

PICES 2019

Environmental impacts  
and potential mitigation  
of grey water discharges  
from ships

SARAH BOBBE  
Ocean Conservancy



People depend on a healthy ocean for **subsistence** and **culture**.

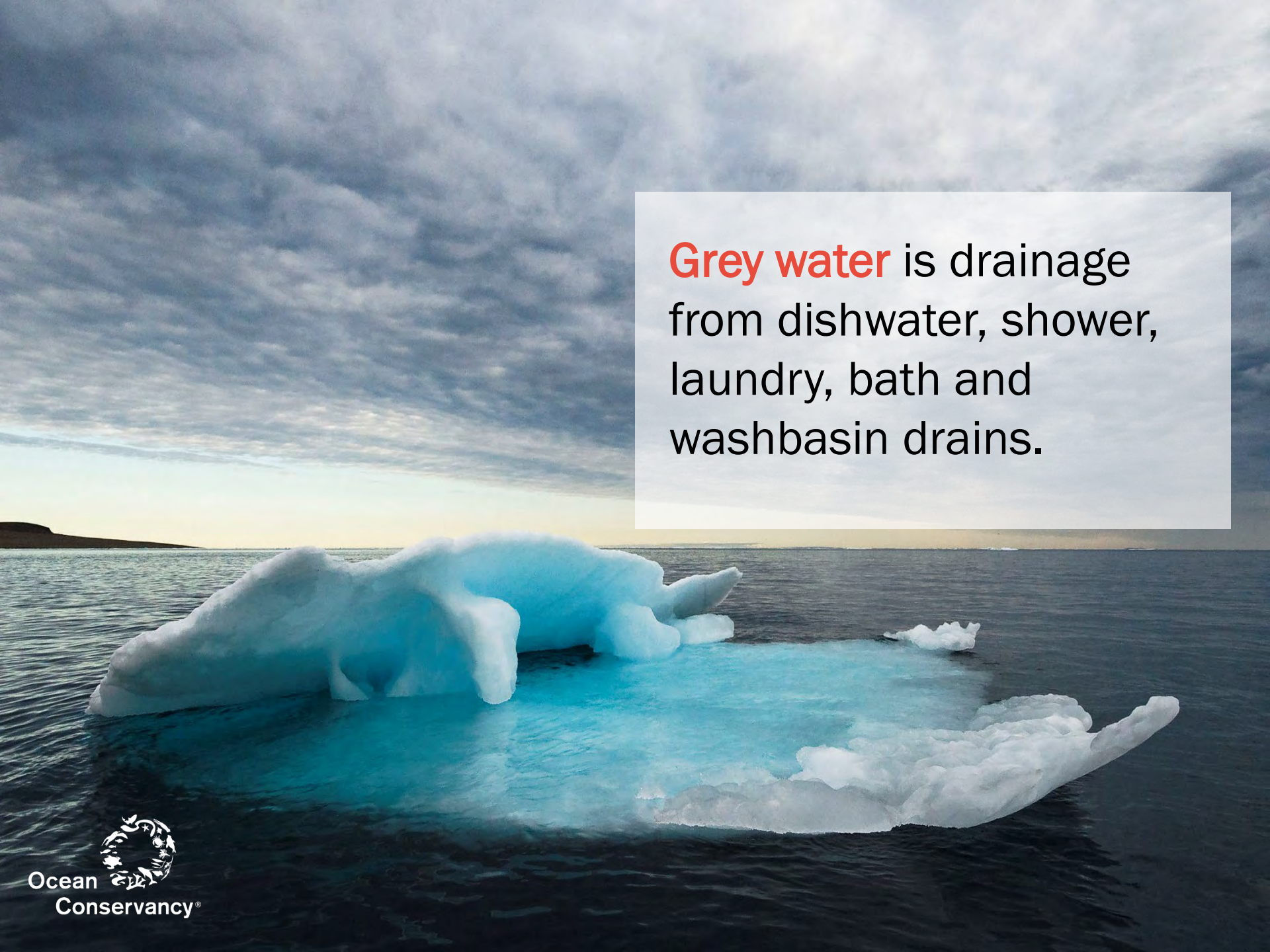
Disturbance **directly impacts** food security.

# Vessel Traffic is Increasing

**Doubling** of  
traffic in  
Canadian Arctic

**120 - 430%** vessel  
increase in Bering  
Strait by 2025





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

“Untreated grey water characteristics are similar to, and in some cases have a higher concentration of constituents than domestic sewage.”

