

Marine Debris Program



SOURCES & TRANSPORT

SETTING THE STAGE

Arctic Plastics Symposium

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NOAA Marine Debris Program

(Genwest Systems, Inc.)

Marine Debris Program



- 1. NOAA Marine Debris Program**
- 2. Alaska Orientation & Context**
- 3. Debris in Region**
- 4. Debris Sources**
- 5. Debris Transport / Pathways**
- 6. Source & Transport – Benefits of Knowledge**



Marine Debris Program



- Established in **2006** by Congress as the federal lead for marine debris in the US
- **Vision:** the global ocean and its coasts free from the impacts of marine debris
- **Pillars:**
 - Removal
 - Research
 - Prevention
 - Response
- **Regional** Coordination



Alaska Orientation



- **Size**
 - 16% of total US by area
- **Infrastructure**
 - Limited road system
- **Seasonality**
- **Resource Importance**
 - Economy
 - Subsistence
 - Culture & Traditional Use

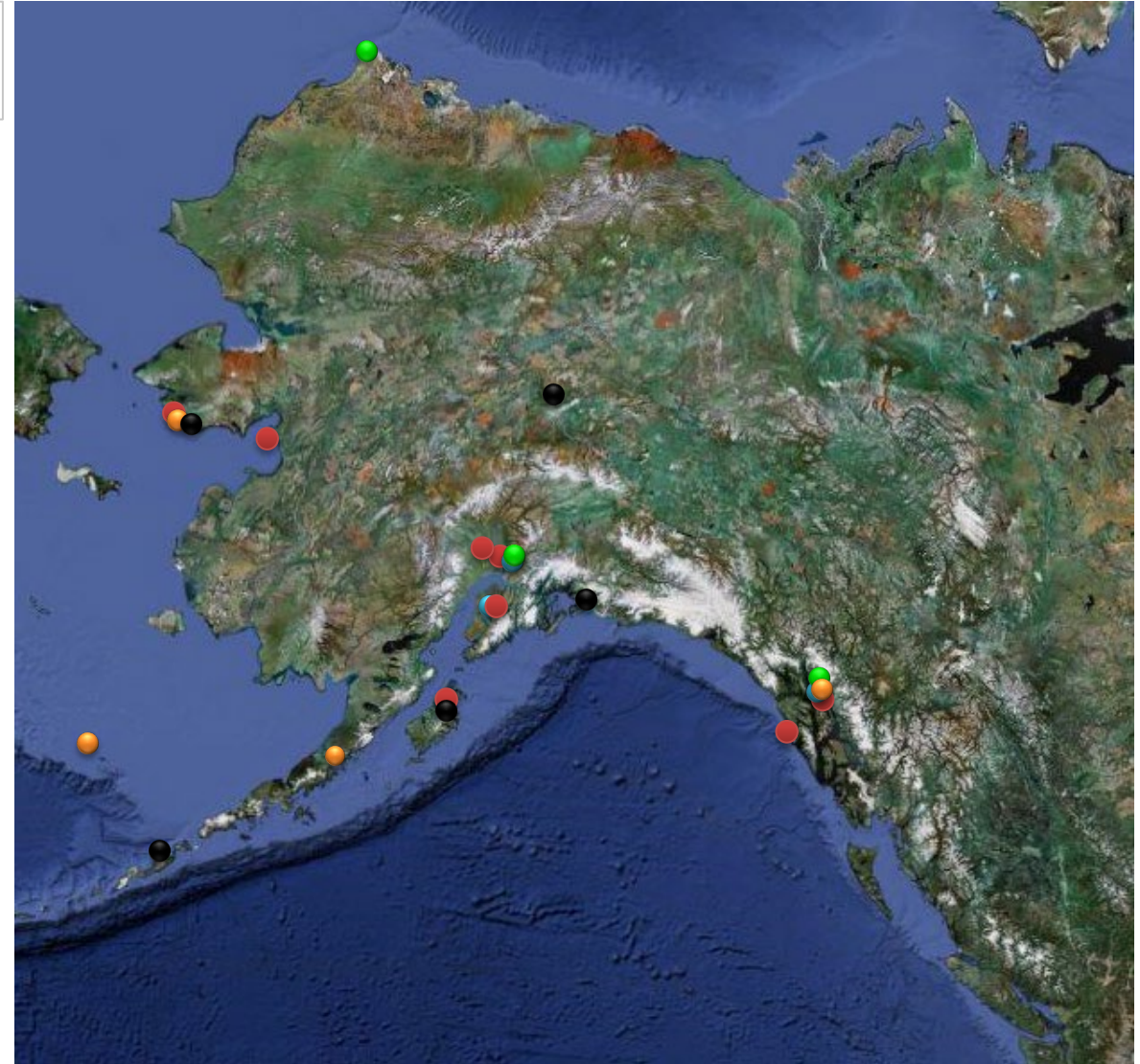


Alaska MD Community



Below is a sample of partners who are active in the marine debris issue, but is by no means exhaustive

- **NGO's / Small Business**
