



Major Cruise Line Perspective: Emergency Response in the Arctic

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Who we are

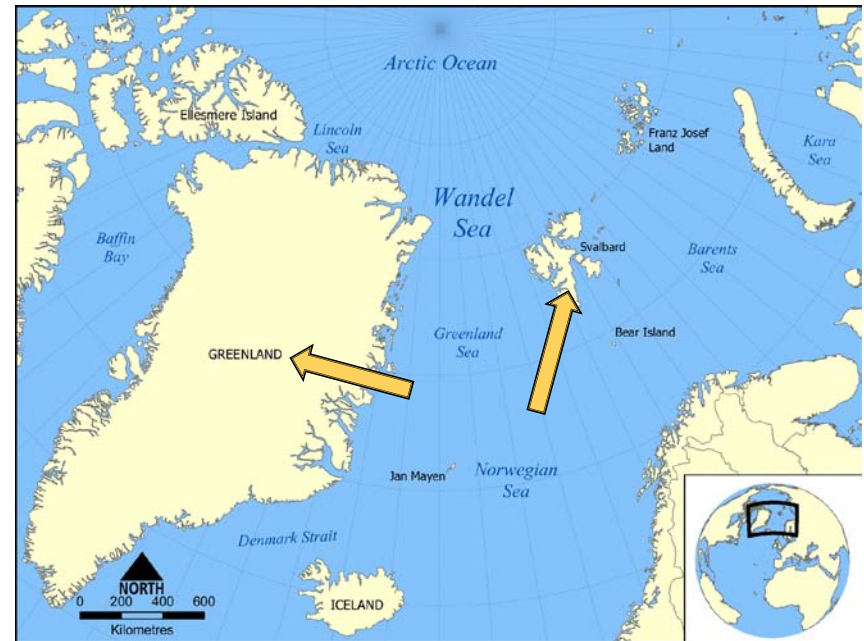


- Major cruise ship companies
 - Wholly owned subsidiaries of Carnival Corp, the largest cruise ship operator
- We operate
 - 14 ships over 1000 passengers
 - 7 Ships under 1000 passengers



