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GIS Spatial Analysis of Arctic Settlement Patterns: A Case Study in Northwest Alaska

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GIS Spatial Analysis of Arctic Settlement Patterns:
A Case Study in Northwest Alaska

by

Justin Andrew Junge

A thesis submitted in partial fulfillment of the
requirements for the degree of

Master of Science
in
Anthropology

Thesis Committee:
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Portland State University
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Abstract

Archaeologists have been interested in relationship between environmental variability and cultural change for the last six decades. By understanding how, when, and why humans adapt to environmental change, archaeologists and anthropologists can better understand the development and complexity of human cultures. In northwest Alaska, archaeologists hypothesize that environmental variability was a major factor in both growing coastal population density, with large aggregated villages and large houses, between 1000 and 500 years ago (ya), and subsequent decreasing population density between 500 ya and the contact era. After 500 ya people are thought to have dispersed to smaller settlements with smaller house sizes in coastal areas, and perhaps, upriver. This settlement pattern was identified through research at four site locations over 30 years ago. The changing geographic distribution of sites, associated settlement size, and house size has not been examined in detail. A more careful examination of changing northwest Alaskan settlement patterns is needed before larger questions about socio-economic organization can be addressed. I use Geographic Information Systems (GIS) to evaluate the evidence for a geographic redistribution of Arctic peoples during the Late Holocene.

I constructed a database of settlement location and site attribute information, specifically the number of houses within each settlement and the size (m²). Data were collected from a dataset of Western Arctic National Parklands (WEAR), the Alaska Heritage Resource Survey (AHRIS) database of archaeological sites in Alaska, 409 unpublished site reports and field notes curated by the National Park Service (NPS) and

Bureau of Indian Affairs (BIA), and the results of recent fieldwork in northwest Alaska. A total of 486 settlements were identified within the northwest Alaska with 128 settlements having temporal and site attribute data.

I incorporated settlement size data into a GIS database and then carried out global, Moran's I, local Moran's I, and local Getis-Ord spatial analyses to test whether settlement redistribution occurred and if key settlement locations shifted after 500 ya. The site attribute data (number of houses and average size of houses) are used to test the additional aspects of the proposed settlement pattern change after 500 ya. A total of 83 settlements with 465 houses are used to test if the average size of settlements and average house size changed after 500 ya.

The results of the spatial analyses indicate no statistically significant patterns in the spatial distribution of settlements. Site attribute analysis shows no statistical difference in the average number of houses per village or the average size of houses before or after 500 ya. The results of this work build our understanding of regional settlement patterns during the late Holocene. By testing settlement pattern change, i.e. settlement distribution, settlement size, and house size, future research into settlement pattern change can begin to evaluate likely causes for the observed changes. My method, specifically the use of GIS as a method for testing settlement pattern change, can be applied to other regions and temporal scales.

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Table of Contents

Abstract.....	i
Acknowledgments.....	iii
List of Tables.....	vii
List of Figures	ix
Chapter 1.1: Introduction	1
1.2 Development of Arctic Maritime Traditions in Northern Alaska	4
1.3 Theoretical Framework.....	14
1.4 Research Questions and Hypotheses	16
1.5 Organization of the Thesis.....	19
Chapter 2.1: Background	20
2.2 Spatial Analysis and Geographic Information Systems	20
2.3 Geographic Information Systems and Settlement Pattern Research	22
2.4 Limitations of GIS Spatial Analyses	25
Chapter 3.1: Methods.....	28
3.2 Study Area	28
3.3 Database Construction.....	30
3.4.1 Spatial Distribution of Settlements with GIS	44
3.4.2 Site Metric Analyses.....	49

Chapter 4.1: Results	51
4.2 Nearest Neighbor Analysis	51
4.3 Global Moran’s I Spatial Distribution Analysis	52
4.3.2 Local Moran’s I Spatial Analysis	53
4.3.3 Local Getis-Ord Gi* Spatial Analysis	56
4.4.1 Site Metric Analyses.....	58
4.4.2 Average Settlement Size Analysis.....	61
4.4.3 Average House Size Analysis.....	61
Chapter 5.1: Discussion and Conclusion	63
5.2 Testing Settlement Pattern Change in Northwest Alaska.....	63
5.3 Broader Implications and Directions for Future Research	79
5.4 Conclusions	80
References.....	83
Appendices.....	95
Appendix I: Settlement Data.....	96
Appendix II: House Size Data	276

List of Tables

Table 1. Summary of settlement data, subsistence practices, and social organization in northwest Alaska and the Bering Strait region.....	6
Table 2. General cultural groups, climatic conditions, settlement patterns over the last 1200 years BP.....	10
Table 3. Watershed groupings, original watersheds, and areas of the study area.....	30
Table 4. Site types based on Anderson’s (2011) site type designations.	34
Table 5. Criterion for each temporal grouping for the analyses.	35
Table 6. Site number, site name, site types, and number of houses of settlements that were occupied before 500 BP.....	36
Table 7. Site number, site name, site types, and number of houses of settlements that were occupied after 500 BP.....	37
Table 8. Site number, site name, site types, and number of houses of settlements that were continuously occupied.	39
Table 9. Settlements and the number of measured houses before 500 BP.	42
Table 10. Settlements and the number of measured houses after 500 BP.	43
Table 11. Required features and parameters for Moran’s I and Getis-Ord.	48
Table 12. The Nearest Neighbor Analysis for two temporal periods.	51
Table 13. Global Moran’s I spatial statistics	52
Table 14. Local Moran's I output descriptions.	53
Table 15. Observed values, expected values, and residuals of the number of settlements	60
Table 16. Mann-Whitney U rank order values of the number of houses per settlement ..	61

Table 17. Mann-Whitney U rank order values of the house size per settlement 62

Table 18. The Nearest Neighbor Analysis for two temporal periods. 68

List of Figures

Figure 1. Study area in Northwest Alaska. Key sites discussed in text	2
Figure 2. Watersheds in the study area.	29
Figure 3. AHRS sites within the study area.	32
Figure 4. Nuluk and Port Clarence Project areas on the Seward Peninsula.	33
Figure 5. Local Moran's I spatial statistics of settlements.....	55
Figure 6. Local Getis-Ord G_i^* spatial statistics of settlements	57
Figure 7. Shapiro-Wilk test and distribution of settlement size before 500 BP.	58
Figure 8. Shapiro-Wilk test and distribution of settlement size after 500 BP.	59
Figure 9. Shapiro-Wilk test and distribution of house size (m ²) before 500 BP.....	59
Figure 10. Shapiro-Wilk test and distribution of house size (m ²) after 500 BP.....	60
Figure 11. Exploratory local Moran's I and Getis-Ord G_i^* analyses of settlements.....	71
Figure 12. Range of house sizes within settlement before 500 BP.....	74
Figure 13. Range of house sizes within settlements after 500 BP.....	75
Figure 14. Range of house sizes within settlements after 500 BP.....	76

Chapter 1.1: Introduction

The last 5,000 years witnessed significant cultural and environmental changes in the Arctic with multiple migrations, expansion of maritime adaptations, the transition to a more sedentary lifestyle, and the rise of social inequality. Several studies have focused on the inter-relationship between a marine resource focus, increased sedentism, population growth, and the development of ranked societies (Anderson, et al. Forthcoming; Anderson and Freeburg 2014; Erlandson 2001; Fitzhugh 2003; Mason 1998; Yesner 1998) which characterized northern and northwestern Alaskan cultures during the late pre-contact era (Anderson 1984; Giddings 1952; Giddings and Anderson 1986; Tremayne 2015) (Figure 1). Many questions remain about why and how late pre-contact arctic maritime cultures developed. For example, what role, if any, did late Holocene environmental variability play in cultural change? Is there a link in northwest Alaska between food surplus, increased population density, and the emergence of inequality (Ingold 1983; Hayden 1995; Testart, et al. 1982; Twiss 2012; Wesson 1999)? But, before these questions can be addressed, new research is needed to better establish the underlying evidence for population growth, sedentism, and settlement pattern change over the last 5000 years. Therefore, the focus of this thesis research is on re-evaluating the archaeological evidence for one aspect of late pre-contact cultural change in the Arctic - settlement patterns.

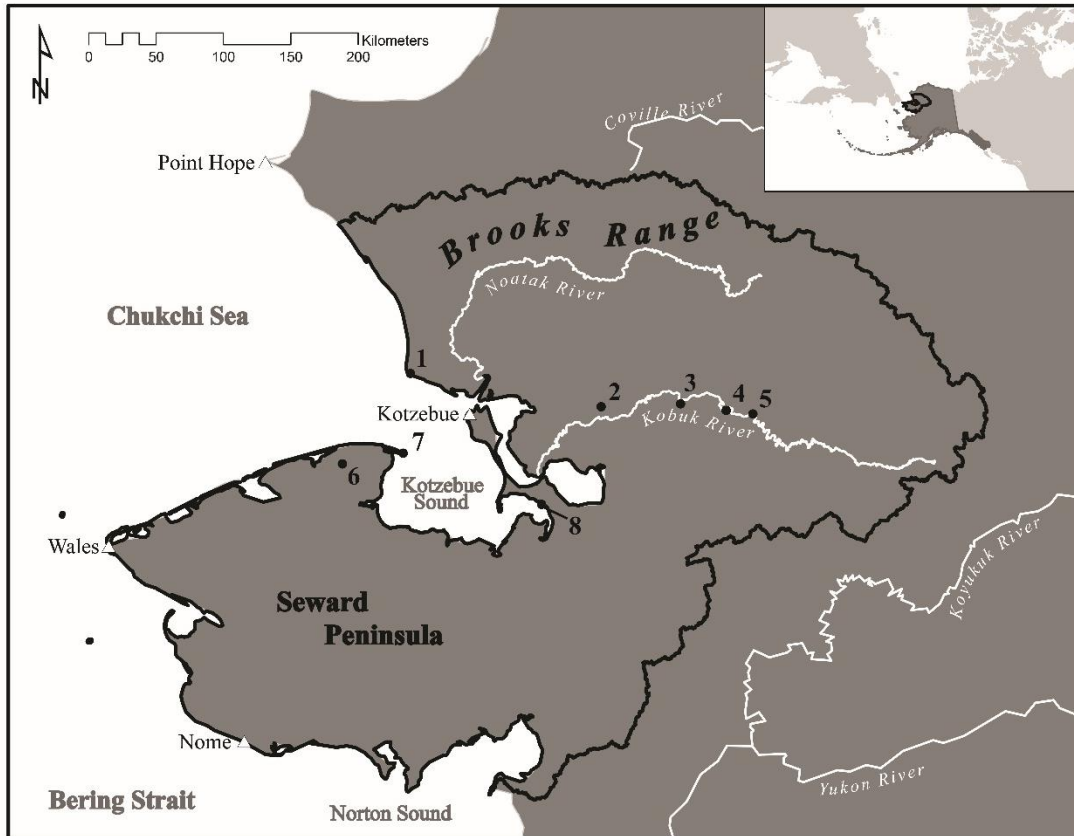


Figure 1. Study area in Northwest Alaska. Key sites discussed in text are: 1) Cape Krusenstern, 2) Eksiavik, 3) Ahteut, 4) Onion Portage, 5) Ambler Island, 6) KTZ-00052, 7) Cape Espenberg, and 8) Sisiivik.

Hunter-gatherer settlement patterns are defined by the group's mobility, subsistence, social organization, and settlement type (e.g. campsite, single house occupation, and villages). The observed or inferred shifts in settlement patterns that archaeologists study include changing settlement location, site density, and frequency of settlement movement. Archaeologists see these shifts as indicators of cultural change such as increased sedentism, changes in foraging practices, or shifts in mobility. These indicators are causally linked to broader changes in social organization and the

development of complex hunter-gatherers worldwide (Binford 2001; Fitzhugh and Habu 2002; Rowley-Conwy 2001). In northwest Alaska (Figure 1) prior research indicates that most people living in this region prior to 2500 years before present (BP) were highly mobile and did not construct permanent dwellings (Anderson 1984; Giddings 1957; Giddings and Anderson 1986; Odess 2003). After 2500 BP, people's mobility likely shifted and permanent dwellings began to appear in coastal areas (Anderson 1984; Giddings and Anderson 1986). Starting around 1500 BP, there was an aggregation of large coastal settlements in areas with easy access to rich marine resources; archaeologists view this shift as key in the development of complex arctic hunter-gathering culture (Anderson 1984; Giddings and Anderson 1986; Mason and Gerlach 1995b). However, over the last 500 years, settlement patterns are less clear, with some research suggesting a dispersal of smaller settlements with smaller houses into the interior or to other, previously uninhabited, areas along the coast (Anderson 2011; Anderson and Freeburg 2014; Freeburg and Anderson 2012; Gerlach and Mason 1992; Mason 1998). Alternatively, some evidence indicates continued population growth and concentration of people in specific coastal areas (Schaaf 1988) over the last 500 years. Prior research relied primarily on number and size of houses within sites, and number of sites, to infer settlement patterns (e.g. Giddings and Anderson 1986; Gerlach and Mason; 1992; Mason 1998). Researchers determined site distribution by visual examination of maps; a formal spatial analysis of site density or patterning has yet to be undertaken.

The goals of this thesis were 1) to re-evaluate the evidence for settlement pattern change over the last 1000 years in northwest Alaska and 2) to conduct an analysis of

spatial patterning. I focused on the last 1000 years because the archaeological dataset is richest for this time period, and because of the controversy over whether or not there were significant settlement pattern changes before and after 500 years ago. To achieve my goals I created a settlement pattern database that combines new, unpublished gray literature and recent survey data with existing settlement pattern datasets. I then used these data to test the distribution of settlements during the study period through spatial analysis using Geographic Information Systems (GIS). Additionally, I evaluated whether changes in population size are associated with the shifts in settlement patterns by testing whether the average number of houses per site and the average house size, measured in meters squared (m^2), changed during the same periods. I compared the results of this demographic analysis to the results of an on-going study of local demography through radiocarbon analysis (Anderson et al. Forthcoming).

1.2 Development of Arctic Maritime Traditions in Northern Alaska

While my focus is on the late pre-contact period, it is helpful to understand the broader cultural context in which late pre-contact settlement patterns emerged. There are several Paleoarctic (11500-6000 BP) and Northern Archaic (6500-4000 BP) sites in the interior areas of northwest Alaska (e.g. Anderson 1984, 1988; Esdale 2008; Goebel, et al. 2013), but the earliest coastal sites in northwest Alaska date to around 4500 B.P.; older coastal sites were inundated by early Holocene sea level rise, which did not stabilize until about 5,500 years ago. The early coastal occupation of the region, known locally as the Denbigh phase (4700-3200 BP) (Table 1), is characterized by small, highly mobile foraging groups that seasonally occupied both coastal and interior regions; subsistence

included both marine and terrestrial resources (Anderson 1984; Anderson and Freeburg 2013; Giddings and Anderson 1986; Tremayne 2010, 2015).

Table 1. Summary of settlement data, subsistence practices, and social organization in northwest Alaska and the Bering Strait region for the last 4,000 years (adapted from Mason 2009 and Anderson, et al. Forthcoming).

