

Human and Environmental Dynamics at Cape Krusenstern, Northwest Alaska

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Introduction

The University of Washington, Antioch University-New England and the National Park Service are undertaking an interdisciplinary project at Cape Krusenstern National Monument (CKNM), Northwest Alaska.

- Focus: past human technology, subsistence and settlement activities as they relate to changes in regional environment
- Goal: assess critical factors that limit or enhance cultural vulnerability/resilience to environmental change.

Here we present two components of this larger project that seek to address specific questions about technological and subsistence change over time in Northwest Alaska.



The Cape Krusenstern beach ridge complex



Fieldwork at Krusenstern

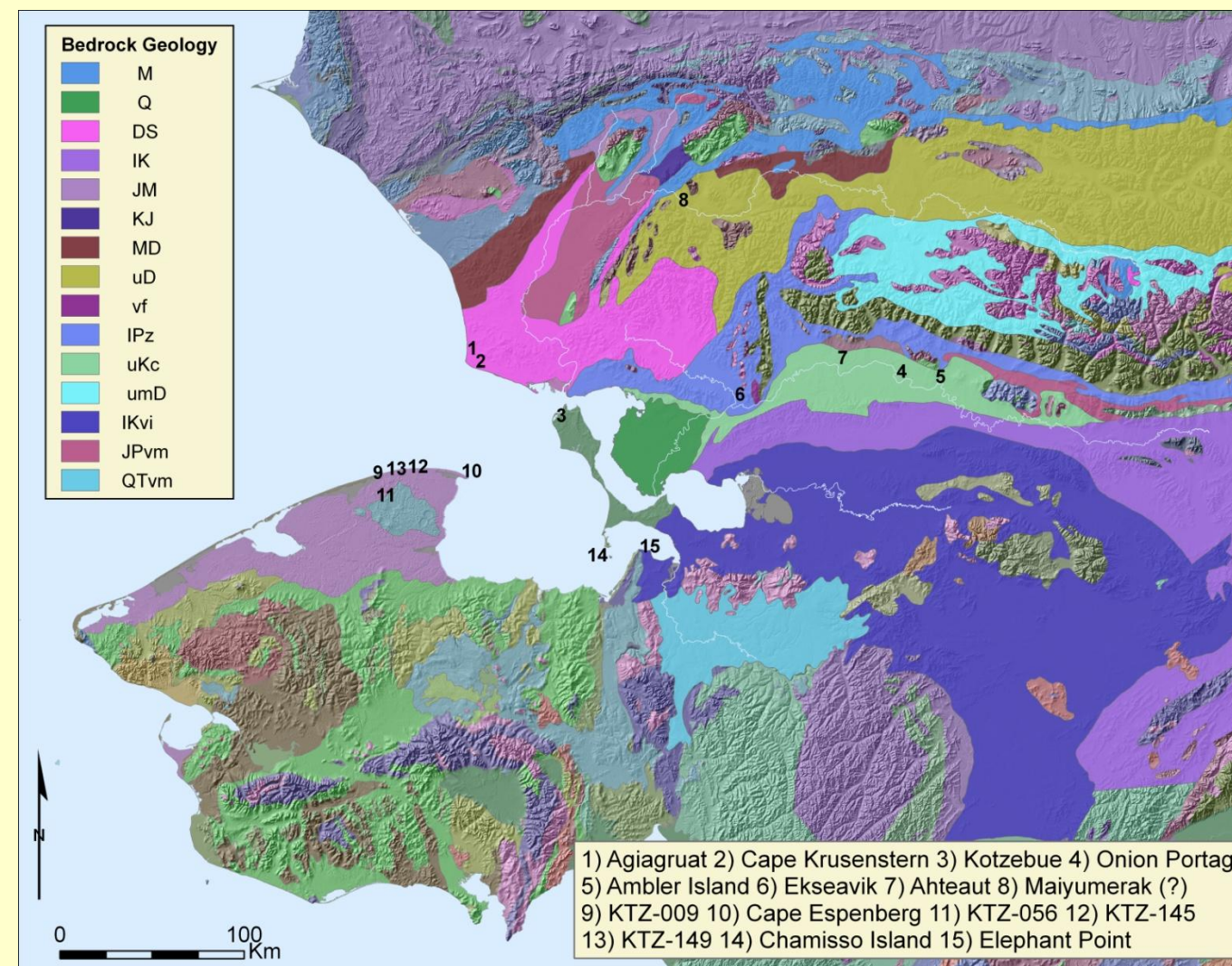
Ceramic Technology in the Arctic

- Why adopt and persist in using ceramics?
- How and why did ceramic technology change?
- Does historic pattern of ceramic trade extend into the past¹?

Pilot Sourcing Project

Goals:

- Study scale of ceramic production
- Undertake initial comparison of ceramics across region
- Determine if ceramics from different sources can be identified; minimal previous work^{2,3}.



Ceramic sample locations. Base data are bedrock types⁴.

Methods:

- Instrumental Neutron Activation Analysis
- Non-destructive analysis of ceramics



Birnirk pottery ~AD 800±50

Hypotheses and Expectations:

- Pottery production and use local → high compositional difference between sites and low compositional diversity w/in sites.
- If hypothesis rejected then:
 - 1) Potters used geochemically similar raw materials, or
 - 2) Pottery part of redistribution network.
- Analysis of clay raw materials will help distinguish between 1 and 2.

Problems:

- Can patterns of change and regional differences be explained by shifts in fuel wood availability and distribution⁵?
- Will it be possible to differentiate ceramics made from clays within single drainage system? Between drainage systems?

Social Complexity in the Arctic



- Social complexity models commonly based on surplus
- In Alaska, surplus commonly linked to whaling⁶
- Does model hold for Ipiutak (2000-500 BP) who did not whale?

Assumptions

- Resource abundance varies with regional climate and weather fluctuations
- Abundance of highly ranked resources indicated by decreased diet breadth; increased diet breadth indicates resource scarcity⁷

Goals

- Explore diet breadth, richness/evenness, resource stability as evidenced by Ipiutak faunal remains
- Compare results to existing and new paleoenvironmental reconstructions^{8,9}



Hypotheses and Expectations

- Early settlements show narrow diet breadth → stability of high ranked resources → surplus
- If not, reconsider explanations development of Ipiutak complexity



Walrus crania on Krusenstern beach

Future Work

- Continue survey and testing begun by NPS
- Continue high accuracy GPS mapping
- Geomorphological and palynological research
- Collect clay raw material samples

References Cited

- 1) Lucier and VanStone 1992, 2) Jozwik 2003, 3) Lutz 1970, 4) Beikman 1980 5) Alix 2005, 6) Mason 1998, 7) Jones 2004, 8) Mason and Jordan 1993, 9) P. Anderson 1985

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