

# Arctic Shipping Traffic Changes: Health and Environmental Impacts

ESPG University of Ottawa

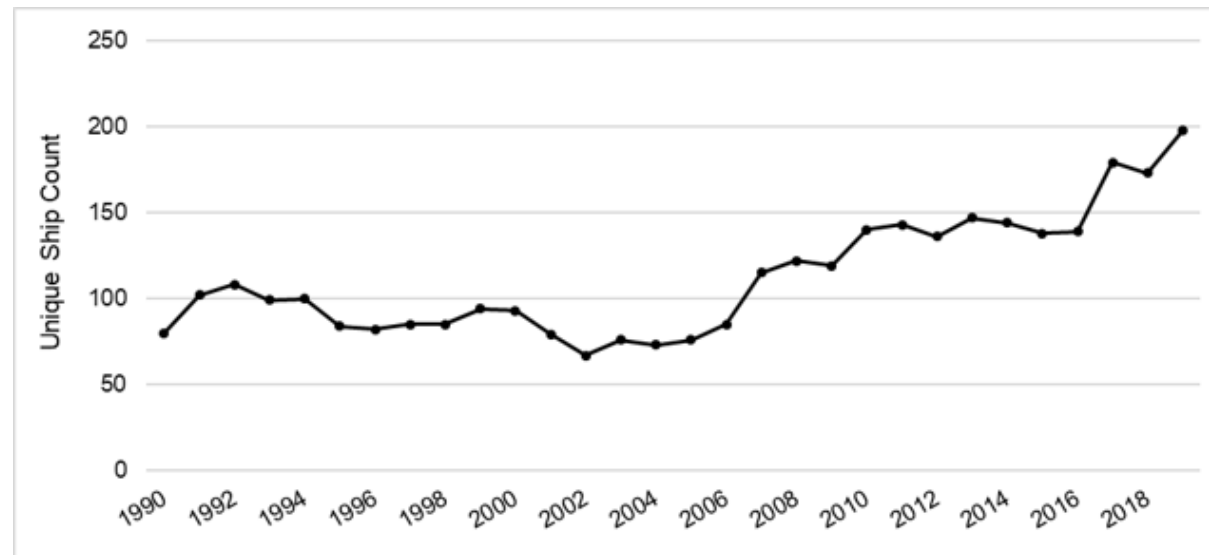
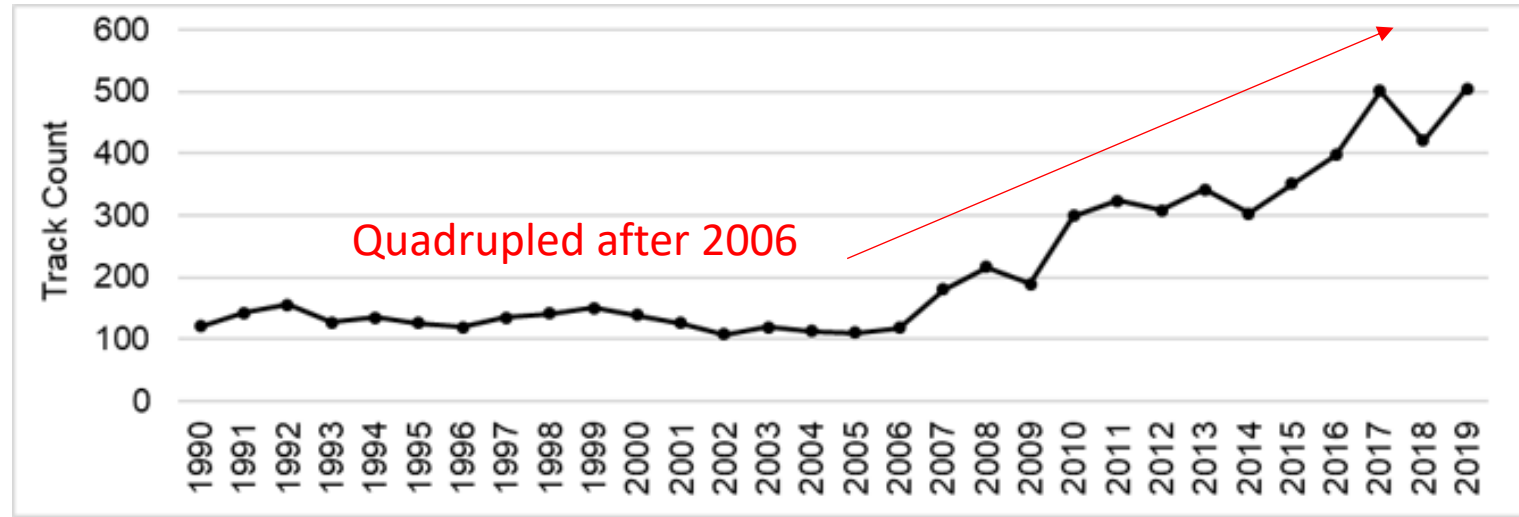
Dr. Jackie Dawson, Dr. Natalie Carter, Dr. Jean Holloway,  
Dr. Alison Cook