Cultural Phases	Date Ranges (BP)	Geographic Distribution	Social Spaces	Settlement Locations	Subsistence Practices
Denbigh	4700-3200	Brooks Range, Kotzebue Sound, Seward Peninsula, Norton Sound	Unknown	Inland settlements with coastal campsites	Varied with predominately terrestrial mammal hunting and marine mammal hunting at coastal campsites
Choris	2750-2250	Brooks Range, Kotzebue Sound, Northern Yukon Territory	Large oval structures, either houses and/or collective spaces	Inland, riverine, and coastal settlements	Terrestrial and marine hunting
Ipiutak	2250-1350	Western Canada through northwest Alaska to the southern Alaska Peninsula	Square house with the presence of community structures at some sites	Increase in coastal settlements with some interior settlements present	Marine and terrestrial mammal hunting (north of Seward Peninsula), fishing (south of Seward Peninsula)
Birnirk	1350-750	Eastern and western coasts of the Chukchi Sea	Small houses with some larger structures present	Predominate coastal settlements	Marine with whale specialization and terrestrial mammal hunting, possibly fishing

Cultural Phases	Date Ranges (BP)	Geographic Distribution	Social Spaces	Settlement Locations	Subsistence Practices
Thule (Early, Late)	1200-550	Bering Strait, Northwest and Northern Alaska, Canadian Arctic, Greenland	Multi-room houses with some larger structures present	Predominate coastal settlements with increased aggregation to large villages	Marine with whale specialization and terrestrial mammal hunting, possibly fishing
Kotzebue	750-250	Coastal areas of Northwest Alaska	Generally single room houses with some multi-room houses, community structures present	Dispersed small settlements or single houses on the coast and rivers, congregate trade areas	Marine and terrestrial mammal hunting, fishing
Arctic Woodland	750-250	Interior areas of Northwest Alaska	Generally single room houses with some multi-room houses, community structures present	Dispersed small settlements or single houses in the interior, campsites on the coast	Terrestrial mammal hunting, fishing, some marine hunting near the lower portion of rivers

A more sedentary lifestyle emerged around 2800-2500 years ago when several semi-subterranean house features associated with the Choris culture (2750-2250 BP) (Table 1) appear in coastal areas of northwest Alaska (Anderson 1984; Anderson and Freeburg 2013; Giddings and Anderson 1986; Mason and Gerlach 1995a). During this period, people lived in small mobile groups that continued to practice marine and terrestrial subsistence patterns established during the preceding Denbigh Phase. There are few interior Choris Phase sites but coastal settlements, campsites, and semi-subterranean houses have been identified around Kotzebue Sound, i.e. Cape Krusenstern, Choris Peninsula, and Cape Espenberg (Anderson 1984; Anderson and Freeburg 2013; Mason and Gerlach 1995a; Schaaf 1988).

Beginning with the Ipiutak Phase (2250-1350 BP) (Table 2), there is both an increase in the number and size of houses within coastal settlements. This, coupled with the presence of large communal structures and ornate burials, suggests that social organization changed during this period (Anderson 1984; Anderson and Freeburg 2013, 2014; Mason 1998, 2006, 2009b). Subsistence practices continue to focus on both marine mammals and caribou (Anderson 1984; Giddings and Anderson 1986). The cultural markers that define the “Ipiutak” people (1750-1150 BP) (Table 2) can be found at coastal sites such as Point Hope, Cape Krusenstern, and Deering (Bowers 2009; Giddings and Anderson 1986; Larsen and Rainey 1948; Mason 2006); interior Ipiutak sites are reported in a few instances, e.g. Onion Portage, Croxton (Anderson 1988; Gerlach 1989; Gerlach and Mason 1992). As with the previous phases, however, the settlement pattern for Ipiutak is not well defined. For example, it is not clear if people were moving

seasonally between the coast and interior. Overall, during this period population density increases (Mason 1998).

Beginning approximately 2000 years ago new Arctic peoples with strong maritime hunting and fishing practices, referred to as the Neoeskimo culture, migrated into northwest Alaska. The Neoeskimo period encompasses the last 1500 years; Neoeskimo people are the direct ancestors of modern Yupik, Iñupiat, and other Inuit cultures that span the arctic region from Alaska to Greenland today. In northwest Alaska, the Arctic people who make up these archaeologically defined groups are the Birnirk, Thule, and Kotzebue phases (Table 1). Interactions and relationships between these different groups are not well understood (Anderson, et al. Forthcoming; Hoffecker 2005; Mason 2009b). These hunter-gatherer populations focused on aquatic subsistence practices and developed a pattern of near year-round settlements on the coasts. Whale hunting specialization developed during the Thule phase (Anderson 1984).

Some evidence points to an increase in coastal settlement during the Thule period beginning at approximately 1200 BP (Table 1). During this period there are larger settlements (i.e. more houses within each village) and more substantial house structures (i.e. as measured in m²) on the coast that were inhabited for longer periods of time (Giddings and Anderson 1986; Mason 1998). During this period of heightened sedentism and coastal aggregation, changing environmental conditions are associated with the cooler temperatures between 1200 and 900 BP (Bird, et al. 2009; Calkin, et al. 1998; Mann, et al. 2002; Mason and Jordan 1993, 2001). This was followed by a shift to warmer temperatures during the MCA (Bird, et al. 2009; Calkin, et al. 1998; Mann, et al.

2002; Mason 2009a) (Table 2). While it is suggested that cooler conditions may have provided access to previously unavailable aquatic resources, such as whales, for the Neoeskimo people in Alaska (Dixon 2003; Gerlach and Mason 1995b; Mason 1998; Mason and Barber 2003), research into the migration of Thule people eastward into the Canadian Arctic indicates that migration occurred during warmer conditions, approximately 550 BP (Friesen and Arnold 2008: 534-537).

Table 2. General cultural groups, climatic conditions, settlement patterns over the last 1200 years BP (temporal periods associated with culture groups are defined in section 2.2).

Associated Culture Groups	Temporal Period	Climatic Conditions	Settlement Patterns
Neoeskimo Traditions (Birniirk, Punuk, and Thule)	1200 – 900 BP	Cooling temperatures and decreased precipitation.	Large villages with large houses in key resource locations.
Neoeskimo Traditions (Thule), Kotzebue Period, and Arctic Woodland Culture	900 – 300 BP	Warming temperatures, the Medieval Climatic Anomaly.	A transition from large villages with large houses in key resource locations to smaller settlement with smaller houses disturbed across the region.
Kotzebue Period, Arctic Woodland culture and contact period/ethnographic communities (nations)	500 / 300 – 100 BP	Cooling temperatures, the Little Ice Age.	Smaller settlement with smaller houses disturbed across the region.

After 500 BP, settlement patterns in northwest Alaska are not as well understood because of limited research focusing on this time period. Initial work in the region (Giddings 1952; Giddings and Anderson 1986) suggested that settlement patterns shifted

after about 500 years ago. Population decreased and settlements redistributed. People dispersed into smaller groups in new, previously uninhabited locations, and house structures were smaller across the region during this period (the Kotzebue and Arctic Woodland Phases) (Table 1 and 2). These changes in settlement patterns coincide with the shift from the MCA to cooler temperatures during the LIA beginning around 300 BP (Table 1). Environmental change may have led to a decrease in the abundance of large bodied marine mammals (e.g. whales and seals) near their large coastal settlements that may have necessitated a shift by the arctic hunter-gatherers to the interior or other coastal locations for access to fish and terrestrial mammals for subsistence (Anderson 1984; Giddings 1952; Giddings and Anderson 1986).

During the contact era (~350-250 BP), Native Alaskans had well-established subsistence practices and settlement patterns (Burch 1998, 2005, 2006; Fejes 1966; Ray 1975). Burch (1998) and Ray (1975) discuss in detail the roughly 19 independent societies or “nations” that inhabited northwest Alaska. Each nation followed unique seasonal rounds within their traditional boundaries (Burch 1998, 2006; Ray 1975). The settlement patterns for these nations indicate that small winter settlements were occupied during most of the year with seasonal subsistence logistical camps and meeting or “trade” areas for extended groups between spring and fall (Burch 1998). Subsistence practices focused on aquatic (e.g. marine mammals and fish) and terrestrial resources during specific seasons (Burch 1998).

The overall pattern is thought to be increasing population density, increased sedentism, and an increased focus on marine resources over time. Population may have

decrease, and/or dispersed after about 500 BP for unknown reasons. Our understanding, however, of these patterns, is based on limited data. Our current understanding of pre- and post-500 BP settlement patterns is based primarily on research that focused on defining cultural periods of occupation from three key sites (i.e. Ahteut, Eksiavik, and Ambler Island) along the Kobuk River (Giddings 1952; Giddings and Anderson 1986) and Cape Krusenstern (Giddings and Anderson 1986). Significant elements of how archaeologists defined these periods were the house structural designs and settlement size at these locations. The pre- and post-500 BP settlement patterns are based on a total of 63 houses excavated or recorded; 17 houses at Cape Krusenstern (Giddings and Anderson 1986: 41-54, 59-79), 15 houses at Ambler Island (Giddings 1952: 13-18), nine houses at Ekseavik (Giddings 1952: 25-26), and 22 houses at the Ahteut site (Giddings 1952: 27-31). The population estimates and change in population size pre- and post-500 BP are based on demographic studies that used radiocarbon dates and house size proxies for population estimates (Anderson and Freeburg 2013, 2014; Mason 1998; Mason and Gerlach 1995b). For example, recent work at Cape Krusenstern, Alaska (Anderson and Freeburg 2013; Freeburg and Anderson 2012) and northwest Alaska (Anderson 2011) provides more detail about regional settlement patterns and raises new questions about regional social networks and mobility during the study period. Anderson and Freeburg's studies indicate that populations increased prior to 800 BP and decreased around 500 BP (Anderson 2011; Anderson and Freeburg 2013, 2014; Freeburg and Anderson 2012). By 500 BP, settlement patterns appeared to shift in relation to the changes in population size; the new pattern was one of fewer sites and smaller houses (Anderson 2011: 167-168).

This work supports the general trend that settlement size and density increase after 1000 BP and that some variations in settlement (e.g. shift in the distribution of sites or shorter site occupation periods) occurred after 500 BP; however, this research was limited to National Park Service (NPS) lands and only one systematically and intensively surveyed site complex.

Alternatively, research conducted on the Seward Peninsula within the Bering Land Bridge National Preserve by Schaaf (1988:212-213) led archaeologists to propose a fluid settlement pattern of coastal and interior occupations with little to no change in settlement size, house size, or house distribution after 500 BP. While the Seward Peninsula settlement pattern does not refute the widely accepted pattern, it does highlight the need to test the underlying spatial distribution and site metric attributes (average number of houses per site and the average house size) of settlements dating to the last 1000 years.

Archaeologists have not empirically evaluated the evidence for changing distribution of settlements over space or looked at site and house size data across the region. Firmly establishing the nature of settlement patterns over the last 5000 years is a critical step in evaluating larger arguments about the emergence of social complexity, maritime adaptations, and the possible role of demographic shifts, population packing, and environmental change in these social developments. It is the goal of this thesis to provide a GIS statistical analysis of the spatial distribution of settlement as a way to empirically test whether or not settlement patterns change in northwest Alaska over the last 1000 years. My aim is to resolve some of the discrepancies between different

measures of settlement and population density (e.g. radiocarbon data versus analysis of dated cultural phases) (Anderson 2011) and to conduct the first spatial analysis of late Holocene settlement patterns in northwest Alaska.

1.3 Theoretical Framework

The theoretical framework for this work is evolutionary ecology and human behavioral ecology (HBE). The principal emphasis of HBE is on adaptation of a group of people through individual behavioral variability and evolutionary processes, primarily the evolutionary principals of natural selection (Kelly 2007; Trigger 1998). Though HBE has limitations in that it downplays culture and focuses on individual behavioral actions, this theoretical approach provides a framework for studying ecological interactions between humans and their environment (Fitzhugh 2003; Kennett 2005). For example, the attention HBE gives to the ecological interaction between humans and their environment is fundamental to the argument that changing climatic and environmental conditions led to settlement pattern change. In this thesis I draw on HBE as a way to understand the selection and change in settlement locations based on the environmental and climatic constraints the people living in northwest Alaska would have been experiencing in the late Holocene.

In addition to the theoretical foundation of HBE, I also utilize settlement pattern models developed by Lewis Binford. Binford (1980, 1990, 2001) drew on ethnographic data and categorized hunter-gatherer groups according to environmental constraints, settlement types, mobility, subsistence patterns, and technologies. Binford's forager-

collector model is a continuum where people adjust their settlement patterns to resource availability and adaptive strategies. According to this model, foragers are hunter-gatherers whose adaptive strategies focus on spatially and temporally consistent resources within environments. This allows for lower settlement investment and higher residential mobility (Binford 1980, 1990; Kelly 2007). Whereas, collectors specialize in resources that are highly seasonal or inconsistent, requiring investment in specialized technology, storage, and mobility strategies that focus on logistical acquisition of resources that are collected and returned to the center settlement (Binford 1980, 1990, 2001; Kelly 2007). Based on these characteristics, we can categorize hunter-gatherers as foragers or collectors, but the fluid nature of human adaptive strategies means that a hunter-gatherer group can exhibit behavior that falls into both categories along the continuum of Binford's model.

The forager-collector model does not distinctly differentiate terrestrial and aquatic (referring to marine, riverine, and estuary locations) resource variability. In later work, however, Binford (1990, 2001) began to evaluate shifts in mobility, sedentism, and social organization among aquatic or maritime hunter-gatherers (see also Ames 2002; Erlandson 2001; Fitzhugh 2002; Yesner 1980). The two primary differences between aquatic and terrestrial resources are the clustered and heterogeneous nature of aquatic resources and the rich and abundant biomass found within aquatic environments compared to those of terrestrial environments (Binford 2001; see also Yesner 1980 for ten *features* of maritime adaptations). While archaeologists are still grappling with the history, origins, and development of aquatic hunter-gatherers (Erlandson 2001; Yesner 1980), aquatic

resources and the development of collector settlement patterns are strongly correlated (Ames 1981, 1985, 2002).

Binford's forager-collector model offers a foundation for how I classify settlement types and the construction of my assumptions about settlement location. The rich and abundant biomass provided by aquatic resources informed my expectations for the aggregation of coastal settlements and the shift in settlement location to interior aquatic resources, i.e. lakes and rivers. In addition, I use Binford's (2001) extensive ethnographic dataset in my GIS analyses. I drew on Binford's regionally specific dataset for a measurement of average foraging radius per day. Overall, the application of these theoretical frameworks to this thesis strengthens my ability to test whether settlement patterns changed in northwest Alaska after 500 BP.

1.4 Research Questions and Hypotheses

This thesis investigates four questions about settlement pattern changing in northwest Alaska. These questions are:

- I. Did the spatial distribution of settlements, villages and single house sites, change from a clustered to a dispersed pattern after 500 BP?

H₀: No statistically significant change in the spatial distribution and the locations key settlement do not change.

H₁: If a pattern is present, then the spatial distribution of settlement locations before 500 BP will be statistically different from the distribution after 500 BP.

II. Did the spatial distribution of settlement size, the number of houses per settlement, change after 500 BP?

H₀: No statistically significant change in the spatial distribution and the locations key settlement do not change.

H₁: If a pattern is present, then the spatial distribution of large aggregated and small dispersed settlement locations before 500 BP will be statistically different from the distribution after 500 BP.

III. Did the size of settlements (average number houses per site) change after 500 BP?

H₀: The difference between the average number of houses before and after 500 BP is not statistically significant.

H₁: If a difference between the average number of houses per site is present, then the average number of houses per site will be statistically different before 500 BP than after 500 BP.

IV. Did the average house size (m²) change after 500 BP?

H₀: The difference between the average house size before and after 500 BP is not statistically significant.

H₁: If a difference between the average house size is present, then the average house size will be statistically different before 500 BP than after 500 BP.

I expect the spatial distribution of the settlements, the size of settlements, and the size of houses will correspond with the previously recorded settlement pattern and demographic changes in northwest Alaska. Specifically, I predict that a change in the spatial distribution will show a movement from a clustered pattern with a coastal aggregation of settlements (before 500 BP) to a dispersed pattern with the movement of settlements away from the coast into the interior or different locations along the coastline (after 500 BP). Additionally, the size of settlements and the average house size should decrease after 500 BP as other demographic research suggests (Anderson, et al. Forthcoming; Anderson and Freeburg 2014; Mason 1998).

