Role of Geoscience in Navigating the Arctic

Ashley Chappell
NOAA Integrated Ocean and Coastal Mapping Coordinator
CMTS Arctic Integrated Action Team Co-Chair
November 29, 2017
The Arctic: ARPA 1984

Arctic MTS Components
Navigable Waterways
Physical Infrastructure
Information Infrastructure
Response Services
Vessels
The Arctic Marine Transportation System

nsidc.org/data/seaice_index

U.S. and circumpolar shipping routes through the Arctic, as viewed in NOAA’s Arctic ERMA
The Arctic Marine Transportation System

Arctic traffic in the USCG District 17 area of concern and transits of the Bering Strait, 2008 to 2015.
National Strategy Line of Effort 1:

ADVANCE U.S. SECURITY INTERESTS

• Improve weather and sea ice observations, forecasts, and warnings.
National Strategy Line of Effort 1:
ADVANCE U.S. SECURITY INTERESTS

- Improve weather and sea ice observations, forecasts, and warnings.
National Strategy Line of Effort 2:

PURSUE RESPONSIBLE ARCTIC REGION STEWARDSHIP

- Use Integrated Arctic Management to Balance Economic Development, Environmental Protection, and Cultural Values
- Increase Understanding of the Arctic through Scientific Research and Traditional Knowledge
- Improve understanding of climate impacts on biological resources, human health, and natural habitats
National Strategy Line of Effort 2:

PURSUE RESPONSIBLE ARCTIC REGION STEWARDSHIP

- Places of Refuge
- Areas of Heightened Ecological Significance
- Infrastructure
- Maritime impacts on subsistence lifestyles and resources
National Strategy Line of Effort 2:

PURSUE RESPONSIBLE ARCTIC REGION STEWARDSHIP

• Chart the Arctic Region
• Hazard Assessment and Response
National Strategy Line of Effort 2:
PURSUE RESPONSIBLE ARCTIC REGION STEWARDSHIP

Source: NAS
NOAA’s Approach
Where to chart – Priority areas
Essential Inputs for Safe Marine Navigation and Economic Opportunity in the Arctic

- Tides/Currents
- Accurate Positions
- Modeling
- Shoreline Mapping

- Existing CUSP Shoreline, areas updated in FY16/FY17 and planned updates in FY17-20

Grav-D Coverage

CORS Coverage
NOAA’s Approach
National Strategy Line of Effort 3:

STRENGTHEN INTER-AGENCY & INTERNATIONAL COOPERATION

- Promote Shared Arctic State Prosperity, Protect the Arctic Environment, and Enhance Security
- Enhance Arctic Search and Rescue
- Reduce Transport of Contaminants
The Risks of Not Knowing
THANK YOU!

ashley.chappell@noaa.gov
ARCTIC POLICY DRIVERS FOR NAVIGATION SERVICES

- 2009 Arctic Region Policy
- 2010 National Ocean Policy
- 2013 NOP Implementation Plan et al
  - **CMTS - U.S. Arctic MTS: Overview and Priorities for Action**
  - IARPC – Five-year Arctic Research Plan
  - IAM - Managing for the Future in a Rapidly Changing Arctic
  - USGS – Arctic Science Gap and Sufficiency report
- 2013 National Strategy for the Arctic Region and Implementation Plan
- **2015 Ten-year Projection Study of Maritime Activity in the U.S. Arctic**
- Enhancing Coordination of National Efforts in the Arctic (January 2015 - present)
- **2016 Ten-Year Prioritization of Infrastructure Needs in the U.S. Arctic**