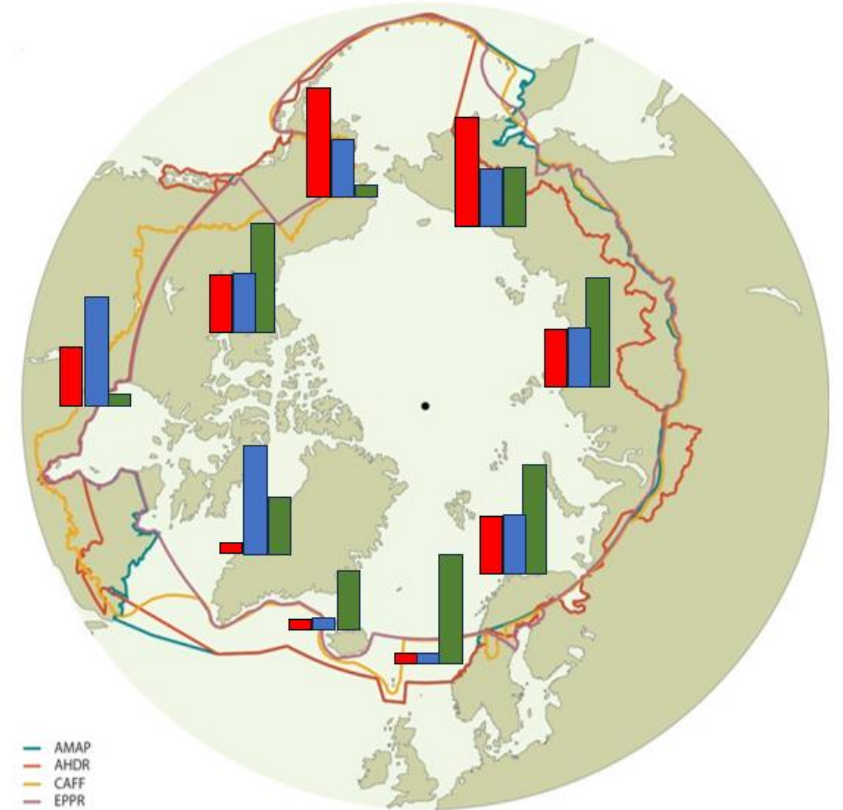


# Plastic pollution monitoring in coastal environments in northern and western Canada



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**AMAP Litter and Microplastics Expert Group Co-lead**

# What is an assessment?

- *Oxford dictionary* - the evaluation or estimation of the nature, quality, or ability of someone or something
- To monitor or quantify consequences of a plan, policy, program