To test these hypotheses, I culled settlement data from previous research (Anderson 2011; Anderson and Freeburg 2013; Freeburg and Anderson 2012), statewide archaeological site data (AHRS 2015), and conducted grey literature research with the NPS and the Bureau of Indian Affairs (BIA). I also participated in fieldwork that contributed new settlement data to my database.

By integrating existing and new datasets, this thesis will expand our understanding of regional settlement patterns during the last 1200 years. This work will be the first *spatial* analysis of settlement patterns to evaluate regional trends that can be used to understand if and when arctic people shifted from large, densely populated

coastal settlements and moved into the interior or migrated elsewhere along the coast. The goal of this thesis is to test the statistical significance of the generally held idea of settlement pattern change and the connection to shifts in the environment in northwest Alaska. In addition, this thesis will provide a model for testing the spatial distribution of settlements that can be used beyond northwest Alaska.

1.5 Organization of the Thesis

This thesis is organized into six chapters, with five chapters following this introduction. Chapter 2 is a literature review of settlement patterns and the application of GIS in this research. Chapter 3 consists of the methodology for the thesis. In Chapter 4, I present the results of GIS and site metric analyses. I discuss the results of broader implications of this research in Chapter 5, followed by the conclusion of the thesis and directions for future research.

Chapter 2.1: Background

This chapter provides information about the application of GIS to settlement studies in archaeology.

2.2 Spatial Analysis and Geographic Information Systems

To test whether the spatial distribution of settlements in northwest Alaska has changed over the last millennium, I used GIS software, ESRI ArcGIS 10.2, to evaluate spatial patterns before and after 500 BP. GIS is a method to capture, store, manipulate, analyze, manage, and present all types of geographic data (Bolstad 2012). Data stored within various software platforms are examined through the process of spatial analysis. Spatial analysis describes the basic study of spatial data but is subdivided into four perspectives; spatial data manipulation, spatial data analysis, spatial statistical analysis, and spatial modeling (O'Sullivan and Unwin 2014). Spatial data manipulation encompasses the basic editing and management techniques of GIS. Spatial data analysis is the descriptive and exploratory examination of spatial data. Spatial statistical analysis incorporates statistical tests to evaluate whether spatial data can be in statistical models. Spatial modeling includes the construction of models to test general assumptions and the development of predictive models for future testing. These perspectives overlap greatly in practice and rely on similar data. Spatial analysis uses data incorporating aerial images, elevation data, environmental data, census data, or other information and is presented in nominal, ordinal, interval, or ratio scales (O'Sullivan and Unwin 2014).

Spatial autocorrelation, the assumption that variables associated with locations that are closer together have more in common than those of locations that are further away, determines the degree to which spatial features are organized and if their attributes tend to cluster together or disperse across space (Bolstad 2012; O'Sullivan and Unwin 2014; Rogerson 2015; Wheatley and Gillings 2003). GIS platforms provide different analytical tools to test spatial autocorrelation. These analytical tools use different statistical formulas to measure the relationship between features and provide descriptive statistics for interpretation of data. A few of the analytical tools available in ESRI ArcGIS to test spatial statistics are the Average Nearest Neighbor, Moran's I, Geary's C, Getis-Ord, and Ripley's K function.

While each tool may be used to test specific attribute data or their relationships (see Mitchel 2005), Nearest Neighbor Analysis, Moran's I, and Getis-Ord are baselines for testing spatial pattern. Nearest Neighbor Analysis spatial statistic computes the observed average distance between a target feature and their nearest neighbor with the distance that would be expected between nearest neighbors in a random pattern (Mitchel 2005; O'Sullivan and Unwin 2014). The values produced through a Nearest Neighbor Analysis identifies whether the data has a clustered, dispersed, or random spatial pattern. Moran's I spatial statistic calculates the difference between the value at features and the mean of all features; it then compares the difference between the target feature and the neighboring features (Mitchel 2005; O'Sullivan and Unwin 2014). Based on the values, Moran's I will indicate whether data has a clustered, dispersed, or random spatial pattern. Getis-Ord spatial statistic measures whether the values are clustered and if these patterns

concentrate in significantly high or low (99%, 95%, 90% confidence value) locations (Mitchel 2005; O'Sullivan and Unwin 2014). Both of these spatial statistical tools have global and local applications. Global analysis, providing one value for the dataset, tests the statistical significance of the spatial autocorrelation or clustering values and generates z-scores and p-values of the locations of settlements. Local analysis tests the statistical significance for the same effects but does the calculations for each feature based on the adjacent neighboring features. Simply put, global spatial statistics are used to test general patterns while local spatial statistics are used to identify patterns among individual features. Overall, these spatial tools provide archaeologists with multiple ways of analyzing and interpreting their spatial datasets to understand past hunter-gatherer lifeways.

2.3 Geographic Information Systems and Settlement Pattern Research

Spatial analysis was used in archaeology prior to the incorporation of GIS into mainstream analysis (Kvamme 1999). With GIS, archaeologists are able to incorporate the four perspectives of spatial analysis (see section 2.3) to develop and test models of pre-historic lifeways. Archeologists use GIS to identify and interpret sites (Enloe, et al. 1994; Potter 2005), create predictive site models (Carlson 2012; Clark 2012; Warren and Asch 2003), evaluate settlement patterns (Henrikson 2002; Kennett 2005; Lovis, et al. 2005; Maschner 1996; Morgan 2009; Reeder-Myers 2014; Thompson and Turck 2009; Winterhalder, et al. 2010), and study the development of social complexity (Grier and Savelle 1994; Kennett, et al. 2009). Modeling and spatial analysis functions of GIS provide exceptional tools to present archaeological data for analysis and interpretation.

One example of the application of GIS and settlement pattern analysis was conducted by Henrikson (2002) in evaluating settlement locations in relation to patch choice along the Snake River in Idaho. This research took into account geographic constraints (i.e. distance to water), technology present, and activities conducted at locations to assess the locations of residential sites and camps (i.e. short-term base camps and field camps) over the last 8000 years. While the lack of residential sites does hinder the overall analysis, the results do support the assumption of the settlement pattern models that residential sites were located within proximity of river corridors and camps were situated near ephemeral ponds.

Another example of GIS and settlement pattern analysis was Morgan's (2009) central place foraging model evaluation of settlements in the Sierra Nevada Mountains of California. This research classifies patches based on their ecozones (e.g. montane forest or alpine) and defines site types based on the number of bedrock mortars (used for acorn processing) at each site. Using Nearest Neighbor analysis, Morgan's research suggests that winter settlement aggregate below snowline ecozones and that seasonal sites are dispersed in ecozones where areas are clear of snow.

Additionally, Douglas Kennett used the Ideal Free Distribution (IFD) model to test the causes and effects of population growth and settlement selection on the Northern Channel Islands off the coast of southern California (Kennett 2005; Kennett et al. 2009; Winterhalder et al. 2010). Utilizing GIS, a model was constructed that ranked the habitats based on shoreline typology and kelp forest presence. The IFD model was applied to the settlement data to understand settlement distribution, territoriality, and social hierarchy

on the northern Channel Islands. Incorporating this information, Kennett suggests that periods of larger villages were marked points in the adoption of social ranking and hierarchy in the societies. This interpretation was further supported by mortuary remains of this time period that indicate further demographic shifts and varied levels of health within the ranked society (Kennett 2005; Kennett et al. 2009).

In Alaska, the application of GIS models and spatial analysis in relation to settlement pattern change is limited. Work by Maschner (1996) focused on using evolutionary psychology and cognition to develop a model for the selection of pre-historic settlement locations in southeast Alaska based on environmental and geographic variables (i.e. climatic exposure, island size, and distance to water). While Maschner's research confirms the observed site formation patterns and supports a transition from a single-lineage to multi-lineage settlement pattern, it focuses more on spatial modeling of site locations than the change in spatial patterns over time.

Recent work by Michael Holt (2012) attempts to identify hunting practices based on cairn distribution and evaluates settlement patterns on the Seward Peninsula. Holt's results identified clustering of settlements through the use of Average Nearest Neighbor analysis. Holt associates these clusters with ethnographic settlement patterns. While his analysis is novel, his data do not incorporate temporal constraints and the undefined scale of his GIS analysis affected the results by indicating clustering or dispersal of settlements when these changes may not have been taking place.

Overall, spatial analysis and settlement patterns research in Alaska are needed to test ideas archaeologists have regarding prehistoric lifeways during the late Holocene. For example, we cannot explore the reasons why population changed, mobility shifted, or how these both may have factored into changing social organization over the mid-to-late Holocene. Additionally, archaeologists will be able to test the statistical significance of their models using updated data and new tools, such as GIS, and move away from general interpretations of site locations.

2.4 Limitations of GIS Spatial Analyses

All the spatial statistics incorporated into GIS are powerful tools to explore spatial patterns, but these statistical approaches have inherent limitations. The first limitation of spatial analysis is spatial autocorrelation. Spatial autocorrelation assumes everything is related to everything else but this assumption negates the normal distribution assumed for non-spatial statistics (O'Sullivan and Unwin 2014). Even with this limitation, spatial analysis is a powerful way to identify and interpret spatial patterns. If initial spatial analysis shows strong spatial autocorrelation, the problem can be mitigated by bootstrapping, a method of resampling data to create a normal distribution and running the analysis again (O'Sullivan and Unwin 2014; Rogerson 2015). For this thesis, this limitation is not a hindrance to the analyses as the social relationships between the arctic people living in settlements that are closer to each other have more in common than people in settlements farther away. Additionally, the use of a bandwidth constraint (specifically the ethnographic bandwidth, see section 3.4.1) provides the analyses with a more accurate representation of interactions between the people living in the settlements.

Other limitations of spatial analysis relate to scale of the analysis and confines of the study area. The limitations of scale are the modifiable areal unit problem (MAUP) and the ecological fallacy. The difficulty with MAUP and spatial analysis is that changes in the aggregation of data or how data are consolidated can change the relationship between the features and the statistical significance of data (O'Sullivan and Unwin 2014). To address limitations of MAUP, I trusted the original recorded data on number of houses per settlement and temporal distractions without aggregating or splitting into different classification or categories (i.e. splitting a large village with dispersed clusters of houses into two or more villages).

Lastly, limitations relating to the confines of the study area can occur because of the edge effect. The edge effect occurs from the construction of an artificial boundary or the use of a natural boundary, i.e. coastlines, for the study area. The problem arises because features near the edge may be affected by features outside the study area but can only be compared to features within the study area (O'Sullivan and Unwin 2014). This limitation can be diminished by providing an additional buffer around the study area or by defining the study area based on natural features, i.e. elevation boundaries and bodies of water. For this thesis, I attempt to mitigate the edge effect by using natural geographic boundaries (watersheds, see section 3.2) as the study area. Using watersheds provides a boundary that does not allow for direct interaction with people in settlements outside the study area as the terrain, i.e. opposite sides of a ridge or mountain, would general hinder movement across the terrain. Though GIS and spatial analysis have these limitations,

together they are a powerful suite of tools to analyze geographic relationships and attribute correlations.

Chapter 3.1: Methods

In this chapter, I present the study area of northwest Alaska. Then, I lay out the construction of the site database used for the spatial distribution and site metric analyses. Lastly, I outline analytical tools that are used to test the settlement pattern hypotheses.

3.2 Study Area

Prominent geologic features define northwest Alaska (Figure 1). It is widely accepted that the Alaskan coast between Cape Thompson and Cape Espenberg to the west and inland up the Noatak, Kobuk, Selawik, and Buckland rivers are the general boundaries of northwest Alaska (Burch 1998:4). For this thesis, I expanded the study area of northwest Alaska to encompass the Norton Sound as the southernmost boundary and the North Slope of the Brooks Range as the northernmost boundary of northwest Alaska. The eastern boundary is less distinct, but it generally includes the Kobuk River valley and the area south along the Kaltag Mountains. The Chukchi and Bering Seas define the western border. These geographic constraints of the region provide physical boundaries for my study area.

To address the issue of edge effects, described in the previous chapter (see section 2.5), I used the natural geographic boundaries of watersheds provided by the United States Geological Survey (USGS) as well as anadromous river data provided by the National Oceanic and Atmospheric Administration (NOAA) (Figure 2). Based on the watersheds, the study area is approximately 152 million km². I aggregated the USGS

watershed data and created four major watershed groupings: the Noatak, Kobuk, Northern Seward Peninsula, and Southern Seward Peninsula (Table 3).

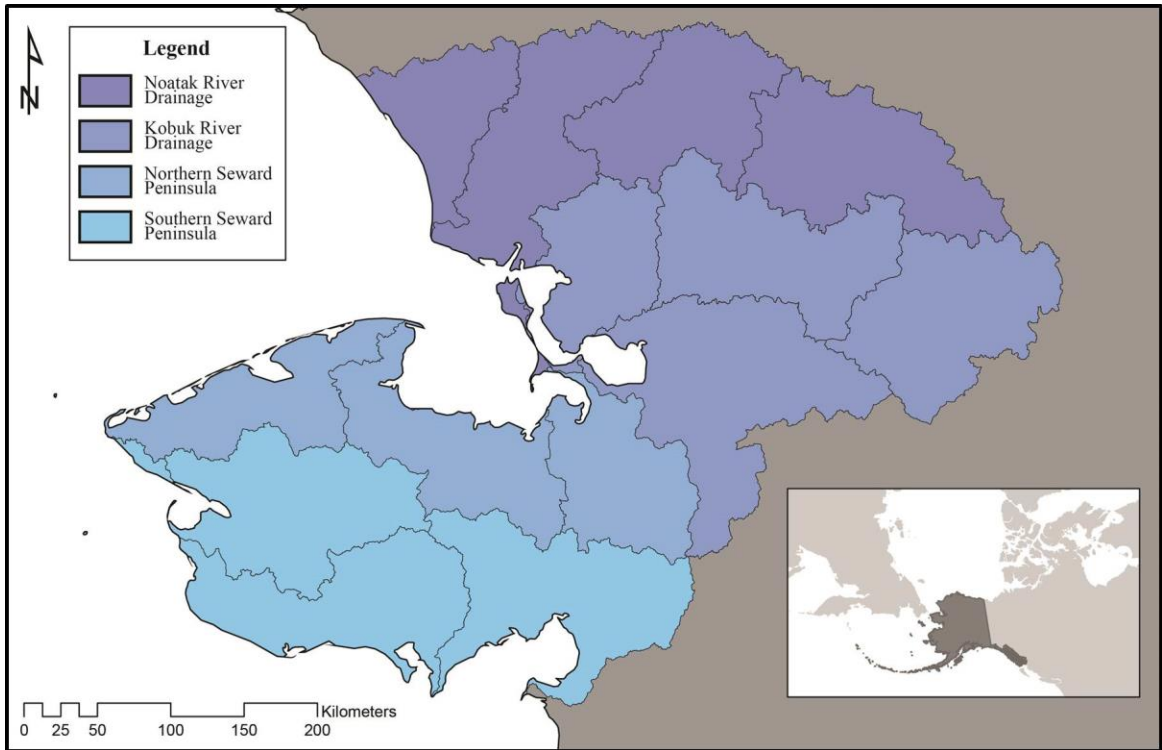


Figure 2. Watersheds in the study area.

Table 3. Watershed groupings, original watersheds, and areas of the study area.

