A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020–2030

U.S. Committee on the Marine Transportation System

AICC Meeting
January 15 2020

About the CMTS

- **Cabinet level committee established in 2004 and authorized in 2012**
  - Chaired by DOT secretary
  - Members include over 25 MTS related agencies
- **2017 National Strategy for the MTS, 5 Priority areas:**
  - System Performance
  - Safety
  - Security
  - Energy Innovation
  - Infrastructure Investment

Arctic Marine Transportation IAT

Purpose of the Arctic IAT

- Coordinate domestic marine transportation policies in the U.S. Arctic
- Address infrastructure requirements to support a safe and secure Arctic marine transportation system

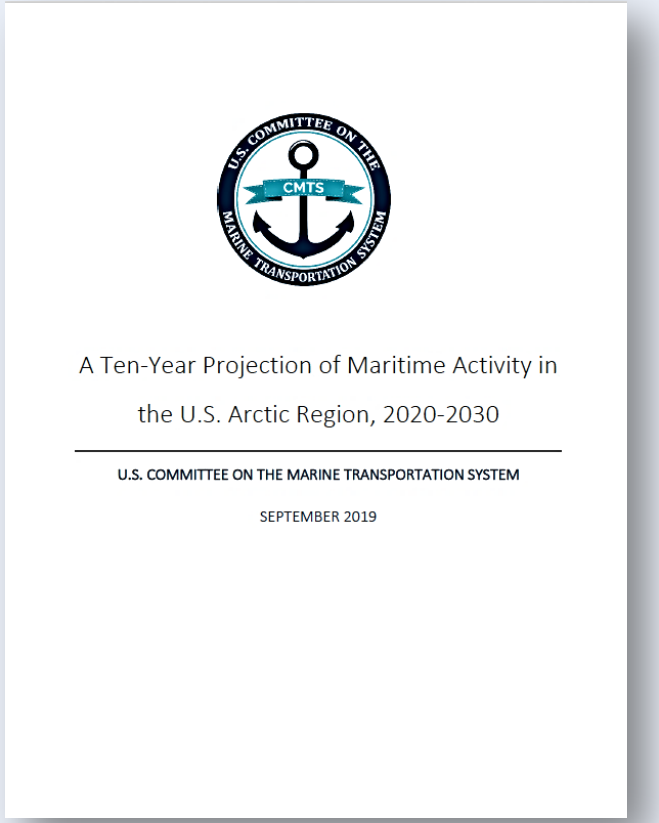
Participating Agencies

- USCG
- NOAA
- MARAD
- DOT-OST
- USACE
- State
- TRANSCOM
- FAA
- DOI
- EPA
- DOE
- NMIO
- USARC

Report Overview

The CMTS Arctic IAT's report, "A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020–2030"

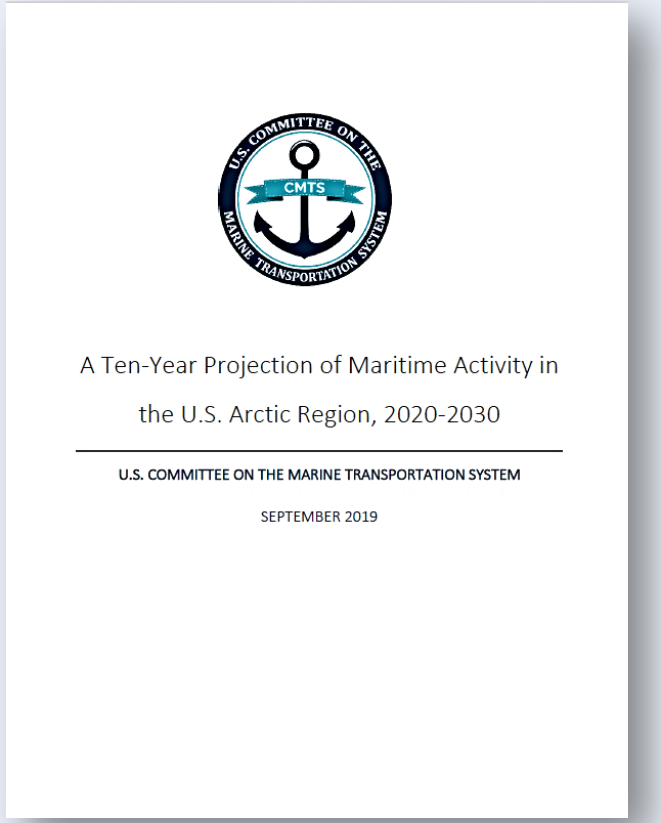
- Builds upon 2015 report
- In-depth analysis of past, present, and future vessel activity in and around Bering Strait
- Aim to inform Federal partners about the Arctic MTS and potential changes expected on commercial and/or other civilian operations through 2030
  - Does not include any policy or funding recommendations