## What do we include as the Arctic?

- Even within the Arctic Council working groups there are different definitions

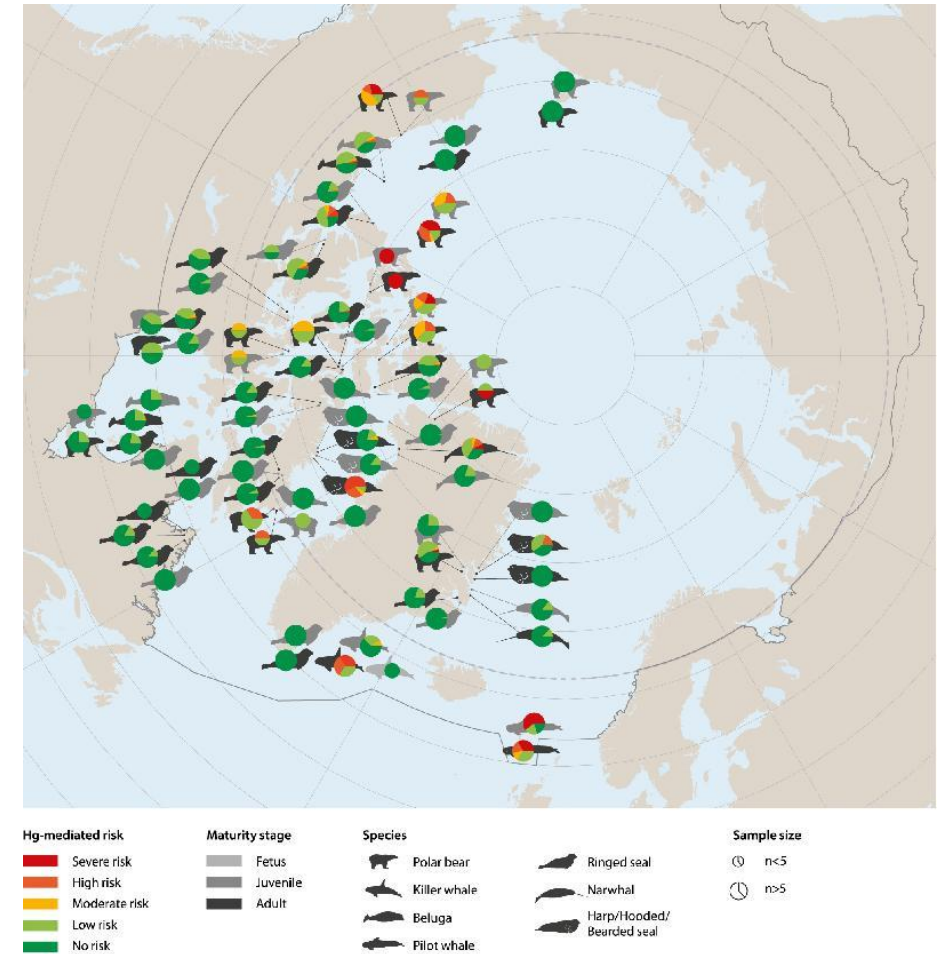
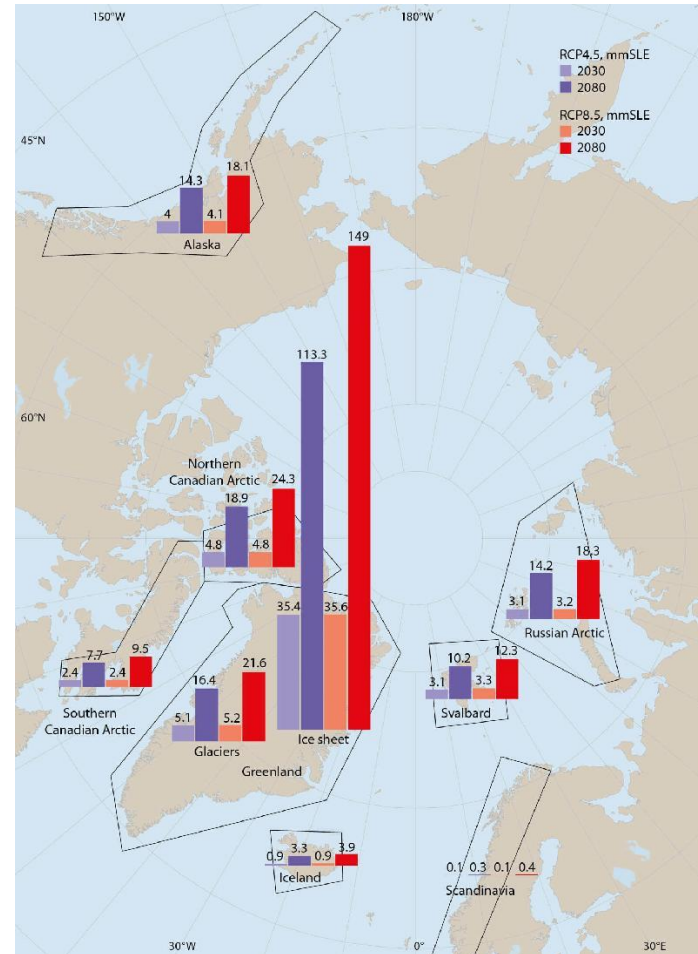
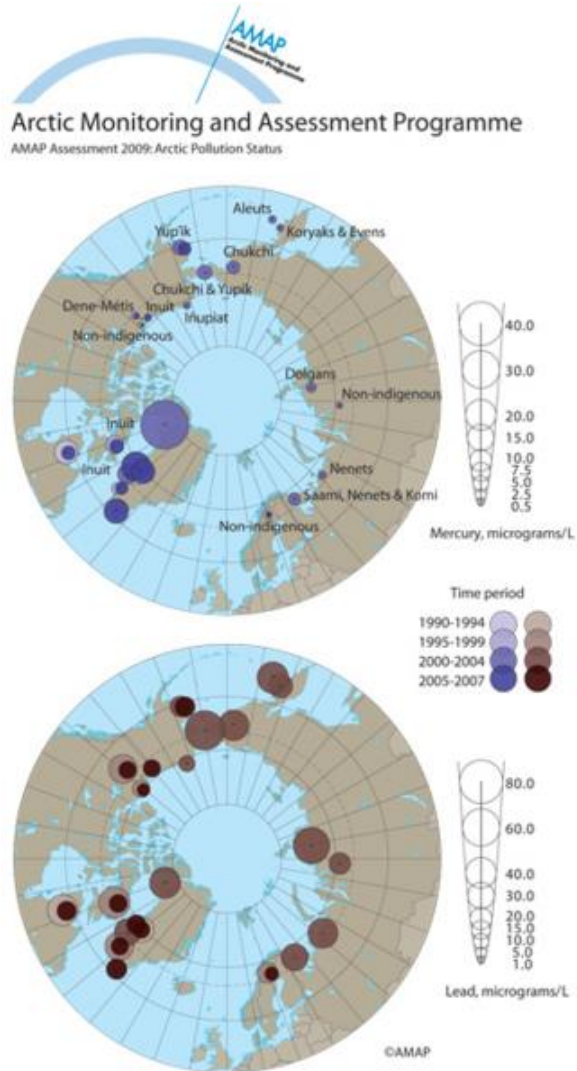
Taken together, the task is pan-Arctic evaluation of plastics in order to inform regional, national, and international policy that aim to reduce the impacts on the environment.