 - Gulf of Alaska Keeper
 - Center for Alaskan Coastal Studies
 - Island Trails Network
 - Airborne Technologies, Inc.
 - Sitka Sound Science Center
 - Ocean Conservancy
 - Kawerak
- **US Federal Agencies**
 - NOAA NMFS, Auke Bay Labs
 - USFWS, USFS, NPS, USCG, DOI, and more!
- **State of Alaska + Local Government**
 - DEC, DF&G, Boroughs, Communities
 - North Slope Borough
- **Native &/or Tribal Organizations**
 - Aleut Community of St. Paul Island
 - Douglas Indian Association
 - Norton Sound Economic Development Corporation, etc.
 - Villages, Associations, Councils, Communities
- **Academic**
 - University of Alaska, Anchorage, Fairbanks
 - UAF Sea Grant
- **Working Groups (not pictured)**
 - PEG (Pinniped Entanglement Group)
 - Abandoned & Derelict Vessels Task Force



Marine Debris in Alaska - Orientation



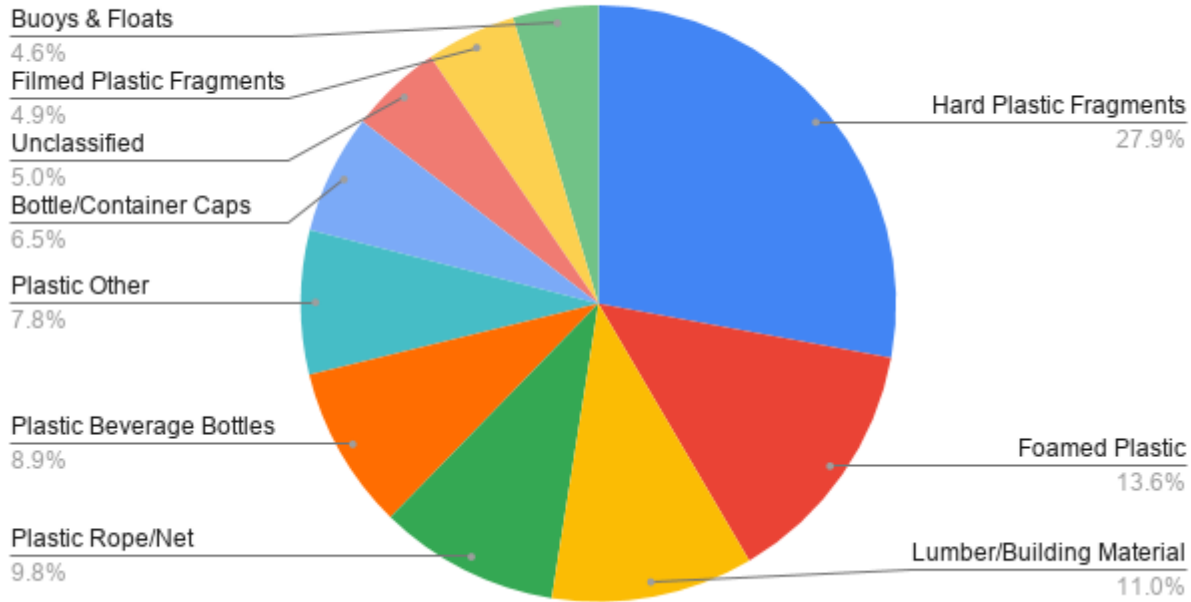
- **Quantity**
 - High, & Highly Varied
- **Location**
 - Hotspots
 - Often Remote
- **Composition**
 - Fishing Gear
 - Consumer Debris
 - Shipping
- **Challenges**
 - Access
 - Seasonality
 - Disposal
 - Source Identification



