



Marine Debris Program



PAME Arctic Marine Litter Workshop: Impacts

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(Genwest Systems, Inc.)

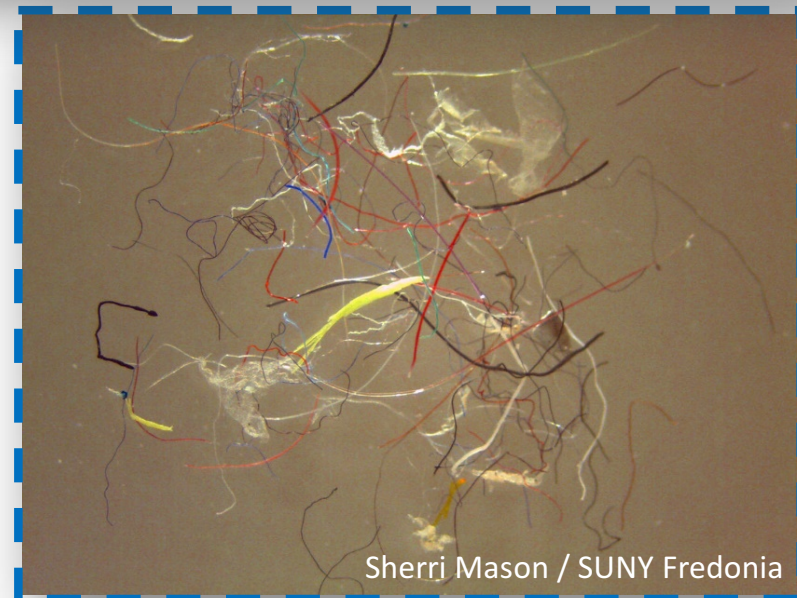
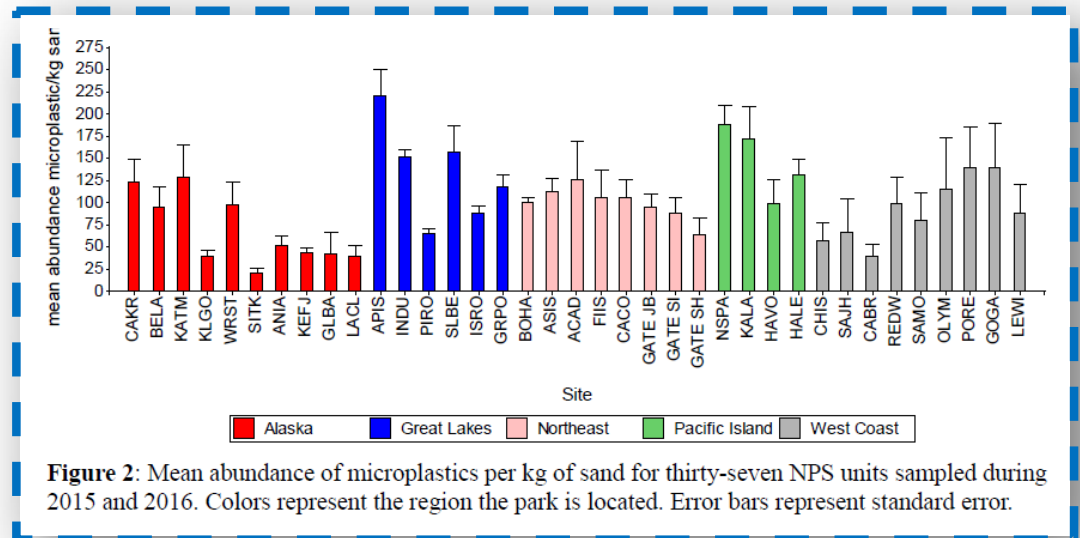
Outline

1. Marine Debris / Litter
2. General Marine Litter Impacts
3. Alaska Context
4. Arctic Marine Litter Impacts - Status
5. Recommendations
6. Questions & Discussion