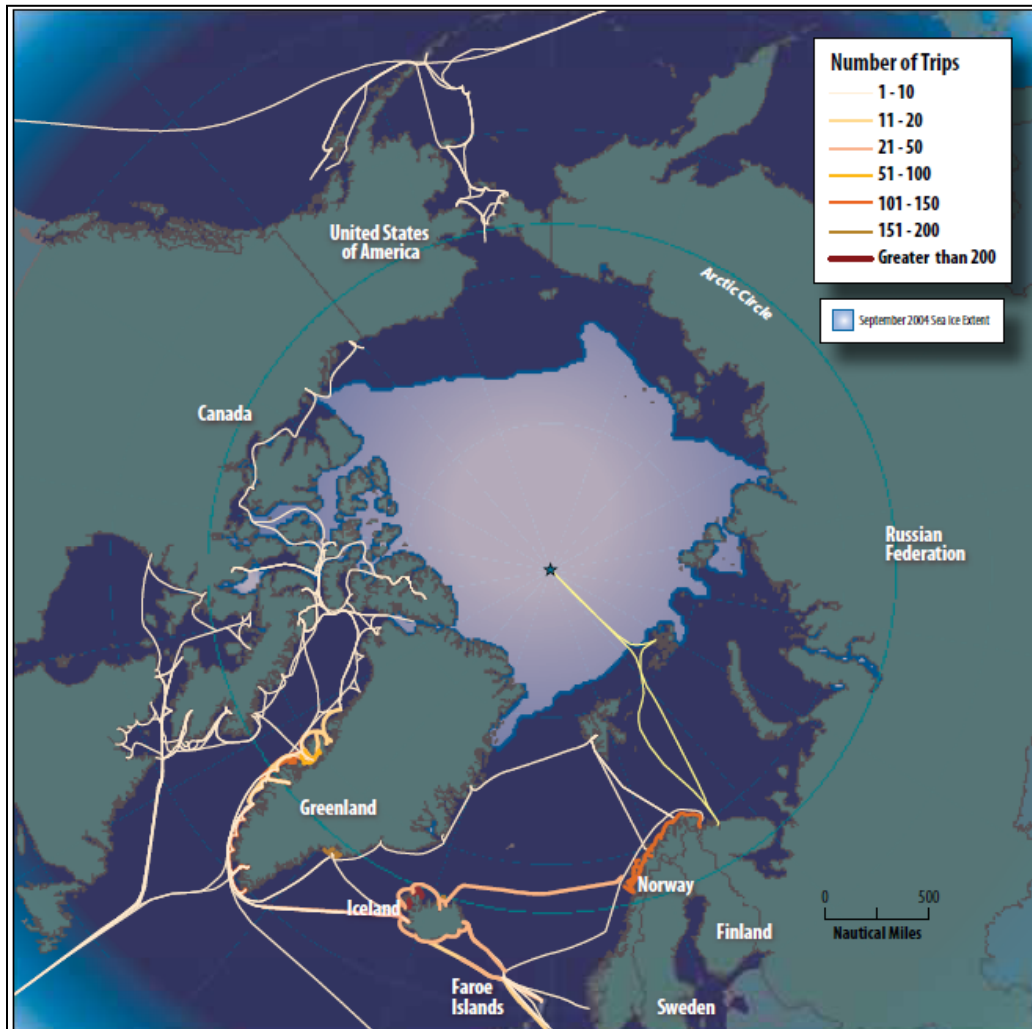
Where we go

- Greenland
- Svalbard
- Antarctica
- Aleutian Islands (seasonal transition)
- Vicinity of Glaciers
 - SE Alaska & S. America



- Seasonal ice-free waters / no-risk ice conditions
- We are not explorers
- Go to known places
- Take experienced pilots where appropriate

Who else is going to the Arctic and where?



Map 5.4 Passenger vessel traffic. Source: AMSA



Plans for the Future

- Big cruise ships are not going to the NW passage
- Farthest North we will go:
 - North of Svalbard to seasonal ice edge
 - West Coast of Greenland to Qaqortoq
 - Honningsvåg, Norway
- One Seabourn ship is being ice-strengthened



Response Resources Needed

- Shore-based
 - Information (Weather and Ice)
 - Communications
 - Coordination/Partnerships
- Maritime resources
 - Response & Search Assets
 - Emergency Towing Services
- Aviation support
 - Search & Lift Assets