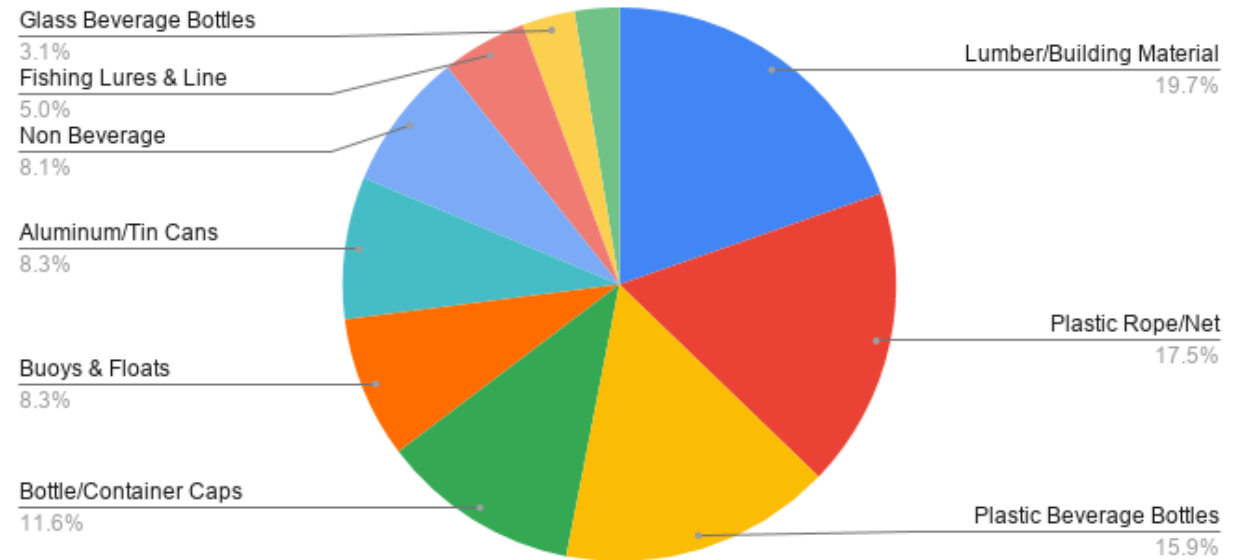
Data Analysis + Observations



Alaska Top Ten - All Debris Types



Alaska - Top Ten - Identifiable Items Only



ALASKA MDMAP DATA NOTES

22 sites, East of Cook Inlet, mixture of accumulation and standing stock surveys

Debris Sources



- **Local Activities**
 - Fishing
 - Consumer Debris / Activities
 - Solid Waste System Leakage
- **Distant Sources**
 - Fishing
 - Open Ocean Debris
 - Shipping / Container Loss
- **Other Sources**
 - Historical Fishing or Infrastructure
 - Riverine Inputs
 - Shoreline Erosion
 - Formal and informal disposal sites
 - General infrastructure



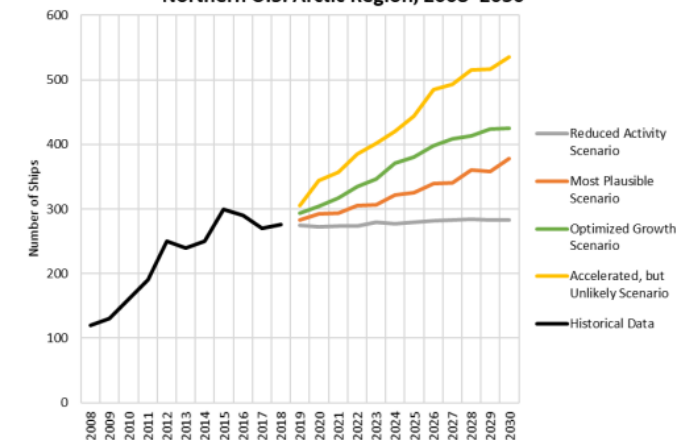
Debris Sources



- **Local v. Distant Sources**
 - Frequently Intermixed
 - Challenge of Identification
 - Weathering
 - Breadth of Distribution
 - Generic / Common Design
 - Challenge of Modeling / Variability
 - Hindcast example
- **Changing Conditions → Increased Activity**
 - Shipping / Transport
 - Resource Extraction
 - Fishing
 - Tourism



