

Alaska Marine Debris Action Plan - Framework:

This is an expanded framework for the Alaska Marine Debris Action Plan (AKMDAP). This takes into account feedback and input gathered during in-person listening sessions, meetings, and the online Input Form. It is presented in outline format in order to provide an overall orientation to the proposed contents and structure that will surround the perspectives and input gathered on existing actions, identified gaps/needs/challenges, and future priorities. The draft inputs on those elements are provided below this outline.

Draft AKMDAP Outline:

❖ **Pre-Elements**

- Title Page
- Acknowledgements
- Table of Contents
- Acronym List

❖ **Introduction**

- Summary of concept, process, key observations, and next steps
- Include references and links to appendices

❖ **Purpose**

- Goals of action plan
- Specific adaptations to Alaska

❖ **Process**

- Brief description of how the action planning process was constructed and executed

❖ **Context (list taken from input form)**

- Unique nature of situation in Alaska
 - Need for local solutions that are realistic to local needs
 - Example - reducing single use plastics is beneficial, but that can be more challenging in many communities (e.g., drinking water supplied in single use)
- State size, natural barriers, and accessibility to remote sites
- Land ownership and management in Alaska
- Relationship to resources- commercial, subsistence, cultural
 - Impacts to cultural sites
 - Damage to fishing and tourism economy
- Limited field season
 - Competition with many activities people need to do for life and livelihood
 - Project planning timelines (need to have your plans set earlier)
- Availability or competition for labor/people
- Debris volume and composition
 - Large amounts of debris
 - Open-ocean / distant debris v. locally generated debris
- Disposal challenges (capacity, distance, cost)
- Debris source identification difficulty
- **POTENTIAL FIGURES**

- State map with distances / time for travel by boat or small plane
- Map of currents/gyres in North Pacific Ocean
 - Show how some debris travels long distances and ends up on AK's shorelines

❖ Existing Actions

- Overall Summary
 - Use this to capture big picture summary and highlight common or notable themes in feedback received
- Research / Data
- Funding
- Removal
- Disposal
- Prevention / Outreach / Education
- Policy
- Industry Engagement
- Response / Acute Debris
- POTENTIAL FIGURES
 - Map of known recent cleanup activities
 - Images of current activities, with representation across state

❖ Needs / Challenges

- Overall Summary
 - Use this to capture big picture summary and highlight common or notable themes in feedback received
- Research / Data
- Funding
- Removal
- Disposal
- Prevention / Outreach / Education
- Policy
- Industry Engagement
- Response / Acute Debris

❖ Priorities

- Overall Summary
 - Use this to capture big picture summary, highlight common or notable themes in feedback received
 - Introduce / confirm that some priorities are based on logical responses / efforts to address specifically identified gaps/needs/challenges
- Research / Data
- Funding
- Removal
- Disposal
- Prevention / Outreach / Education

- Policy
- Industry Engagement
- Response / Acute Debris

❖ **Conclusion**

- Summarize overall action plan messages, indicate next steps and point to appendices for additional content

❖ **Appendices**

- List of Steering Committee Membership
 - Name, organization, contact (email)
- List of partners / organizations in Alaska
 - Include hyperlinks
- Debris cleanup planning worksheet
 - Link to separate document for this
- Disposal techniques / methods
 - Examples of what people currently do
- Funding sources / opportunities
 - Include examples of who has used what funding

Alaska Marine Debris Action Plan

SYNTHESIZED INPUTS ON CURRENT ACTIONS, IDENTIFIED GAPS/NEEDS/CHALLENGES, AND FUTURE PRIORITIES

This document presents the synthesized inputs on current actions, gaps/needs/challenges, and future priorities for marine debris in Alaska. These were drawn from input provided through in-person listening sessions (AMSS, AFE, ComFish, ATCEM) and through the online input form. Inputs were cataloged, grouped by action type, and then synthesized. In many cases this meant combining similar concepts proposed by multiple people into a single entry. The final version of this section will be integrated (with updated and improved formatting and further review for clarity / accuracy) into the full Alaska Marine Debris Action Plan.

❖ CURRENT ACTIONS

This section captures actions that are already occurring within the Alaska marine debris community. It is not meant to be an exhaustive or complete list, but capture generally what is being done already.