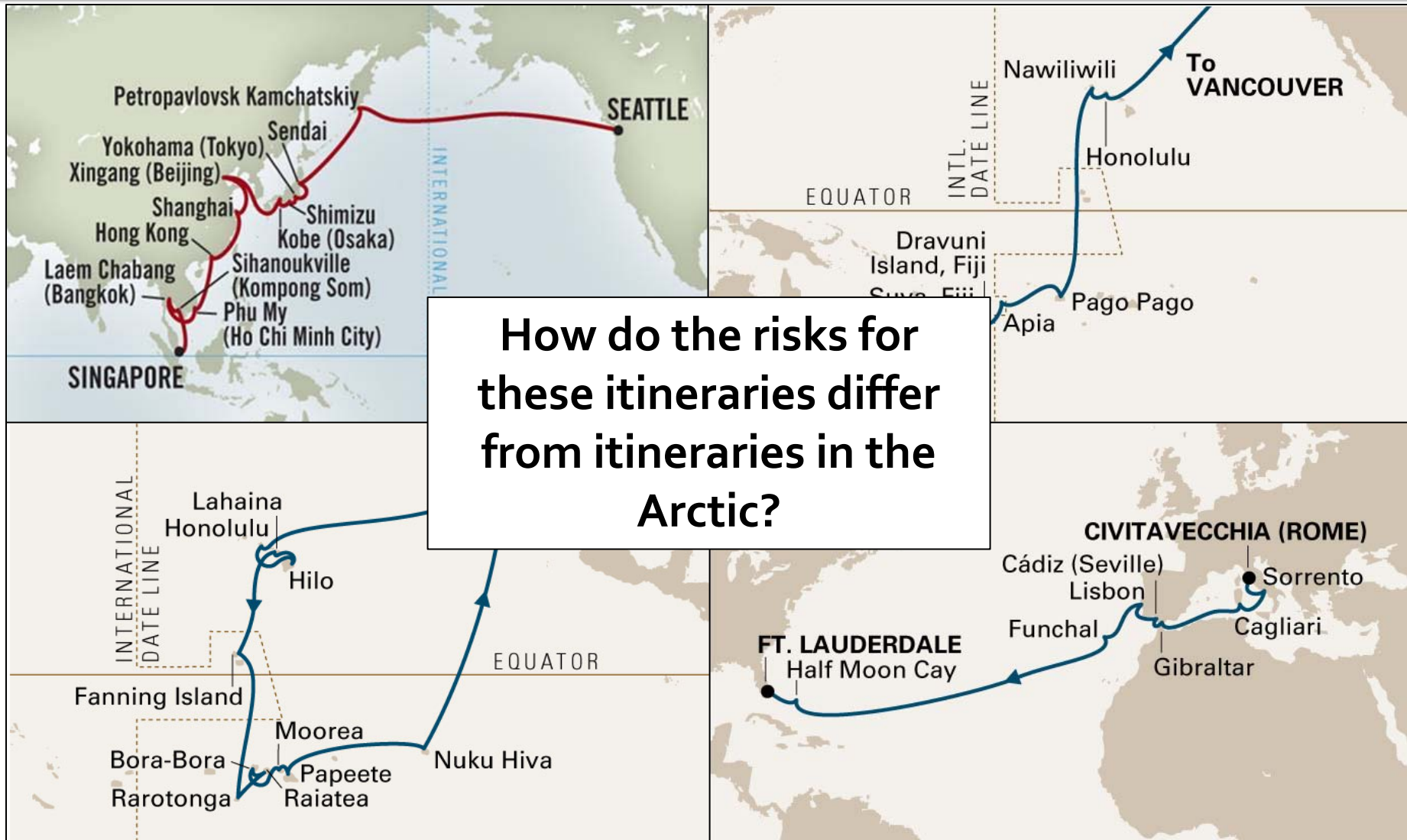


Risks in Arctic

- Risk factors in Arctic include:
 - Distances (from resources)
 - Temperatures
 - Limited Assets/Infrastructure Available
 - Lack of Information (hydrographic, weather & ice)
- For major cruise lines:
 - Similar probability and consequence of event as other areas
- For small lines going farther north:
 - Both probability and consequence of event may be higher



How do the Arctic Risks Differ?



Antarctic Tiered Risk Assessment

- IAATO commissioned the assessment
- Study reviewed:
 - Current activities of passenger ship-based tourism
 - Antarctic Treaty Consultative Meeting Intersessional Contact Group
 - Papers and discussion pertaining to Guidelines for Ships Operating in Polar Waters by the IMO

- Assessment included:

1. Description of activities and the operating environment
2. Hazard identification
3. Risk analysis
4. Risk control

Risk evaluation of identified accident categories

AID	Initiating event	Likelihood L	Consequences C ⁷	Risk Index R ⁷	Risk Level ⁷
1	Grounding	3.0	3	6.0	HIGH
2	Contact with ice	2.2	3	5.2	HIGH
3	Stranding in ice	2.4	1	3.4	MODERATE
14	Collision with another vessel	1.0	3	4.0	MODERATE
4	Fire	1.0	2	3.0	LOW
5	Medical emergency	3.5	1	4.5	HIGH
6	Capsize (small boat/yachts)	1.9	2	3.9	MODERATE
7	Heavy weather damage	2.6	1	3.6	MODERATE
8	Machinery failure	1.9	0	1.9	LOW
9	Electrical failure (blackout)	1.9	1	2.9	LOW
10	Contact (with other than ice)	2.2	0	2.2	LOW
11	Man overboard	1.0	1	2.0	LOW
12	Extreme motions	1.0	1	2.0	LOW
13	Separated small boat	1.0	1	2.0	LOW

Actions to Consider

	Industry	Governments
Prevention	<ul style="list-style-type: none">• Proper Itinerary & Voyage Planning• Training• Equipment/Systems (Comms, Nav, Emergency Response)• Well Laid Out Procedures• Ship Construction as appropriate• Risk Assessment	<ul style="list-style-type: none">• Detailed Ice Information• Accurate Weather Information• Accurate/Updated Hydrographical Surveys and Charts• Situational Awareness System for Vessels of Interest (Reporting System)
Response	<ul style="list-style-type: none">• Understand available capabilities• Conduct Period Exercises (Internal and in coordination with Government Agencies)• Visits managed to operational season	<ul style="list-style-type: none">• Right mix and understanding of resources and capabilities, including<ul style="list-style-type: none">• Time delay in response• Towing Services

Key Takeaways

- Issue of managed risk
- Arctic emergency response is challenging, but so is open ocean response everywhere
- Governments and industry must both contribute to safety in the Arctic



What We Are Doing

- The cruise industry, our corporation and our companies are:
 - Organizing ourselves
 - International Association of Antarctic Tour Operators (IAATO)
 - Association of Arctic Expedition Cruise Operators (AECO)
 - Contributing to development of polar code
 - Sharing of best practices
 - Standardizing Procedures between operating lines: Bridge Resource Management, Damage Control, Firefighting and Emergency Mustering and Ship Abandonment

