



Alaska Marine Debris: Information & Actions

Peter Murphy

Alaska Regional Coordinator

NOAA Marine Debris Program (*Genwest Systems*)



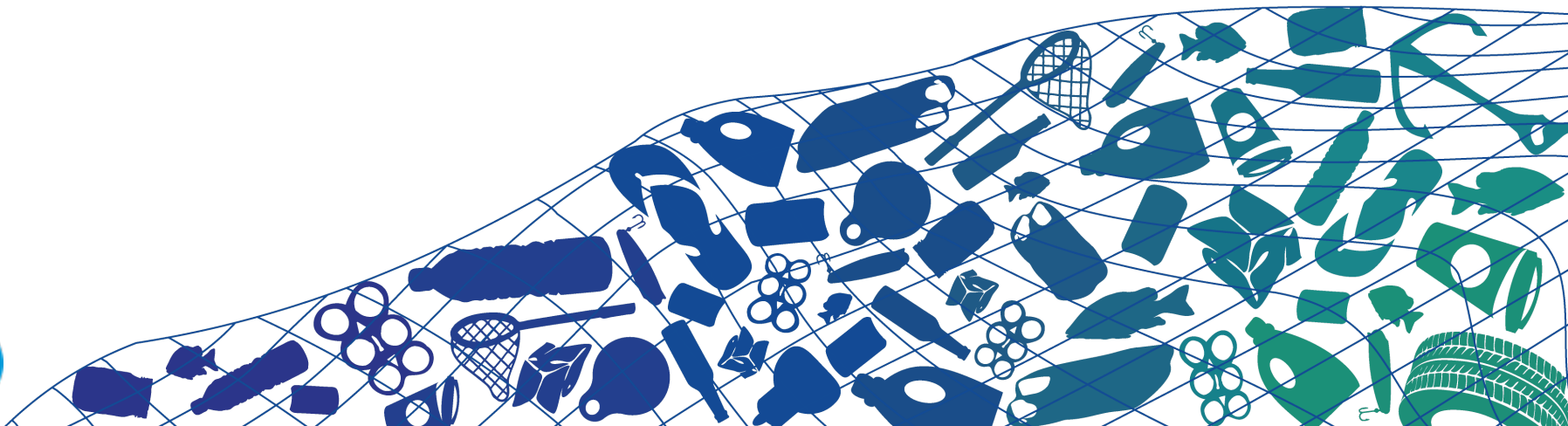


OUTLINE

- 1) Marine Debris Issue & Impacts** – *What is it and what does it do?*
- 2) Marine Debris In Alaska** – *How is the issue different here?*
- 3) Marine Debris Efforts / Actions** – *What is being done?*
- 4) Marine Debris Next Steps** – *Emerging Issues, International Engagement, Action Planning*
- 5) Questions?**

What is Marine Debris?

“any persistent **solid material** that is **manufactured or processed** and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes.”



NOAA Marine Debris Program

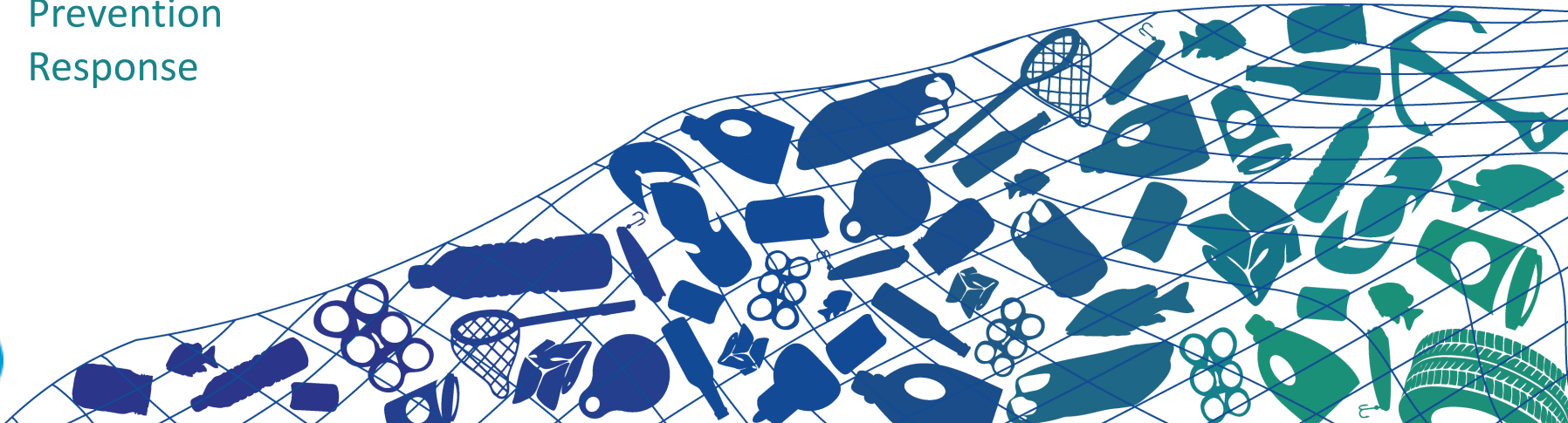
Established in **2006** by Congress as the federal lead for marine debris

