

Study and Treatment of Coastal Alaskan Native Kayak

Judy Jungels & T.Rose Holdcraft, Peabody Museum, Harvard University

Introduction

The Harvard Peabody Museum, Cambridge, Massachusetts, and the Alutiiq Museum and Archaeological Repository, Kodiak, Alaska, recently collaborated to study and conserve several nineteenth-century full-sized skin-covered kayaks and over one hundred associated Alaska Native ethnographic objects. This two-year project was partially funded through a grant from the Save America's Treasures Program and included a public-interactive conservation workspace located in one of the museum's galleries. The project allowed the rare opportunity to fully study objects from the Alaska Native collections in the Peabody Museum and to consult with Alutiiq colleagues to build knowledge of Alaska Native technologies. Material analysis using X-ray fluorescence (XRF), matrix assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-ToF-MS) and polarized light microscopy enabled better understanding of the technology of these objects. As part of this project, the museum's collection of twenty small skin-covered kayak models from various Alaska Native groups were studied and conserved.



History & Description

In the Peabody Museum collection there are twenty skin-covered models and several small bags of associated kayak model accessories. The shape of the kayak's bow and stern and method of stitching is unique to each cultural area and there are four distinctive bow styles represented in the collection.

The Aleut and Alutiiq kayakers have been praised for their speed, sophisticated construction and design. The bow shape of the Aleut style is thought to represent a sea otter lying on its back with its legs raised and the Alutiiq style bow represents a whale's mouth. The Norton Sound kayakers are distinguished by the notches in the stern and bow and a wide cockpit. In the model collection there are eight one hatch kayakers (*qayanguaq* in Alutiiq and *iqax* in Aleut), three double hatched kayakers (*qayaqhpak*, *ulluxtadaq*) and nine triple hatched kayakers (*paitalek*, *ulluxtaq*).



Top to bottom: Unangan, Alaska Peninsula, Alutiiq and Norton Sound kayakers

Many of the models in the Peabody collection were donated from earlier collections. Donors included the American Antiquarian Society, the Boston Athenaeum, Boston Marine Society, the Peale Museum and the Peabody Academy of Science, as well as private collectors such as Josiah Sturgis (1767-1835).

During their travels in Alaska, many sea captains acquired model kayakers and other souvenirs which they brought home with them. With the Peabody Museum's founding in 1866, many of these mariner and historical societies gifted their object collections in the late 19th century.

Historical inscriptions on several models help to tell part of the story of their collection history. An inscription in iron gall ink on the side of model #1702 is shown in the image on the right in UV radiation.

It reads "Presented by His Excell. Prince Maksoutoff, Sitka April 25th, 1868." This refers to the Russian Governor of Alaska; Prince Dmitry Petrovich Maksutov (also spelled Maksoutoff).



Material Identification

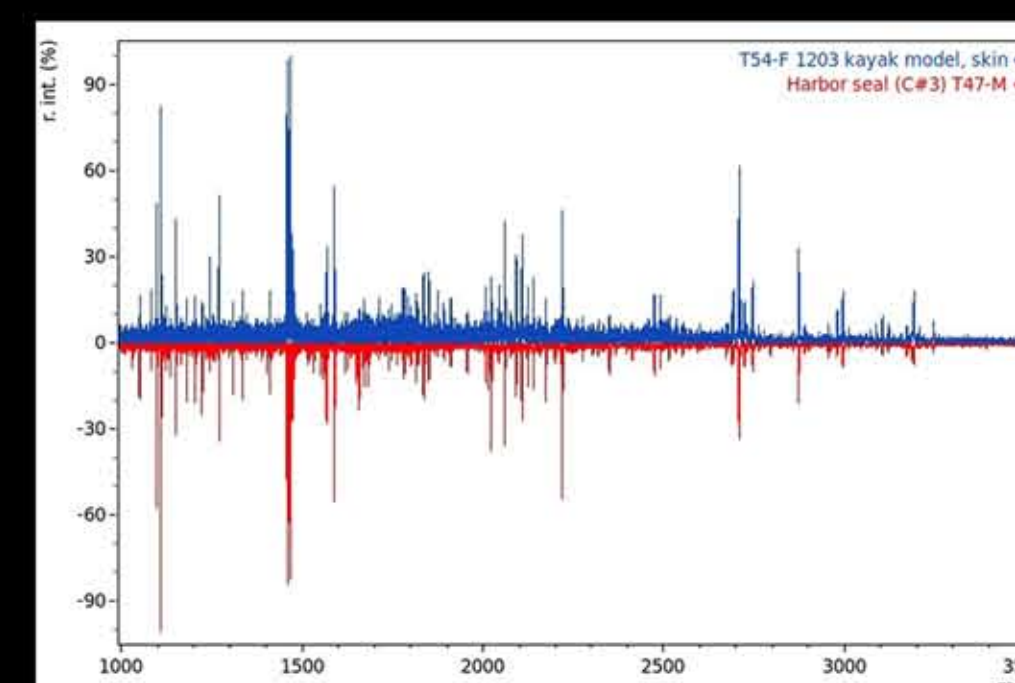
According to Alutiiq consultants, the frames of Alutiiq kayak models are usually constructed from red cedar and pegged and tied together without the use of nails. Sea lion throat and seal skin were often used for covering materials. The skin was sewn with sinew and often decorated with wool fibers. X-Ray Fluorescence analysis confirmed the red and orange paint tested on several models contained mercury which suggests the use of cinnabar. Examination under magnification revealed the use of vegetable fibers, sinew, wood and gut skin on some of the models.



