

First Annual Partners' Meeting Presentation

*Arctic Education: Implementing the Arctic
Strategy in Training*

Arctic Domain Awareness Center (ADAC)
A DHS Center of Excellence



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A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE

at  UNIVERSITY of ALASKA ANCHORAGE

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Maine Maritime Academy

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Overview

- ▶ In support of the US Coast Guard vision for Operating in the Arctic Region: *“Ensure safe, secure, and environmentally responsible maritime activity in the Arctic”* year 1(5 months) of Maine Maritime Academy’s ADAC project: *“Arctic Education: Implementing the Arctic Strategy in Training”* achieved positive results.
- ▶ Today’s presentation includes:
 - ▶ Accomplishments, Milestones, Gaps, Lessons Learned
 - ▶ Objectives & delivery formats for Basic and Advanced Ice Navigation Courses, Contacts and Stakeholders,
 - ▶ International Maritime Training Requirements,
 - ▶ Research and Research trips, Student involvement and
 - ▶ Next steps.



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Accomplishments

- Defined the course requirements
 - Attended IMO Human element training and watch-keeping subcommittee meeting (Feb 2015)
- Defined simulation capabilities
- Beta tested course concepts with undergraduate students
- Developed student research opportunities
- 80% of research completed the Basic Ice Navigation course
- Completed Online Module 1



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Defining Course Objective

- ▶ In January 2017 the International Maritime Organization (IMO) Polar Code will be in effect for all vessels on international voyages proceeding through Polar waters (Arctic and Antarctic waters)
- ▶ The Polar code mandates standards for vessel construction, operational procedures, environmental concerns and crew preparedness



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Training requirements

- ▶ Polar Waters Ice Navigation training requirements have yet to be ratified by the plenary at the IMO
- ▶ Recommendations from the training subcommittee have been presented for final approval.
- ▶ As a member of the US delegation at the February 2015 IMO meeting in London , I had the opportunity to help define the course objectives.



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US Delegation at the IMO London Feb.2015



Mayte Medina~ USCG Marine Personnel and
Qualifications ~ Head of USCG Delegation at the IMO



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Initial Concerns

- ▶ Using the IMO requirements as a baseline, the courses' goals and objectives outlined USCG/IMO mandated training requirements.

- ▶ There will be two courses to develop:
 - Basic Ice Navigation ~ for the officers of the watch (operational level)

 - Advanced Ice Navigation ~ for the masters and chief mates (Managerial Level)



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Basic Course Objectives

- ▶ Basic knowledge of ice characteristics and areas where different type of ice can be expected in the area of operation:
- ▶ Basic knowledge of vessel performance in ice and cold climate:
- ▶ Basic knowledge and ability to operate and maneuver a ship in ice:
- ▶ Basic knowledge of regulatory considerations:
- ▶ Basic Knowledge of crew preparation, working conditions and safety



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Advanced Course Objectives

- ▶ Plan and conduct a voyage in polar waters
 - Knowledge of voyage planning and reporting
- ▶ Knowledge of equipment limitations
- ▶ Manage the safe operation of vessels operating in Polar waters
 - Knowledge and ability to operate and maneuver a ship in ice
- ▶ Maintain Safety of the ship's crew and passengers and the vessel's operational condition of life-saving, firefighting and other safety systems
 - Knowledge of safety concerns specific to the Polar regions



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Blended Format

- ▶ Basic and Advanced Ice Navigation courses are being developed in an online/Blended training format adhering to USCG course certification requirements .
- ▶ Goals- To provide the end users with convenient and effective training to meet their ice navigation training requirements
 - All knowledge based information will be accomplished online
 - Final knowledge testing and practical simulation skills training will be conducted at designated USCG approved training centers in Alaska and the lower 48 United States.



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Accomplishments

- **Build Awareness with Publicity**
- **Maritime Education Summit**
- **Arctic Cross curricular opportunities**



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Milestones Achieved

- Completed one of six online modules of Basic Ice Navigation Course
- Completed 80% research for all Basic Ice Navigation course modules
- Established student research assistant program



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Research

- ▶ Throughout Q1 of this year Capt. Pundt has worked towards meeting our submitted development timeline.
- ▶ Two student research assistants have helped us to wade through the impressive amount of available material
- ▶ Mrs. Sarah McLean Anderson, a 3rd year student at MMA, grew up in the Canadian Arctic where her father provided formal education for Inuit children. Sarah is researching the environmental and habitat portion of the course. She will continue her work throughout next year .
- ▶ Mr. Benjamin Morgan , graduated this year as a 3rd mate unlimited. He volunteered his time to develop the *ship maneuvering in ice* presentation.