➤ Research / Data

- Research on debris types and sources
 - E.g., collection of net samples to assess potential trends with the goal to eventually be able to analyze characteristics (material, construction, size, shape, etc.) for identification of source fisheries
- Research on microplastics presence and impacts
 - E.g., work by UAA and USFWS on seabird microplastic ingestion (Causey, Padula)
- Research and testing of gear modification concepts and options
 - E.g., biodegradable panels in Dungeness crab pots, other modifications of crab gear
- Research on presence and impacts of debris
 - E.g., work on Pribilof Islands, Southeast Alaska, and Arctic to quantify and assess entanglement impacts of marine mammals
- Shoreline debris monitoring and reporting through existing citizen or community science efforts
 - E.g., CoastWalk program in Kachemak Bay, LEO network in multiple communities

➤ Funding

- Funding through sources focused on marine debris or litter removal
 - E.g., grant opportunities through NOAA, funding through litter patrol
- Funding through general sources focused on broader issues, with marine debris as a potential component
 - E.g., funding through EPA IGAP program, funding through other grant opportunities

➤ **Removal**

- Disentanglement of animals caught in debris as part of removal or species management/monitoring activities
 - E.g., monitoring of northern fur seal populations to detect entangled animals and subsequent removal of debris from entangled animals by Aleut Community of Saint Paul Island staff
- Removal of debris as part of existing local community cleanup events (typically executed in spring or summer)
 - E.g., shoreline/beach cleanups as part of general local community cleanup in Anchorage, Cordova, Juneau, King Cove, Kodiak, Nome, Seward, Sitka, St. Paul, Unalaska and many other communities (these communities specifically mentioned in inputs). These may be annual, but in some cases are intermittent based on funding availability.
- Individual or small group marine-debris cleanups executed by informal volunteers as part of other activities
 - E.g., People cleaning beaches as they walk, camp, fish, or recreate
- Expedition cleanups with groups of paid / volunteer staff deploying to locations for multi-day cleanup operations
- Removal of abandoned and derelict vessels, typically by the owner of the vessel or through government funding

➤ **Disposal**

- Local disposal in community landfills
- Shipping of debris to landfills or recycling waste streams outside Alaska
- Backhaul of marine debris using excess or available capacity in returning shipping
 - E.g., seafood processing barges in hub communities, fishing boats returning to home port after the season
- Use of established recycling streams and mechanisms
 - E.g., local municipal recycling streams, use of pre-established debris-focused recycling such as gillnets in Southeast Alaska
- Encouragement to change behaviors and use better methods within waste management hierarchy (finding ways to make the best option the easiest)
 - E.g., increasing access to and awareness of recycling options, increasing port reception facilities for more and different types of materials (sorting so as to enable more reuse and recycling), creating/launching composting facilities,
- Use of emerging recycling streams and technologies
 - E.g., building connections to emerging recycling partnerships that can accept additional or more varied materials, processing of materials into alternate products (lumber, packaging, etc.)

➤ **Outreach / Education**

- Outreach and education in schools and through formal education
 - E.g., formal programs such as Ocean Guardian Program, use of individual curriculum elements such as those developed by Center for Alaskan Coastal Studies, or more informal one-off presentations in schools and academic settings.
- Targeted prevention efforts to reduce use or impact of specific entangling debris
 - E.g., work by the Pinniped Entanglement Group to identify alternatives to packing bands, and work by the Aleut Community of Saint Paul Island to reduce the use of packing bands and improve disposal options and practices.
- Creation and distribution of materials for distribution in schools and to general public communicating debris impacts, challenges, and opportunities for action (with specific focus on unique interactions between debris and Alaskan resources and culture)
 - E.g., Flyer on local values and practices and interaction with marine debris (Unangan Values, created by Aleutian Pribilof Islands Association)
- Use of marine debris as material and subject for art to communicate debris concerns and impacts
 - E.g., marine debris calendar and art contests to display works by community members
- Local efforts to identify debris items of concern and reduce their use / distribution
 - E.g., reduction or restrictions on use of plastic bags; reduction or elimination of single use items in schools, stores; receptacles for recreational fishing gear, outreach to encourage stewardship and litter prevention fishing/hunting debris (focus on traditional values)
- Creation and distribution of signage and displays to raise awareness of debris issue, and identify and encourage behaviors to prevent impacts
 - E.g., placards on where/how to dispose of different items, harbor posters on debris impacts and prevention actions (“lose the loop”),

➤ **Policy**

- Legislation focused on marine debris issues and marine debris support
 - E.g., Save Our Seas (1.0 and 2.0), State of Alaska bill focused on Abandoned and Derelict Vessels
- Local policy / legislation changes to reduce use of common debris items

➤ **Industry Engagement**

- Seafood industry engagement and support through backhaul/transport of debris, engagement in community conversations on debris issues