Vision: the global ocean and its coasts free from the impacts of marine debris

Regional Coordination

Pillars:

- Removal
- Research
- Prevention
- Response





From Micro to Macro





Plastics

- Common form of marine debris that are **non-biodegradable**
- Estimated **8 million metric tons** of plastic enter the ocean every year
- Break into small pieces (called **microplastics**)





Microplastics

- Plastics **smaller than 5mm** in size
- Microplastics come from **multiple sources**
 - Microbeads, **microfibers**, capsules, preproduction pellets
 - Degradation of larger plastics
- Ingestion by animals
- Chemical impacts





Microplastics

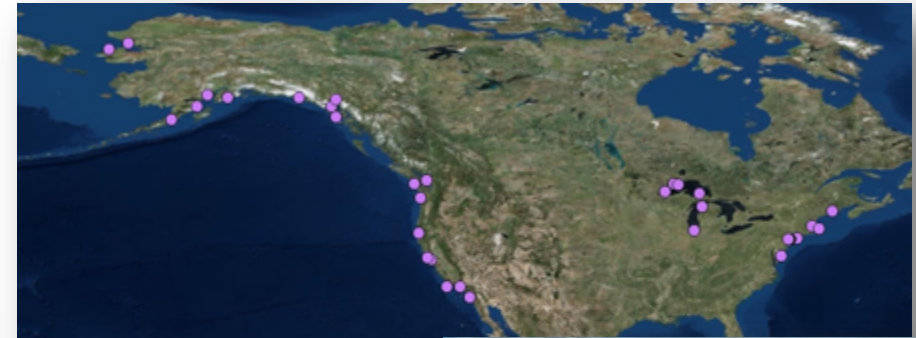


Proceedings of the Occurrence, Effects

NOAA Marine Debris Program
National Oceanic and Atmospheric
Administration
U.S. Department of Commerce
Technical Memorandum NOS-OR&R-48
January 2009

Laboratory Methods for the Analysis of Microplastics in the Marine Environment: Recommendations for quantifying synthetic particles in waters and sediments

NOAA Marine Debris Program
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Technical Memorandum NOS-OR&R-48
July 2015



Quantification of Microplastics on National Park Beaches

06/01/2015 - 06/30/2017

Principal Investigators:
Tiffany L. Schwan, Ph.D.
Betsy Kimmel, Ph.D., Coastal Ecology & Forest Science, Clemson University
Steph J. Ward, Ph.D.,
Betsy Kimmel, Ph.D., Coastal Ecology & Forest Science, Clemson University

NPS Technical Coordinators:
California: Anna Tschering, Ph.D.
Inland Northwest: Maria J. Gonzalez, Ph.D., Oregon Program Coordinator
LRF MC Coordinator in Resource Management (LRFMC)

Prepared for:
Marine Debris Program
Office of Response and Assessment
National Oceanic and Atmospheric Administration
Contract: DCA-12-1-0001