Marine Debris / Litter

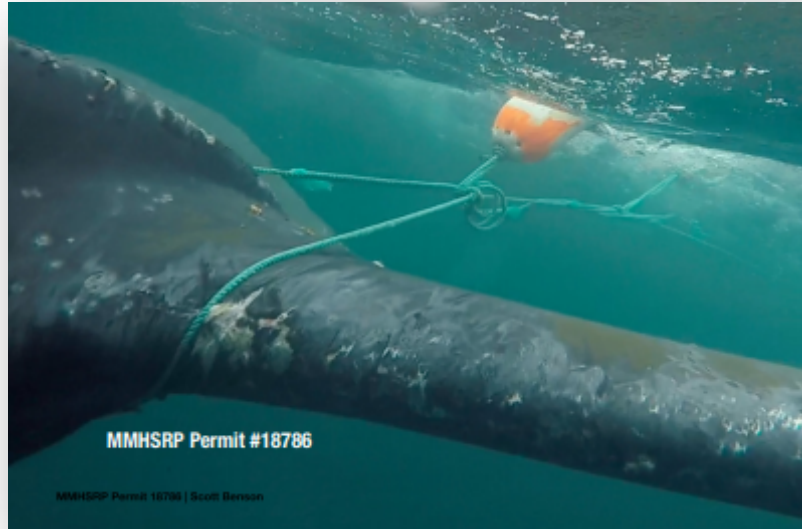
- Definition
 - USA = Persistent manmade material
 - OSPAR – Solid material
 - UNEP – Persistent solid material
- Types
 - Consumer plastics
 - Fishing gear
 - Microplastics
 - Microfibers
- Issue of Interest
 - Notable increase in interest and effort in recent history



Sherri Mason / SUNY Fredonia

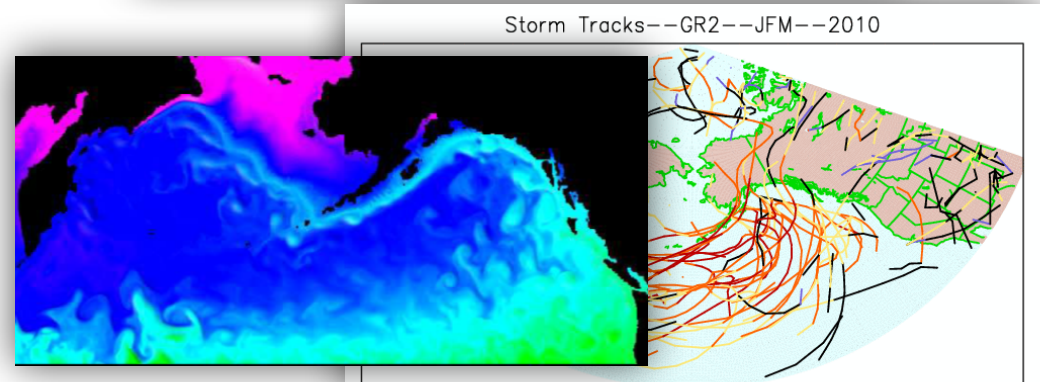
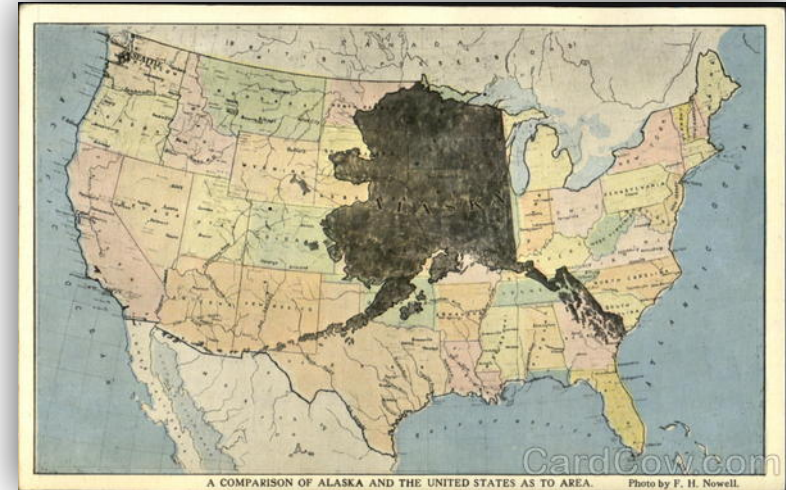
Marine Litter Impacts

- Habitat
- Entanglement
- Ingestion
- Chemical
- Socioeconomic
 - Tourism
 - Recreation
 - Fisheries (Economic & Cultural Loss)
 - Vessel Damage



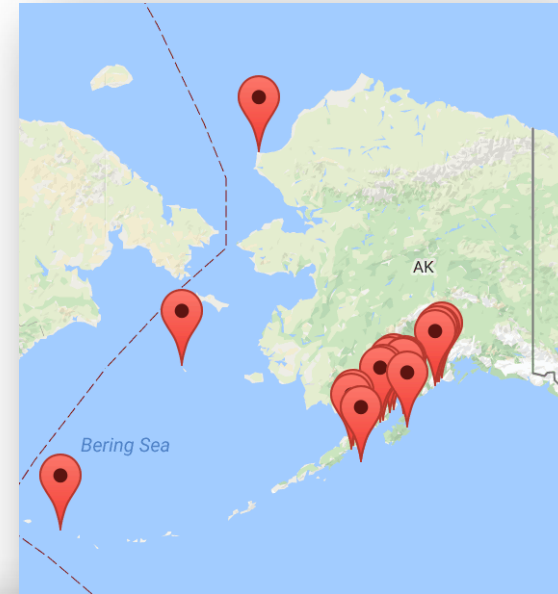
Alaska Context

- Alaska
 - Size
 - Seasonality
 - Infrastructure
 - Tourism + Interest
- Marine Debris in Alaska
 - Quantity
 - Origins
 - Composition