- E.g., Backhaul of collected debris from multiple cleanup sites by fishing vessels, engagement on community debris prevention efforts and implementation of best practices to avoid entanglement (cutting loops)

➤ **Response / Acute Debris**

- Reporting of unusual debris types/amounts by local responders
 - E.g., reporting by Bering Strait communities of unusual debris as part of Bering Strait Debris Event
- Scientific / technical support for debris events
 - E.g., hindcast modeling of potential debris source areas for Bering Strait Debris Event

❖ **GAPS / NEEDS**

This section presents Gaps, Needs, and Challenges. Gaps and Needs are situations or elements where there is a clearly identified action, product, or information that would help the situation (e.g., “we’re missing data on _____” or “we need to do _____ more”). Challenges are identified issues or limitations that inform or limit what is possible at present, but may point to needs or future priorities (e.g., “there is more debris arriving than there are resources to clean it up”)

➤ **Research / Data**

- Gaps / Needs
 - Consistent and representative data on the composition and quantity of debris across different parts of Alaska
 - Data and analysis on the relative makeup of debris on Alaskan shorelines - how much is coming from Alaska and how much from distant sources
 - Analysis methods for realistically identifying debris sources and pathways
 - Data and analysis to quantify the damages and impacts of marine debris that is specific to, or applicable to, Alaskan species and habitats
 - Survey data and imagery with consistent coverage to quantify and classify marine debris and inform prioritization of removal and prevention actions.
 - Data on the accumulation and reaccumulation rates of debris onto shorelines of different types and locations

➤ **Funding**

- Challenges
 - Funding for marine debris is a limiting factor for debris efforts overall (removal, research, prevention and response)
 - Funding is most often available through larger scale grants or other vehicles that require significant expertise and management, creating barriers to entry for community-based efforts

- Match requirements of many grants are a challenge for many communities and efforts where logistical costs are high and people need to work during field seasons for livelihoods
- Large debris objects such as heavy machinery and abandoned or derelict vessels are not typically a priority or fit for many funding vehicles based on the high cost per item
- Gaps / Needs
 - Consistent debris funding - Currently, funding is inconsistent, as grants are typically 2-3 years and are highly competitive

➤ **Removal**

- Challenges
 - The amount and scale of arriving debris exceeds the amount of cleanup/removal resources and effort
 - The amount of debris on the ocean floor that exists is unknown
 - Legacy debris from historical activities still exists in many areas
 - ◆ E.g., Oil drums in remote locations from exploration, Department of Defense, or other activities; mining materials and equipment, etc.

➤ **Disposal**

- Gaps/Needs
 - Local landfills are often limited in space capacity and waste handling infrastructure, even in larger communities
 - Standardized guidance for acceptable recycling thresholds (sorting, cleaning, etc.)
 - Recycling commodities markets are dynamic, and can lead to changes in what is permissible or possible to recycle
 - Disposal arrangements (backhaul, landfill acceptance) are often dependent on local relationships for transport and landfill acceptance, with larger organizations concerned with setting precedents by establishing formal programs.
 - Transportation costs are often high and make up a significant component of overall cleanup costs, along with disposal.
 - Evaluation of waste management stream to identify where additional steps can be taken to prevent leakage or increase capture of items that may become marine debris.

➤ **Outreach / Education**

- Gaps/Needs
 - Difficult to create meaningful engagement given the many messages and demands people face day to day.
 - Identify and pursue audiences outside of those already engaged in marine debris or broader conservation efforts.

- Increase connection of audience to marine debris issues and impacts by demonstrating impacts and focusing on ways to connect with target audiences directly based on their activities and interests
- Identify and evaluate key messages that are actionable as realistic behavior changes for people in their everyday lives (personal or professional)
- Integrate into messaging and materials the reality that debris comes from both distant and local sources.

➤ **Policy**

- Challenges
 - Policies are more often locally enacted, but much of the debris arriving in Alaska comes from distant sources.
- Gaps/Needs
 - Contacts in other countries are limited or unclear, especially in the Russian Federation. Building connections could help in sharing information about debris patterns and events, ideally leading to better understanding and the eventual reduction and prevention in distant source or transboundary debris.

➤ **Logistics / Capacity / Availability**

- Challenges
 - Majority of people working on the issue of marine debris are doing so as a collateral duty (their 2nd, 3rd, or 4th job), which limits bandwidth.
 - Nature of seasonal schedules in Alaska means that many people do not have discretionary “volunteer” time during the summer months when cleanups are feasible, since that competes with subsistence or economic activities that run 7 days per week.
 - Debris is often on remote shorelines that require significant logistical support or planning to reach by ATV, boat, or plane.