- U.S. Environmental Protection Agency

Fecal coliform = **1-3** > untreated domestic wastewater

BOD = **4 X** higher domestic sewage



- Excessive algal growth from nutrients

Dead zones

- Increased particulate matter

Smother  
benthic species

- Pathogen vector

Ecological and  
human health  
risks

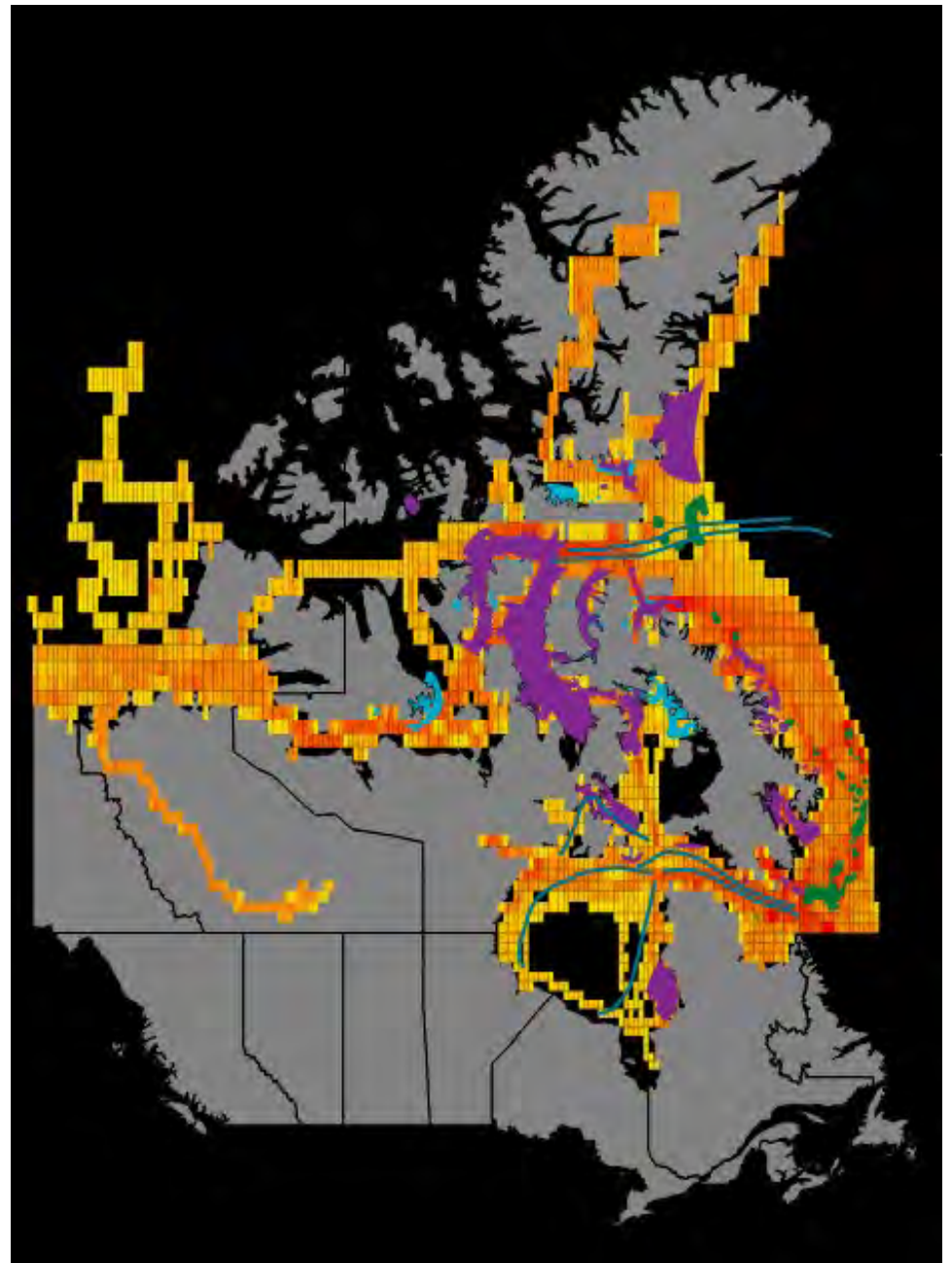
# Grey Water Generated Canadian Arctic 2016