Predicting vessel traffic is integral to waterway safety

2019 Projections Report

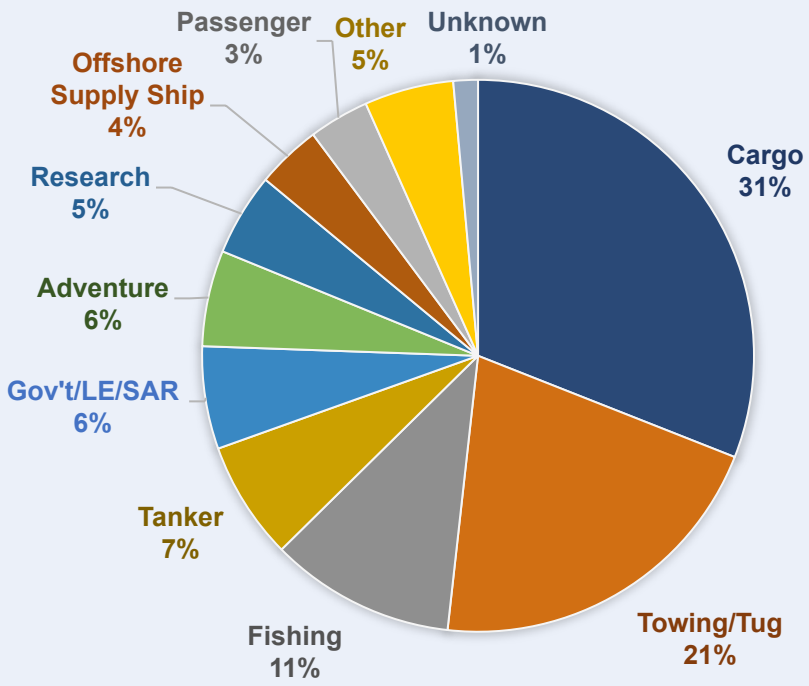
- What drives activity in the Arctic? (Section II)
- What does vessel activity look like in the U.S. Arctic region today? (Section III)
  - Who operates in the region?
  - Where?
  - When?
- Projection of Future Vessels out to 2030 (Section IV)