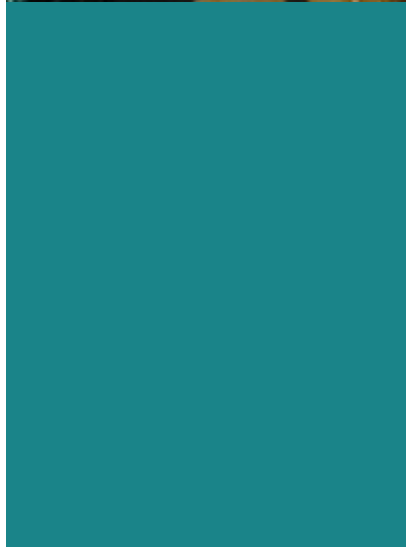
Project Number: 15-01-0001, Washington National Park System





Derelict Fishing Gear

- **Commercial** or **recreational** fishing gear that is lost, abandoned, or discarded
- Made with **synthetic materials** and metal
- Includes:
 - Nets
 - Lines
 - Crab/Lobster/Fish traps or pots



Sources of Marine Debris



Ocean-Based

- Commercial and recreational fishing
- Offshore oil and gas
- Cargo ships
- Abandoned and derelict vessels



Land-Based

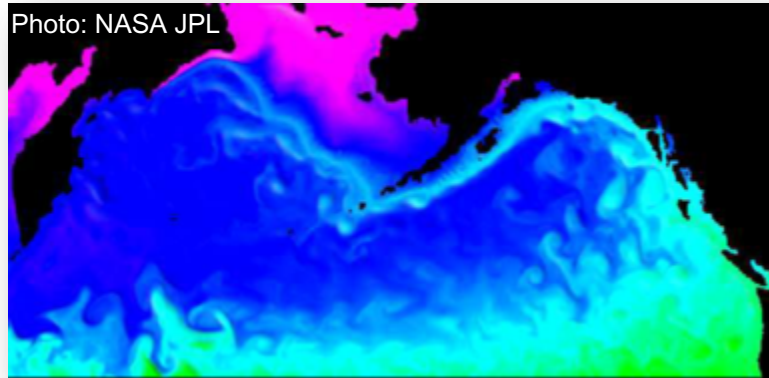
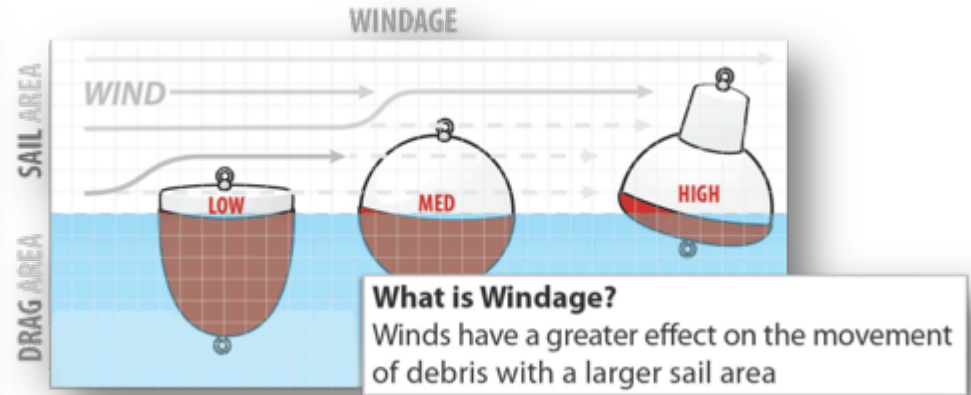
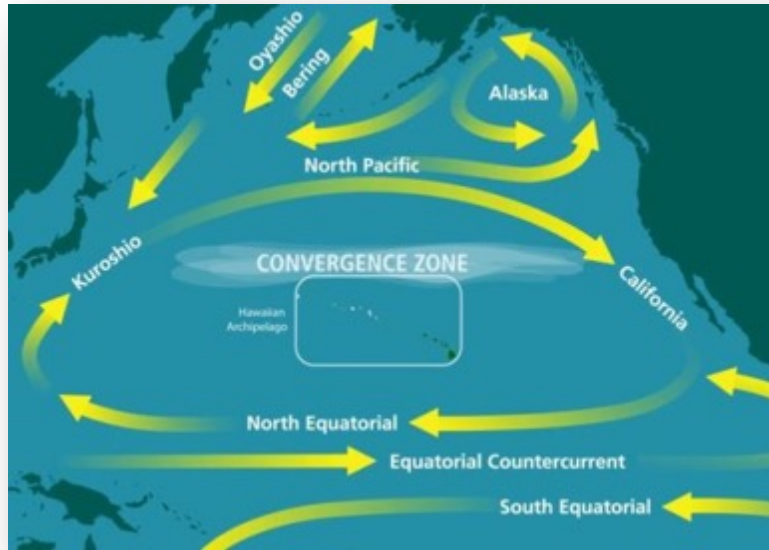
- Littering
- Dumping
- Poor waste management practices
- Storm water discharge
- Extreme weather events