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
<b>Totals</b>	<b>33,438,293</b>



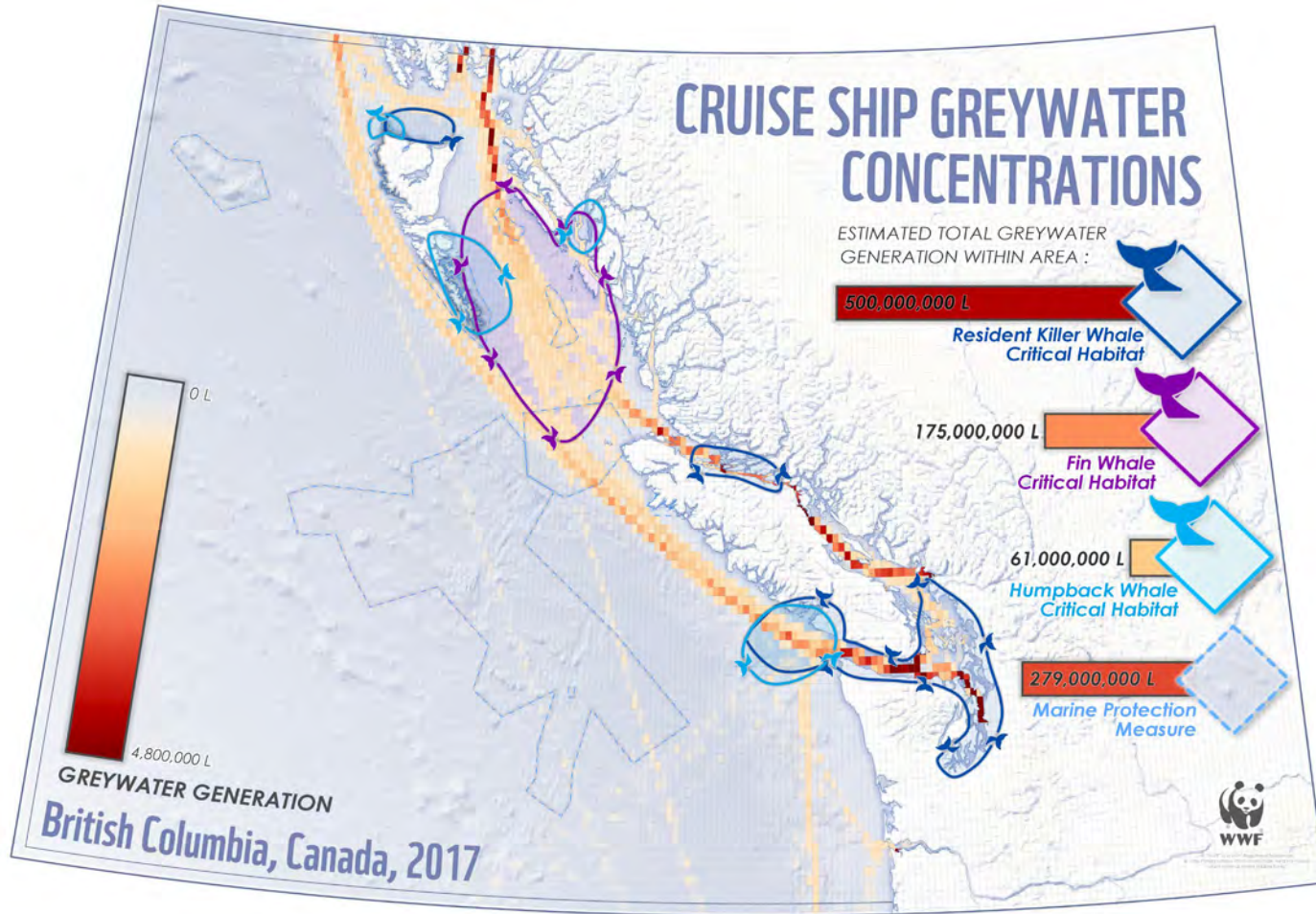
## IMPORTANT ECOLOGICAL AREAS

- 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

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





California, Norway and elsewhere  
have specific grey water regulations

# 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

Arctic Council

International  
Maritime Organization



# THANK YOU

**SARAH BOBBE**

Ocean Conservancy

[sbobbe@oceanconservancy.org](mailto:sbobbe@oceanconservancy.org)

+1-907-885-3058