Watershed Groupings	Watersheds	Area (km²)
Noatak	Wulik-Kivalina	7739.6
	Lower Noatak	12504.86
	Middle Noatak	10027.51
	Upper Noatak	12160.39
Kobuk	Lower Kobuk	8731.63
	Middle Kobuk	12464.74
	Upper Kobuk	12087.63
	Selawik	17160.56
Northern Seward Peninsula	Buckland	9138.05
	Goodhope-Spafaried Bay	10246.85
	Shishmaref	10730.82
Southern Seward Peninsula	Norton Bay	16176.77
	Nome	14753.27
	Imuruk Basin	12819.17

3.3 Database Construction

I drew data from a total of four types of information sources to build my database for analysis. The first is a dataset of site locations and site metric data from the Western Arctic National Parklands (WEAR) administered by NPS, which are within my study area (Anderson 2011; Anderson and Freeburg 2013). The WEAR dataset was compiled by Anderson as part of her PhD research (Anderson 2011) and contained 371 archaeological sites, with 277 radiocarbon dates, that provided site metric and temporal data for my analysis. This dataset was generated in EXCEL and was provided by Anderson. The second dataset is the statewide historic and archaeological database managed by the Alaska State Historic Preservation Office (SHPO), which is available through the Alaska Heritage Resource Survey (AHRS) and maintained by Department of Natural Resources, Office of History and Archaeology (DNR). The AHRS dataset includes 2,968 sites within the study area (Figure 3). These sites range from

paleontological sites to modern historic buildings. The AHRS database provides registered researchers with site location data as well as a general overview of the type of archaeological site recorded and a description of the material found. Data were available as PDF documents that are downloadable for archaeologists who are registered with the SHPO office.

After culling data from the AHRS and previous datasets, I was granted access to 409 unpublished site reports and field notes at the Anchorage field offices of the NPS and BIA to expand the description and site metric data within the database. All data were added to my thesis database with fields for the site number, latitude, longitude, site type, number of houses within the site, site area, occupation dates, cultural affiliation, references, site descriptions, alternative ID, and other data.

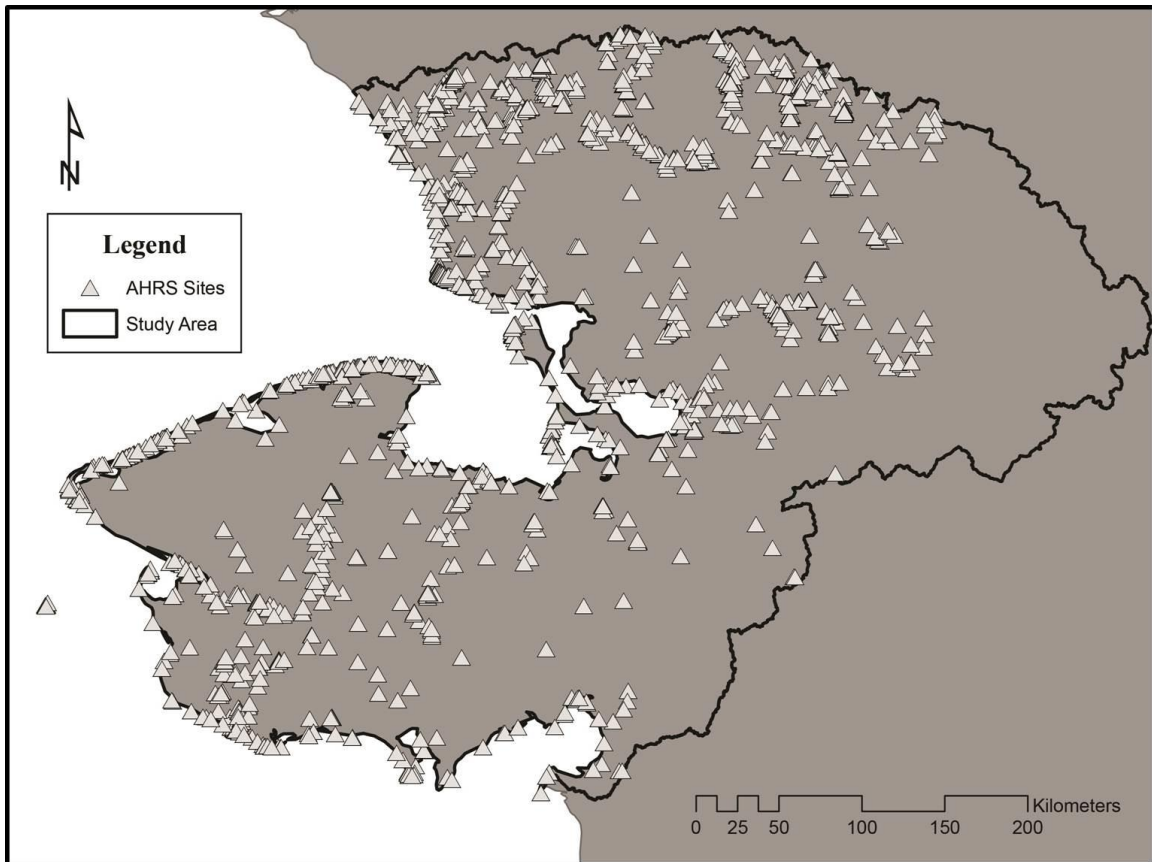


Figure 3. AHRs sites within the study area.

The last source of data for this thesis came from recent fieldwork in northwest Alaska. I participated in two separate projects lead by Dr. Shelby Anderson. The first project, conducted in 2013, was located in the western end of the Bering Land Bridge National Preserve (BELA) on the north coast of the Seward Peninsula (Figure 4). As part of this project, we identified 25 new sites and materials were collected that helped date and identify past human activities at the new and previously recorded sites within the study area. The second project was conducted in 2013 and 2015 around a closed Coast Guard station at Port Clarence, Alaska on the western coast of the Seward Peninsula (Figure 4). We identified a total of 15 new sites during the two years of field work and

subsequently tested several sites to collect cultural and dateable material. Resulting settlement and house measurements were incorporated into my database for the analyses along with new radiocarbon dates.

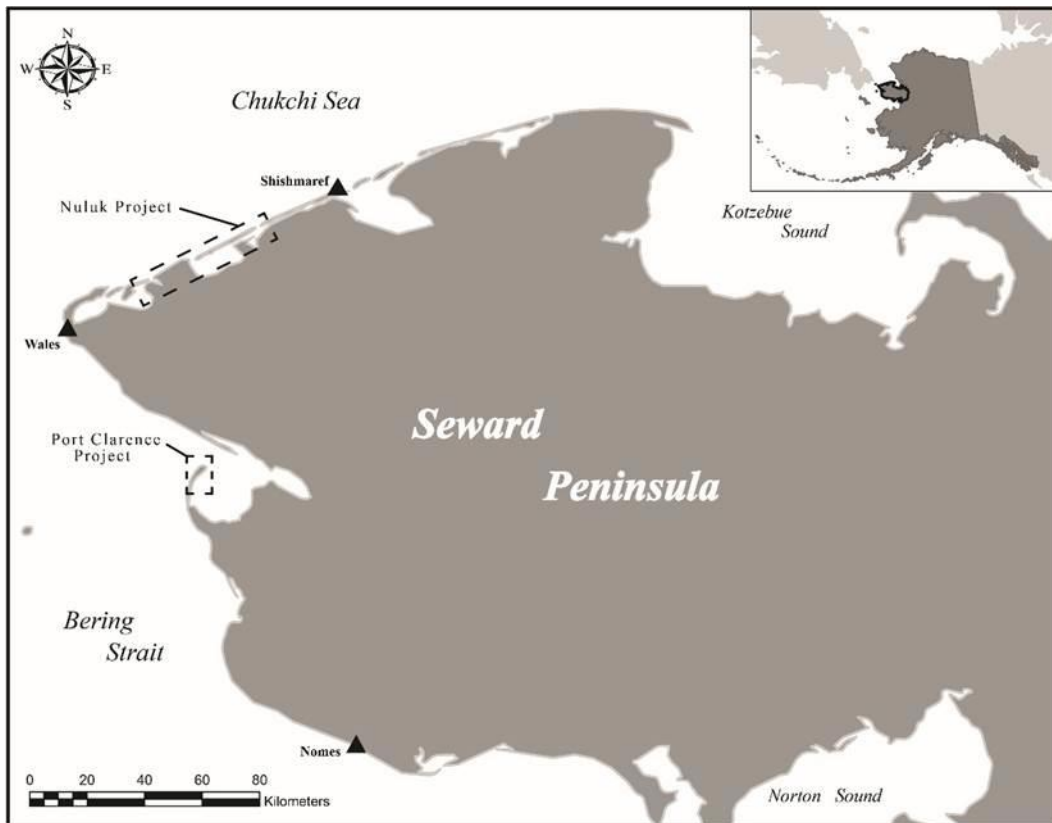


Figure 4. Nuluk and Port Clarence Project areas on the Seward Peninsula.

Site information from both databases and fieldwork were cross-referenced and checked to exclude duplicate data. A total of 2,968 sites were recorded in the AHRS (2015) within the study area. I categorized the sites into site types. Site types have been defined by the presence of features, i.e. house depressions or caches, surface artifacts, and other cultural material observed during the survey or recovered from excavations

(Fitzhugh 2003; Martindale, et al. 2009). I used the site type definitions established by previous study in the region (Anderson 2011). Types include: large villages, villages, small villages, single houses, campsites, activity areas, cemeteries/burials, unknown, and other (Table 4). For my thesis, I focused solely on settlements, i.e. villages and single houses, to test the hypotheses related to settlement pattern change.

Table 4. Site types based on Anderson’s (2011) site type designations.

Site Type	Occupation	Description
Activity Area	Seasonal	Surface scatter (lithic, ceramic, bone, antler, etc.) or hearths. No evidence of occupation (tent elements, etc.)
Campsite	Seasonal	Evidence of features (surface or subsurface) that indicate occupation or re-occupation in addition to surface scatters (lithic, ceramic, bone, antler, etc.) or hearths.
Cemetery/Burial	N/A	Human remains present, evidence of surface or subsurface burials (burial markers, coffins, burial artifacts), and/or other material associated with human remains
Large Village	Year-round or near year-round	More than five houses (house depressions) with associated features (caches, drying racks, etc.).
Small Village	Year-round or near year-round	Between two and five houses (house depressions) with associated features (caches, drying racks, etc.).
Village	Year-round or near year-round	Multiple houses reported but no definitive number listed.
Single House	Year-round or near year-round	A single house (house depression) with associated features (caches, drying racks, etc.).
Other	Unknown	Any description that does not fit the aforementioned categories (historic sites, mines, etc.).
Unknown	Unknown	No description or information about site type.

I define settlements as large villages, villages, small villages, and single house occupations. A total of 486 settlements were identified within the study area and are presented in Appendix I. Of the total settlements, only 128 sites have temporal and site metric data required for incorporation into this thesis. For the temporal identification, I

used available site occupation dates or cultural phase affiliations reported on site forms or in the literature. These dates and markers likely do not represent the full occupation history of each site in many cases. All of the 128 sites were subdivided into three temporal groups for the analyses. These temporal groups are occupations before 500 BP, after 500 BP, and continuously (Table 5).

Table 5. Criterion for each temporal grouping for the analyses.

Temporal Grouping	Description
Before 500 BP	Sites with occupation dates between 1,000 and 500 BP or associated with Thule or Birnirk cultural phases.
After 500 BP	Sites with occupation dates between 500 and 100 BP or associated with Kotzebue, Arctic Woodland, or proto/historic Inupat.
Continuously	Sites that have dates that span the 500 BP boundary, dates from both before and after 500 BP, or cultural phases from both before and after 500 BP.

Based on these criteria, a total of 29 settlements have occupations that date before 500 BP (Table 6). A total 79 settlements are associated with occupations that date after 500 BP (Table 7). Lastly, 20 settlements were continuously occupied between 1,000 and 100 BP (Table 8). By including the continuously occupied settlements in both temporal periods, I will bolster the sample sizes of each group and provide more data for analysis. While the inclusion of the continuously occupied settlements may be masking fine-grained settlement pattern change, it does provide a more robust dataset for analysis and removes researcher bias in the selection of excluding settlements that were occupied during the temporal periods.

Table 6. Site number, site name, site types, and number of houses of settlements that were occupied before 500 BP.

AHRS Site Number	Site Name	Site Type	Number of Houses
BEN-00185		Single House	1
KTZ-00008	Kugruk Lagoon	Large Village	20
KTZ-00023	Deering Quargi	Single House	1
KTZ-00031	Old Kotzebue	Large Village	200
KTZ-00068		Single House	1
KTZ-00087		Large Village	40
KTZ-00130		Large Village	25
KTZ-00131		Large Village	10
KTZ-00299		Single House	1
KTZ-00300	Deering Western Thule House 1	Single House	1
KTZ-00301	Deering Western Thule House 2	Single House	1
NOA-00008		Small Village	4
NOA-00158		Single House	1
NOA-00170		Single House	1
NOA-00274		Small Village	3
NOA-00383		Large Village	7
NOA-00468		Single House	1
NOA-00473		Large Village	7
NOA-00509		Small Village	2
NOA-00531		Small Village	2
NOA-00534		Small Village	3
NOA-00555		Single House	1
NOA-00556		Small Village	3
NOA-00578		Small Village	5
TEL-00093		Small Village	3
TEL-00216		Small Village	4
XBM-00002	Ahteut Continuation	Small Village	3
XBM-00003	Ahteut Site	Large Village	29
XBM-00009	Ekseavik (Eksiavik)	Large Village	20

Table 7. Site number, site name, site types, and number of houses of settlements that were occupied after 500 BP.

AHRS Site Number / Temporary Site Number	Site Name	Site Type	Number of Houses
AMR-00001	Onion Portage (A)	Large Village	20
AMR-00002	Ambler Island	Large Village	15
BEN-00029	Kuzitrin Lake #1	Small Village	3
BEN-00033	Cloud Lake Village	Large Village	9
BEN-00053	Kuzitrin Lake West Village	Large Village	35
CAN-00004	Iqalugruaq	Small Village	2
CAN-00025	Kuluvachak	Large Village	6
KTZ-00001		Village	30
KTZ-00009	Kivdluk	Large Village	32
KTZ-00020	Kiplaut	Small Village	4
KTZ-00053		Small Village	3
KTZ-00054		Small Village	2
KTZ-00055		Large Village	12
KTZ-00056		Large Village	16
KTZ-00060		Single Occupation	1
KTZ-00090		Large Village	10
KTZ-00101		Large Village	10
KTZ-00138		Large Village	15
KTZ-00148		Large Village	11
KTZ-00171		Large Village	10
KTZ-00298	Aklaq	Large Village	11
MIS-00032	Lake Kaiyak	Large Village	8
NOA-00003	Aniyak	Large Village	12
NOA-00140	Anigaaq C	Large Village	7
NOA-00161		Small Village	3
NOA-00162		Single Occupation	1
NOA-00163		Single Occupation	1
NOA-00164		Small Village	2
NOA-00188		Single Occupation	1
NOA-00217	Agiaguat	Small Village	2
NOA-00284	Atiligauraq	Small Village	2
NOA-00301	Igrugaivik Creek Camp	Small Village	2
NOA-00474		Single Occupation	1
NOA-00516		Large Village	9

NOM-00146	Snake River Spit Site	Small Village	2
PSU-2013-006 (Nuluk)		Single Occupation	1
SHF-00043		Small Village	2
SHU-00009	Shungnak Site	Small Village	5
SHU-00021	Tekeahruguruk	Small Village	5
SHU-00022	Black River	Large Village	8
SLK-00044		Single Occupation	1
SLK-00102	Dobuk	Single Occupation	1
SOL-00068	Okpiktulik	Large Village	14
SOL-00093	Nuglene Site	Large Village	9
TEL-00001	Sungiyorat	Small Village	3
TEL-00006	Amilrokmiut	Small Village	5
TEL-00007	Kauwerak	Large Village	29
TEL-00060	Metoktu	Large Village	17
TEL-00061	Igloo	Small Village	4
TEL-00078	Nutaat	Single Occupation	1
TEL-00086		Large Village	7
TEL-00087		Small Village	2
TEL-00096		Small Village	4
TEL-00099		Small Village	4
TEL-00232		Small Village	4
TEL-00233		Small Village	2
TEL-00249		Small Village	5
TEL-00250		Single Occupation	1
TEL-00251		Single Occupation	1
TEL-00252		Single Occupation	1
TEL-00256		Single Occupation	1
TEL-00257		Single Occupation	1
TEL-00258		Small Village	2
TEL-00260		Small Village	2
TEL-00263		Small Village	2
TEL-00264		Small Village	3
TEL-00265		Small Village	2
TEL-00269		Small Village	4
TEL-00272		Small Village	2
TEL-00273		Small Village	3
TEL-00278		Small Village	3
TEL-00280		Small Village	3
XBM-00001	Kavet Creek Site	Large Village	28

XBM-00012	Kangiguksuk	Single Occupation	1
XBM-00028	Killiktavik 2	Large Village	12
XBM-00030		Single Occupation	1
XBM-00035	Siesieaijak	Small Village	4
XBM-00041	Mitkotaylyuk	Single Occupation	1
XHP-00017		Large Village	24

Table 8. Site number, site name, site types, and number of houses of settlements that were continuously occupied.

