOLIVAR ROADS TO LOWER END OF MORGAN PT.	35.0	42.0	38.0	30.0	2-00; 3-00; 10-00	400	22.0	40
GALVESTON CHANNEL	37.0	42.0	42.0	36.0	5-00; 6-00; 7-00	1125-1075	3.6	40
TEXAS CITY CHANNEL	37.0	41.0	40.0	37.0	8-00	400	5.3	40
TEXAS CITY TURNING BASIN	39.0	41.0	42.0	41.0	8-00	1200	0.6	40

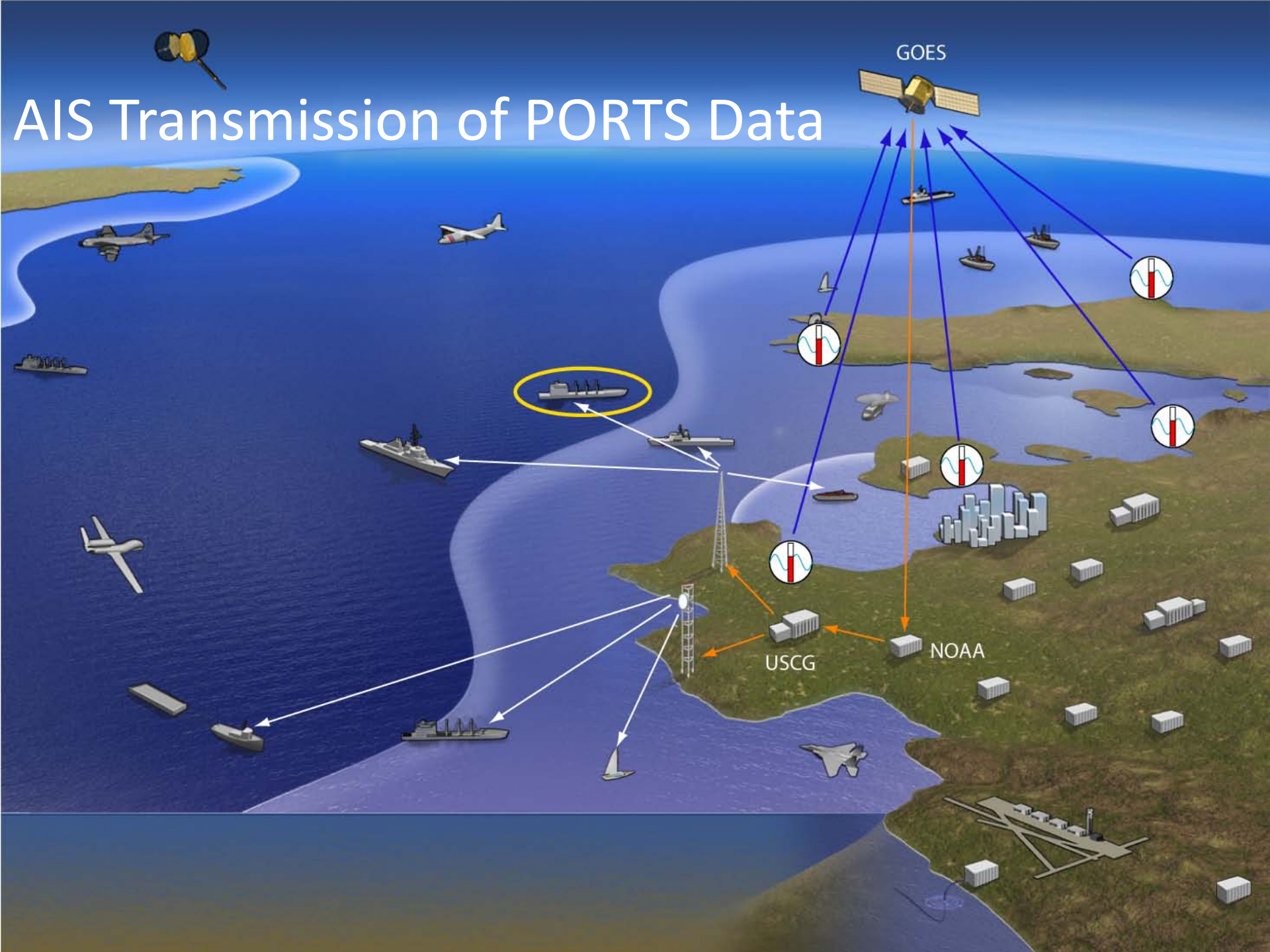
INFORMATION IN THIS TABULATION HAS BEEN PROVIDED TO NOAA BY THE U.S. ARMY CORPS OF ENGINEERS. DEPTHS ARE REFERENCED TO A LOCAL DREDGING REFERENCE CALLED MEAN LOW TIDE. FOR AN APPROXIMATE CONVERSION TO MEAN LOWER LOW WATER, ADD 1 FOOT TO EACH DEPTH IN THE TABULATION.

NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

PORTS - Real-Time Navigational Information



AIS Transmission of PORTS Data

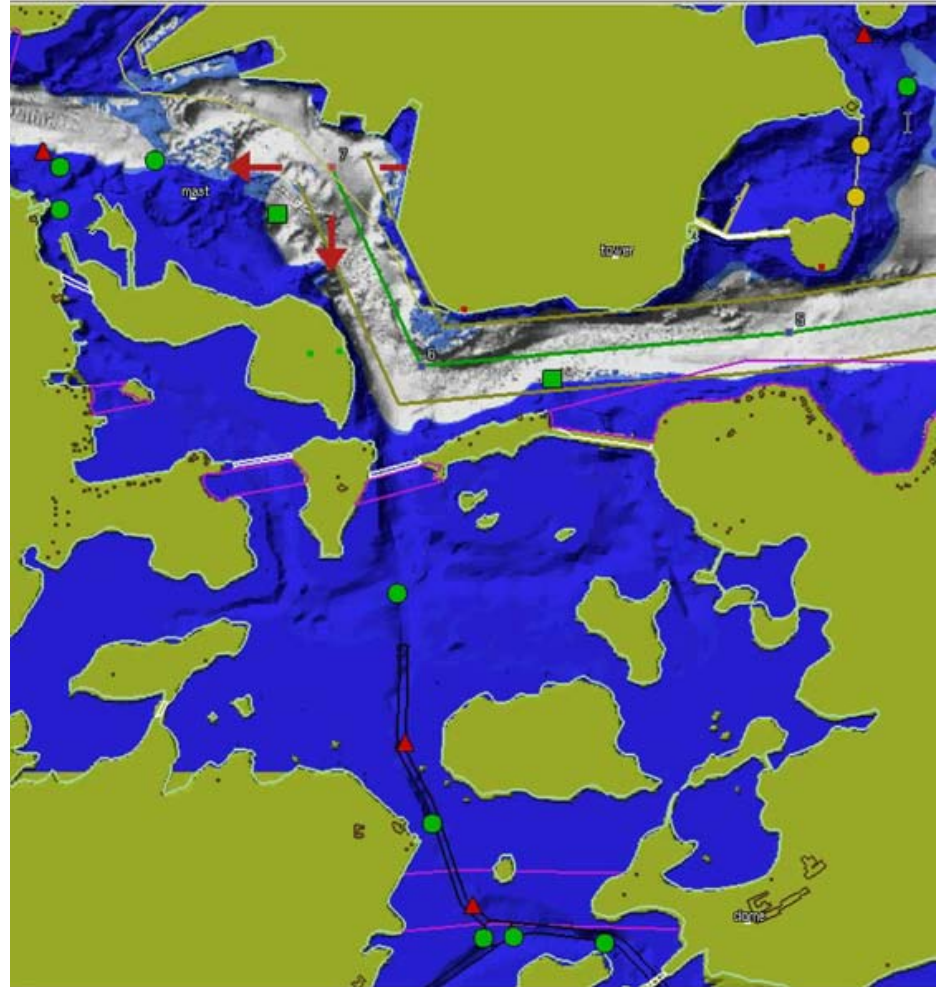


E-Navigation Task Team

Tide Aware ENC – **Concept Only!**

Implementation of e-Navigation concepts.

- With the availability of large number of products and data sets to assist mariners in navigation safety the potential for user overload has increased.
- The goal of e-Navigation is to integrate existing and new navigational tools, in particular electronic tools, in a system that will contribute to enhanced navigational safety while simultaneously reducing the burden on the navigator.
- Task Team led by USCG will work with Federal partners to address overall strategy for developing e-Navigation



