Aiding Safe and Environmentally Sound Navigation in Alaska

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Managing Alaska Arctic and Sub Arctic Maritime Traffic Today
Marine Exchange circa 1900

“Exchanging” information to aid commercial shipping operations
Today.....Information Disseminated by Internet, Smart Phones, PDAs, etc.
M/V Selendang Ayu
Loss of Life, Vessel & Cargo and Major Oil Spill
Impetus for Change
99.999% Success

Public Outrage
Alaska Domain Awareness
No Maritime Domain Awareness and No Maritime Domain Management
Maritime Domain Awareness
No Maritime Domain Management
Maritime Domain Awareness

Maritime Domain Management
Tracking Vessels With New Technologies

AIS: Automatic Identification System

- Terrestrial Based Stations (real time – tactical)
- Satellite AIS receivers (delayed and intermittent – strategic)

Satellite Transponders

- Intermittent, regular intervals
Why Track Vessels?

- Safety Net
- Risk Assessments
- Environmental Protection
- Validate Compliance
- Emergency Response
- Improve Efficiency
- Maritime Security

Safe, Secure, Efficient and Environmentally Sound Maritime Operations
Shared Marine Industry, Government and NGO’s Commitment

Safe, Secure, Efficient and Environmentally Sound Maritime Operations
Vessel Tracking Support
Alaska Maritime Community Support of AIS Network

- Lighthouse Associations
- Pilot Stations
- Harbor Offices
- Fish Hatcheries
- Tug Offices
- Shipping Companies
- Fish Processing Plants
- Tribal Offices
- Oil Facilities
- Science Centers
- Oil Spill Response Organizations

Marine Exchange of Alaska
www.mxak.org
Remote – Self Supported AIS Sites
U.S. Coast Guard
Pollution Prevention Regulations

Alternative Planning Criteria

• “In remote areas, where response resources are not available, or the available commercial resources do not meet the national planning criteria, the owner or operator may request acceptance of alternative planning criteria by the Coast Guard.”
Risk Mitigating Routes in Aleutians
Aleutians Routing Adopted as ATBAs by IMO
Vessel Compliance Monitoring and Response System
Over 1.2 million square miles

200 mile EEZ

COTP Western Alaska Zone

COTP Prince William Sound Zone
APC
Alternative Planning Criteria

• Focus on Prevention
• Implement Risk Mitigating Operating Procedures – Standards of Care
• Implement Maritime Domain Management
• Enhance “Response” capabilities
  – Oil Spill Prevention
  – Oil Spill Removal
Tanker and Nontank Vessel
Alternative Planning Criteria (APC’s) for Alaska

Non-profit organizations providing vessels operating in Alaska best management practices and capabilities that exceed environmental regulations.
2,000 Vessels Engaged in International Trade Enrolled in Network

Vessels agree to comply with risk mitigating measures
Enrollment fees fund:
- 7x24 Vessel Compliance Monitoring and Response System
- Oil Spill Response Equipment
- Enhanced Prevention Capabilities – Ship Arrestor
BEFORE

High Risk Transit Before APC
AFTER

Reduced Risk Transit
Detection of Disabled Vessels

880 foot Container Vessel Disabled in Unimak Pass
APC Detection of Vessel Not Under Command

**SHIP INFORMATION**
- **Name**: J5 COLORADO
- **IMO**: 966437000
- **MMSI**: 966437000
- **Call Sign**: 9V9379
- **Type/Cargo**: Cargo ship
- **Length x Beam**: 200m x 32m
- **Draught**: 8.8m
- **Nav. Status**: Not under command
- **Last Seen UTC**: 9/16/2013 9:18 PM
- **Last Seen Local**: 9/16/2013 1:18 PM
- **Latitude**: 51°05.494'N
- **Longitude**: 174°12.039'W
- **Nearest MM**:
- **Speed**: 1.7knots (2.0MPH)
- **Course**: 122°
- **Heading**: 136°
- **Rate of Turn**: 0°/min
- **Destination**: VANCOUVER, USA
- **ETA**: 9/27/2013 12:00 PM
- **Last AIS UTC**: 9/16/2013 9:18 PM
- **Last Sat UTC**: 9/16/2013 7:04 PM
- **Last AIS Lat**: 51°05.494'N
- **Last AIS Long**: 174°12.039'W
- **Last Sat Lat**: 51°02.451'N
- **Last Sat Long**: 174°38.469'W
Non OPA-90 Compliant Tanker Detected by Network Entering Western Alaska Waters
Detected Vessel Transiting High Risk Pass
APC Events
Cruise ships Transiting Whale Waters
Automatic generation of e-mail and text msg alerts
Maritime State

Cook Inlet

Southeast

Arctic

Aléutians

East Aleutian Traffic Analysis 24Jun-09Jul 2007
Filtered by Vessel Length

61-90 Meters
91-120 Meters
121-160 Meters
161-300 Meters
> 301 Meters
Undefined
Where are the ships?
Risk Assessments
Arctic Safety Net Project

Sponsors: Pew, IUCN, Oak Foundation and Arctic Council
MONITORING COMPELS COMPLIANCE WITH RISK MITIGATING MEASURES
Ship Arrestor
INFORMATION
Notice of Incident, Location of vessels in distress, Location of assist vessels.

TIME
Distance offshore provides time for assist vessels to arrive
Early detection and immediate location of assist resource buys more time

CAPABILITIES
Monitoring locations of Assist vessels, Emergency Towing Systems, Vessels of Opportunity, Oil Spill Response Resources
USCG-MXAK CRADA
(Cooperative Research and Development Agreement)

“Arctic Next Generation Navigational Safety Information System”

AIS transmission tests conducted in summer of 2014 with Coast Guard cutter Healy
Arctic Next Generation Navigational Safety Information System

Builds upon AOOS AIS/WX project to communicate information to vessels via AIS;

- Virtual aids to Navigation (i.e. buoys)
- Locations of whalers
- Environmental Data (i.e. weather and ice)
- Locations of whales
- Vessels in distress, etc.
- Notify vessels in “Areas to be Avoided” or exceeding speed restrictions
Pre-Selendang

- No Maritime Domain Awareness
- No Maritime Domain Management
- No Risk Mitigating Protocols
- No capabilities to prevent grounding

Post-Selendang

- Maritime Domain Awareness
- Maritime Domain Management
- Risk Mitigating Protocols
- New capabilities to prevent groundings
Safe, Efficient and Environmentally Sound Maritime Operations