# Assessments in the Arctic....

- Long history of assessments of contaminants in the Arctic







4 page summary



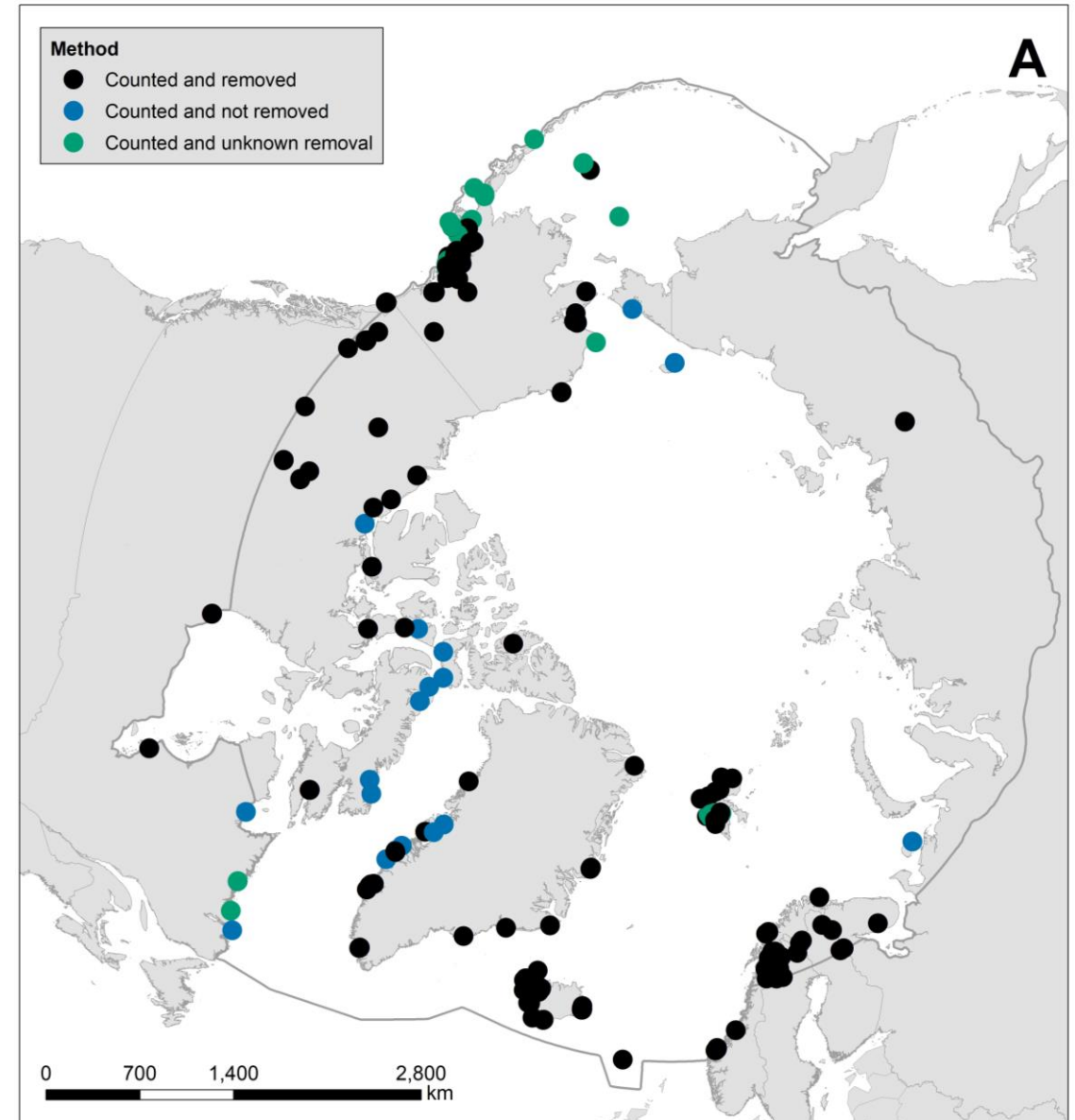
24 page Monitoring Plan



266 page technical guidelines

# What shoreline methods have been used?

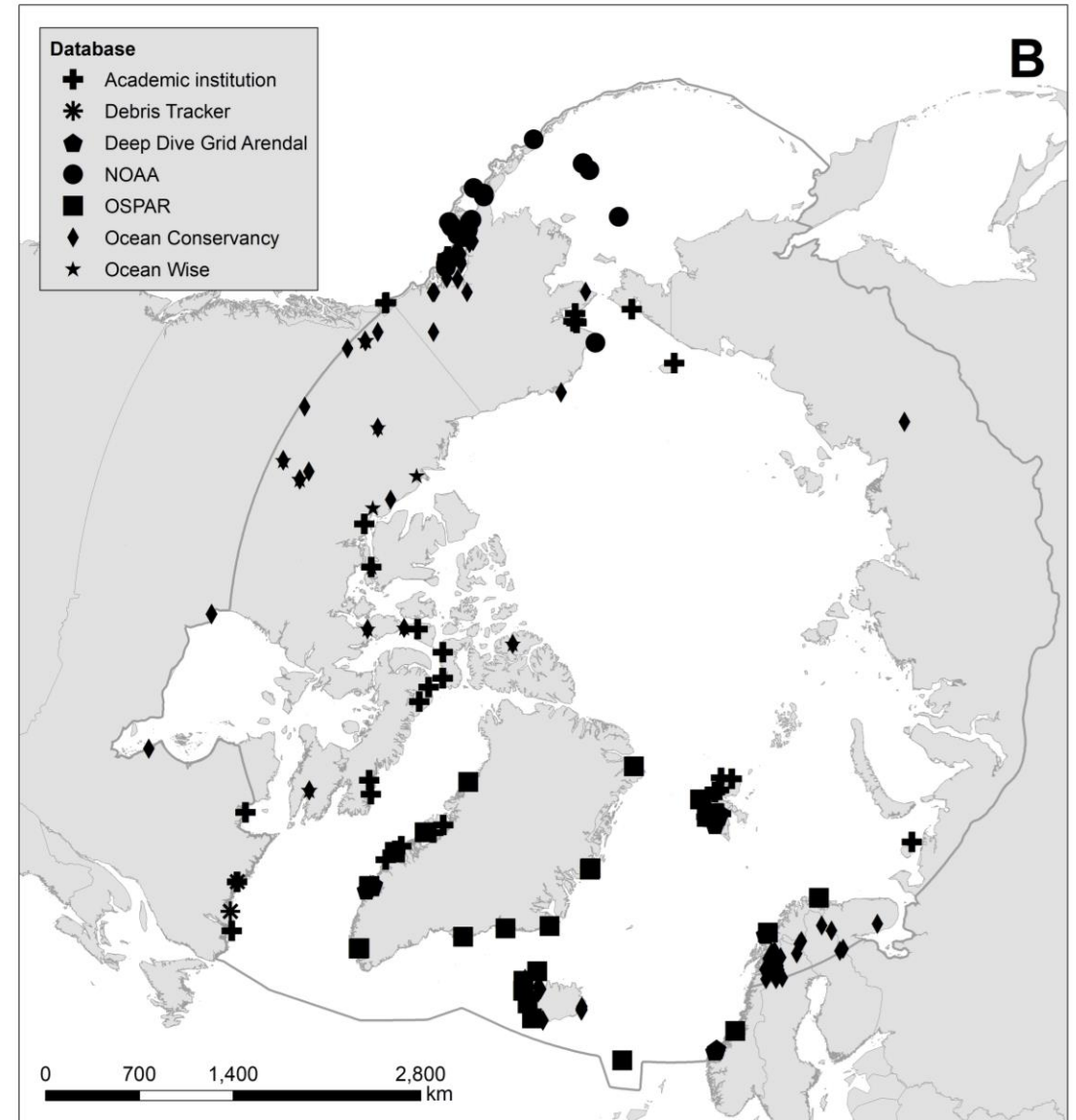
- Some account for effort
  - Monitoring programs – standard sites
  - Regional programs
  - Opportunistic sampling – from tourism vessels
- So do not account for effort
  - Citizen science apps – debris tracker
- Some remove the litter
- Some don't remove the litter
  - As per regulatory and permitting guidelines