Presenter: Dr. Nicolien van Luijk





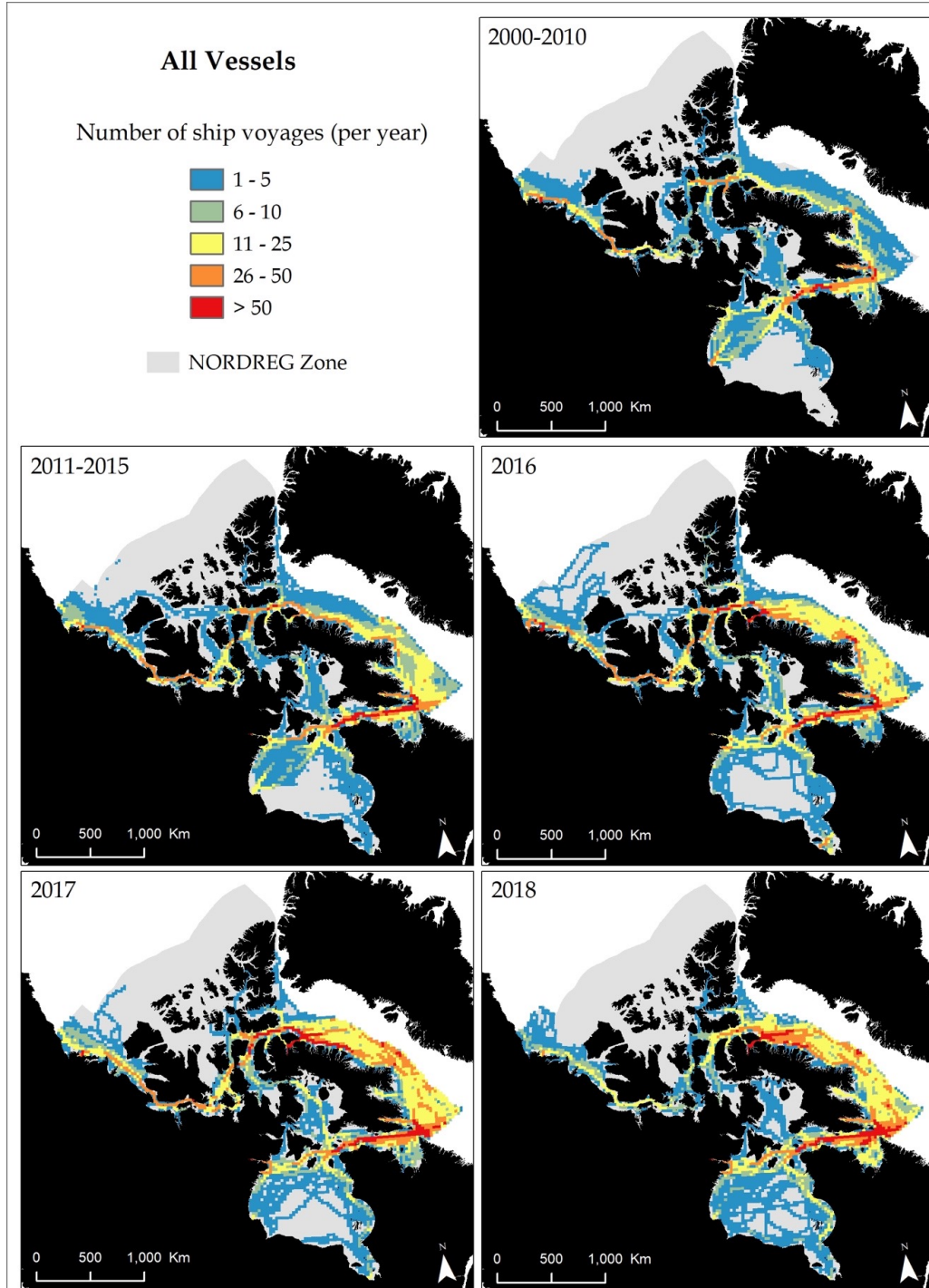
# Increase in number of unique ships and voyages