AHRS Site Number	Site Name	Site Type	Number of Houses
KTZ-00026	Site East of Deering	Large Village	18
KTZ-00030	Intermediate Kotzebue	Large Village	30
KTZ-00052		Large Village	47
KTZ-00069		Large Village	27
KTZ-00086		Large Village	11
KTZ-00088		Small Village	5
KTZ-00089		Small Village	2
NOA-00513		Large Village	45
NOA-00533		Large Village	8
NOA-00558		Large Village	6
SLK-00047	Thule-Kotzebue Village	Large Village	6
SLK-00049	Sisiivik	Large Village	160
SLK-00086		Single Occupation	1
SOL-00065	Kuvrawik	Large Village	7
SOL-00131		Small Village	2
SLK-00100	Kiwalik Spit Village	Small Village	5
TEL-00104		Large Village	7
TEL-00105		Large Village	8
TEL-00108		Single Occupation	1
XBM-00131	Maiyumerak Creek Village	Large Village	9

During the database construction, I identified three primary limitations within the data: a lack of systematic surveys within the study area, a lack of temporal specificity for site occupations, and an absence of site specific data. Fieldwork within the study area was directed towards cultural resource compliance, management of federal lands, or academic

research. The majority of on-the-ground field work in northwest Alaska, with an emphasis on systematic survey, is limited to federal lands, e.g. Cape Krusenstern National Monument (Anderson 2011; Freeburg and Anderson 2012; McClenahan and Gibson 1990) and Bering Land Bridge National Preserve (BELA) (Anderson and Junge 2015; Hoffecker and Mason 2010; Powers, et al. 1982; Schaaf 1988; Tremayne 2014). This leaves large sections of the study area with only limited aerial reconnaissance survey, reconnaissance survey, or historic and ethnographic accounts of sites; large areas are also completely unsurveyed. While this limitation does hinder the full coverage of the study area and leaves sizeable gaps in my database, until more systematic surveys occur, the dataset I compiled is complete.

Archeologists recorded 2,968 paleontological, prehistoric, and historic sites within the study area but identified only 486 settlements, i.e. villages and single house sites. Of these settlements, 190 sites have temporal occupation dates or cultural affiliations. Additionally, many sites have only one date, have additional dates that are outside the study period, or are associated with multiple occupations that spans the last 1350 years (e.g. TEL-00105, XBM-00131, and SLK-00049 “Sisiivik”) and fall within both temporal periods. These dating issues point to the gaps in our knowledge. We need to obtain multiple dates from large sites with numerous houses. There is a lack of understanding of the complexities household occupations (i.e. multiple house occupations and reuse of older houses or structural elements). Only 128 sites have temporal markers to separate them into periods for the analysis.

A general limitation in regards to site data is the lack of site metrics, i.e. the number of houses within the site and the size of houses. Unfortunately, this information is often not recorded for sites in northwest Alaska. As previously stated, much of the study area has not been surveyed and the surveyed areas were primarily aerial or reconnaissance surveys. This limited data is bolstered by ethnographic research (Burch 1998; Koutsky 1981a, 1981b, 1981c, 1981d, 1981e, 1981f; Ray 1975) and oral histories that indicate settlement locations and are listed in the AHRS database. While many of the ethnographic and oral history sites were relocated by archaeological fieldwork, some only have minimal site metric data for this analysis. Even when sites were surveyed and tested it can be difficult to identify feature type (e.g. house versus large storage cache) and feature measurements based on surface depressions and other markers. Many house structural layouts can be categorized based on the depression formations (see Darwent, et al. 2013), but no unified classification system or identification technique has been developed, beyond excavation, to completely identify specific size and shape of subsurface features. Likewise, measurements of surface features may not represent the actual size of the buried structures. The post-depositional and site formation processes may mask the physical dimensions of the structure and create larger, smaller, or merged surface depressions. Unless the measurements from a fully excavated house are provided (e.g. Giddings 1952; Giddings and Anderson 1986) the surface depression measurements were used as a proxy for the actual house size.

Of the 128 settlements that are associated with the two temporal groups, only 83 have corresponding house measurements; however, not all house features previously

identified within these sites have measurement data. In some cases, there are discrepancies in house counts at large settlements, e.g. Giddings (1952) reported 200 houses at the Old Kotzebue site but only eight houses were ever excavated or depression measurements recorded (Giddings 1952; VanStone 1954). I have included all measurements that were accessible in data tables, figures, and GIS data into the house measurement database, see Appendix II. Of the 83 settlements with house measurement data, 25 are associated with an occupation before 500 BP and have a total of 145 houses measured (Table 9). The remaining 58 settlements relate to an occupation after 500 BP with a total of 320 houses measured (Table 10).

Table 9. Settlements and the number of measured houses before 500 BP.

AHRS Site Number	Number of Houses Measured	Total Number of Houses
BEN-00185	1	1
KTZ-00008	20	20
KTZ-00023	1	1
KTZ-00031	8	200
KTZ-00068	1	1
KTZ-00087	12	40
KTZ-00130	24	25
KTZ-00131	7	10
KTZ-00299	1	1
KTZ-00300	1	1
KTZ-00301	1	1
NOA-00158	1	1
NOA-00274	3	3
NOA-00383	7	7
NOA-00468	1	1
NOA-00473	7	7
NOA-00509	2	2
NOA-00531	2	2
NOA-00534	3	3
NOA-00555	1	1
NOA-00556	3	3

NOA-00578	5	5
TEL-00093	2	3
XBM-00003	22	29
XBM-00009	9	20

Table 10. Settlements and the number of measured houses after 500 BP.

AHRS Site Number / Temporary Site Number	Number of Houses Measured	Total Number of Houses
AMR-00002	15	15
BEN-00029	2	3
BEN-00033	3	9
BEN-00053	9	35
CAN-0004	2	2
KTZ-00009	24	32
KTZ-00030	5	30
KTZ-00054	2	2
KTZ-00055	12	12
KTZ-00056	15	16
KTZ-00060	1	1
KTZ-00090	10	10
KTZ-00101	9	10
KTZ-00148	6	11
KTZ-00171	10	10
KTZ-00298	9	11
NOA-00003	12	12
NOA-00140	7	7
NOA-00161	2	3
NOA-00162	1	1
NOA-00163	1	1
NOA-00164	2	2
NOA-00188	1	1
NOA-00217	2	2
NOA-00284	2	2
NOA-00301	2	2
NOA-00474	1	1
PSU-2013-006 (Nuluk)	1	1
SHF-00043	2	2
SHU-00009	1	5
SLK-00044	1	1

SLK-00102	1	1
SOL-00068	14	14
TEL-00007	28	29
TEL-00060	17	17
TEL-00086	6	7
TEL-00087	2	2
TEL-00096	4	4
TEL-00099	4	4
TEL-00232	4	4
TEL-00233	2	2
TEL-00249	4	5
TEL-00250	1	1
TEL-00251	1	1
TEL-00252	1	1
TEL-00256	1	1
TEL-00257	1	1
TEL-00258	1	2
TEL-00260	2	2
TEL-00263	2	2
TEL-00264	3	3
TEL-00269	4	4
TEL-00272	2	2
TEL-00273	3	3
TEL-00278	3	3
TEL-00280	3	3
XBM-00001	25	28

3.4.1 Spatial Distribution of Settlements with GIS

I use three spatial analyses, Nearest Neighbor Analysis, Moran's I, and Getis-Ord, to ascertain whether settlement patterns changed pre- and post-500 BP. Nearest Neighbor Analysis measures the observed average distance of a target feature and the nearest neighbors and compares this value to the distance of the expected value between nearest neighbors in a random pattern (Bolstad 2012; O'Sullivan and Unwin 2014; Rogerson 2015; Wheatley and Gillings 2003). The Nearest Neighbor Analysis is used to evaluate

the spatial distribution of settlements within the study area. Based on the output index of the Nearest Neighbor Analysis, the tool will identify whether the pattern being analyzed is clustered (i.e. a score < 1) or dispersed (i.e. a score > 1). The Nearest Neighbor Analysis provides z-scores and p-values for each output to indicate the significance of the results.

Moran's I measures the spatial autocorrelation, which is the degree to which spatial features cluster together or disperse, of the value associated with selected features and identifies whether their distributions cluster, order, or disperse (Bolstad 2012; O'Sullivan and Unwin 2014; Rogerson 2015; Wheatley and Gillings 2003). Both global and local Moran's I are used to evaluate the spatial distribution of size, the number of houses per settlement, of settlements and identify where clustering is occurring within the study area. As stated previously, the global Moran's I tests a single value against the entire dataset while the local Moran's I calculates a value and tests for each observation (O'Sullivan and Unwin 2014; Rogerson 2015). The global measure produces a numerical output that indicates a clustered (score of +1), dispersed (score of -1), or random pattern (score of -0.99-0.99). The local measure (Anselin Local Moran's I) creates an output feature class, i.e. points or polygons, that identifies locations that are clustered, dispersed, or outliers. The local Moran's I output will identify locations of High-High (large values near larger values) and Low-Low (small values near small values) clustering and outliers. The outliers indicate locations that are High-Low (large values near small values) and Low-High (small values near large values). Both Moran's I analyses list z-scores and p-values for each output to indicate the significance of the results.

Getis-Ord analysis is an examination of spatial density, but goes beyond density to locate statistically significant hot and cold spots, places of high value and low value, of clustered features (Bolstad 2012; Mitchel 2005; O'Sullivan and Unwin 2014; Rogerson 2015). Local Getis-Ord analysis is used to test the spatial distribution of the size of settlements and identify the location of settlements that are significantly large or small in size within the study area. The local Getis-Ord (Getis-Ord G_i^* “hot-spot”) creates an output feature class that visually discerns where the high and low value clustering is occurring within the study area. The output for the local Getis-Ord analysis presents p-values and z-scores that specify the significance of the results.

These spatial analyses are used to test my expectations that the spatial pattern before 500 BP was clustered with key settlements and the spatial pattern after 500 BP was dispersed with key settlement locations shifting from aggregated locations. Each of these spatial analytical tools has required fields for the analyses to run in ArcGIS. The required fields for the Nearest Neighbor Analysis are feature class and distance method. The feature class is the shapefile, i.e. points or polygons, with which the analysis will be performed. The distance method is a pre-constructed method of measuring distance within the ESRI ArcGIS software (see ESRI ArcGIS for full description). The distance method has a default setting, Euclidean distance, that is suitable for exploratory analyses as Manhattan distance is designed for city street grid analysis.

The Moran's I and Getis-Ord analyses required fields include feature class, input value, minimum sample size, spatial relationship, distance method, and distance bandwidth (Table 11). The first three requirements are based on data being analyzed. The

feature class, as described above, is the shapefile on which the analysis will be performed. The input values are the numeric values. In these analyses it is the number of houses per settlement for each feature being analyzed. Each tool requires a minimum sample size of 30 features for the analysis to be performed. The last three required fields for the spatial tools are parameters set on data while the analysis is being performed. Spatial relationships is a pre-constructed procedure within the ESRI ArcGIS software (see ESRI ArcGIS for full descriptions). The spatial relationship sets constants on how each feature is influenced by other features or the spatial environment. These relationships are inverse distance, inverse distance squared, fixed distance band, zone of indifference, contiguity edges only, contiguity edge corners, and spatial weights. As stated above, the distance method is how the distances are being measured for the analysis. The spatial relationship parameter has default setting that is suitable for exploratory analyses.

Table 11. Required features and parameters used for global and local Moran's I and Getis-Ord.

Required Field	Value or Parameter
Feature Class	Point
Input Value	Number of Houses
Number of Entries	Temporal Period Dependent
Spatial Relationship	Inverse Distance
Distance Method	Euclidean Distance
Bandwidth	34 km (Ethnographic) / 113.576 km (Incremental)

The default for spatial relationship for most spatial analytical tools is Inverse Distance. Inverse Distance calculates the spatial autocorrelation value by adding more computational weighting to nearby neighboring features over other features that are further away. Bandwidth, the last parameter required for this analysis, has a functional application for the spatial relationship parameter. For the Inverse Distance relationship, the bandwidth specifies the cutoff distance at which the neighboring features are included in analysis of the target feature. The bandwidth can be selected based on specific information about the dataset or input data using Incremental Spatial Autocorrelation, a spatial analysis tool. For this analysis, I ran the spatial statistic tools with two bandwidths.

The two bandwidths used were based on 1) the ESRI ArcGIS spatial tool and regional ethnographic data. The first bandwidth was generated using the Incremental Spatial Autocorrelation tool in ArcGIS. The parameters for this tool required feature class, input value, and distance band in the output data, and a beginning distance. For this

tool I used a beginning distance of 36 km and 20 segments based on the number of houses from all settlements within the complete database. These parameters were selected for an exploratory analysis to find the peak distance for spatial autocorrelation. A distance value of 113.576 km was used by the tool as the first and maximum peak based on the settlement data. The second bandwidth was selected based on the average foraging radius for male arctic hunters during the ethnographic period. The range of 34 km was calculated using Binford's (2001:238) compiled data stating that average round-trip distance is 26.4 km with a standard deviation of 7.93. The value of 34 km was generated based on my assumption that hunter-gatherers would position settlements outside each other's round-trip distance range to minimize competition over resource access. While ethnographic data indicate that sharing of resources occurred, I feel that this bandwidth represents a more accurate relationship between settlements than using a larger or smaller bandwidth.

3.4.2 Site Metric Analyses

I use IBM SPSS Statistics 23 software to conduct site metric analysis. The goal of this analysis was to test whether there are significant differences in the mean measurements for settlement size and house size. For these analyses, I used a two sample t-test to identify if the difference between the two means is statistically significant (Fletcher and Lock 2005). The basic assumptions of these types of tests are that the sample sizes for the two populations are equal and that populations are normally distributed.

The assumption of normality, an important aspect of statistical analysis, and tests, such as Kolmogorov-Smirnov and Shapiro-Wilk, was used to evaluate whether the populations are normally distributed. Depending upon whether the assumptions of normality hold, two types of analysis can be used to test for differences in the means (Fletcher and Lock 2005). For parametric samples, normal distribution, the basic paired-sample t-test was used. For non-parametric samples, non-normal distribution, the Mann-Whitney Test U was used. Before I tested the statistical difference between the average settlement size and average house size, I ran the Shapiro-Wilk test to identify the distribution of data. The Shapiro-Wilk test assumes a null hypothesis that the sample has a non-normal distribution and is recommended for datasets with small and large sample sizes (Razali and Wah 2011).

I also tested settlement data to explore the relationship between the number of settlements recorded for the two temporal datasets. Using a One-Sample Chi-Square test, I tested whether the observed frequencies match the expected theoretical frequencies (Fletcher and Lock 2005). The default expected frequencies in SPSS are 50% of the total observed frequencies. The total observed frequencies is 108 settlements, 29 before 500 BP (Table 9) and 79 after 500 BP (Table 10), with expected frequencies of 54. Chi-Square test assumes a null hypothesis that no association between the frequencies was present (Fletcher and Lock 2005).