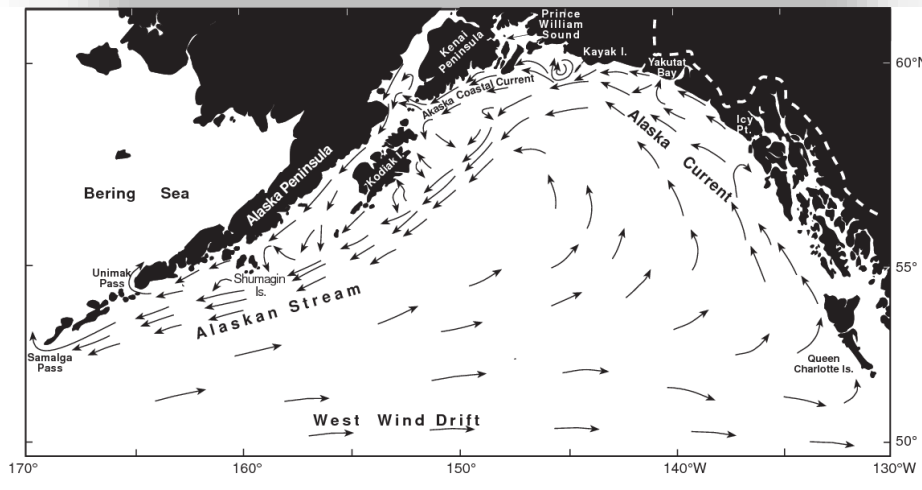
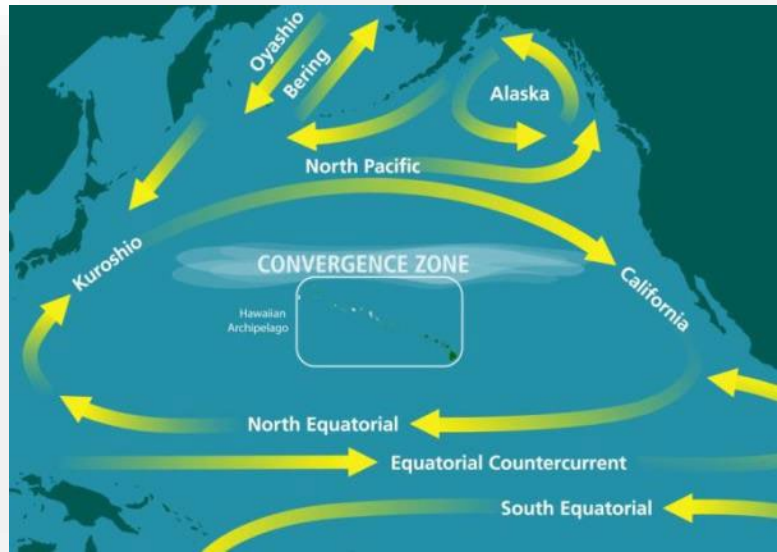
Historical and Projected Vessel Counts by Scenario in the Northern U.S. Arctic Region, 2008–2030