# Spatial trends

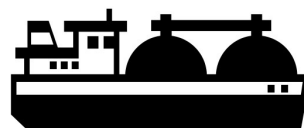


Dawson et al. 2019



# Heavy Fuel Oil and shipping in the Canadian Arctic

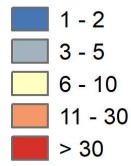
- HFO-fueled ships fell into 3 ship types: Bulk Carriers, General Cargo, Tankers
- HFO use is increasing. In 2018 HFO-fueled ships made up 50% of the kilometers travelled that year.
- Mining plays a large role in contributing to the number HFO-fueled vessels in the Canadian Arctic, this is expected to increase.
  - Distance travelled by Bulk Carriers doubled since 2010



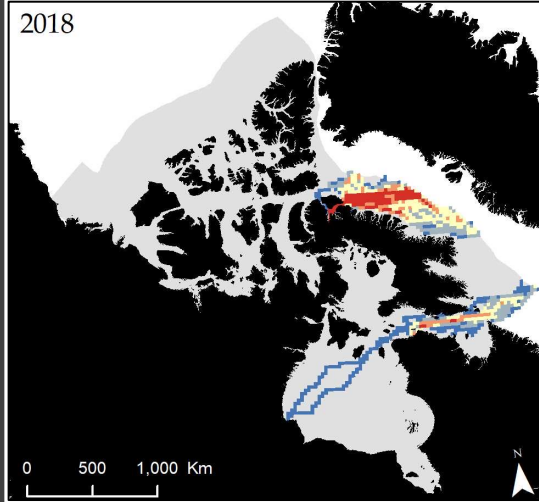
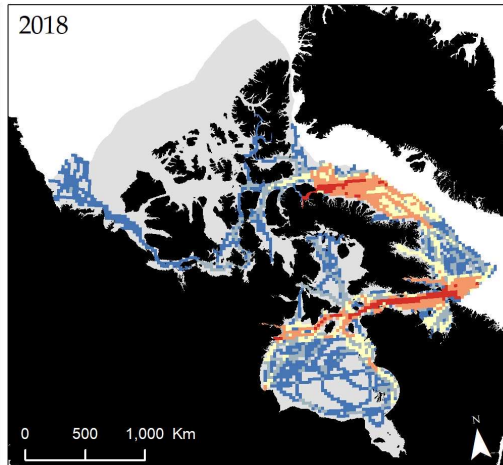
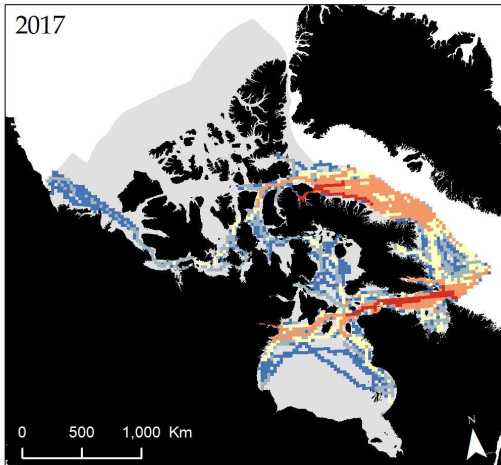
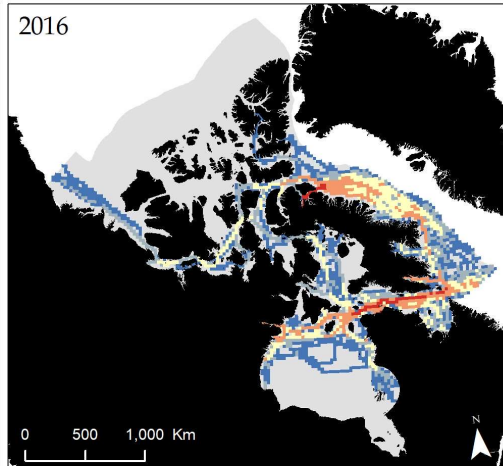
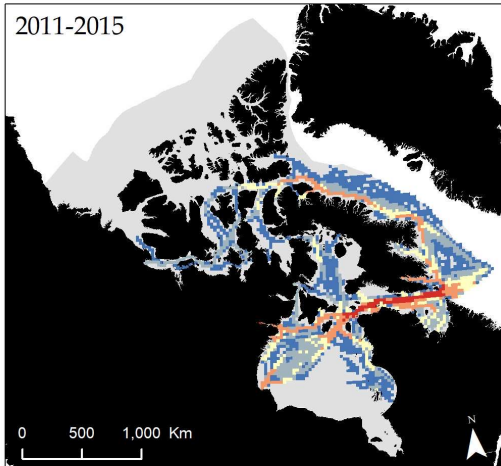
### Residual Fuel Ships:

#### Voyage Count

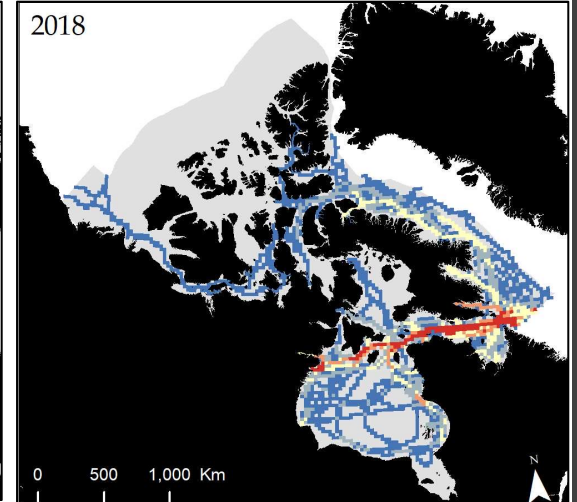
Voyage count (per year)



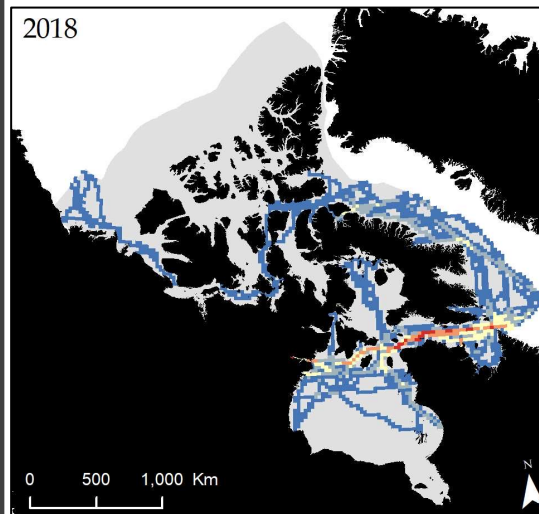
Grey box: NORDREG Zone



Bulk Carrier activity 2018

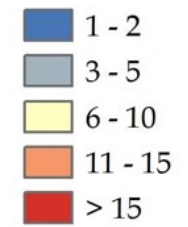


General Cargo activity 2018



Tanker Shipping activity 2018

Voyage count (per year)