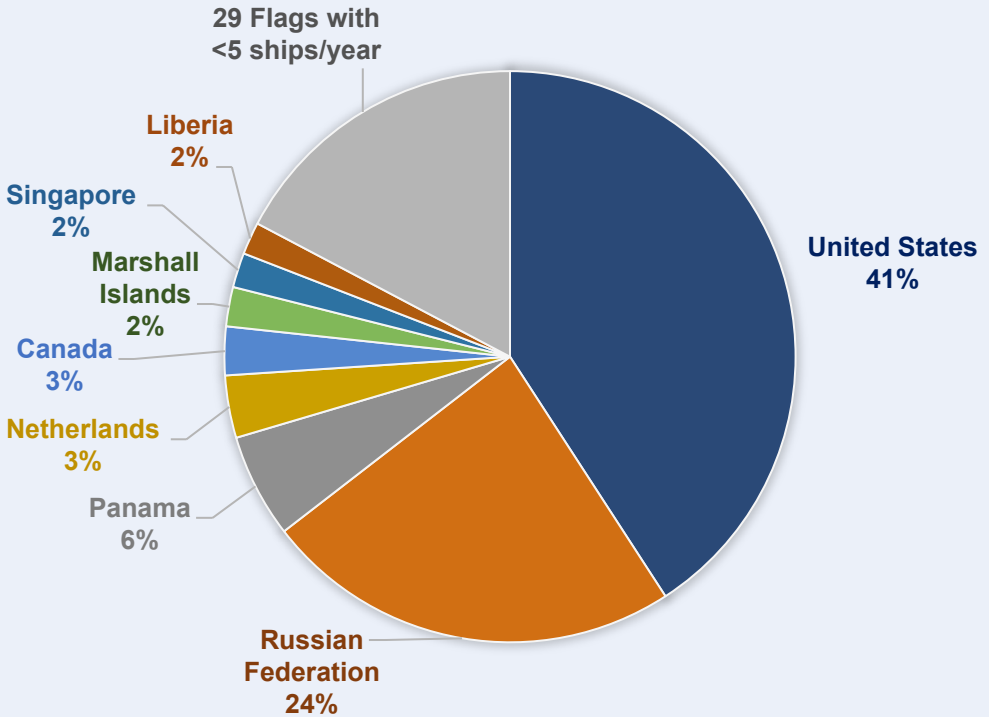
Report Findings

Current vessel traffic is complex and shifting away from regional operations

Composition of Vessels by Vessel Type



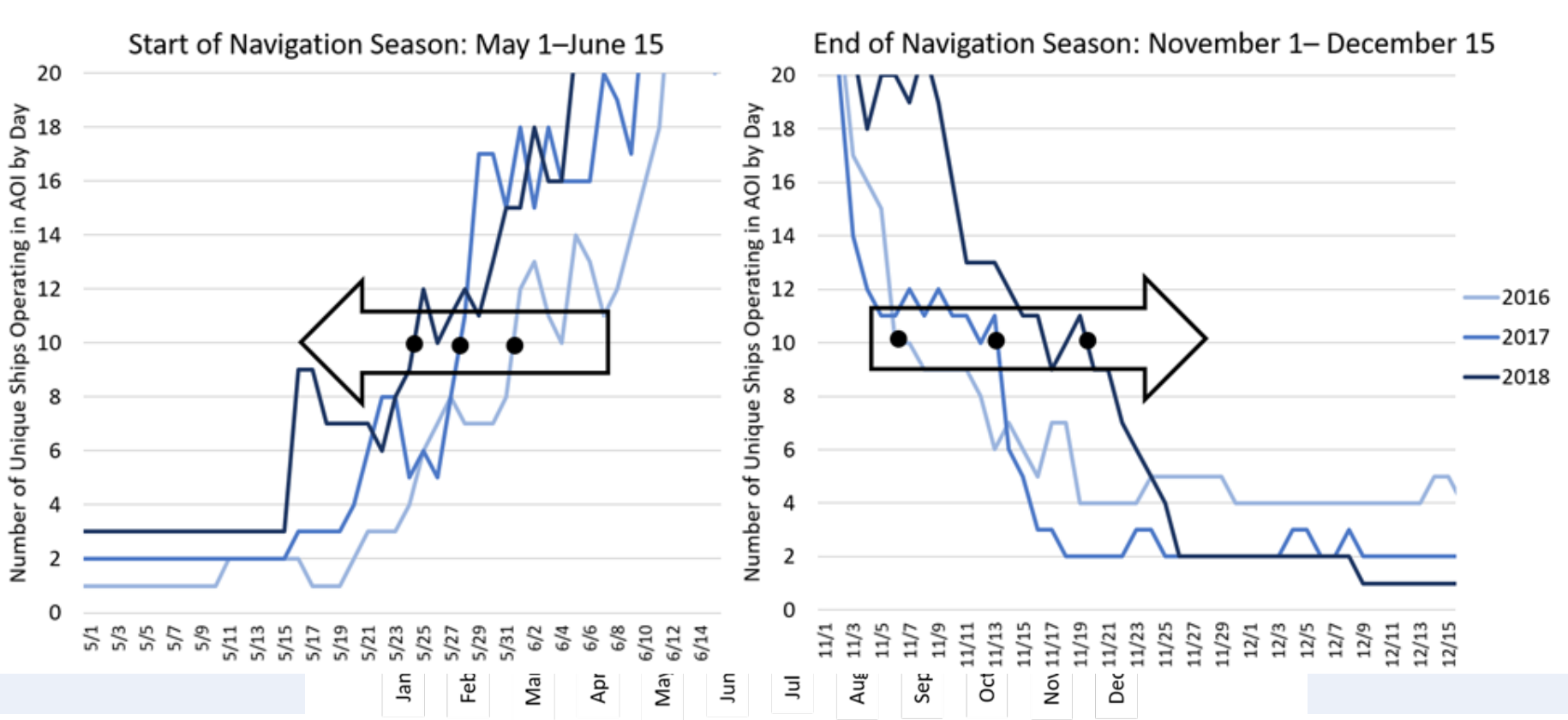
Composition of Vessels by Flag



- Cargo, tug, and towing vessels comprise over 50% of ships in study
- U.S. flag ships are the largest by flag, followed by Russia, but the number and diversity of flag states operating in the region is increasing

Report Findings

Highly seasonal navigation season grows longer each year