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Stakeholders identified

Key Maritime Arctic Regulatory, Enforcement, Response, Research and Awareness building Organizations:

- IMO/ International Maritime Organization
- USCG Sector 17 Department of Homeland Security /DOD/NOAA/MARAD/NSF
- State of Alaska particularly Emergency Management
- Transport Canada
- The Arctic Council
- North American Marine Environmental Protection Association (NAMEPA)

The Human Element

- Mariners both domestic and international transiting Polar Waters
- Port Facility Personnel
- Land based First Responder Community for the maritime domain
- USCG Search and Rescue Operators
- Research Vessel Operators

Destinational, Trans-Arctic shipping, and adventure tourism companies

- Cargo transport
- Commercial Fishing
- Offshore Resource Extractors
- Cruise Lines



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Gaps and Lessons Learned

- **Awaiting final IMO course requirements**
USCG specific Arctic training requirements will follow
- **Simulation capabilities**
How good are they and how can ADAC make them better ?
- **Grant timeline/ Budget adjustments**
 - Adapting to significant changes in short time frames
 - bureaucratic policy constraints
- **International travel**
Emphasize value of US and Canadian Ice Navigation Cross training
- **Challenges uncovered in defining maritime industry port infrastructure and emergency response needs in the Polar waters**
 - Build awareness and contacts within First Responder communities



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Simulation Training

- ▶ Ice navigation simulators are relatively new and in limited supply around the world. We have identified two major providers Kongsberg and Transas.
- ▶ It was important to gain a clear understanding of the capabilities and limitations of these systems and consult with fellow maritime trainers to develop realistic goals and simulation objectives.



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Transas Ice Navigation~

current bridge simulator

Add on to MMA's

- ▶ 1 of 3 Full Mission Bridge Simulator rooms at MMA





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IMQ

- ▶ Captain Pundt travelled to Institut Maritime du Quebec (IMQ) and met with Capt. Michel Bourdeau a retired Transport Canada icebreaker captain with 30 years Arctic icebreaker experience and simulation specialist Michel Ferland.
- ▶ Together we challenged the simulator to mimic specific training scenarios needed to meet the requirements of not only the mandated STCW training standards but also additional icebreaker and ice pilot training.



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Simulations

- ▶ Identified specific shortfalls and are working with the simulation developers to improve their systems
- ▶ Took the opportunity to work with these experts to learn from their ice navigation experience in Polar Regions and their knowledge of Simulator operations.



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Milestones

- ▶ The majority of research is complete for the basic Course. Advanced course material growing.
- ▶ Over 400 Basic Course slides have been developed and are being adapted with voice overs for online presentation
- ▶ Module 1 of Basic Course is complete



Complete the Basic Ice Navigation Course

- Beta test course with Maritime Professional
- Submit course for USCG Approval & once approved conduct pilot
- Identify additional course delivery sites

Install & troubleshoot Ice Navigation simulation software

- July/August 2015

Work closely with USCG sector 17 to enhance simulation capabilities

Define and include their preferred simulation areas of operation & vessel models

Begin the advanced Course

- Develop Ice navigation simulation scenarios

Develop schedule and content for Dec. 2 Symposium at Castine

- “*Opportunity Maine: The Lower 48 Arctic State*” with co-sponsor NAMEPA



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Next Steps

- ▶ **Captain Pundt transits the NW passage October 2015 together with noted Canadian ice navigator Capt. “Duke” Snyder of the Nautical Institute, UK.**
Invitation accepted, trip dependent upon weather and ice conditions
- ▶ **Expand Mariner Ice Navigation training collaboration**
Promote courses as undergraduate electives at other Maritime Academy
- ▶ **Investigate participation of ADAC/UAA and MMA researchers at the Arctic council meeting in Portland Me, Oct. 2016**
within Theme area of Integrated Education
- ▶ **Continue to expand contacts within maritime industry and Alumni**
to identify relevant Arctic and Polar Waters’ simulation scenarios.



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2016 Crystal Cruises Northwest Passage lower 48 last port = Bar Harbor, Maine