➤ **Industry Engagement**

- Challenges
 - Industries are disconnected from the disposal of the products they manufacture / distribute / use
- Gaps/Needs
 - Increased fishery industry participation and engagement in both data collection and solution identification for marine debris

➤ **Response / Acute Debris**

- Challenges
 - Abandoned and Derelict Vessels (ADV) pose specific challenges in terms of high cost per unit, complicated legal processes, and specific disposal requirements
 - Response to acute events typically fall to local communities, as there are not response-specific funding vehicles or assets that are available

- Acute events create significant debris influx in addition to what arrives from chronic everyday sources, and in very different amounts and types
- Other priorities are more immediate after incidents
 - ◆ E.g., after a storm event, human health and safety is (appropriately) the primary concern, followed by reopening of commerce and day-to-day operations,
- Gaps/Needs
 - Lack of clarity on debris origin / cause / responsible party during debris events makes response more challenging, and limits ability to understand or prevent future events
 - Lack of information on how marine debris fits within existing response frameworks, as it is often partially covered by multiple frameworks, but not entirely covered by any one structure or process

➤ Other

- Gaps/Needs
 - Clear and intuitive guidance for how to plan and execute a cleanup, including key decisions, timelines, and best practices (or “tips and tricks”) for success
 - Resources for who to connect with for guidance, insight, or advice on marine debris challenges and ideas

❖ FUTURE PRIORITIES

This section presents actions proposed as future priorities. In some cases these are drawn from gaps/needs/challenges as logical solutions or next steps to fill/address those issues.

➤ Research / Data

- Gear design innovation and testing to reduce the loss of gear, or the impact of gear once it is lost
- Research to better understand and compare impact of debris by type (e.g., consumer debris v. fishing gear v. foamed plastics)
- Remote sensing survey data and imagery with sufficient coverage, resolution, and frequency to quantify and classify marine debris and inform prioritization of removal and prevention actions.
- Benthic surveys to locate, identify, and quantify submerged marine debris (especially derelict fishing gear)
- Improve data collection harmonization and standardization so that removal and monitoring data can be compared more clearly and correctly
- Research, data collection, and monitoring on the accumulation and reaccumulation rates of debris onto shorelines of different types and locations
- Research to quantify the damages and impacts of marine debris that is specific to, or applicable to, Alaskan species, habitats, and economy
- Research to quantify the appropriate valuation of debris presence impacts, in order to utilize marine debris removal or prevention in mitigation actions

- E.g., how much shoreline should be cleaned to equal a given area planned for development, or impacted by another stressor
- Research and analysis of fate and lifecycle of debris in Alaskan conditions
 - E.g., how long do commonly encountered debris types in Alaska last before breaking down in Alaskan conditions?
- Research on presence, interactions, and impacts of microplastics on Alaskan habitat and resources
- Research and analysis on the relative makeup and pathways of debris on Alaskan shorelines - how much is coming from Alaska and how much from distant sources

➤ **Funding**

- Identify and pursue methods to increase funding base to support additional, newer, and larger cleanup operations
- Promote and look for opportunities to encourage the release of smaller grants with lower barriers to entry (proposal complexity, reporting, and overall paperwork burden)
- Integrate capability and expectation to compensate people for field work wherever possible, working to reset expectations on “volunteer” time availability
- Investigate and pursue long-term funding sources outside of grants
 - E.g., integration of deposit schemes and other contributory funding structures

➤ **Removal**

- Capture and share success stories and examples of cleanups of different types, in different areas, using different funding sources and methodologies
- Build on community-based cleanup events, finding opportunities for consistent event timing that participants can expect and plan around.
- Prioritize cleanup to remove maximum debris and provide maximum benefit for habitat for fish and wildlife, where practical
- Identify and pursue methods to connect the community to cleanup - finding ways to make them fun and engaging.
- Work to better understand / quantify the total amount of marine debris being removed from Alaskan shorelines annually across all efforts

➤ **Disposal**

- Capture or document existing successful practices (tips and tricks) for disposal, including successful reuse of debris, sorting requirements for recycling, relevant disposal vendors and waste streams, realistic budgets/costs, transportation options (including backhaul) and other elements
- Pursue opportunistic backhaul options, and document successful approaches
 - E.g., local construction, open tug space, fishing industry partnerships, transportable recycling devices
- Identify and pursue solutions to barriers to disposal in rural Alaska