- The navigation season grew an average of 10-days longer increase each year from 2016–2018
- Further supported by independent data from the Marine Exchange of Alaska

Drivers of Vessel Traffic for 2019 Report

Vessels used for Natural Resource Activities

- Oil & Gas
- LNG
- Mining Projects

Vessels used for Infrastructure Development

- Relocation
- Port development
- Reconstruction of roads & airports
- Offshore wind
- Resupply

Vessels joining the 'Arctic Fleet'

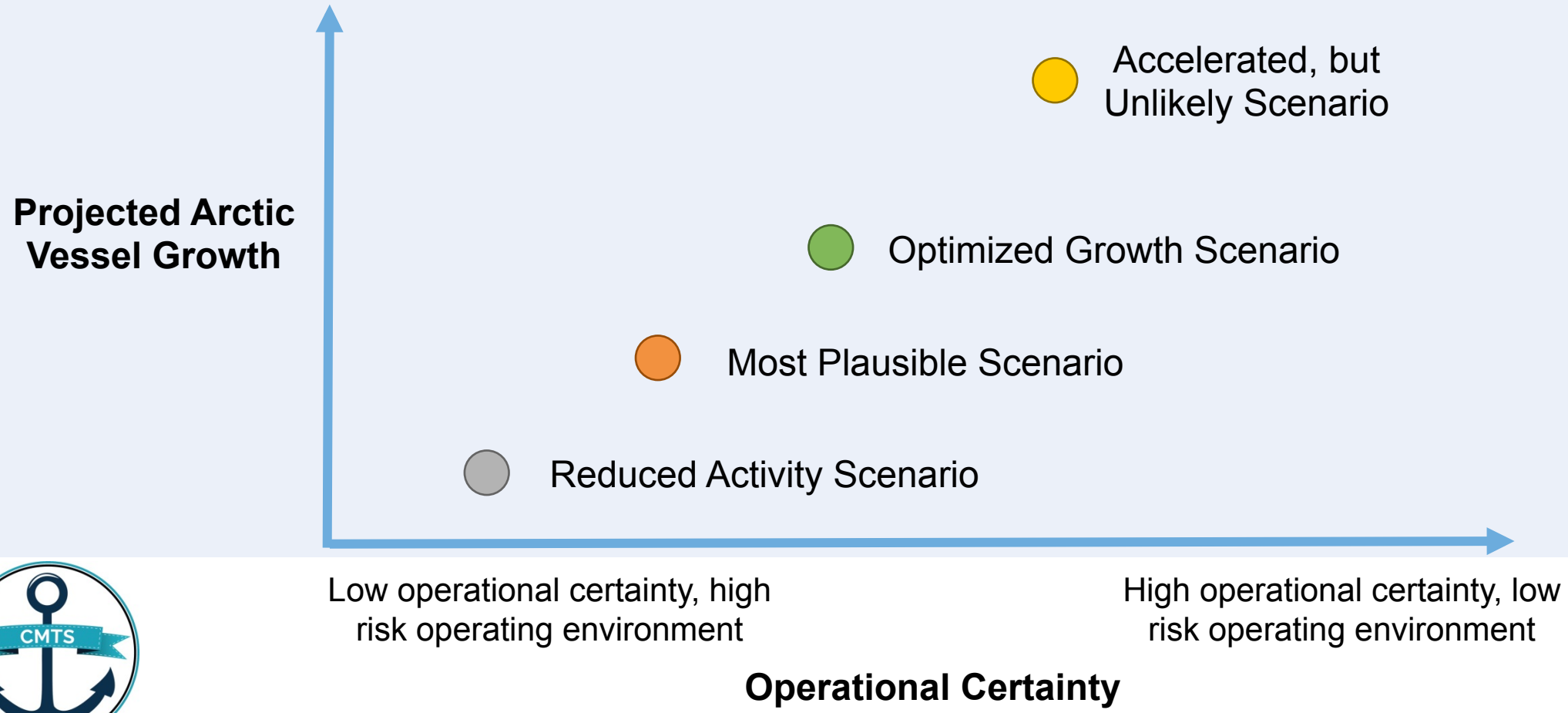
- USCG Polar Security Cutters
- Canadian, Russian, Chinese ice breakers
- Cruise and adventure ships