Grey box: NORDREG Zone

# Arctic Corridors and Northern Voices Project

- Arctic Corridors Northern Voices project led by Dr. Jackie Dawson and Dr. Natalie Carter

[www.arcticcorridors.ca](http://www.arcticcorridors.ca)

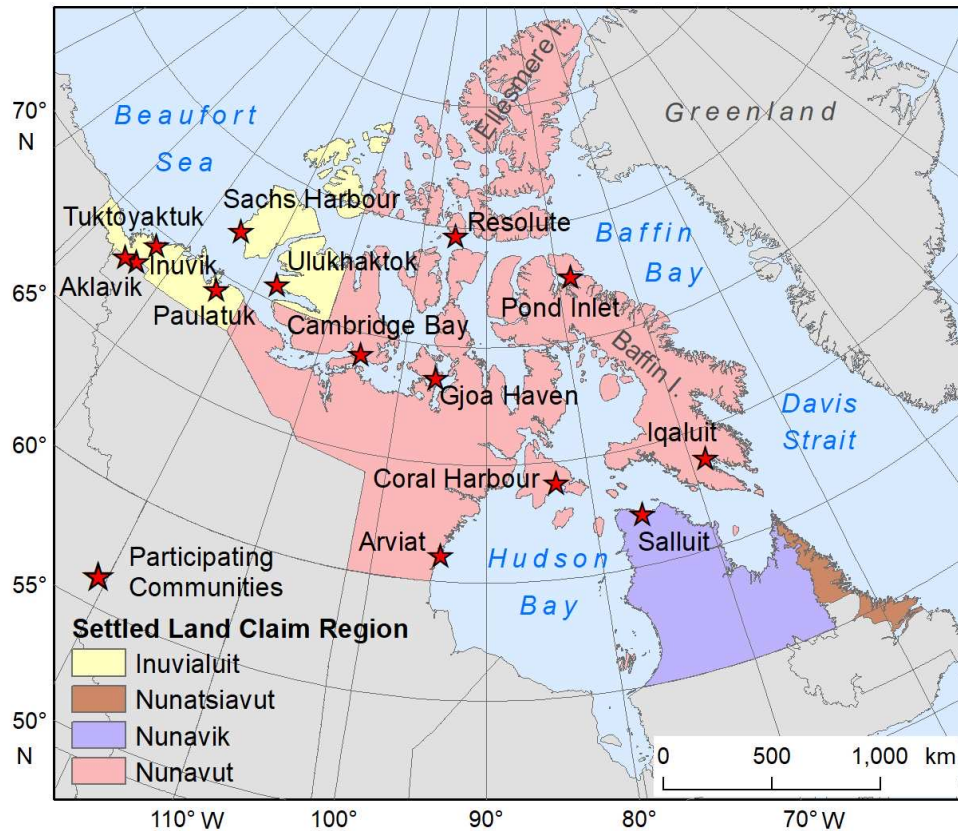
- ACNV aim is to share the perspectives of Inuit on the impacts of shipping and climate changes to help inform policy decisions



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# METHODS: 14 partner communities



- 14 community workshops and interviews
- 2-3 day local youth training
- 2 day mapping workshops

(Dawson et al, 2021; Carter et al, 2021)