# Where is the shoreline litter data?

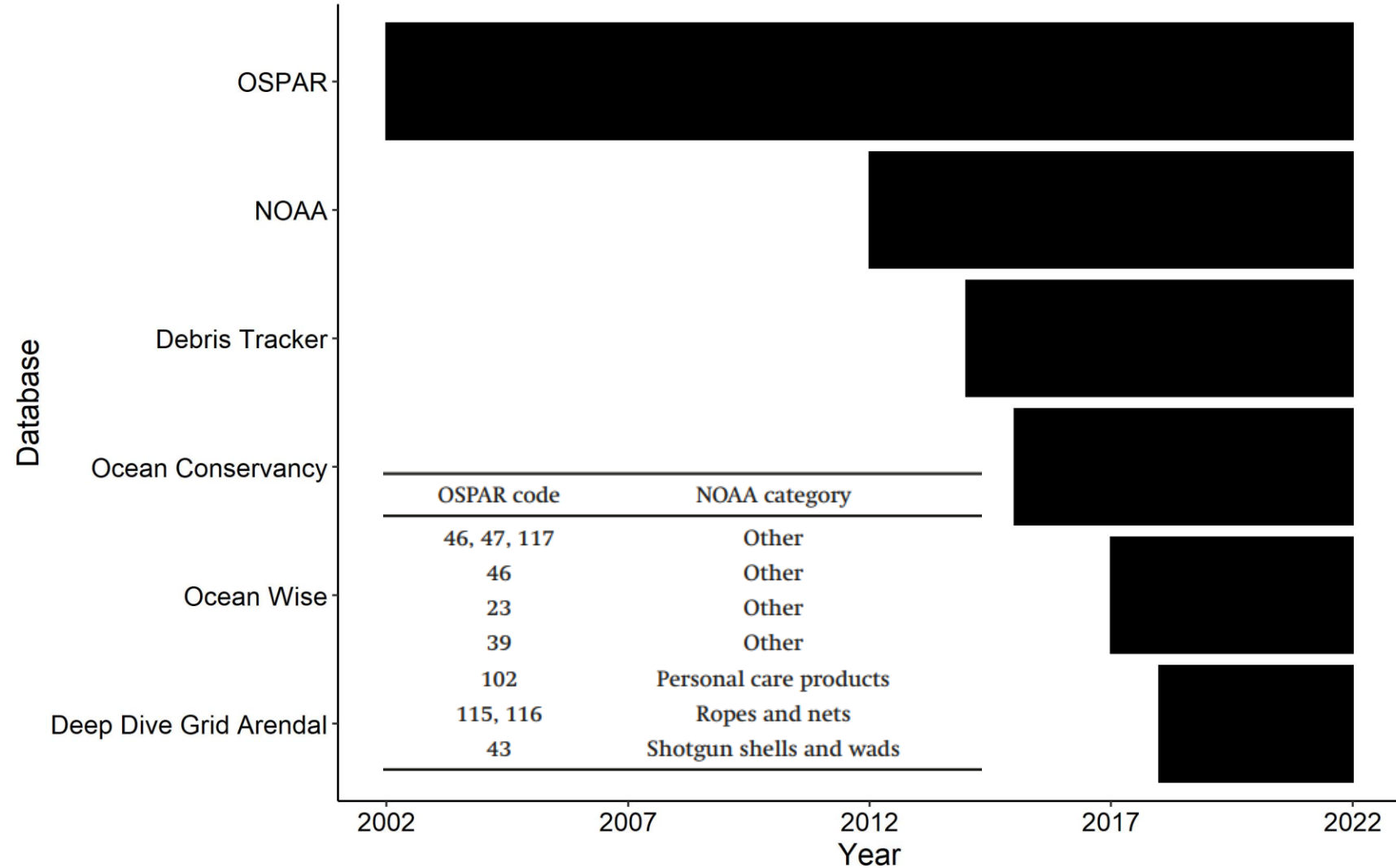
- Long term datasets from monitoring programs
  - NOAA Marine Debris (US)
  - OSPAR
  - Typically available, and organized and analyzed regularly
- Citizen science programs
  - Ocean Wise
  - Ocean Conservancy
  - Available upon request, not analysed regularly
- Academic institutions, may be Open Access, may be not...



# How far back does the data go (in the Arctic)?

- Different databases use different frames
- Different taxonomies/ categories are also used

All of this means – all these differences impede the merging of datasets and comparative analyses



# The good news...

- Data focused studies have shown that OSPAR and NOAA (among other non-Arctic projects) databases can be relatively easily merged and compared (Hapich et al. 2022 - Trash Taxonomy Tool)

So, while we need invest in this....