Chapter 4.1: Results

In this chapter, I will present the results of the spatial distribution and site metric analyses. I will first show the results of the Nearest Neighbor Analysis. Then, I will present the global Moran's I followed by the output of the local Moran's I and local Getis-Ord analyses. I will then describe the results of the normality tests for the site metric data and identify the t-test used for the additional analyses. Lastly, I will present the results of the average settlement size and average house size t-test analyses.

4.2 Nearest Neighbor Analysis

As previously stated, the Nearest Neighbor Analysis tests the spatial distribution of settlements before and after 500 BP. Table 12 presents the Nearest Neighbor Analysis index value for the settlements in the two temporal periods. A Nearest Neighbor index of 0.562 with a p-value of 0.000 indicates that the spatial pattern before 500 BP has a clustered distribution and is statistically significant. Similarly, a Nearest Neighbor index of 0.578 with a p-value of 0.000 indicates that the spatial pattern after 500 BP has a clustered distribution and is statistically significant.

Table 12. The Nearest Neighbor Analysis for two temporal periods.

Analysis	Nearest Neighbor Index	Z-score	p-value	Significant
Before 500 BP	0.562	-5.625	0.000	Yes
After 500 BP	0.578	-7.919	0.000	Yes

4.3 Global Moran's I Spatial Distribution Analysis

As stated above, the global Moran's I evaluates the spatial distribution of the size settlements, the number of houses per settlement, before and after 500 BP. Table 13 lists the Moran's I spatial statistics for the size of settlements in the two temporal groups using both the ethnographic and incremental spatial bandwidth distances. Based on the statistical output values, the difference between the two bandwidths is marginal and shows no scale effects on data. With this in mind, I used the spatial statistic values associated with the ethnographic foraging distances for my analysis. A Moran's I value of 0.088 with a p-value of 0.679 indicates that the spatial pattern of the size of settlements before 500 BP has a random distribution and is not statistically significant. Likewise, the Moran's I value of 0.042 with a p-value of 0.751 indicates that the spatial pattern of the size of settlements after 500 BP is a random distribution and is not statistically significant.

Table 13. Global Moran's I spatial statistics for the two temporal groups separated into the ethnographic and incremental spatial bandwidth distances.

Analysis	Bandwidth	Moran's I	Z-score	p-value	Significant
Before 500 BP	34 km	0.088	0.413	0.679	No
	113.576 km	0.083	0.410	0.681	No
After 500 BP	34 km	0.042	0.318	0.751	No
	113.576 km	0.041	0.330	0.742	No

4.3.2 Local Moran's I Spatial Analysis

Local Moran's I evaluates the spatial relationship of the size of settlements based on their corresponding size values within the study area to identify locations of high and low clustering of settlements before and after 500 BP (Table 14). Using the ethnographic bandwidth distance, the local Moran's I before 500 BP (Figure 6:A1) identifies KTZ-00030 (Intermediate Kotzebue site) and KTZ-00031 (Old Kotzebue site) as High-High clustered settlements and SLK-00049 (Sisiivik site) as a High-Low outlier. No other settlements during this temporal period are significantly clustered. After 500 BP (Figure 6:A2), the local Moran's I indicates that the Sisiivik site is still a High-Low outlier and that no other settlements are significantly clustered.

Table 14. Local Moran's I output descriptions.

Output Type	Description
Not Significant	Settlement does not have a significantly high or low value (number of houses) and is surrounded by similar settlements within the distance bandwidth.
High-High Clustering	Settlement has high values (number of houses) and is located near settlements within the distance bandwidth that also have high values.
High-Low Outlier	Settlement has high values (number of houses) and is located near settlements within the distance bandwidth that have low values.
Low-High Outlier	Settlement has low values (number of houses) and is located near settlements within the distance bandwidth that have high values.
Low-Low Clustering	Settlement has low values (number of houses) and is located near settlements within the distance bandwidth that also have low values.

Based on the incremental spatial bandwidth distance, the local Moran's I before 500 BP (Figure 6:B1) identifies the Old Kotzebue site as the only High-High clustered settlement. No other settlements are significantly clustered. After 500 BP (Figure 6:B2),

the local Moran's I indicates that the Intermediate Kotzebue site and KTZ-00001 (Kotzebue site) are High-High clustered settlements with the Sisiivik site as a High-Low outlier and SLK-00102 (Dobuk site) as a Low-High outlier.

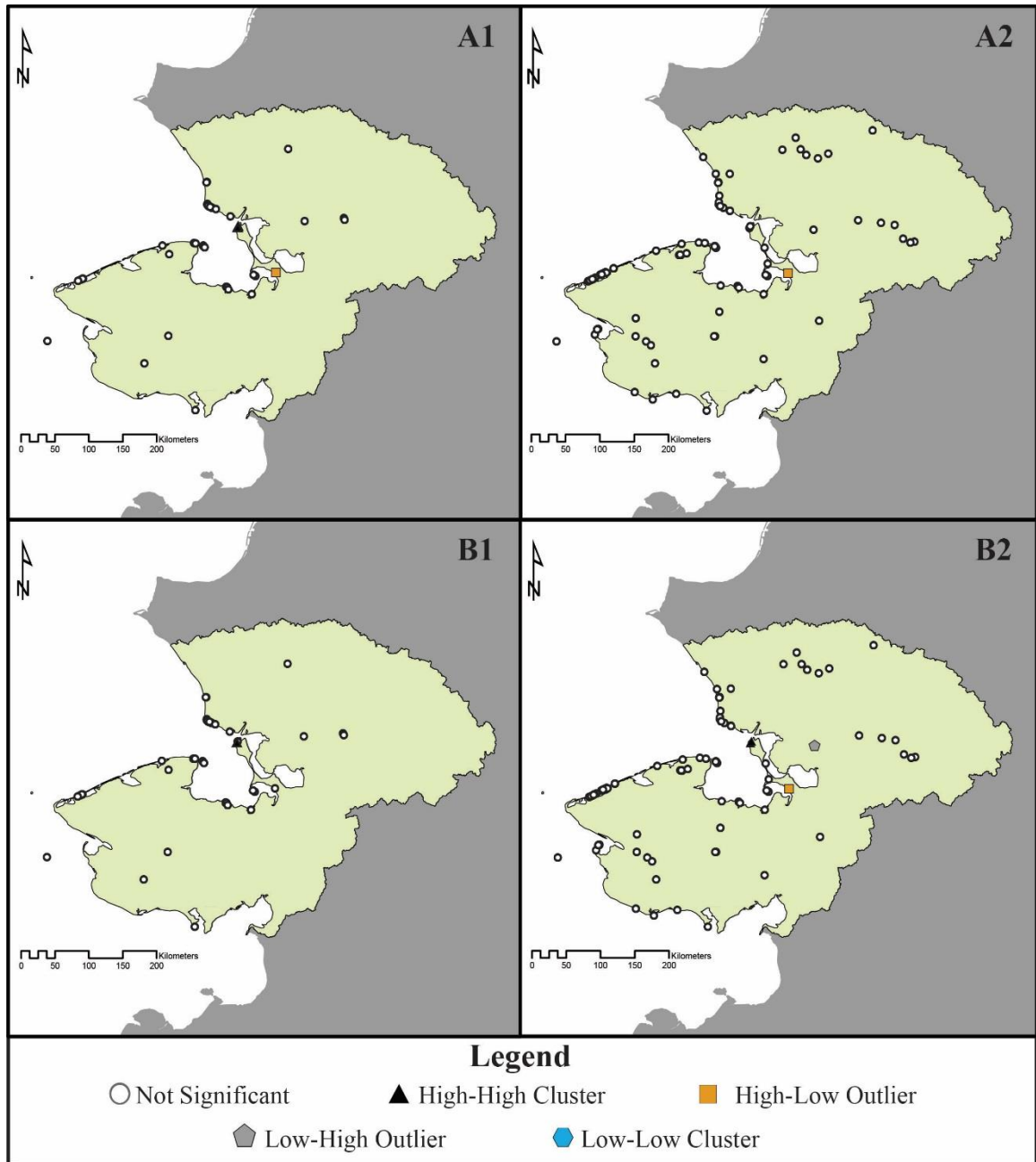


Figure 5. Local Moran's I spatial statistics of settlements before (1) and after (2) 500 BP using the ethnographic (A) and incremental spatial (B) bandwidth distances.

4.3.3 Local Getis-Ord G_i^* Spatial Analysis

Local Getis-Ord G_i^* “hotspot analysis” evaluates the spatial relationship of the size of settlements, number of houses per settlement, based on their corresponding size values within the study area to identify statistically significant locations of settlements before and after 500 BP. Using the ethnographic bandwidth distance, the local Getis-Ord G_i^* before 500 BP (Figure 7:A1) identifies the Old Kotzebue site and Sisiivik as statistically significant hotspots at a 99% confidence level. After 500 BP (Figure 7:A2), the local Getis-Ord G_i^* indicates that Sisiivik is still a hotspot (99% confidence level) but now KTZ-00052 and NOA-00513 are statistically significant hotspots at a 95% confidence level. These significance values indicate settlements that are uniquely larger or smaller in relation to the size (number of houses per settlements) of settlements surrounding the original settlement being analyzed. Based on the incremental spatial bandwidth, the Getis-Ord G_i^* outputs for the settlements before 500 BP (Figure 7:B1) and after 500 BP (Figure 7:B2) are the same as the ethnographic bandwidth.

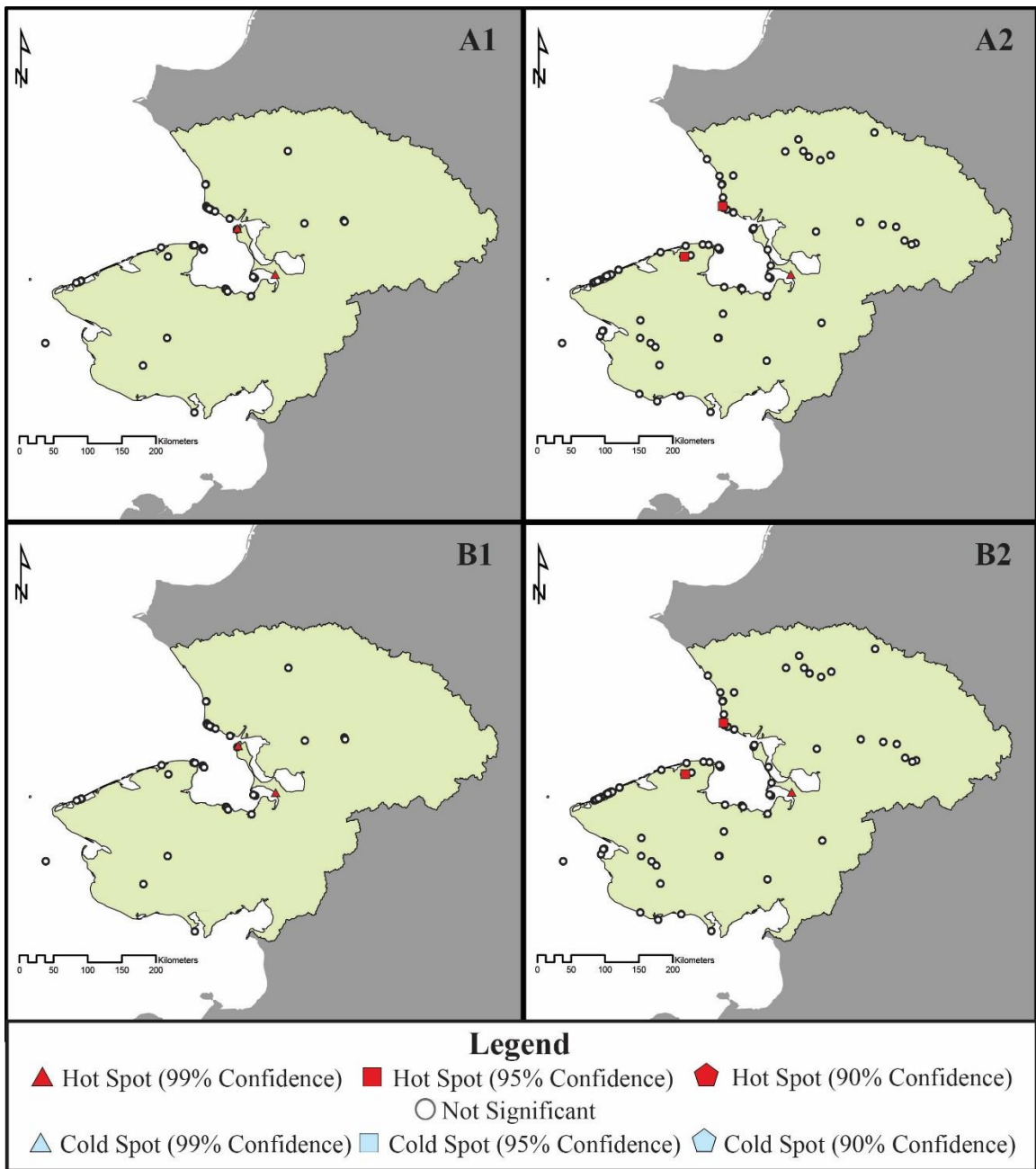


Figure 6. Local Getis-Ord G_i^* spatial statistics of settlements before (1) and after (2) 500 BP using the ethnographic (A) and incremental spatial (B) bandwidth distances.

4.4.1 Site Metric Analyses

Both site metric datasets, the average number of houses per site and the average house size, were tested for normality using the Shapiro-Wilk test. For the settlement size datasets, the samples for both before 500 BP (Figure 8) and after 500 BP (Figure 9) have p-values of < 0.001 . I cannot reject the null hypothesis and I therefore conclude the data have a non-normal distribution. For the house size datasets, the samples for both before 500 BP (Figure 10) and after 500 BP (Figure 11) have p-values of < 0.001 . I cannot reject the null hypothesis and I therefore conclude that data have a non-normal distribution. Because all four datasets have a non-normal distribution, I use the Mann-Whitney U test to compare the means of the average number of houses per site and the average house size.

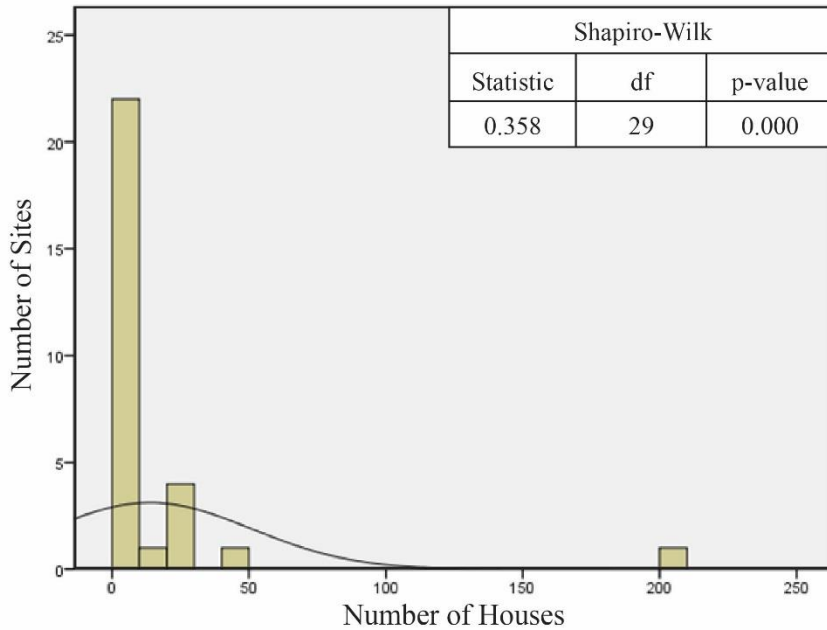


Figure 7. Shapiro-Wilk test and distribution of settlement size before 500 BP.

