



Sand Point, Alaska

# Arctic Marine Indigenous-Use Mapping: Tools for Communities (AMIUM)

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A partnership between the Korea Maritime Institute (KMI) and Aleut International Assc., AMIUM is focused on driving and developing community-driven research and data collection, while working with Indigenous people to leverage their knowledge and influence policy.

Specifically, AMIUM is designed to provide Arctic coastal communities the tools and support to gather and map indigenous and local knowledge.



## Stage 1 (completed 2013): Initial Findings

- State of knowledge review published in the Environmental Law Reporter

## Stage 2 (completed 2014): Community Review

- Presented at Community-Based Monitoring Workshop, Anchorage
- Presentation to community representatives and project participants from the Bering Sea Sub Network program

## Stage 3 (completed 2016-2017): Rework & Refine

- Developed, tested, and refined an ESRI solution for data collection, analysis, and management
- Identified Aleutian community of Sand Point for testing
- Worked with community to identify and refine project focus (refuse sites to complement ongoing solid waste project in Sand Point eventually selected)
- Developed step-by-step user guide for ESRI's Collector and trained Sand Point community research assistant (CRA) on new system

## Stage 4 (completed early 2018): Data Gathering and Analysis

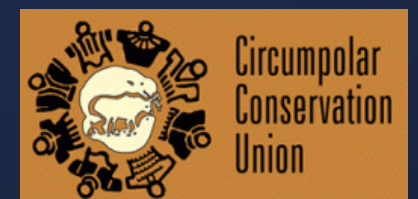
- Data gathering in Sand Point, Alaska
- Assessment, cleaning, and any requested analysis of the data

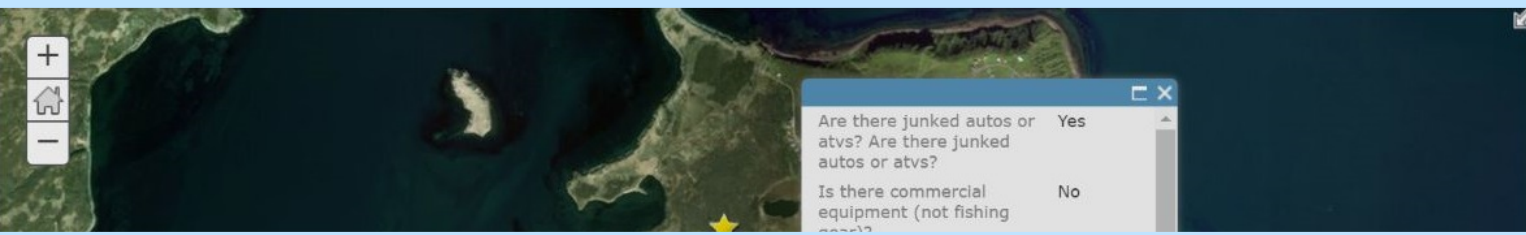
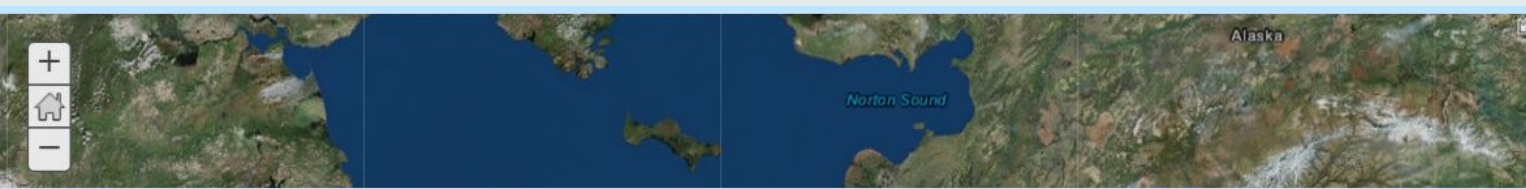
## Challenges:

- Community driven project design took significantly longer than expected, driving data collection back to the Fall of 2017
- Hardware issues in early 2017 slowed development and testing of the Collector App
- Software updates and new hardware will require at least yearly maintenance of the user and project guidebooks

# Overview: AMIUM 2013-2018

Funded by AIA, the Korea Maritime Institute, the Circumpolar Conservation Union (CCU), the OAK Foundation, and the North Pacific Research Board