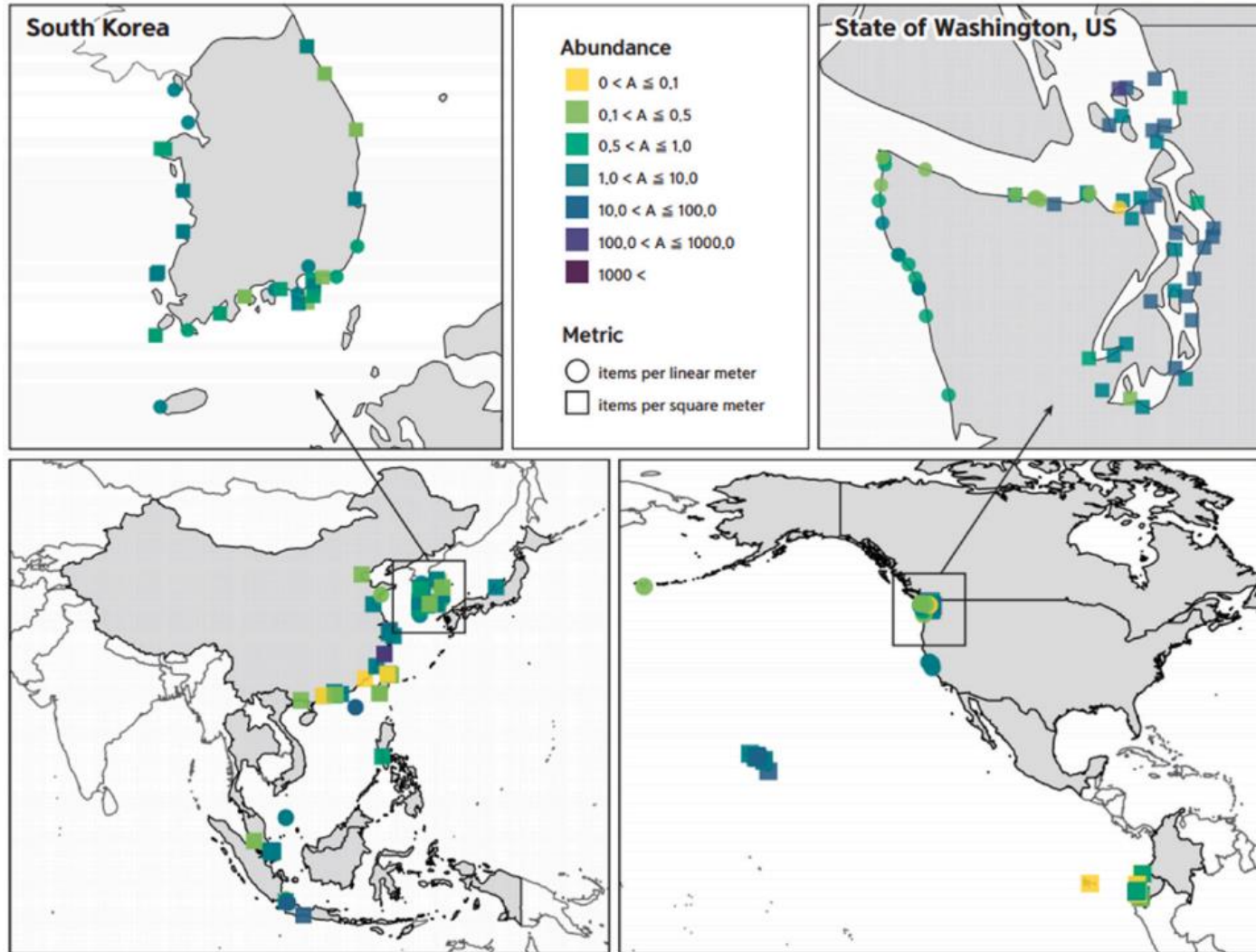


... we need to invest in the data side of things.