Vessels Seasonally Rerouted Through the Arctic via the Bering Strait

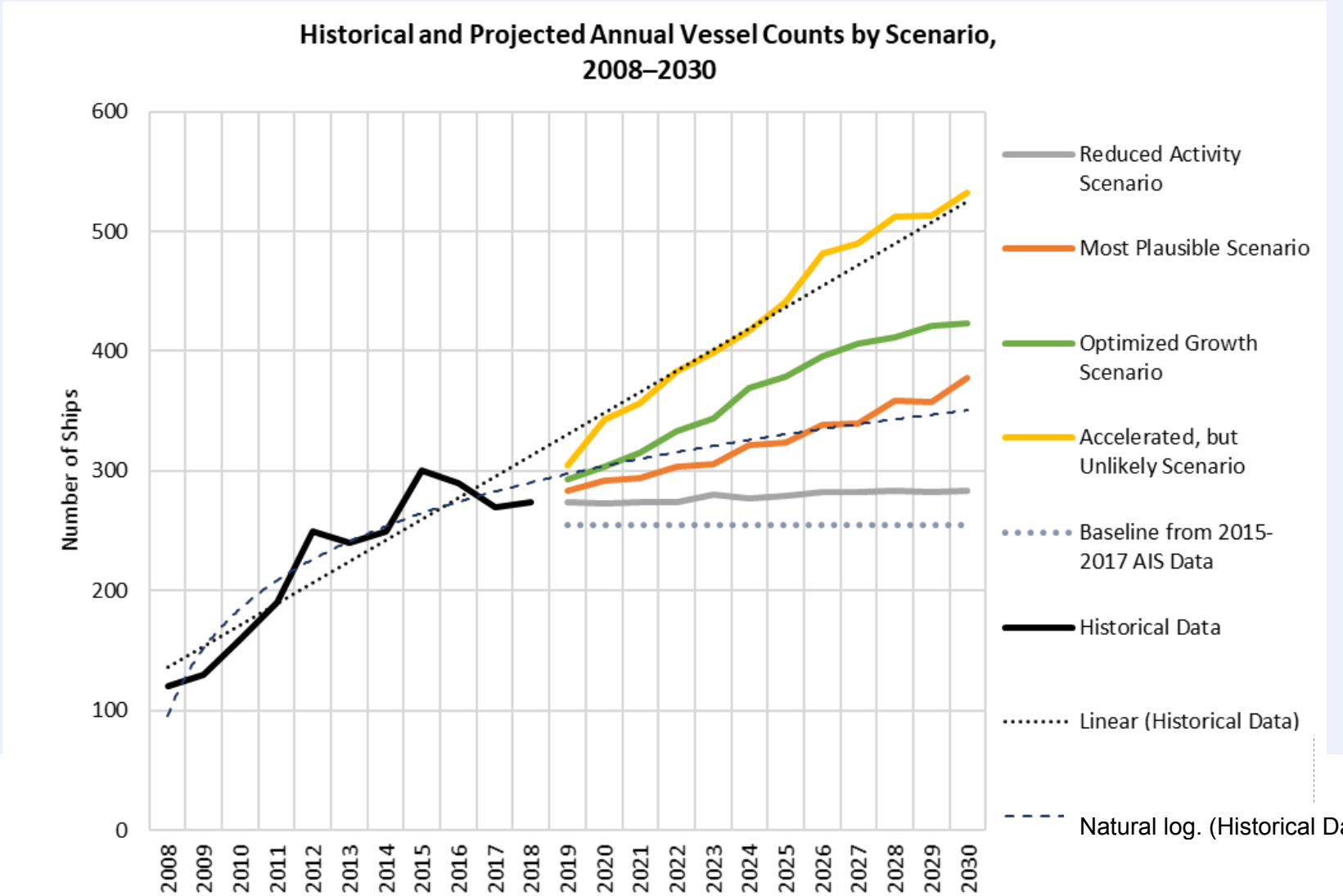
- Panamax sized vessels

Building scenarios

Assumption: An increase in operational certainty will result in increase vessel activity in the Arctic region



Projection Results



Questions, Comments, and Follow Up

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Context of Results

- Results suggest the region may enter a period of slower growth over the next decade
- Factors limiting growth include: infrastructure, investment, and regulatory and operational certainty