pXRF analysis of red pigment

A peptide mass fingerprinting (PMF) method applied to collagen-based materials was used to identify skin, intestine, and sinew on the kayak models. This method described by Kirby uses "enzymatic digestion to cleave proteins at specific amino acid sites forming a peptide mixture." Each peptide has a unique fingerprint and analysis by MALDI-ToF-MS results in a spectrum that can be compared to a database of known samples. One of the benefits of using this method for museum object identification is that only a microsample is needed for analysis.

Of the Alutiiq and Unangan kayak models sampled for PMF analysis, the source of skin most often found on kayak models (ten of eleven sampled) was sea lion and/or seal. Although no firm conclusions can be drawn from this limited sample set, it is likely that kayak models were made from scraps left over from the manufacture of larger kayakers, clothing, or other items. The source of the sinew used in stitching was found to derive from several different animals, including whale, deer/caribou, and sea lion. Whale was identified in ten of the thirteen models sampled and, in this sample set, appears to be the most frequent choice for stitching of models across all of the cultural groups.



Spectra of kayak model #69-9-10/1203



Alfred Naumoff teaching a Harvard student how to construct a kayak model frame

Use & Purpose

Models were often made as teaching tools for young people, this way large amounts of precious materials were not consumed in the process. Later kayak models were sold as souvenirs to collectors and tourists. According to the Executive Director of the Alutiiq Museum, Sven Haakanson, the models created for teaching are more like the full sized kayakers and the ones sold as souvenirs are not sewn with the same attention to detail.

Earlier kayak models may also have been used for ceremonial purposes to insure good luck on a hunter's next hunt and as toys for young boys. "Among the Aleuts it is said that such models were kept in hunters' homes to ensure their safe return home" (Hail, p. 7).

Conservation

Conservation treatment on the models ranged from surface cleaning to humidification and reshaping to fills and tear repairs. Some of the models had missing parts or were stored with accessories that did not belong. After archival research and consulting with curators and traditional artists some of the parts could be identified and paired with the correct model. All of the models were heavily covered with soot. Some had extensive skin tears resulting in distortion and misalignment. All twenty models were documented, treated and rehoused in archival boxes. One model #67-9-10/86 required a more complex treatment as shown below.



Before and after treatment of model #67-9-10/86

Acknowledgements

Thank you to our colleagues who shared their knowledge on this project, Sven Haakanson, Alfred Naumoff, and Susan Malutin. This research study was part of a larger grant funded project supported in part by a Federal Save America's Treasures grant administered by the U.S. Institute of Museum and Library Services. Sincere gratitude is extended to the museum's project staff members and to Dan Kirby and Ellen Promise for MALDI analysis.



Susan Malutin, Alfred Naumoff and Sven Haakanson examining models at the Peabody Museum

References:
Haakanson, Sven Jr., Naumoff, Alfred, Malutin, Susan, personal communication, March, 2012.
Hail, Barbara A., Jarmo Kankaanpää, Mary Malloy, Katherine Woodhouse-Beyer, Shepard Krech III, Model Kayakers, Umiaks, and Canoes from the North Pacific in the Haffenreffer Museum of Anthropology Collections, Occasional Papers, No.1, Bristol, RI: Haffenreffer Museum of Anthropology, 2002.
Malloy, Mary, Souvenirs of the fur trade: Northwest Coast Indian art and artifacts collected by American mariners, 1785-1844 (Cambridge: The Peabody Museum Press, 2000).
Kirby, Daniel P., M. Buckley, E. Promise, S. A. Trauger, T. Holdcraft, "Identification of collagen-based materials in cultural heritage" Analyst 138 (2013): 4545-4558, doi: 10.1039/C3AN00925D.