- E.g., creative solutions for recycling standard consistency, transportation logistics, landfill space, etc.
- Identify and share port reception facility guidelines and any specifically practical or impractical harbors for disposal of common debris objects
- Pursue emerging markets for innovative uses of marine debris in products that are better fits for their typical mixed composition and frequently degraded condition
 - E.g., construction materials, packing materials
- Identify opportunities for policy to encourage sustainable backhaul by industry partners
 - E.g., standardized subsidy or consistent lowered cost
- Capture and share guidance on best practices for the levels of debris sorting and cleaning required in order to recycle with different methods or vendors

➤ **Outreach / Education**

- Build and strengthen connections with resource management agencies and organizations to share information and integrate marine debris information and action into more projects and efforts
- Place materials and signage in high-traffic locations, with messaging tailored to the audience in those areas (Airports focused more on tourists, Harbors focused more on mariners, etc.) and to specific debris types (e.g., signage on packing bands at hub airports)
- Integrate marine debris prevention content and messaging into existing publications that are commonly used by target audiences
 - E.g., Messaging in tidebooks for mariners, radio for communities, etc.
- Build marine debris into existing communications and community action networks, where possible and practical
 - E.g., LEO network, Indigenous Sentinels, etc.
- Pursue and support integration of marine debris information in formal education settings
- Increase the connection of audiences to marine debris issues and impacts by demonstrating impacts and focusing on ways to connect with target audiences directly based on their activities and interests
- Provide information on importance of debris and litter prevention and cleanup as part of visitor information to communities and recreational areas
- Connect marine debris management and prevention to stewardship of Alaska's unique resources and values (both for visitors and residents)
- Use of marine debris as material and subject for art to communicate debris concerns and impacts
- Build and expand opportunities for experiential learning - where people can go on cleanups and see the problem first hand
- Identify debris items of concern and reduce their use / distribution

➤ **Policy**

- Provide input and information to encourage policy that supports debris removal and prevention at relevant levels
- Identify and pursue connections to Alaskan seafood industry and topic through policy and marketing
- Grow international connections to share information on Alaska debris impacts and encourage prevention
- Continue to build connections with relevant international organizations and structures, such as IMO, Arctic Council, and others, in order to build common awareness, share findings, and support research, removal, and prevention.
- Build connections with shipping industry to better understand and eventually prevent cargo loss and debris introduction
- Pursue connections and integrations between marine debris and resiliency or climate adaptation plans where practical / feasible

➤ **Logistics / Capacity / Availability**

- Pursue opportunities to integrate emerging technologies that improve efficiency of removal
 - E.g., processing of materials to improve recycling, targeted UAS surveys to improve prioritization of shoreline based on real-time conditions, etc.
- Identify ways to connect marine debris actions to existing structures and services where it can benefit the communities and the marine debris situation
 - E.g., look for existing actions that parallel marine debris activities, or could be feasibly expanded to include marine debris actions (prevention, removal, etc.)

➤ **Industry Engagement**

- For Preface
 - Identify and cultivate relationships
 - Make connections on topics of common interest
- Pursue opportunities to engage on an ongoing basis with the fishing industry at multiple levels (large scale commercial, small scale commercial, charter, etc.)
- Make connections with lodges and charter fishing operators to identify potential partnerships and education opportunities for operators and clients/visitors
- Pursue opportunities for connections with mariculture and aquaculture industries
- Identify and pursue connections with tourism industry, including cruise ships and general tourism
 - Integrate debris cleanups as part of eco-tours
 - Connect with cruise ship industry on marine debris messaging and potential support
- Investigate and pursue methods for fishing gear reporting and tracking, both to build knowledge and picture of gear “hotspots” and high loss areas and enable action prioritization

- Build connections between industry and the disposal outcomes of the products they manufacture, distribute, and use

➤ **Response / Acute Debris**

- Pursue and identify funding sources or vehicles specific to acute debris events (rapid release, low barriers to application)
 - Long-term time scale for ADVs
- Work to improve structures for debris response communications, coordination, and information sharing - especially to impacted or concerned communities

➤ **Other**

- Capture and share information on organizations and individuals already active in the marine debris issue in Alaska, including:
 - Funding sources used
 - Location of work performed
 - Project examples
 - Lessons learned
- Assessment of debris analysis methods to understand the levels of certainty for identifying debris sources and pathways (understanding how realistic it is to reliably identify the origin of objects, and what key pieces of information are needed or are beneficial to collect)