- Predicting vessel traffic is integral to waterway safety

Projection Methodology

Vessels used for Natural Resource Activities (n=17)

Vessels used for Infrastructure Development (n=12)

Vessels joining the 'Arctic Fleet' (n=6)

Vessels Seasonally Rerouted Through the Arctic via the Bering Strait

+

Total Number of Additional Vessels

Current Number of Vessels in the Region
(Determined through AIS baseline analysis)

Total Number of Vessels Projected to be in the U.S. Arctic

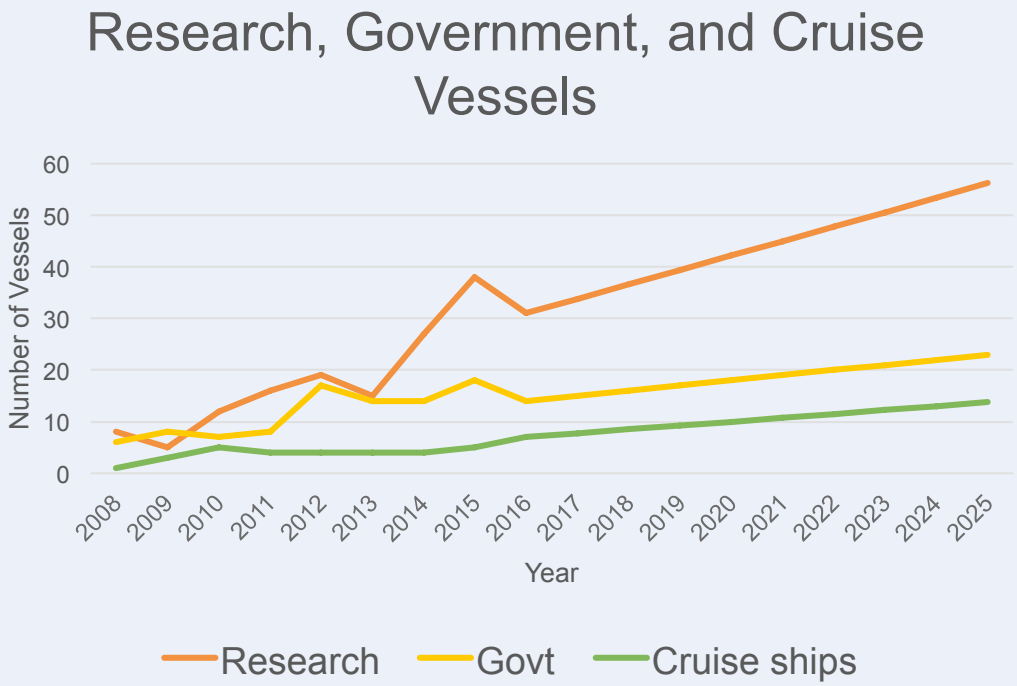
Repeat for 4 scenarios:

- Reduced Activity Scenario
- Most Plausible Scenario
- Optimized Growth Scenario
- Accelerated, but Unlikely Scenario

Assumptions from 2015 CMTS Report

1) U.S. Arctic traffic would maintain pace with global growth
2) Oil and gas development would be a major driver of traffic
3) Vessels would diverge from traditional shipping routes at measurable levels
4) Tourism, research, government, and unknown activity would remain consistent

- Regional growth outpaced global growth predictors
- Tug and cargo traffic grew at a rate of about 17%, not 3%
- Shell pulled out of their Arctic exploration and development plans in late 2015
- Growth in research, cruise, and government traffic



Underlying assumptions are no longer accurate

Scenario projections in 2030

Scenario	Change from 2008 Baseline	Change from Current Baseline (2015–2017)
Reduced Activity Scenario	136%	11%
Most Plausible Scenario	215%	48%
Optimized Growth Scenario	255%	67%
Accelerated, but Unlikely Scenario	346%	110%

Scenario projections in 2030

Scenario	Additional Vessels	Total Vessels
Reduced Activity Scenario	29	284
Most Plausible Scenario	124	379
Optimized Growth Scenario	171	425
Accelerated, but Unlikely Scenario	281	535

Drivers of Vessel Growth

Type of Growth	Sources of Growth
Natural Resource Development	Offshore Geological and Geophysical Research (US)
	Liberty Hilcorp Development Project (US)
	Eni's Beaufort Sea Exploration from Spy Island Drillsite (US)
	Oil and Gas Activities in the Willow Prospect within the National Petroleum Reserve (US)
	Oil and Gas Activities in the Arctic National Wildlife Refuge (US)
	LNG Production on the North Slope (US)
	Yamal LNG Project (Russia)
	Arctic LNG 2 Project (Russia)
	Ob LNG Project (Russia)
	Transshipment Facilities at Kamchatka and Murmansk (Russia)
	China's Icebreaking LNG Tankers
	Expansion of the Red Dog Mine (US)
	Graphite One Project in Nome (US)
	Hope Bay Gold Mine (Canada)
	Back River Gold Mine (Canada)
	Mary River Mine (Canada)
	Offshore Geological and Geophysical Research for Offshore Wind Development (US)
Infrastructure Development	Relocation of Kivalina, AK
	Relocation/Protection-in-Place of Shishmaref, AK
	Relocation of Newtok, AK
	Modification of the Port of Nome
	Lower Yukon River Regional Port and Road Project in Emmonak, AK
	Construction of the Kotzebue to Cape Blossom Road
	Road Improvements in Utqiagvik, AK
	Road Improvements in Nome, AK
	Road Improvements in Selawik, AK
	Airport Repair in Alaska
	Onshore Renewable Wind Development Projects
	Expanded Services for Community Resupply and Waste Removal
Expansion of the Arctic Fleet	USCG Polar Security Cutters
	Russian Icebreakers
	Canadian Icebreakers
	Chinese Icebreakers
	Expansion of Polar Class Cruise and Adventure Ships
Seasonally Rerouted Shipping	A Panamax-sized Fleet of Select Vessel Types