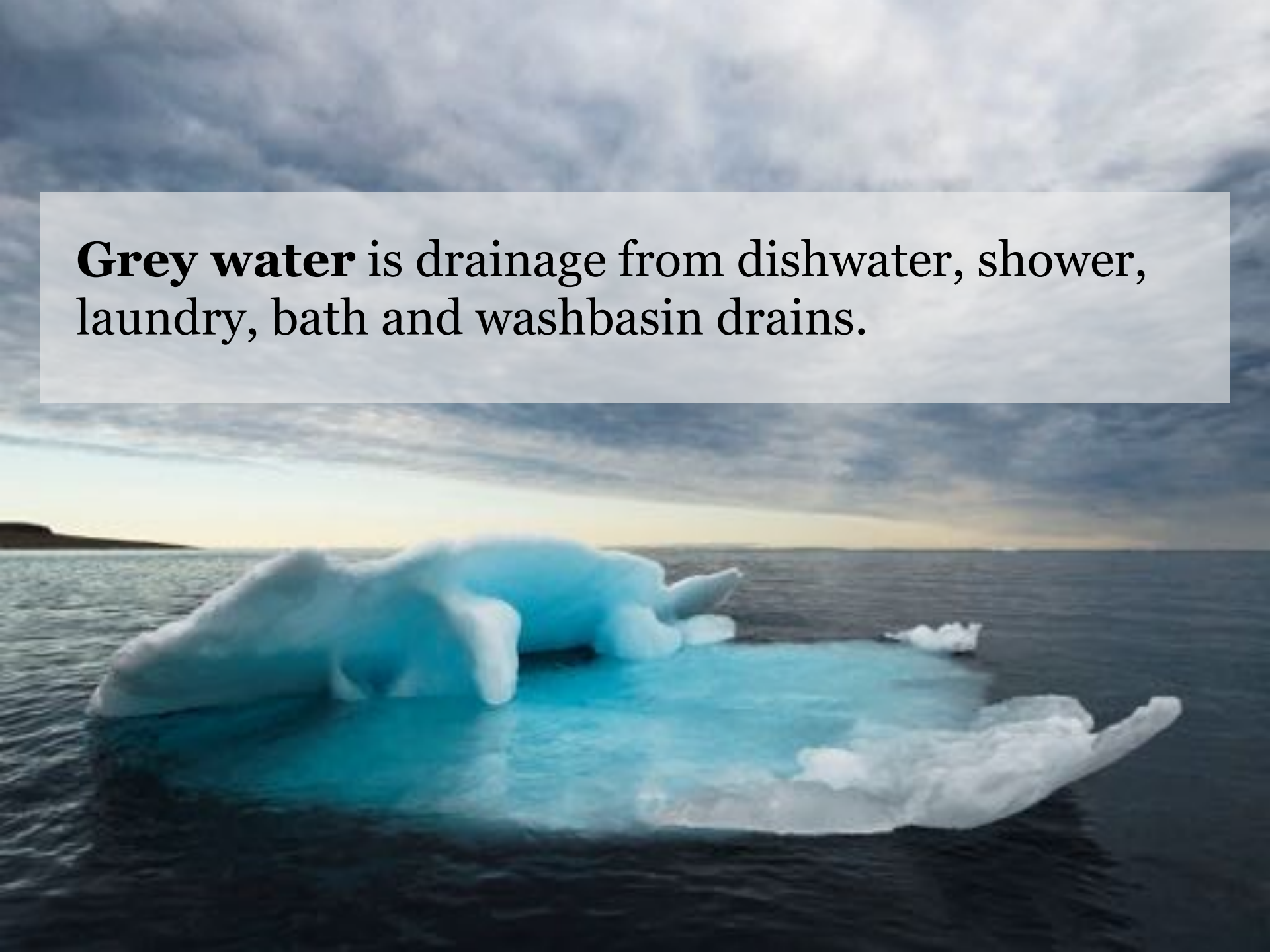
Grey water discharges from ships in the Arctic

PAME
September 9, 2019
Reykjavik, Iceland

- People depend on a healthy ocean for subsistence and culture
- Disturbance directly impacts food security

Vessel traffic is increasing

- Doubling of traffic in Canadian Arctic
- 120%-430% vessel increase in Bering Strait by 2025
- 2019- Seven cruise ships in Nome, AK



Grey water is drainage from dishwater, shower, laundry, bath and washbasin drains.