# Shorelines macroplastics in PICES region...

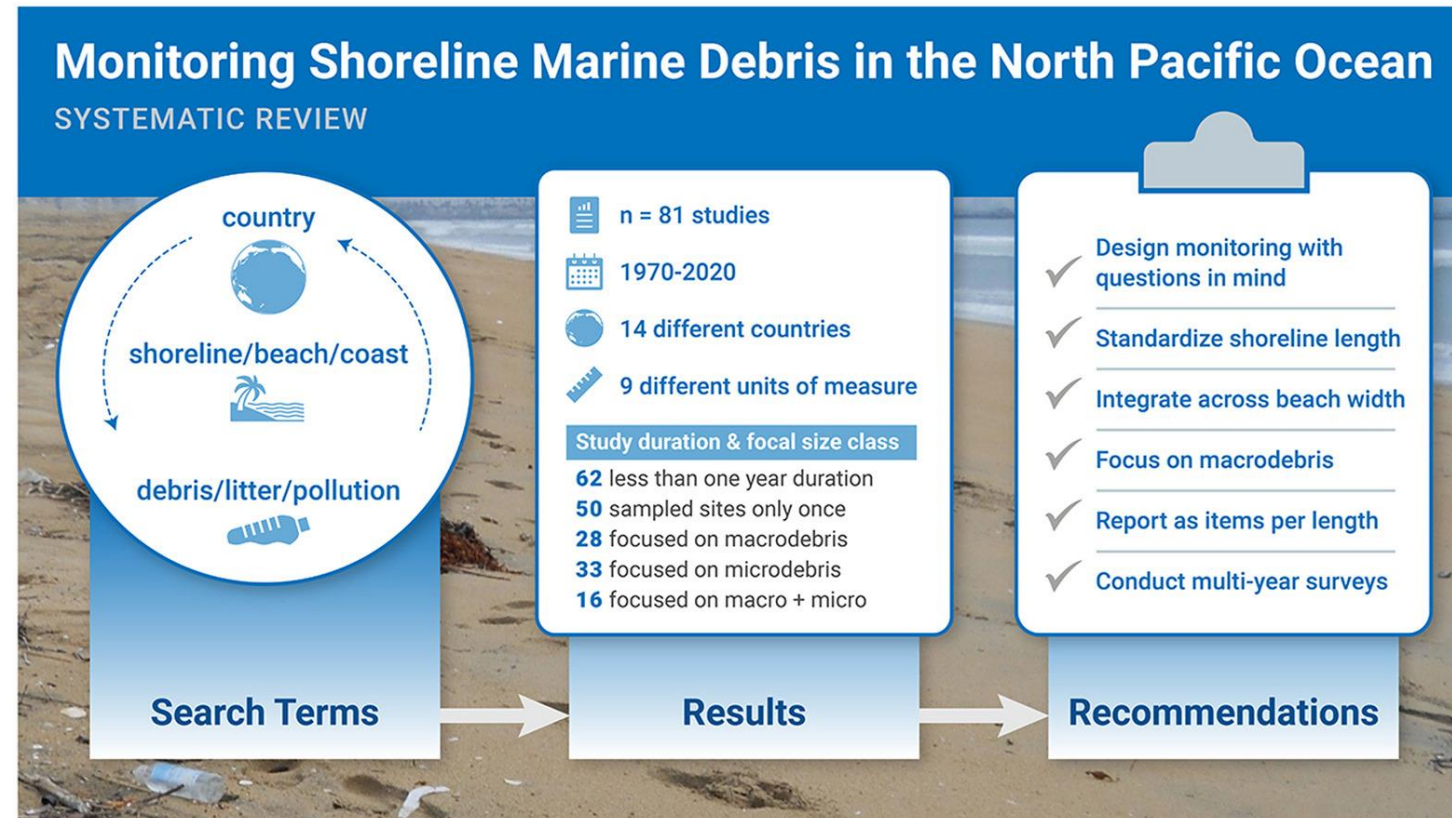


- Previous work in part under PICES WG42
- Assessed plastic shoreline litter data in the Pacific
- Discuss data quality, repeatability

# Shorelines macroplastics in PICES region...

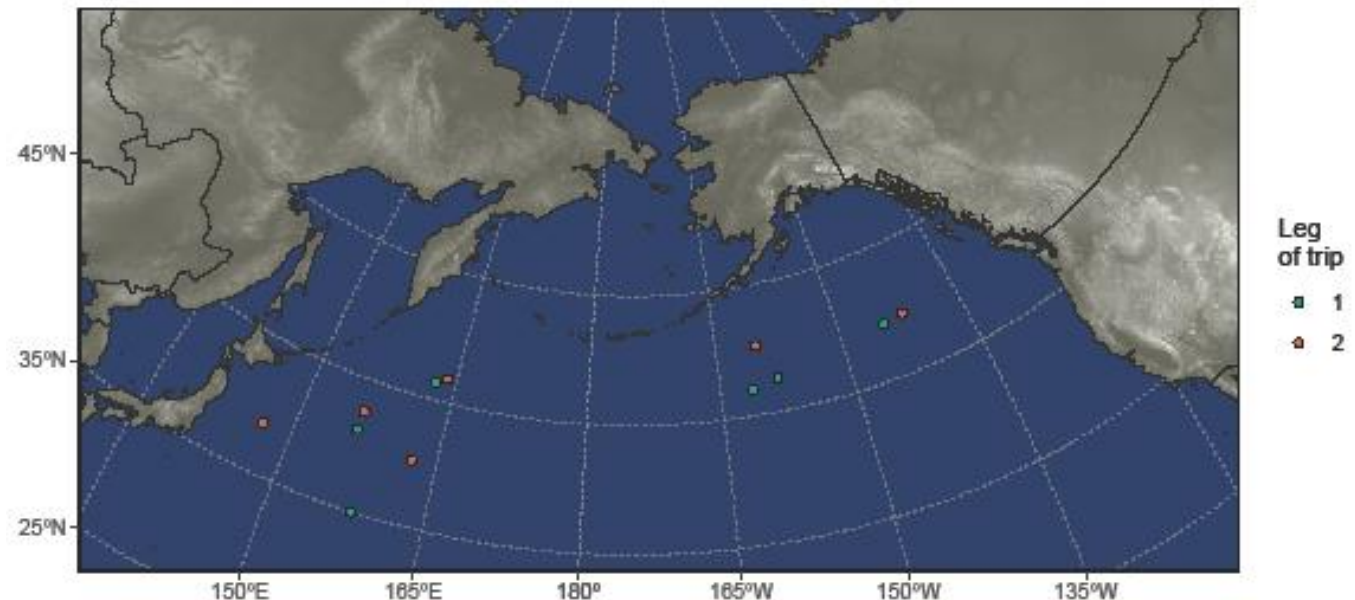
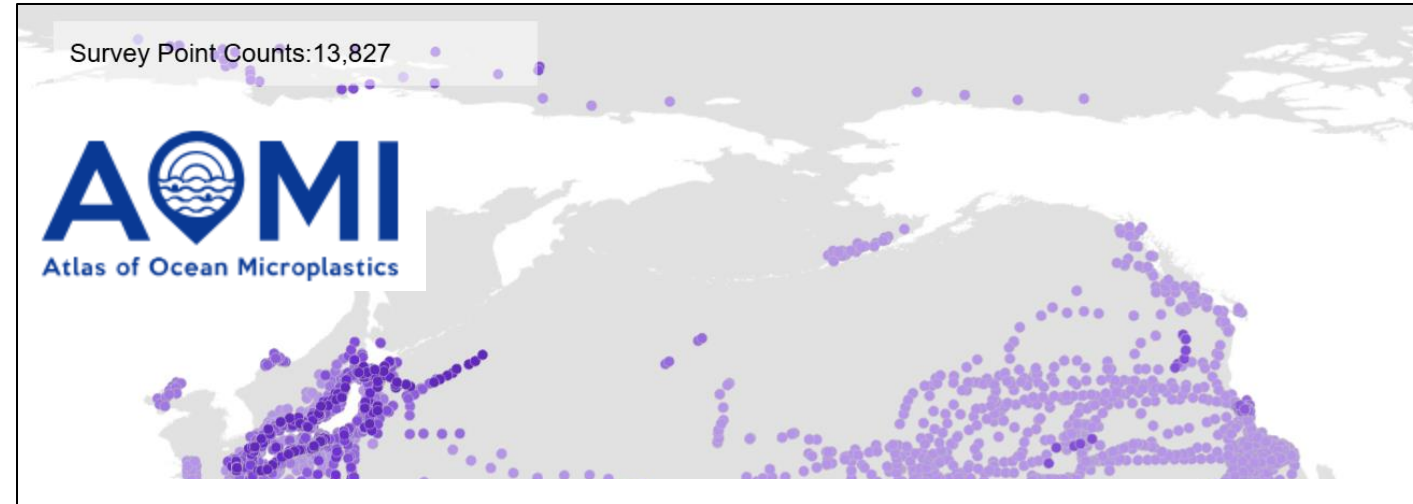


- Canada only had two data points in recent North Pacific review (Uhrin et al. 2022).
- Working with protected areas staff to do standardized protocols for shorelines surveys
- Funded NGOs to carry out regional shoreline counts
- Funding partners to digitise older data (from worksheets)
- Storage of this shoreline litter data?