Impacts

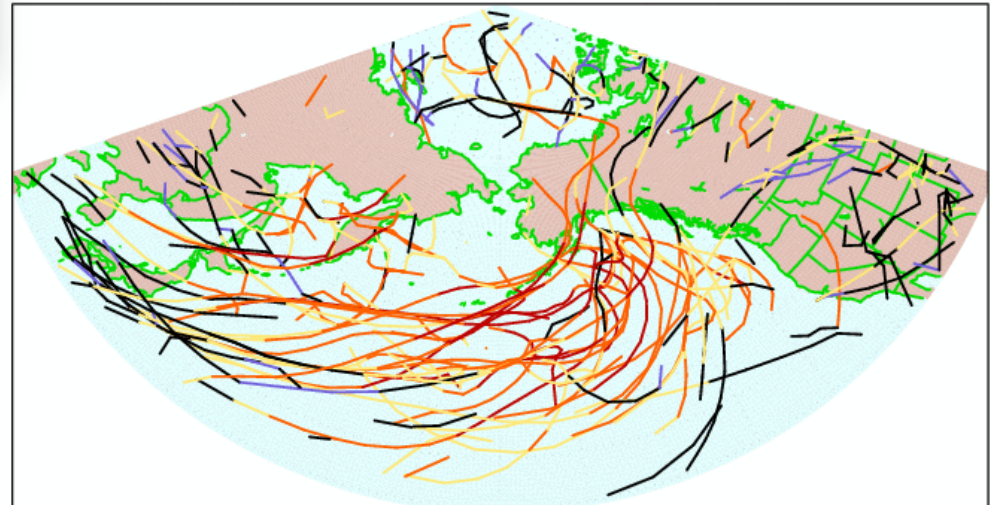
- Ingestion
- Entanglement
- Ghost fishing
- Vessel Damage and navigational hazard
- Habitat destruction
- Invasive species
- Economic loss:
 - Tourism
 - Recreation
 - Fisheries
 - Vessel Damage



How Debris Gets to Alaska



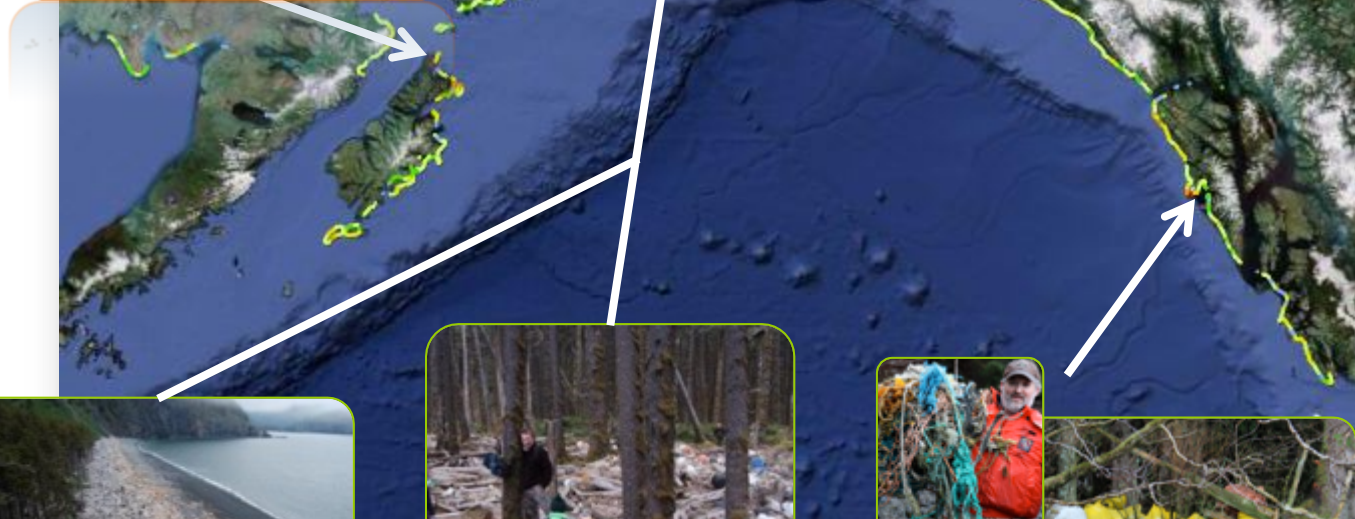
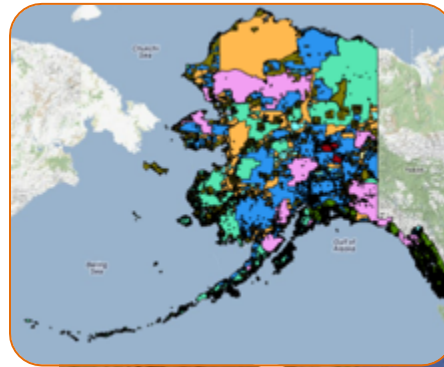
Storm Tracks--GR2--JFM--2010