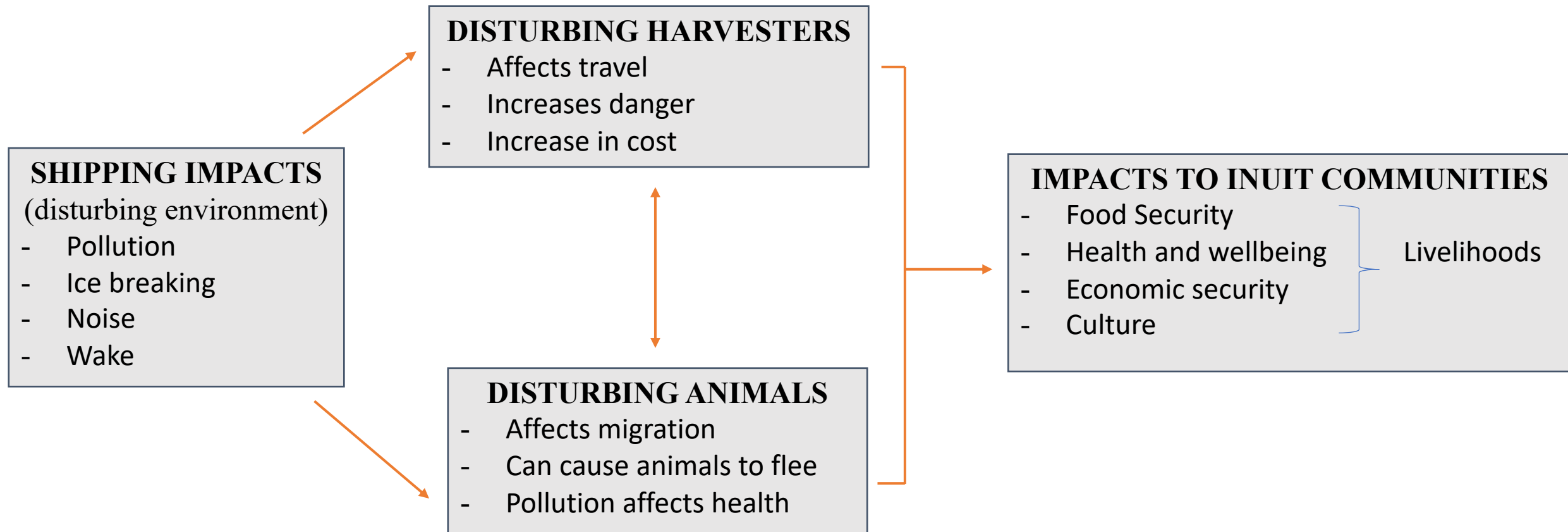






Arviat: Jimmy Napayok, Hunter Tattuinee, Kukik Baker; Shirley Tagalik; Pond Inlet: Andrew Arreak, Shelly Elverum, Eleanore Arreak-Pitseolak, Cara Killiktee, Brian Koonoo, Justin Milton, Michael Milton, Jimmy Pitseolak, Jonathan Pitseolak, Natasha Simonee, Rachel Smale, Eric Solomon; Gjoa Haven: Karen Aaluk, Candace Eleeheetook, Ikey Kogvek, Nicole Kununak, Edward Nuliayok, Breanna Pooyatak, Charlene Porter, Gibson Porter, Gina Porter, Johnny Porter, Cory Putuguq, Alaira Sallerina, Brad Tiriraniaq, Brett Tiriraniaq; Cambridge Bay :Pamela Akhok, Colin Crockatt, Francis Emingak, Takpak Klengenber, Shawn Marriott, and Jasmine Tiktalek; Coral Harbour: Jupie Angootealuk, Mark Eetuk, Chantel Emikaut, Lenny Emiktaut, Joe Pingwartuk, Adamie Nakoolak, and Bobbie Saviakjuk.