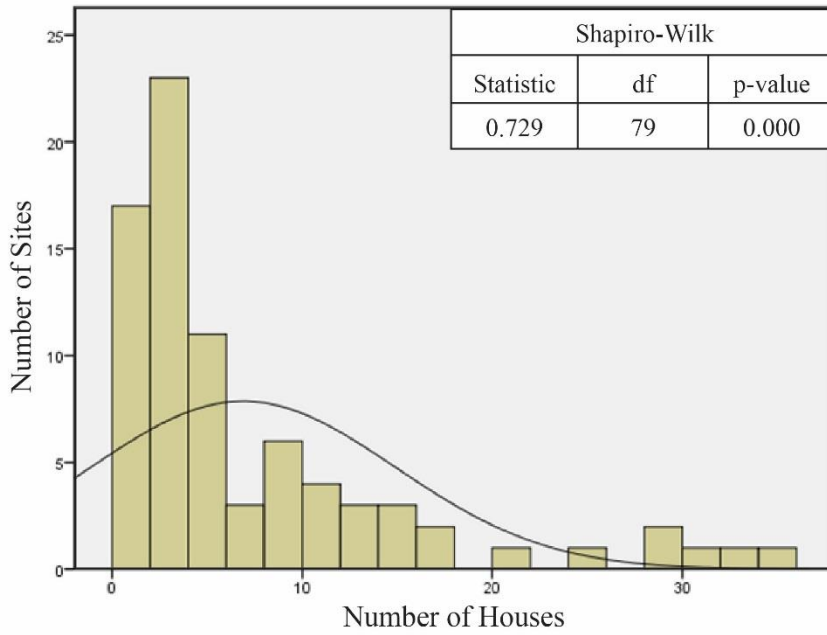


Figure 8. Shapiro-Wilk test and distribution of settlement size after 500 BP.

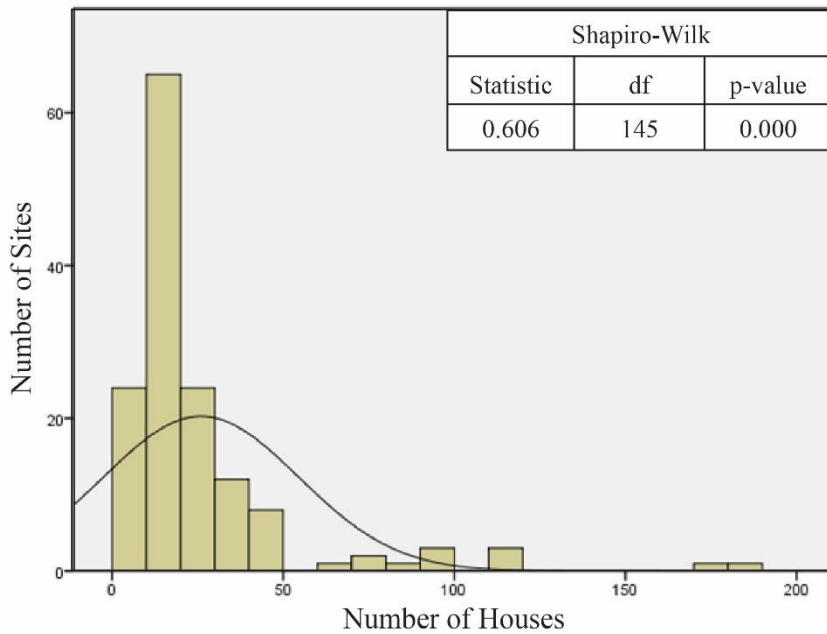


Figure 9. Shapiro-Wilk test and distribution of house size (m2) before 500 BP.

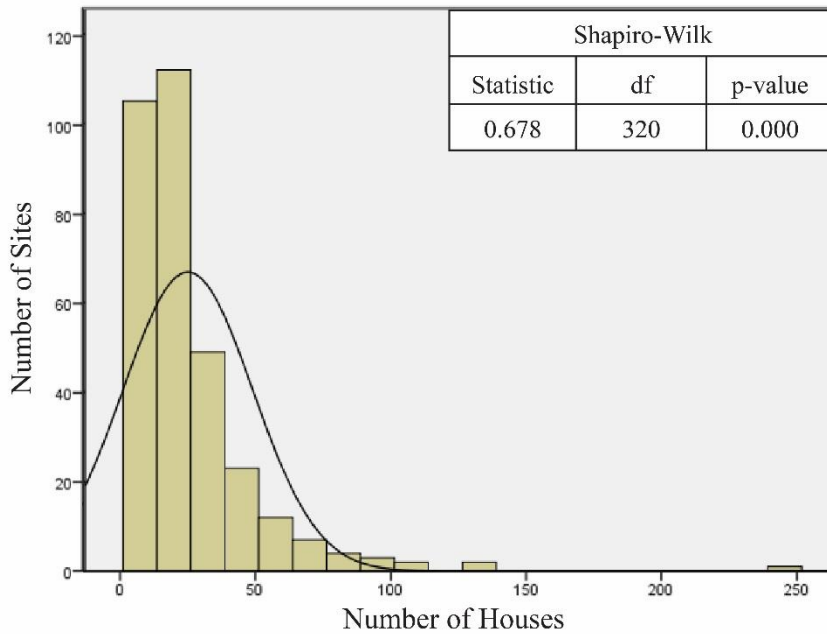


Figure 10. Shapiro-Wilk test and distribution of house size (m2) after 500 BP.

The relationship between the number of settlements before and after 500 BP was tested using the One-Sample Chi-Square test (Table 15). Based on this data, there is a significant difference in the number of settlements when comparing the two temporal periods ($\chi^2 = 23.148$, $df = 1$, $p = <0.001$).

Table 15. Observed values, expected values, and residuals of the number of settlements before and after 500 BP.

	Observed N	Expected N	Residual
After	79	54.0	25.0
Before	29	54.0	-25.0
Total	108		

4.4.2 Average Settlement Size Analysis

Based on the non-normal distribution of the datasets, the Mann-Whitney U test was used to test the difference in the average number of houses per settlement before and after 500 BP. Mean values in the settlement before and after 500 BP (Table 16) were 51.88 and 55.46 houses, respectively; the average number of settlements in the two groups are not statistically significant (Mann-Whitney U = 990.5, p = 0.408 two-tailed).

Table 16. Mann-Whitney U rank order values of the number of houses per settlement before and after 500 BP.

	Period	N	Mean Rank	Sum of Ranks
Houses	Before	29	51.88	1504.50
	After	79	55.46	4381.50
	Total	108		

4.4.3 Average House Size Analysis

Based on the non-normal distribution of the datasets, the Mann-Whitney U test was used to test the difference in the average house size before and after 500 BP. Mean values in the settlement before and after 500 BP (Table 17) were 236.74 and 231.30 m², respectively; the average house size (m²) in the two groups are not statistically significant (Mann-Whitney U = 22,657.0, p = 0.686 two-tailed).

Table 17. Mann-Whitney U rank order values of the house size per settlement before and after 500 BP.

	Period	N	Mean Rank	Sum of Ranks
Houses	Before	145	236.74	34328.0
	After	320	231.30	74017.0
	Total	465		

Chapter 5.1: Discussion and Conclusion

In this chapter, I discuss the results of the analyses. First, I interpret the hypotheses based on the results and inferences of the spatial and site metric analyses. Then, I discuss the broader implications of the analyses and directions for future research. Lastly, I present my conclusions.

5.2 Testing Settlement Pattern Change in Northwest Alaska

Archaeologists' ideas about settlement patterns are prefaced on the belief that prior to 500 BP larger populations were occupying large settlements aggregated on the coast at key resource procurement locations. Aafter 500 BP the settlement pattern changed to decreased populations occupying smaller settlements, single houses and small villages, and dispersed along the coast. It is also thought that groups moved these smaller settlements into the interior at this time. I tested this hypothesis by addressing three questions relating to the change in settlement patterns:

Did the spatial distribution of settlements, villages and single house sites, change from a clustered to a dispersed pattern after 500 BP?

Results: Reject the null hypothesis. The evidence shows that statistically significant clustering of settlements in the spatial distribution of settlement from 1000-500 BP and after 500 BP.

Did the spatial distribution of settlement size, the number of houses per settlement, change after 500 BP?

Results: Could not reject the null hypothesis. There is no evidence of a statistically significant change in the spatial distribution of settlement from 1000-500 BP and after 500 BP.

Did the size of settlements, average number houses per site, change after 500 BP?

Results: Could not reject the null hypothesis. There is no evidence of a statistically significant change in size of settlements from 1000-500 BP and after 500 BP.

Did the average house size (m^2) change after 500 BP?

Results: Could not reject the null hypothesis. There is no evidence of a statistically significant change in average house size from 1000-500 BP and after 500 BP.

Based on the results of the spatial analysis and site metric analysis, results do not indicate a major change in settlement patterns before and after 500 BP. The Nearest Neighbor Analysis indicates a statistically significant clustering of settlement during both temporal periods, but does not indicate a change in settlement patterns before and after 500 BP. The global Moran's I spatial statistic failed to reject the null hypotheses. The random spatial distribution of the size of settlements before and after 500 BP indicates that settlements were not selectively organized or dispersed during either period. As no change occurred before and after 500 BP, I cannot reject my null hypothesis. There is no statistically significant change in settlement patterns based on the spatial distribution of sites.

Next, I tested whether the local Moran's I and Getis-Ord G_i^* spatial statistics would identify changes in the size of settlements based on their locations within the study area before and after 500 BP. Sites around Kotzebue Sound appear as stable settlements during both temporal periods. The only major change that the analyses indicated was a movement away from the Baldwin Peninsula; the location of Old Kotzebue, Intermediate Kotzebue, and Sisiivik; to significant hotspots at NOA-00513 on Cape Krusenstern and KTZ-00052 located around White Fish Lake, southwest of Cape Espenberg, after 500 BP. At first glance, this movement may indicate a change in settlement patterns based on the settlement locations away from previous hotspots along different portions of the coastline. Yet, the sites of NOA-00513 (located within 1 km of the coast) and KTZ-00052 (located with 16 km of the coasts) showed continuous occupation through both temporal periods based on radiocarbon dates and other archaeological evidence.

One interesting result of the Getis-Ord G_i^* analysis is that no cold spots, locations that have significant clustering of small villages or single house occupations, are indicated. The lack of cold spots is likely due to the fact that no locations of multiple single house occupations or small villages occur without some large villages nearby. If no small value, e.g. one to two houses per settlement, settlements are found near each other then no cold spots will occur. Two explanations for this fact are the way sites are defined or that some areas within the study region have been heavily studied and systematically surveyed.

Archaeologically, sites are defined by the evidence of cultural material found either by surface or subsurface testing. Generally, the site boundary is delineated if no

cultural material is found 10-15 meters, based on state defined distances, away from the last artifact or feature. This process may create multiple sites that were once one larger site or, conversely, a site may be created that should be broken into smaller sites based on the distances between artifacts or features. The somewhat subjective nature of defining site boundaries is a fundamental problem in archaeology that is not easily resolved (Alaska Department of Natural Resources 2015).

The other possible explanation for no cold spots is that some areas within the study region have been heavily studied or surveyed systematically. Areas such as Cape Krusenstern, Cape Espenberg, and coastal and riverine areas within National Parks have had intensive research conducted. Within the intensive research and systematic survey, i.e. Cape Krusenstern and the Nuluk Project, more sites are identified and recorded. While these areas may increase the number of sites recorded, they are a mix of large villages, small villages, and single house occupations. It is possible that further survey, specifically systematic survey, may identify other settlements, either small or large, outside these heavily researched areas. While further research will provide more useful data, the current dataset does provide a range of data to conduct an exploratory analysis of settlement patterns in northwest Alaska.

As with any spatial or non-spatial analysis, the removal of outliers or changes in the parameters of the analysis can change the results of data analysis. The only differences between the two temporal datasets were the number of settlements included. The site metric analyses tested the normality of, and differences between, the two

temporal datasets. The non-normal distribution and statistically significant difference between the sizes of the samples may be affecting the results.

The Nearest Neighbor Analysis yielded statistically significant clustered distributions of sites in both temporal periods. These patterns are interesting as prior research indicates that the distribution after 500 BP should be dispersed. Exploring the data further, specific locations in both temporal periods may be driving the pattern based on the number of settlement within these locations. Before 500 BP, there are four locations that have multiple settlements within them. These locations include Cape Krusenstern (n=13), Cape Espenberg (n=6), Nuluk study area (n=4), and the Deering area (n=6). After 500 BP, there are five locations that have multiple settlements within them. These locations include Cape Krusenstern (n=8), Cape Espenberg (n=9), Nuluk study area (n=20), White Fish Lake area (n=5), and the Port Clarence study area (n=6).

As an exploratory analysis of the results of my Nearest Neighbor Analysis, I ran an aggregation tool within ESRI ArcGIS to consolidate these areas into fewer settlements within specific locations. The aggregation tool uses a defined bandwidth to generate an area (polygon) around all settlements within that area. A limitation of this tool is that it starts with the closest settlements to each other and only creates a polygon around the nearest settlements to the initially delineated settlements. This will create areas that appear to exclude settlements that would be within the bandwidth of the newly generated area but are not included into the polygon, but remains as a settlement in the dataset. As my use of this tool is just a way of exploring data further, this limitation can be

overlooked to see if the specific locations are driving the observed clustered pattern before and after 500 BP.

During this exploratory analysis, I started with bandwidths of 20 meters and 50 meters based on how archaeologists define site boundaries (Alaska Department of Natural Resources 2015). Using the starting bandwidth, no sites were aggregated. I expanded the bandwidth and I found two aggregations between 200-300 meters. I finally selected a large bandwidth, 16 km, to see if this would identify the specific locations that I noted earlier. This bandwidth did identify the specific locations listed above as well as two other locations after 500 BP. These locations are in the area of Kivalina (n=4) and on the Noatak river (n=3). I aggregated these locations based on the areas defined by the tool and created single locations in the center of the polygons. Once all the data had been aggregated, I ran the Nearest Neighbor Analysis again to see if the pattern had changed. Table 18 presents the Nearest Neighbor Analysis of the aggregated settlement for the two temporal periods. The results of the Nearest Neighbor Analysis indicate that both temporal periods now have a random spatial distribution that is not statistically significant and that no change occurred before or after 500 BP. While the use of such a large bandwidth can be seen as manipulating the data to an extreme, it does highlight how site boundary definition can drive some of the patterning identified by spatial analysis.

Table 18. The Nearest Neighbor Analysis for two temporal periods.

Analysis	Nearest Neighbor Index	Z-score	p-value	Significant
Before 500 BP	1.066	0.575	0.565	No
After 500 BP	0.899	-1.370	0.171	No

Of the settlements identified by the local Moran's I and Getis-Ord analyses, only the Old Kotzebue site, a 200 house village, and the Intermediate Kotzebue site, a 30 house village, show a change in High-High clustering (large sites located near each other) between the two temporal periods. The removal of any of the larger settlements (i.e. Old Kotzebue and Sisiivik) from the analysis changes the location of significantly clustered settlements and the statistical significance of their distribution, as they are now the largest sites. Both NOA-00513, a 45 house village, and KTZ-00052, a 47 house village, are the next largest villages following Sisiivik, a 160 house village, after 500 BP and appear significant based on the Local Getis-Ord G_i^* analysis.

Likewise, the parameters used for the analyses influence the results, specifically the bandwidths I used when testing the spatial distribution of the settlement data. The ethnographic bandwidth, 34 km, was based on foraging data of populations living in northwest Alaska, whereas the incremental spatial bandwidth, 113.576 km, was a product of the dataset. The incremental distance tool generates the optimal distance bandwidth so that no individual settlement was without a neighboring settlement for the spatial analysis. The comparison of the bandwidths shows a marginal difference between the results. Only in the local Moran's I do the results change between the two bandwidths. The results of the analysis with the incremental spatial bandwidth indicate that Sisiivik, a High-Low outlier, before 500 BP, and SLK-00047, a Low-High outlier, after 500 BP, are the only noticeable changes in site distribution. It is likely that these changes are a result of parameters set upon the spatial analysis as we do not see this same pattern when using the ethnographic bandwidth to conduct the same analysis.