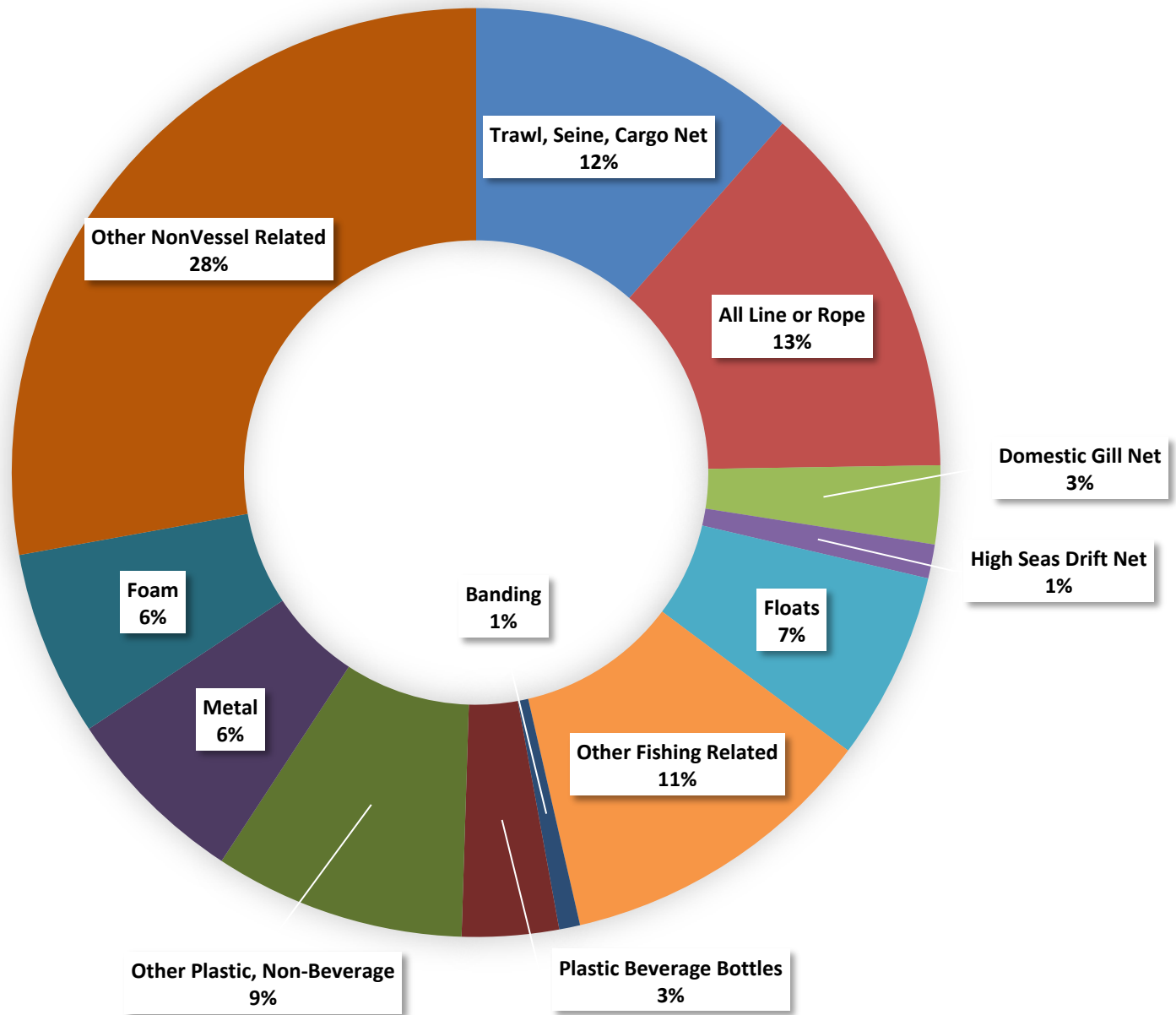
Marine Debris In Alaska

- Location
 - Hotspots
- Quantity
 - Highly Varied
- Composition
 - Consumer Debris
 - Fishing Gear
 - Construction
 - Shipping
- Challenges
 - Access
 - Seasonality
 - Disposal





Debris Composition





Alaska Marine Debris Community

- NGO's / Small Business
 - Gulf of Alaska Keeper
 - Center for Alaskan Coastal Studies
 - Island Trails Network
 - Airborne Technologies, Inc.
 - Sitka Sound Science Center
 - Alaska Marine Stewardship Foundation
 - Island Charters
- Federal
 - NOAA NMFS, Auke Bay Labs
 - USFWS, USFS, NPS, USCG, DOI, and more!