# RESULTS:

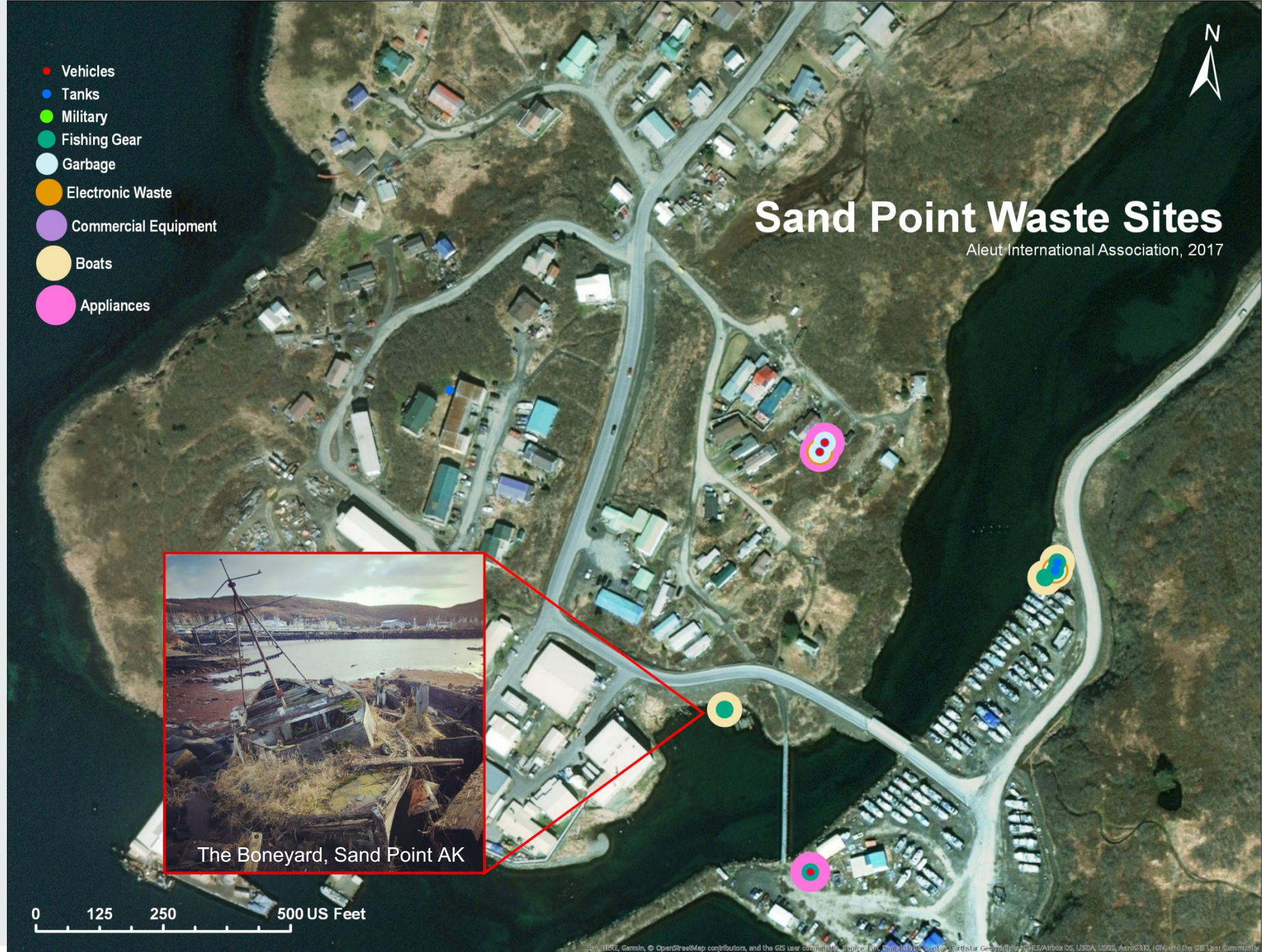
- Completed research is available online through ArcGIS Online, for community use only (seen here)
  - Each gold star marks a waste site identified in a survey
  - Clicking on a point brings up a window showing all data collected about the site during the survey interview
- AMIUM CRAs, across age groups and with widely varying levels of technological expertise, were able to collect spatial and survey data after just a few days of intensive training.
- Only one of the 37 surveys required correcting, and that was for an incorrectly entered date.

# RESULTS:

Thirty seven sites were identified, including:

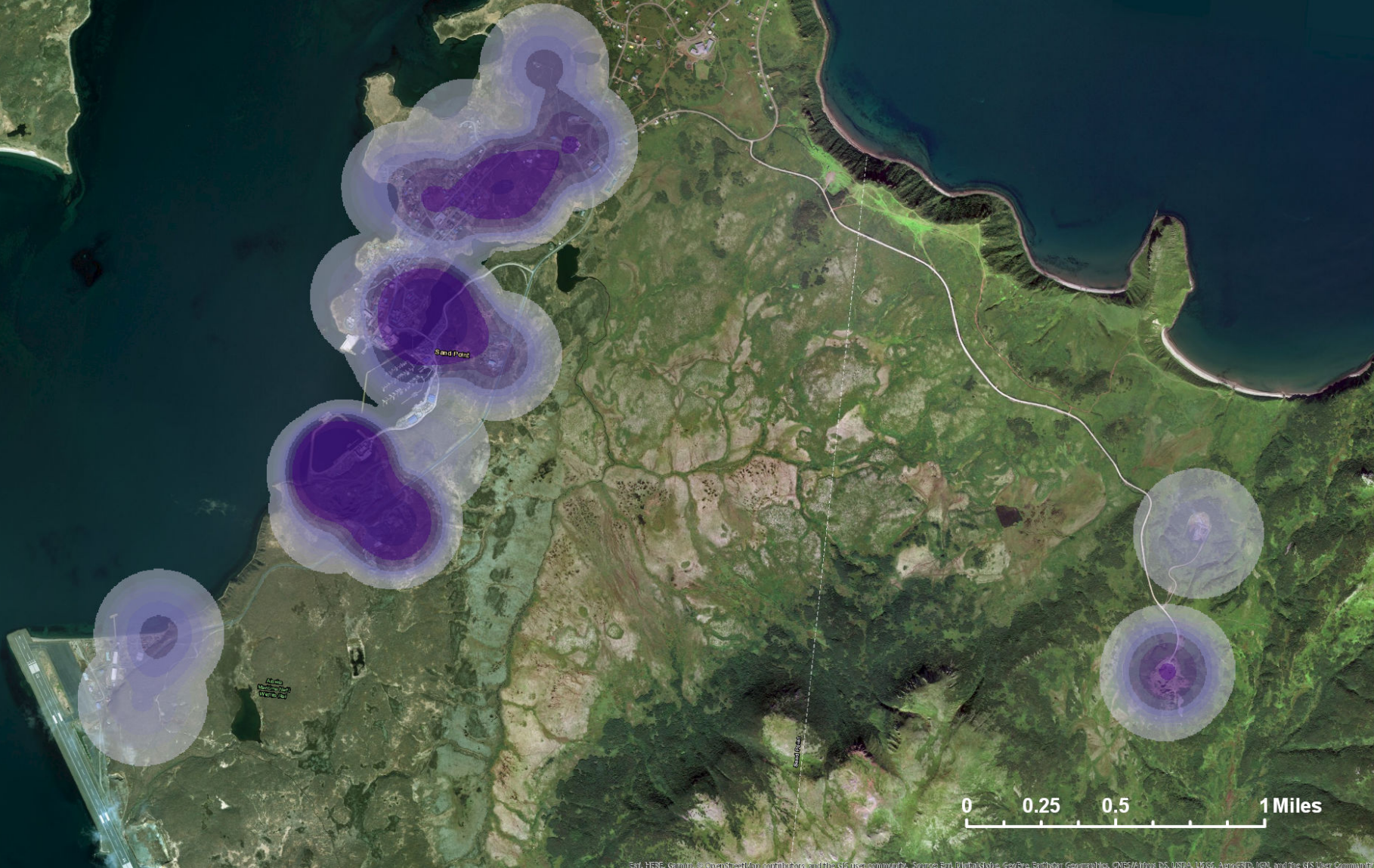
- 28 with junked vehicles,
- 19 with abandoned fuel tanks,
- 11 with fishing gear,
- 11 with commercial waste,
- 11 with electronic waste,
- 8 with general garbage,
- 5 with abandoned boats,
- 5 with household appliances
- 1 with military waste.

The highlighted location in this close-up map shows a number of abandoned boats and fishing gear known as the Boneyard.



# Density of Waste Sites on Popov Island

Aleut International Association, 2017



## RESULTS:

AMIUM data collected by Sand Point can be viewed in a variety of ways.

Here a point was created for each type of waste identified at the 37 sites. The resulting points were used to create this density map.

Maps like this one can be used by communities to identify problematic areas, how people are accessing them, and inform preventative measures.

# Additional Growth:

The system AIA developed for AMIUM was successfully implemented during the last round of Community Observation Network for Adaptation & Security (CONAS) data collection in Sand Point, Gambell, Savoonga, and Togiak.

CONAS is a CAFF approved project consisting of systematic observations made by subsistence hunters, fishers, and elders from around the Bering Sea. Past efforts (2016-2018) have been funded by the North Pacific Research Board (NPRB) and the Alaska Native Fund (ANF).

In partnership with the U.S. Fish and Wildlife Service, the Aleutian Bering Sea Islands Landscape Conservation Cooperative, and the U.S. National Parks Service, CONAS will be continuing data collection using the AMIUM system. Through these partnerships, four new Aleutian and Bering Sea communities will join the CONAS network.



Harvesting walrus in Savoonga, Alaska

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