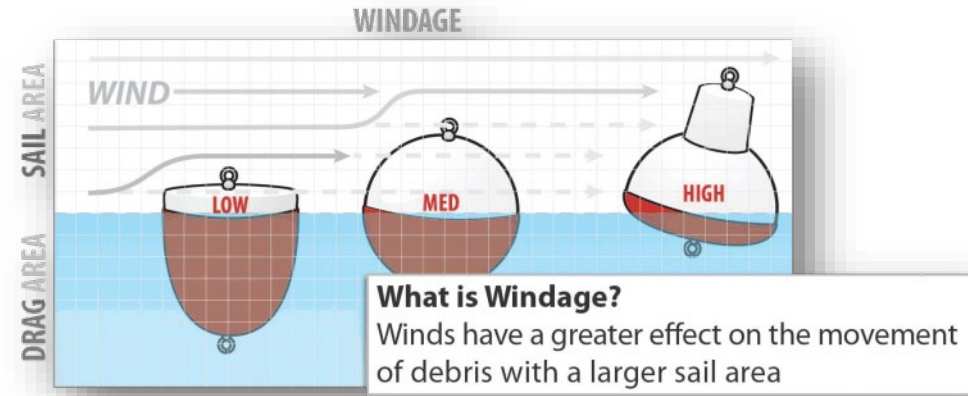
Debris Transport Pathways



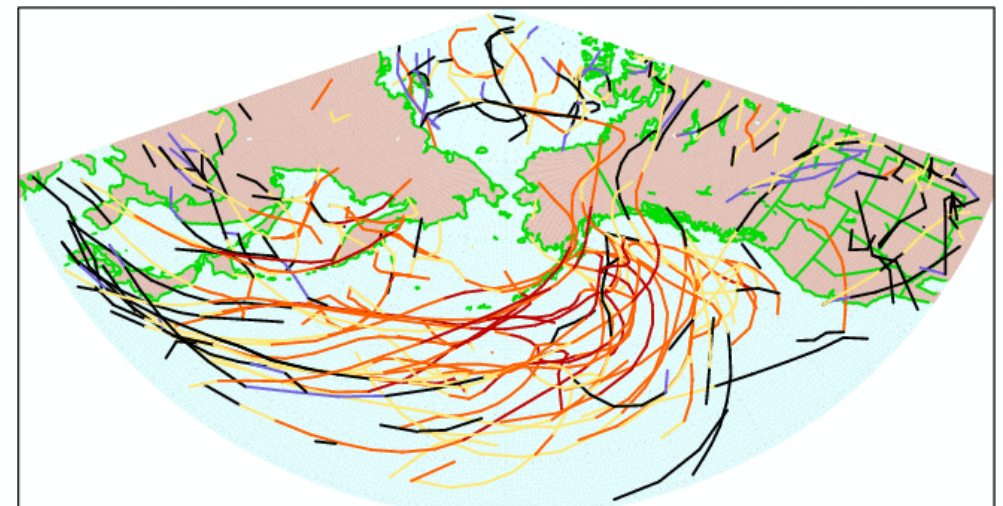
CURRENTS



WIND



Storm Tracks--GR2--JFM--2010

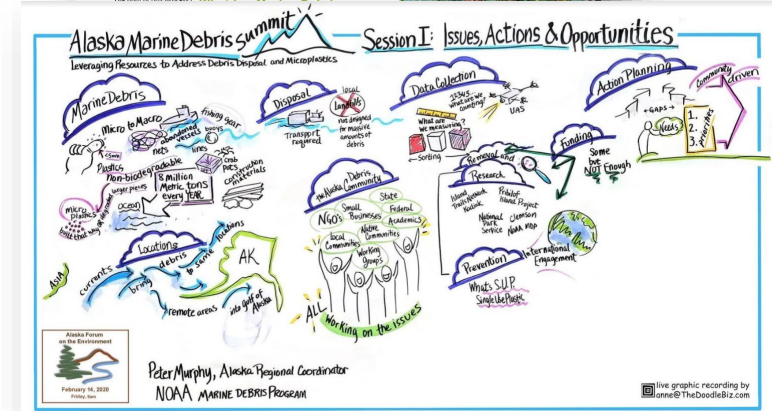
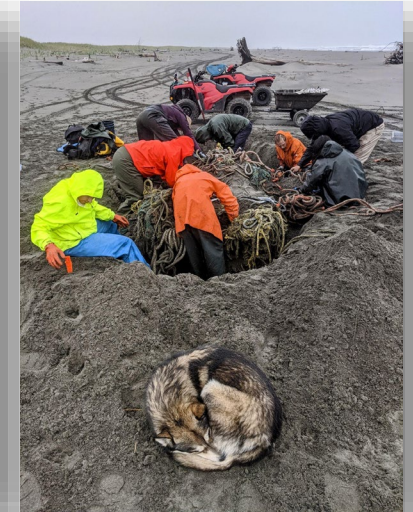


Benefit of Source & Pathway Understanding



Inform / Improve:

- **Prioritization of Cleanup / Removal**
 - Where to clean
 - What to target or prepare for
- **Prioritization of Research**
 - Targeting research to address questions focused on litter/debris of concern or prevalence
- **Prioritization of Policy & Prevention**
 - Stakeholder and industry connections to encourage behavior change
 - Where changes to policy can create the largest benefit



Thank You

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