- State + Local
 - DEC, DF&G, Boroughs, Communities
- Academic
 - University of Alaska, Anchorage, Fairbanks
- Working Groups
 - PEG (Pinniped Entanglement Group)
 - Abandoned & Derelict Vessels

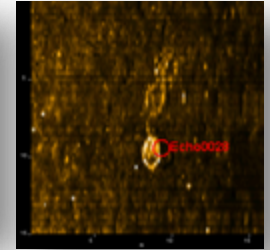
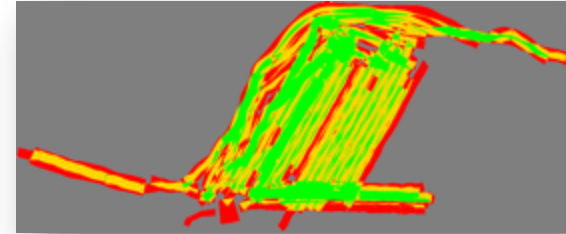




Sample Alaska Projects

Sidescan Sonar Survey

- Auke Bay Labs - Juneau
- 2009-2010
- Abundance and impact of derelict Dungeness crab pots



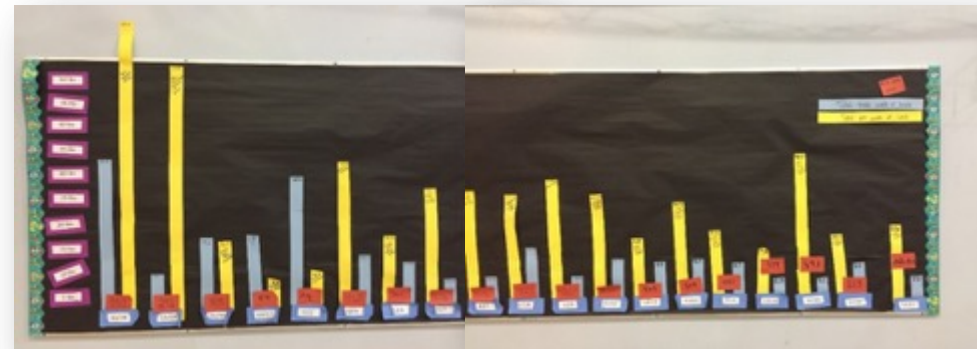
Kodiak Shoreline Cleanup

- Island Trails Network - Kodiak
- Volunteer cleanup at 80+ road system beaches, coupled with shoreline monitoring and local outreach.