# Water for microplastics in PICES region...

- Targeting zones that we do not have data for to date using AOMI and other sources
- Working with Canadian Coast Guard to collect more samples
- All MP in water data from our group is entered in AOMI
- Targeting grey water samples from several boats – source??

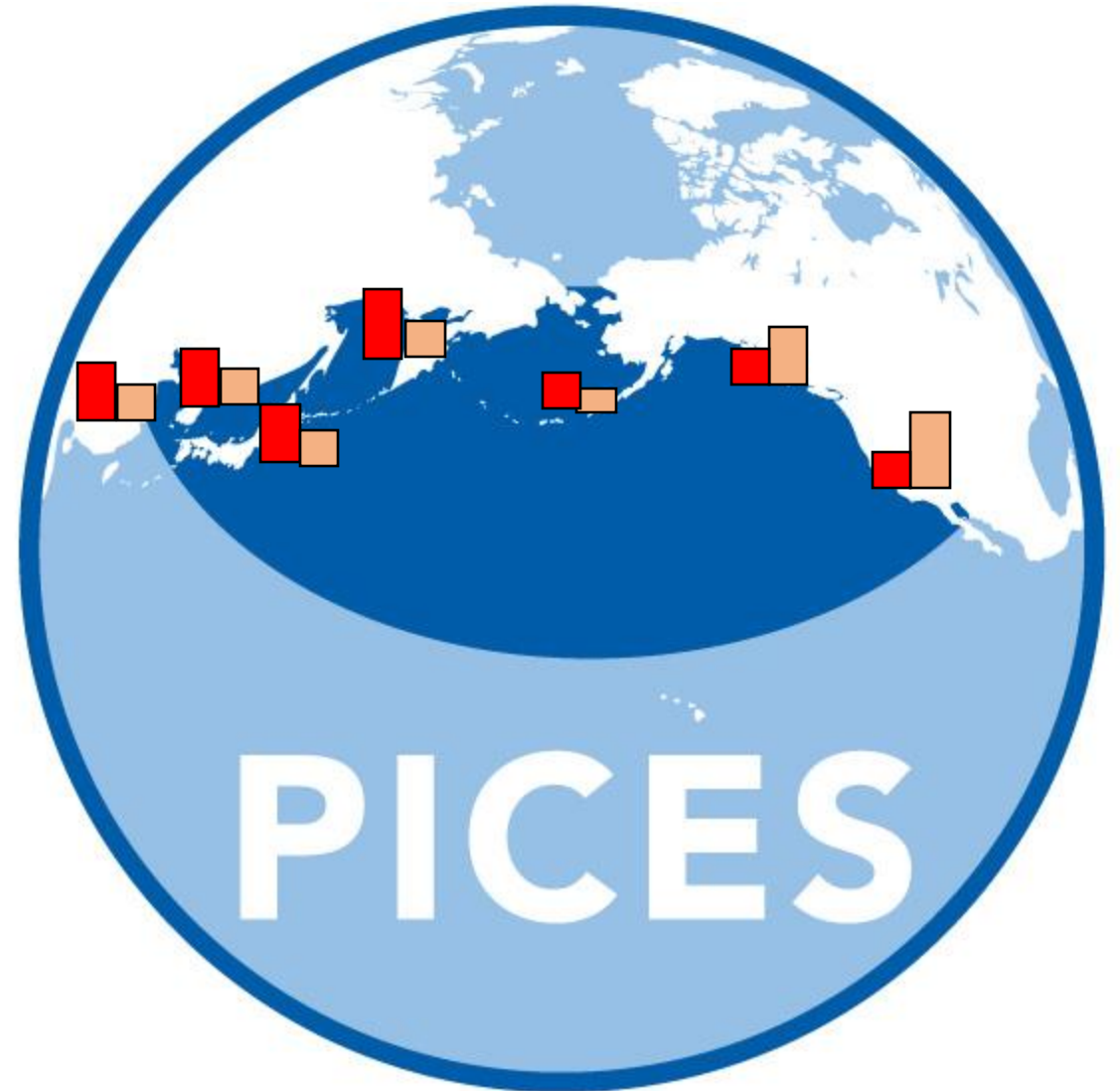




# The challenge to us all...

Can we make PICES  
region map of plastic  
pollution?

