AMSA
A Roadmap Forward & Relevant Alaska Activities

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Arctic Boundary as defined by the Arctic Research and Policy Act (ARPA)

All United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering and Chukchi Seas; and the Aleutian chain.¹

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¹ The Aleutian chain boundary is demarcated by the 'Contiguous zone' limit of 24-nautical miles.
Selected AMSA Key Findings

- UNCLOS: Fundamental framework
- IMO: Competent UN agency
- Winter Arctic sea ice cover remains
- No special, mandatory IMO environmental standards
- Today ~ nearly all destinational traffic
- Key drivers: Natural resource development & regional trade plus governance
- Future Arctic transport: many factors of uncertainty
- Arctic residents: concerns for traditional way of life & recognition of benefits
- Most significant threat: release of oil
- General lack of marine infrastructure (exceptions: coast of Norway & northwest Russia)
AMSA I.
Enhancing Arctic Marine Safety

• Linking with International Organizations
• IMO Measures for Arctic Shipping
• Uniformity of Arctic Shipping Governance
• Strengthening Passenger Ship Safety in Arctic Waters
• Arctic Search and Rescue (SAR) Instrument
AMSA II.
Protecting Arctic People and the Environment

• Survey of Arctic Indigenous Marine Use
• Engagement with Arctic Communities
• Areas of Heightened Ecological and Cultural Significance
• Specially Designated Arctic Marine Areas
• Protection from Invasive Species
• Oil Spill Prevention
• Addressing Impacts on Marine Mammals
• Reducing Air Emissions
AMSA III. Building the Arctic Marine Infrastructure

• Addressing the Infrastructure Deficit
• Arctic Marine Traffic Systems
• Circumpolar Environmental Response Capacity
• Investing in Hydrographic, Meteorological and Oceanographic Data
AMSA Implementation Legislation

- **H.R. 5770** - 2010 – Congressman Young
  - International Agreements & IMO
  - Demonstration Projects to reduce emissions & discharge & train mariners for ice navigation
  - Analysis of icebreakers recapitalization through 2020
  - Coast Guard presence study in high latitude regions

- **S. 1514** – 2009 - Senator Murkowski
  - International Agreements & IMO
  - Maritime Transportation System coordination
  - Demonstration projects to reduce discharge and emissions
  - Appropriate for 2 polar class ice breakers

- **S. 1561** – 2009 – Senator Begich
  - International Agreements & IMO
  - Coast Guard Mission Analysis
  - Arctic Vessel Traffic Risk Assessments
  - Report on establishment of Arctic Deep Water Port
  - Appropriate for 2 polar class ice breakers
HR 3619 Section 307
Coast Guard Authorization Act of 2010

• Appropriates $70M over 5 years to USCG for Arctic Marine Shipping Assessment Implementation
  – The purpose of this section is to ensure safe, secure, and reliable maritime shipping in the Arctic including the availability of aids to navigation, vessel escorts, spill response capability, and maritime search and rescue in the Arctic.
  – International Maritime Organization agreements
  – Coordination for an Ocean Action Plan for domestic transportation policies in the Arctic.
  – Independent Ice Breaker Analysis
  – High Latitude Study
The Arctic Report Card

Collaborative scientific assessment of annual Arctic environmental changes

http://www.arctic.noaa.gov/reportcard/
Investing in Hydrographic, Meteorological and Oceanographic Data

Quality circumpolar weather forecasting
Refined met-ocean-ice forecast and models
Improved training of Arctic forecasters
Access to Arctic Ocean real-time met-ocean-ice data
Increased local weather observations by Arctic ships
Alaska Ocean Observation System (AOOS) and Arctic Observation Network (AON)
Diomede
Bering Straits

Waves & Wind
June 1985-2004

Waves & Wind
November 1985-2004

From: http—frf.usace.army.mil-wis2010-hindcasts.shtml.url
Tidal Data Gaps in Alaska

Gaps in water level elevations for determining shoreline and monitoring storm surge and sea level change