Zero Waste Schools + Businesses

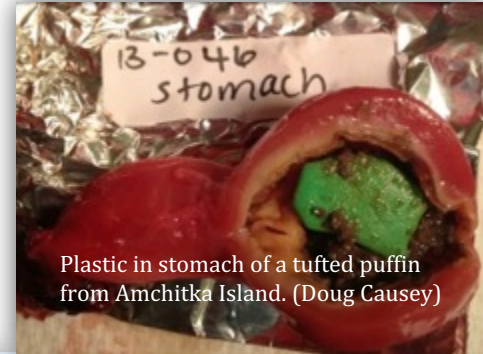
- Center for Alaskan Coastal Studies - Homer
- Education and waste audits in local schools and businesses





Alaska – On the Horizon

- **Backdrop**
 - Opening of the Arctic
 - Weather/season changes
 - Increased national and international interest
- **What's Coming**
 - **New and Emerging Partners**
 - **Ongoing community microplastic interest (research + outreach)**
 - *University of Alaska - Anchorage*
 - **Net removal and recycling from Dutch Harbor**
 - *WAP + NFWF project*
 - **MD as restoration activity**
 - *Potential to integrate MD as option for compensatory actions in case of injury or impact*
 - **Legacy debris**
 - *DoD and other legacy debris sources*





International Engagement

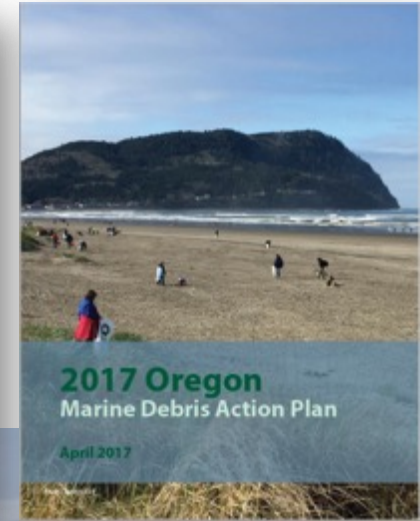
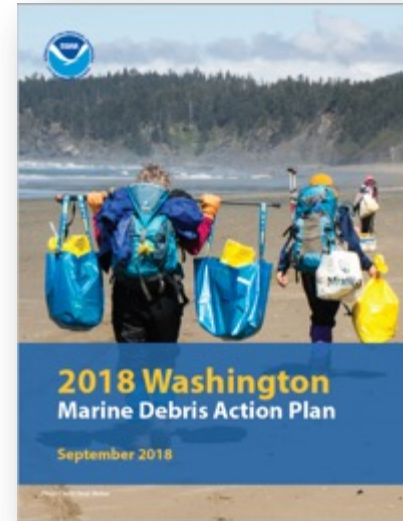
- **General International Engagement**
 - United Nations
 - UNEA
 - Regional Seas
 - G7 + G20
 - APEC + ASEAN
- **Arctic Specific Engagement – Arctic Council**
 - **Structure** - Topic-specific working groups – 6 in total
 - **PAME** – *Protecting Arctic Marine Environment*
 - “Desktop Study”
 - **Arctic Action Plan**
 - **AMAP** – *Arctic Monitoring & Assessment Program*
 - *Marine Litter Monitoring Guidelines*
 - **Iceland Chairmanship**
 - 2019 – 2021
 - Marine Litter as focus topic
 - Arctic Marine Litter Symposium – April 2020





Alaska Action Planning

- **Completed Action Plans**
 - Hawaii, California, Oregon, Washington
 - VA, FL, Great Lakes, Gulf of Mexico,
- **Action Plans**
 - Consensus on gaps, needs and priorities (Not Prescriptive)
 - Community Driven – NOAA often facilitates, but not a “NOAA product”
- **Benefits**
 - Collaboration and communication
 - Consensus can help in proposals and funding
- **Current Alaska Approach**
 - 1) Capture community knowledge
 - 2) Expand to more formal structure
 - **Workshop tentatively targeted for Winter 2020**





Questions?

Peter Murphy
peter.murphy@noaa.gov
marinedebris.noaa.gov
marinedebrisblog.wordpress.com