US EPA report – "Untreated grey water characteristics are similar to, and in some cases have a higher concentration of constituents than domestic sewage"

- Fecal coliform = 1-3 > untreated domestic sewage
- Nitrate/nitrite, phosphorus comparable to domestic sewage

- Excessive algal growth from nutrients → Dead zones
- Increased particulate matter → Smother benthic species
- Pathogen vector → Ecological and human health risks

Canada: North of 60 degrees latitude

Zero-waste regime

- No definition for grey water
- Prohibits discharge of treated waste water
- No process for treatment system approval
- Lack of onboard carrying capacity and ashore infrastructure

Canada: South of 60 degrees latitude

New large passenger vessels must treat grey water prior to discharging it within 3 nm of the coast or release it outside of 3 nm

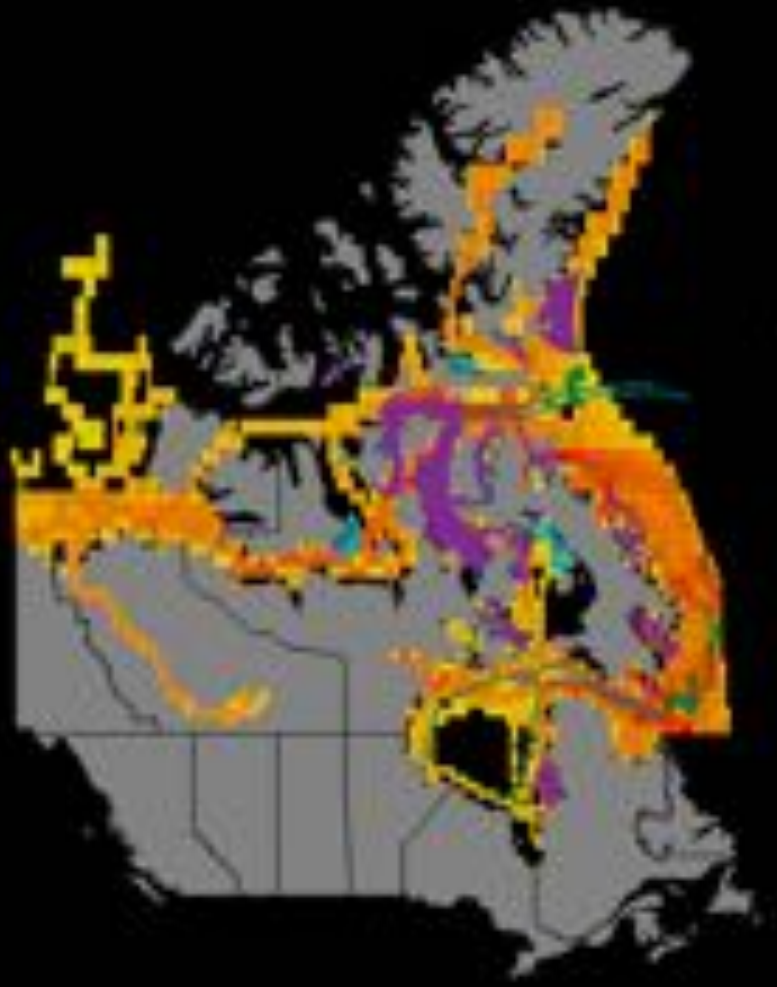
Grey Water Generated in the Canadian Arctic 2016

Vessel Type	Greywater (L)
Passenger Vessel	11,622,319
Fishing Vessel	5,771,964
Coast Guard Icebreaker	3,743,490
General Cargo	2,439,094
Bulk Carrier	3,474,563
Tug	1,623,021
Cruise Ship	1,541,667
Tanker	1,270,625
Military Vessel	676,057
Factory Ship	328,385
Chemical Tanker	228,703
Sailing Ship	204,505
Trawler	165,938
Coast Guard Tender	139,219
Research Vessel	109,833
Yacht	76,583
Adventurer	15,781
Others	6,547
Totals	**33,438,293**