From: NOAA Technical Memorandum NOS CO-OPS 0048, 2008
2006 New Tide Stations
Village Cove (Pribilof Islands)
Port Moller (Alaska Peninsula)

Recent Tide Stations online
(2008/2009)

Quinhagak
Bethel
Nelson Island
Merkoyuk
Point Spencer
Tin City
Pt. Lay

Reference for data: http://tidesandcurrents.noaa.gov/gmap3/
DRAFT

NOAA Hydrographic Survey Priorities - Alaska

www.nauticalcharts.noaa.gov/hsd/docs/NHSP_2010_Final.pdf
NOAA Arctic Chart Plan: Kotzebue Sound (DRAFT)

From: Arctic Nautical Charting Plan NOAA October 2010, In Draft
NOAA Arctic Chart Plan - Bering Straits (DRAFT)

From: Arctic Nautical Charting Plan NOAA October 2010, In Draft
Arctic Marine Traffic Systems

From John Adams, Marine Exchange of Alaska
Vessel Tracking & Monitoring

Tracking & Monitoring – Marine Exchange of Alaska’s Bering Strait region
Automatic Identification System (AIS) Sites

From John Adams, Marine Exchange of Alaska
Documented Arctic Vessel Activity

**Total Vessels in the Arctic**
- 2008 = 123 +
- 2009 = 132
- 2010 = 154

**Bering Strait Transits**
- 2008 = 217
- 2009 = 281
- 2010 = 453

From Cdr. Montoya, USCG
Aleutian Island Risk Assessment

http://www.aleutiansriskassessment.com/
Protecting Arctic People and the Environment – Aleutian Island Risk Assessment

• Phase A Risk Assessment began March 2009 and scheduled completion March 2011

• Includes:
  – Traffic Study (Completed)
  – Baseline Spill Study (Completed)
  – Consequence Analysis (Draft Report due 12/10)
  – Qualitative Assessment, Ranking & Prioritization of Risk Reduction Options (Draft Report due 2/11)

http://www.aleutiansriskassessment.com/

http://www.dec.state.ak.us/spar/
ALEUTIAN ISLANDS RISK ASSESSMENT

- Advisory Panel of Stakeholders:
  - Assist in identifying hazards and offer local knowledge to characterize the risks
  - Assist in establishing tolerance parameters for risks
  - Perform an initial prioritization of risk reduction measures

- Risk Mitigation Categories Considered:
  - Waterway Management & Traffic Control
  - Inspection & Enforcement
  - Emergency Operations & Procedures
  - Vessel Personnel & Pilotage
  - Vessel Enhancement
  - Response Improvement

http://www.aleutiansriskassessment.com/projectteam.htm
Protecting Arctic People and the Environment - Engagement with Arctic Communities

Alaska Barge Landing System Design Statewide – Phase 1

- Regional waterway approach
- Community and industry input for design and location
- Environmental Protection aspects

Prototype
Ice breaking SWATH design
Adjustable shallow & deep draft of 12 ft to 4 ft
Internal “Barge” deck & landing ramp
Specialized Ice-Propulsion
Ice Navigator Training

Enhancing Marine Safety
- IMO Measures for Arctic Shipping

- Ice Navigator competence requirements in STCW
- Model ice navigation course with simulations
- Theoretical training, local knowledge and practical experience in ice conditions
The AVTEC Ship Simulator

- Running Kongsberg’s Version 5.5.2 Software
- 3 Full Mission Interactive Bridge Simulators
- 42 Hydrodynamic Ship Models
- Highly accurate and detailed chart data bases covering major ports in and outside Alaska
AVTEC Ice Navigation Curriculum

- Ice Physics
- Ice Classification
- Ice Climatology
- Remote Sensing
- Ice Forces
- Air and Sea Interactions with Ice
- Ice Piloting in Remote Polar Waters

From: Smith, Schibel, Hamilton, & Thomas, ICETECH 2010
National Arctic Ports Strategy

• Location
  – Port and shoreside development

• Function
  – Natural resources
  – Supply and distribution hub
  – Refuge
  – Community

• Environmental Factors
  – Physical and ecological surveys
  – Traditional use and culture