Arctic Marine Litter Impacts - Status

- Arctic Specific Impacts
 - Data is limited but key examples point to presence and impacts that echo other regions
- Impacts By Type
 - Habitat
 - Entanglement
 - Ingestion
 - *Chemical*
 - *Socioeconomic*
 - *Cultural*



Habitat

- General Impacts
 - Smothering
 - Physical properties
- Data Status
 - Limited
- Arctic Impacts Observed
 - Limited research exists on this topic, and general topography and scale of Arctic shorelines (AK-primary) limit feasibility of assessment in many cases.



Entanglement

- General Impacts
 - Net entanglement
 - Line entanglement
 - Entrapment
- Data Status
 - Field observation
 - Primarily sub-mortal
- Arctic Impacts Observed
 - Pinnipeds
 - Observed in diverse Arctic locations
 - Cetaceans
 - Difficulty of differentiating active and derelict (ALD) gear
 - Seabirds
 - Observed in diverse Arctic locations
 - Crustaceans
 - Observed impacts in sub-Arctic, can infer Arctic impacts.

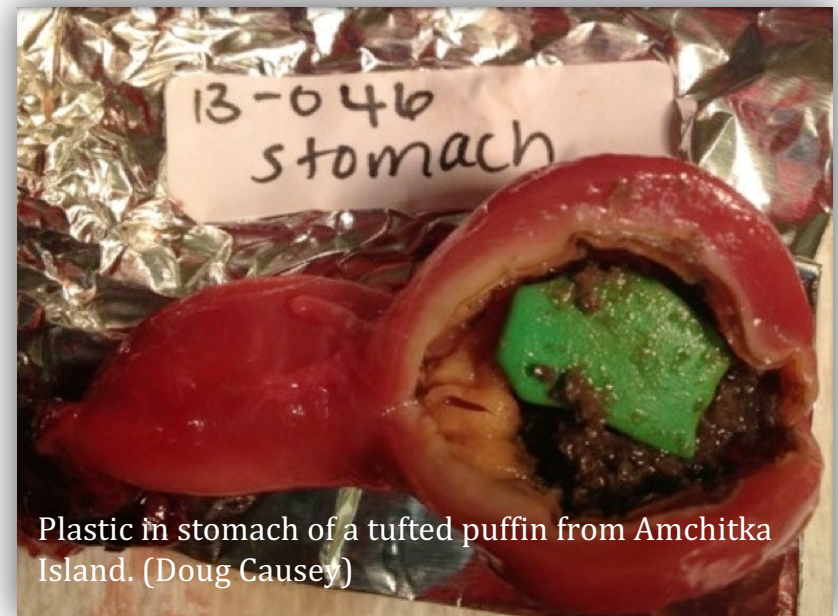


Photos: NOAA



Ingestion

- General Impacts
 - Damage / blockage
 - Reduced consumption
 - Reduced reproductive success
 - Translocation to tissue
- Data Status
 - Field observation
 - Laboratory
- Arctic Impacts Observed
 - Primarily Seabirds
 - Observed in diverse Arctic locations
 - Marine Mammals
 - Limited observational data, primarily from necropsy or harvest
 - Fish
 - Occurrence observed in lab conditions as well as observation, though impact data is limited
 - Crustaceans
 - Emerging area of research



Plastic in stomach of a tufted puffin from Amchitka Island. (Doug Causey)

Recommendations

1. **Action Plan Structure** – Structure should inform and/or be informed by identified priority impacts.
2. **Identify and Prioritize Knowledge Gaps**
 - By impact type?
 - By debris type?
 - By geography (Arctic sub-region or country)?
3. **Integrate Regional Impact Concerns** - Specific local concerns in terms of resource, policy considerations or other variables may drive priorities
4. **Confirm Arctic Region Definition** – More inclusive definitions may allow integration of more data, but more southern data may be less applicable
5. **Alignment and Analysis of Methods / Measurements** – Challenging, but important. many groups working on this (GESAMP, NIST, etc.)
 - Integrating logistical realities of data collection in Arctic





Questions?

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