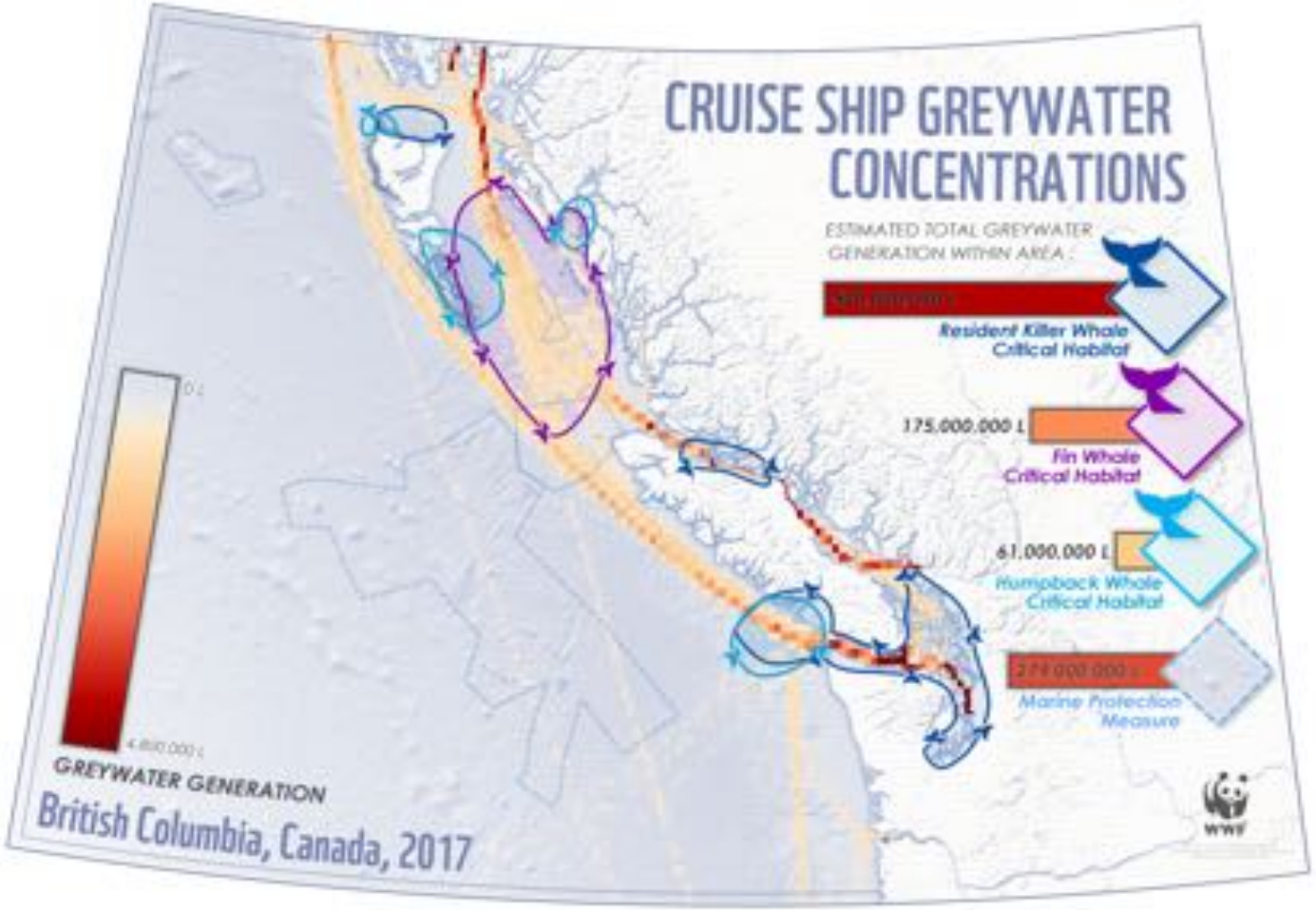
E. Biersma

IMPORTANT ECOLOGICAL AREAS

- Important narwhal & beluga areas
- Arctic char concentrations
- Eastern arctic sensitive benthic areas
- Beluga migration routes



Canadian West Coast Grey Water Report



Treatment options

Alaska large passenger vessel regulations

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- Standards only achievable through use of AWTS
- Requires sampling, monitoring, reporting

California, Norway, and elsewhere have grey water-specific regulations

Hurtigruten

Bilateral Grey Water Workshop Goals

- Address community concerns about grey water discharges
- Identify technologies for pragmatic treatment
- Exchange “lessons learned” to help inform practical solutions
- Discuss gaps and challenges

Bilateral Grey Water Workshop Key Messages

- No discharges near communities
- Pragmatic treatment technologies available, in use, enforced
- IMO action needed

International Context

- Grey water & marine plastic litter
- Norway - proposed revisions to MARPOL Annex IV
- Polar Code

PAME – Next Steps

- Invite experts and more information to PAME I and II 2020
- Interested States, PPs and Observers develop a project proposal for PAME I 2020

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