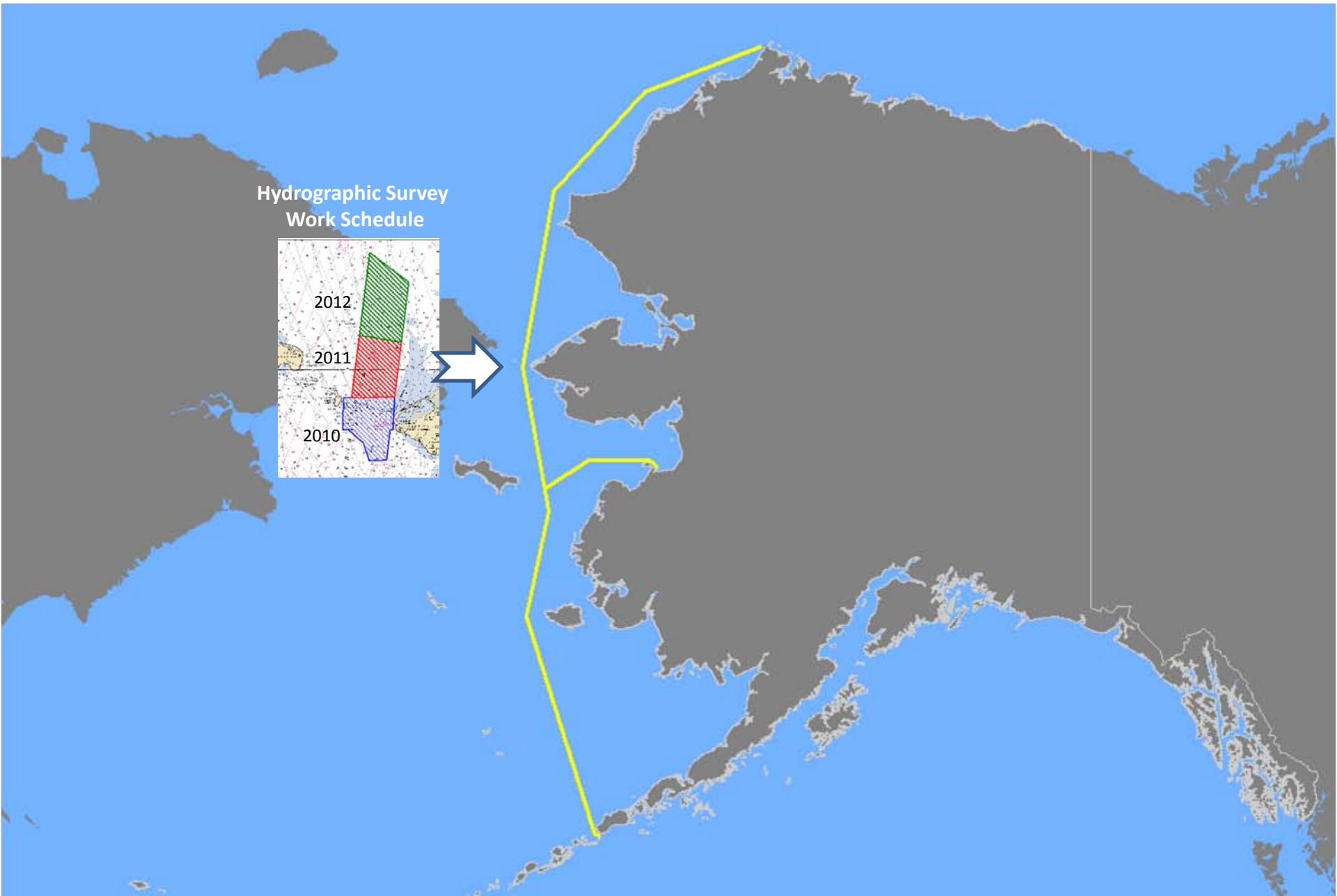
Arctic Navigation Fairways

Navigational Information for the waters of the U.S. in the Arctic Ocean and Bering Sea.

- Likelihood of significant increases to maritime traffic in the Arctic Ocean and Bering Sea
- The Navigation Technology IAT began investigating the development of shipping lanes to enable agencies to focus their scarce resources in those very short operating seasons to develop navigational products for safe transit.
- Project turned over to the CMTS Arctic IAT



Arctic Safety Fairway – Draft Only!



Complementary Work

Research and Development Integrated Action Team

- Receive feedback from agency members and other CMTS teams to prioritize R & D needs of the marine transportation system. [<http://www.cmts.gov/about.htm>]



Contacts:

Navigation Technology Integrated Action Team:

Captain David MacFarland NOAA (Ret.)

David.MacFarland@noaa.gov

Arctic Marine Shipping Integrated Action Team:

Ashley Chappell, NOAA, Ashley.Chappell@noaa.gov

Richard Corley, MARAD, Richard.Corley@dot.gov

E-Navigation Task Team:

Mike Sollosi, USCG, Mike.M.Sollosi@uscg.mil

CMTS Research and Development Integrated Action Team

Jeff Lillycrop, USACE Jeff.Lillycrop@usace.army.mil