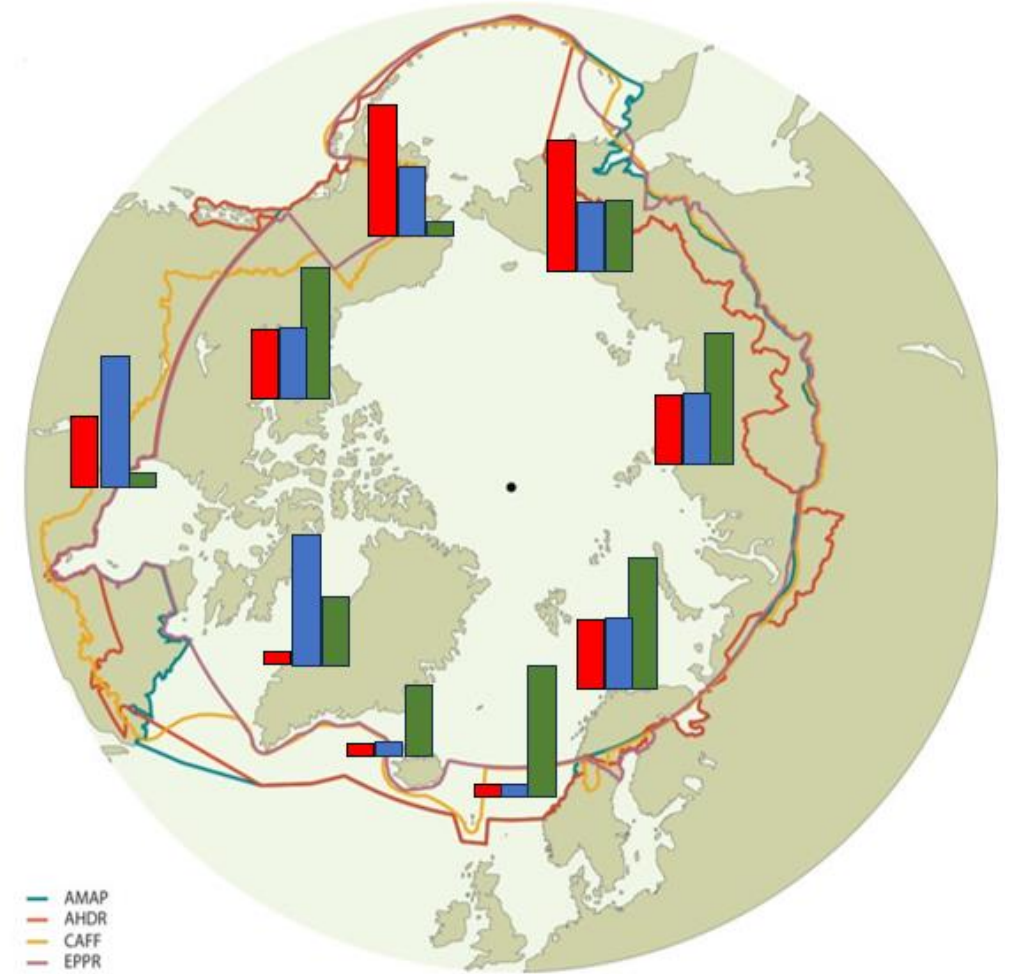
What environmental  
matrices to start with?



# How do we get there...

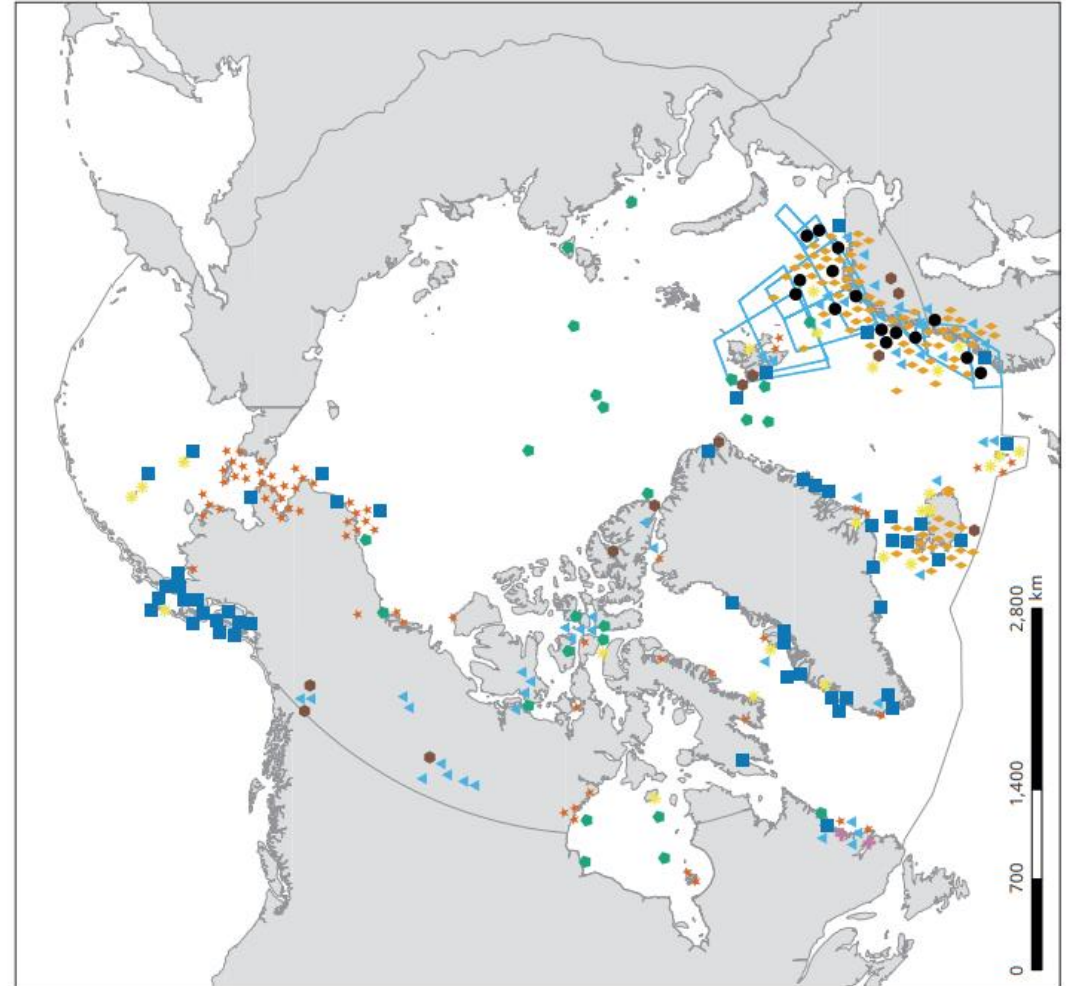
- Ask yourself the purpose of the shoreline litter counts!
  - Local assessments are valuable and needed, but consider how data is contributing to existing databases
  - Beach cleanups for education and outreach are valuable and needed, but consider how effort can be measured, what framework is being used
- Pick an existing methods framework – STOP MAKING NEW METHODS AND NEW DATABASES!!!
- Archive data and ensure that it is downloadable
- Data accessibility and planned analyses – OPSAR, NOAA
- **Invest in data management and analyses – without this, we will continue to be impeded to carry out assessments.**

# Data observations – collections – handling/management – analysis





# PICES and AMAP, overlap = joint indicators??



# Questions