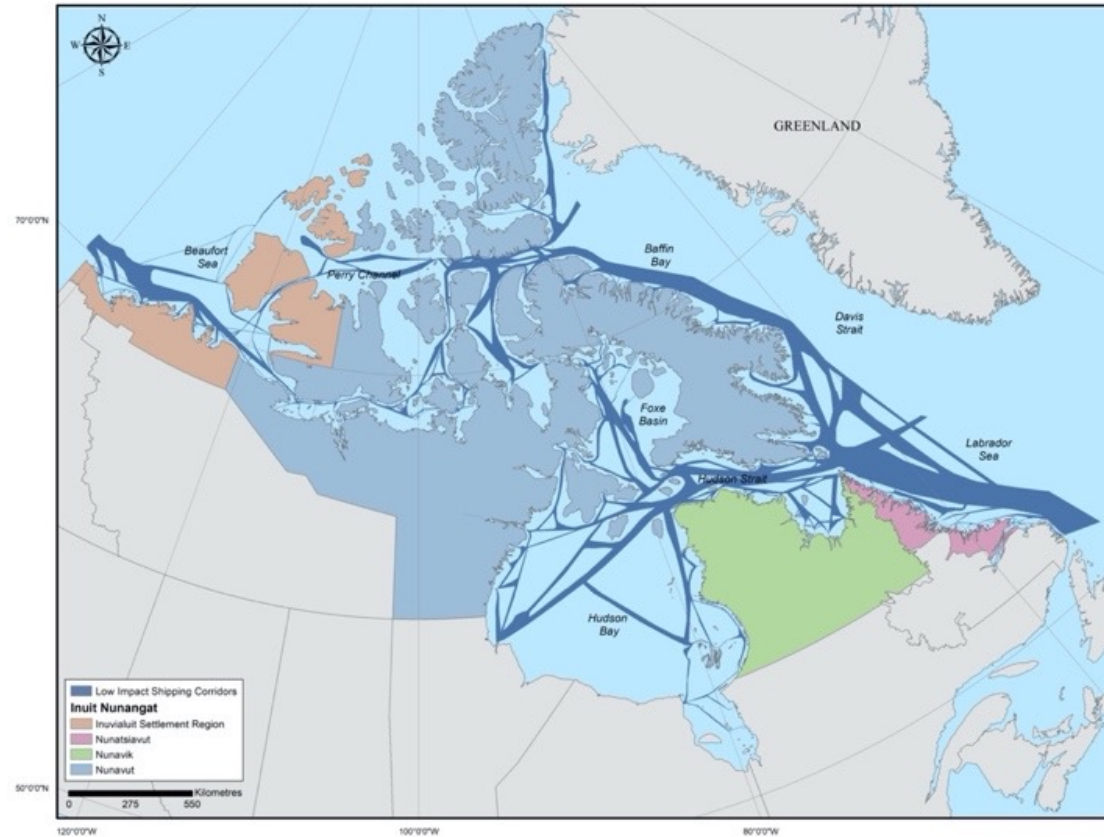
# FINDINGS: Impacts to communities



# Low Impact Shipping Corridors

*“...dynamic shipping routes throughout Canada’s North where the necessary infrastructure, marine navigational support, and emergency response services could be provided to ensure safer marine navigation, while respecting the sensitive northern environment and its ecological and cultural significance”*

(House of Commons Report, 68; underline our emphasis).



# Community- Identified Recommendations



- **Preferred corridors** (*8 communities*)
  - Revise corridors near protected areas
  - Locate corridors further offshore to limit impact on wildlife and communities
- **Area to avoid** (*10 communities*)
  - Avoid protected areas such as MPAs and Migratory Bird Sanctuaries
  - Avoid sensitive areas important to communities and marine wildlife
- **Restricted shipping seasonally** (*10 communities*)
  - No icebreaking year round
  - No icebreaking during forming and break up phases
  - Scares away animals and dangerous for hunters
- **Modification of vessel operation** (*7 communities*)
  - Reduce noise and speed to limit impact on wildlife
- **Charting needed** (*4 communities*)
  - Proposed areas where charting is needed

# Conclusions

- Shipping is increasing throughout the Canadian Arctic
- Inuit and Northern communities have identified impacts and potentials risks that Arctic shipping is having and can have on their way of life:
  - Environmental degradation
  - Disruption to travel and safety
  - Impacts to wildlife
  - Impacts to security and Inuit sovereignty
- There is a need to listen to and work with Inuit when making any decisions regarding shipping policy.