The 34 km bandwidth was calculated based on the average daily foraging radius, ~16 km, of arctic populations (Binford 2001). Using Binford's estimated daily traveling distance, it could take a hunter-gatherer group up to seven days to travel between locations. This spatial distance and the energetic demand to travel that far would decrease the effective relationship between settlements at that distance. Even with the marginal differences between the results, it is possible that a refinement of the parameters and dataset could provide a clear picture of the interaction between settlements. Overall, the spatial analysis of settlements before and after 500 BP could not reject the null hypotheses and indicate no change in the settlement patterns over the study period.

To explore the effect of changing the settlements that are included in the local Moran's I and Getis-Ord G_i^* analyses. I adjusted the samples per temporal period to remove the continuously occupied settlements (with the exception of KTZ-00088 being included in the before 500 BP period to reach the 30 sample threshold) and only tested the results of the ethnographic bandwidth. We can see that adjusting the samples to exclude Sisiivik, NOA-00513, and KTZ-00052 does affect the outcome and results of these analyses. The local Moran's I now indicate that Old Kotzebue is a High-Low outlier before 500 BP with no other settlements significantly clustered (Figure 11:A1).

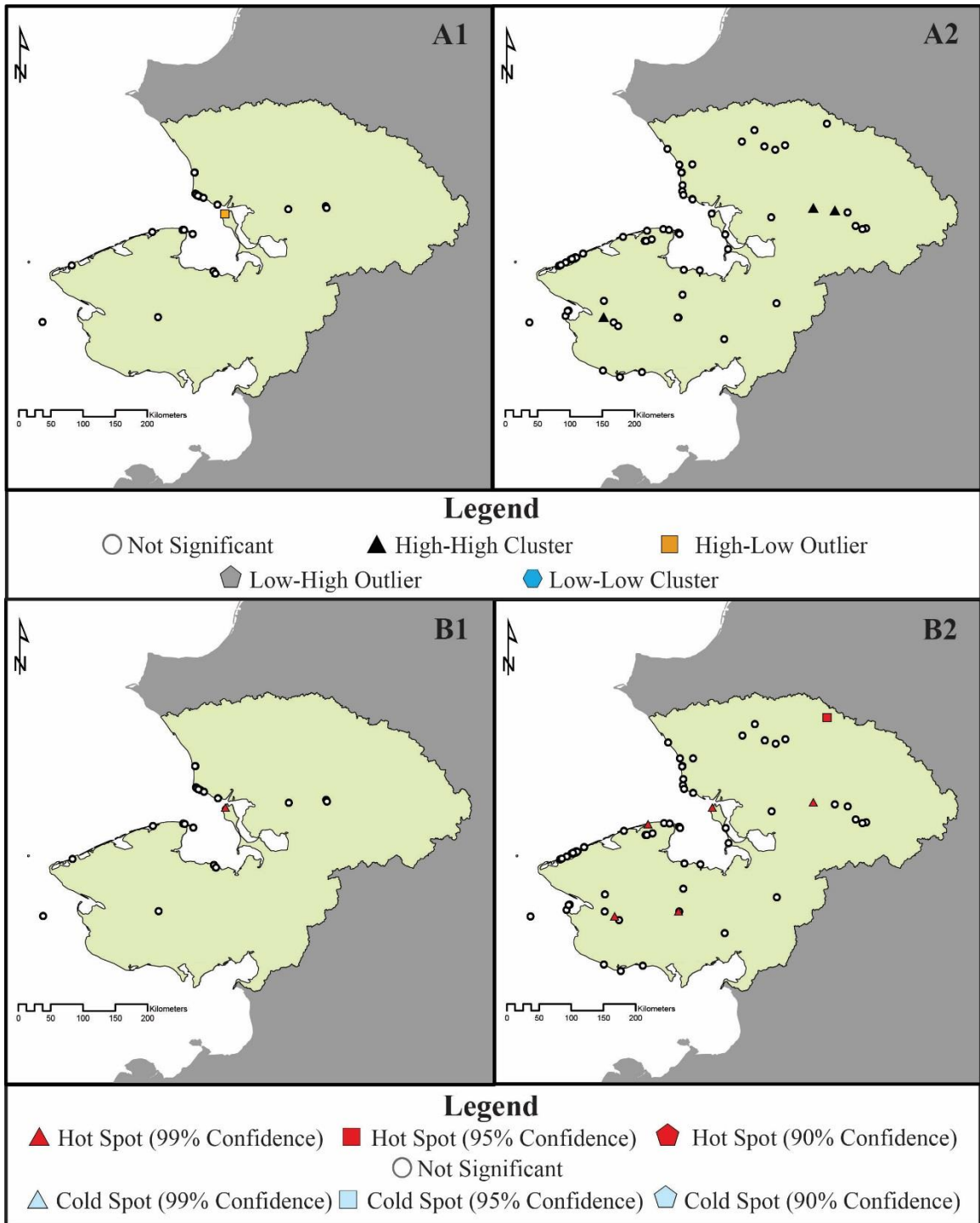


Figure 11. Exploratory local Moran's I (A) and Getis-Ord G_i^* (B) analyses of settlements before (1) and after (2) 500 BP excluding the continuously occupied settlements.

When the continuously occupied settlements are eliminated from analysis, the clustering of settlements changes dramatically after 500 BP. This is most apparent in the fact that the original analysis indicates Sisiivik as the only settlement of significant size (Figure 5:A2) while the new analysis indicates that Kavet Creek (XBM-00001), Onion Portage A (AMR-00001), and Metoktu (TEL-00060) are all High-High clustered settlements (Figure 11:A2). All three settlements are located in the interior with Kavet Creek and Onion Portage over 100 km from Kotzebue Sound on the Kobuk River and Metoktu just over 16 km from Grantley Harbor on the Agiapuk River. While the change in clustered settlements appears significant and suggests a shift into the interior, the overarching challenge of the dataset still persists. Kavet Creek, Onion Portage A, and Metoktu are similar to Old Kotzebue, Intermediate Kotzebue, and Sisiivik in that they are some of the largest settlements in the dataset and likely are driving the results of the analysis.

This effect is also present within the Getis-Ord G_i^* spatial analyses (Figure 11:B1 & B2). All of the sites that are significant hotspots are the largest sites within the dataset or appear to be far enough outside the distance bandwidth of other settlements to present a possible false significance. For example, XHP-00017 is a 24 house settlement and over 70 km away from the nearest settlement (Figure 11:B2). What these exploratory analyses reveal is that when using these tools we must be cautious to justify our parameters and also in interpreting the results.

Next, I tested the site metric data to evaluate whether average settlement size and average house size were different pre- and post-500 BP. Neither the average settlement

size nor the average house size was statistically different between the two temporal periods. What the results indicate is a possible consistency in settlement formations, the range in single house to larger villages, and house sizes throughout the study period do not change even if more settlements are present after 500 BP. While the number of settlements occupied between the periods before and after 500 BP are statistically different, that does not appear to affect either of the site metric analyses.

While the site metric analyses does not indicate a change in the settlement pattern before and after 500 BP the house site analysis within each of the temporal periods may illustrate some variation in the range of house size. To explore the possible variations in house size within the temporal periods, I ran an exploratory box and whisker plot in IBM SPSS. The results of the exploratory research are presented in Figures 12-14. Overall the pattern before 500 BP is of a wide variation in house size within some sites while the majority of the sites have an average house size below 50 m². After 500 BP, the overall pattern shows a consistent average house size below 50 m² with some large outliers or wide ranges. Initially comparing the two results would suggest that more large houses and large averages are present before 500 BP. Yet, the seven settlements with the larger houses and larger averages are all from Cape Krusenstern. This result is consistent with the pattern identified by prior research (Giddings 1952; Giddings and Anderson 1986) of large sized houses before 500 BP. But, since these houses were used to developed the settlement pattern may mean that Cape Krusenstern generally has large houses during this temporal period. One explanation for this pattern could lay geomorphology of the beachridge complex at Cape Krusenstern.

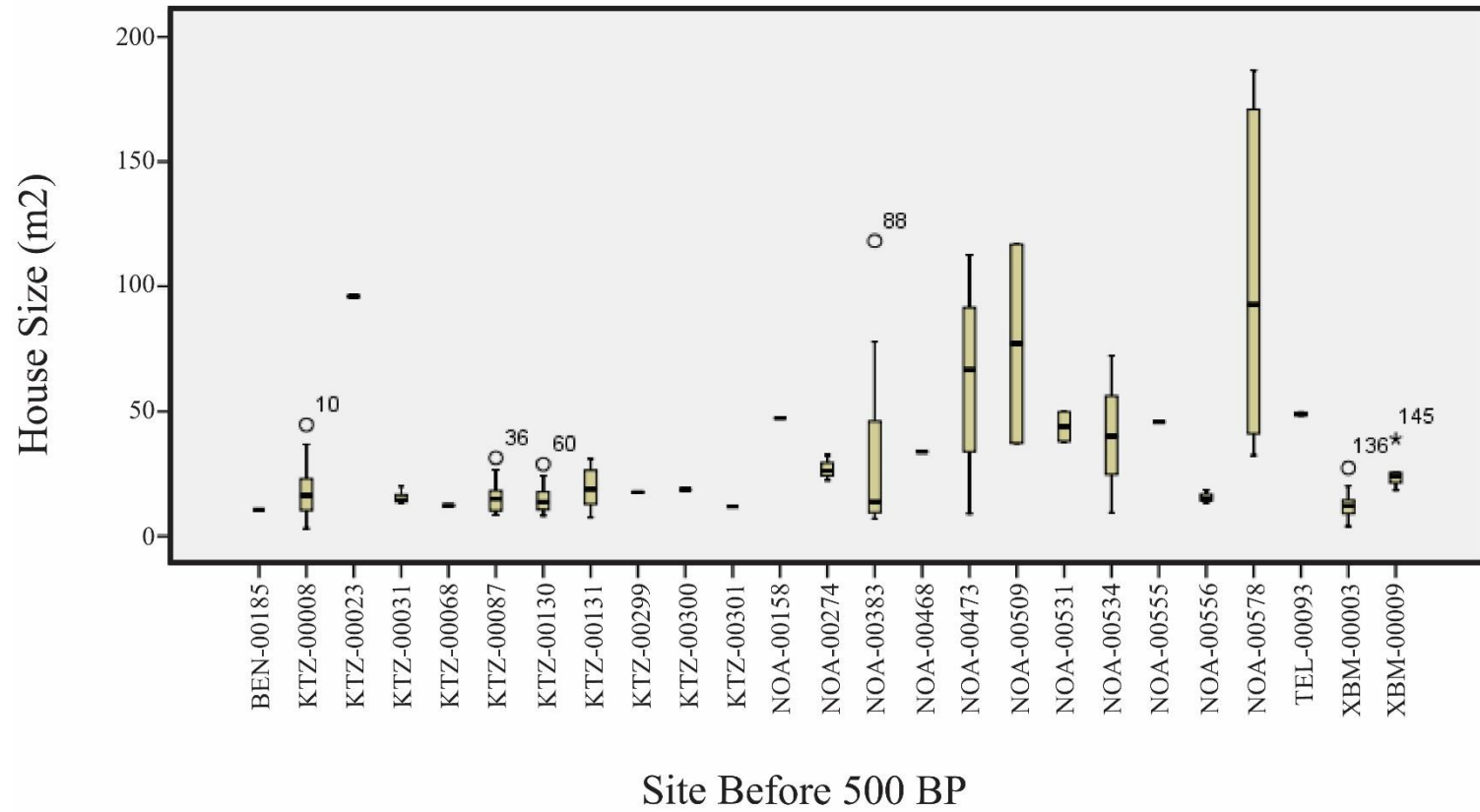


Figure 1. Range of house sizes within settlement before 500 BP.

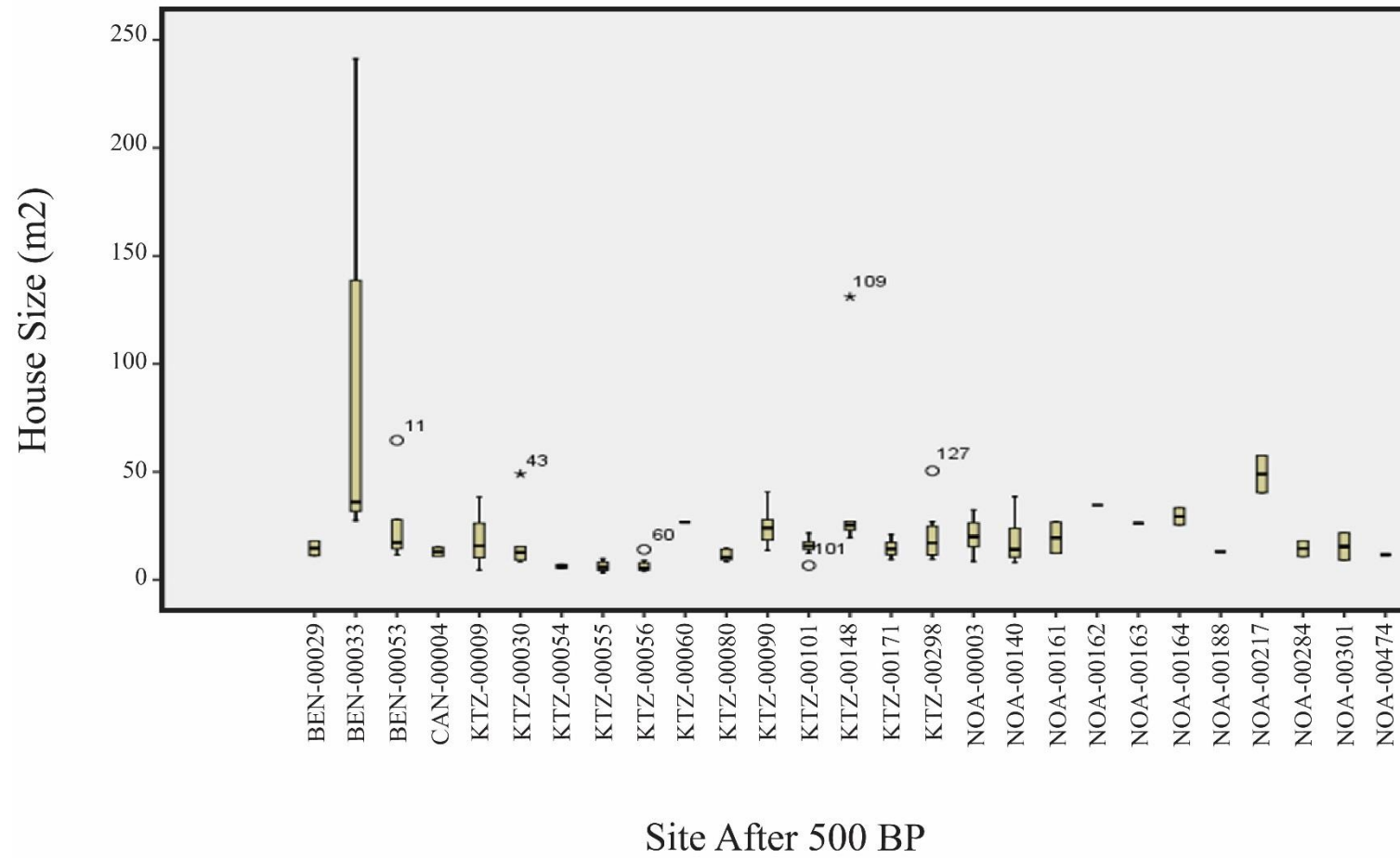


Figure 2. Range of house sizes within settlements, between BEN-00029 and NOA-00474, after 500 BP.

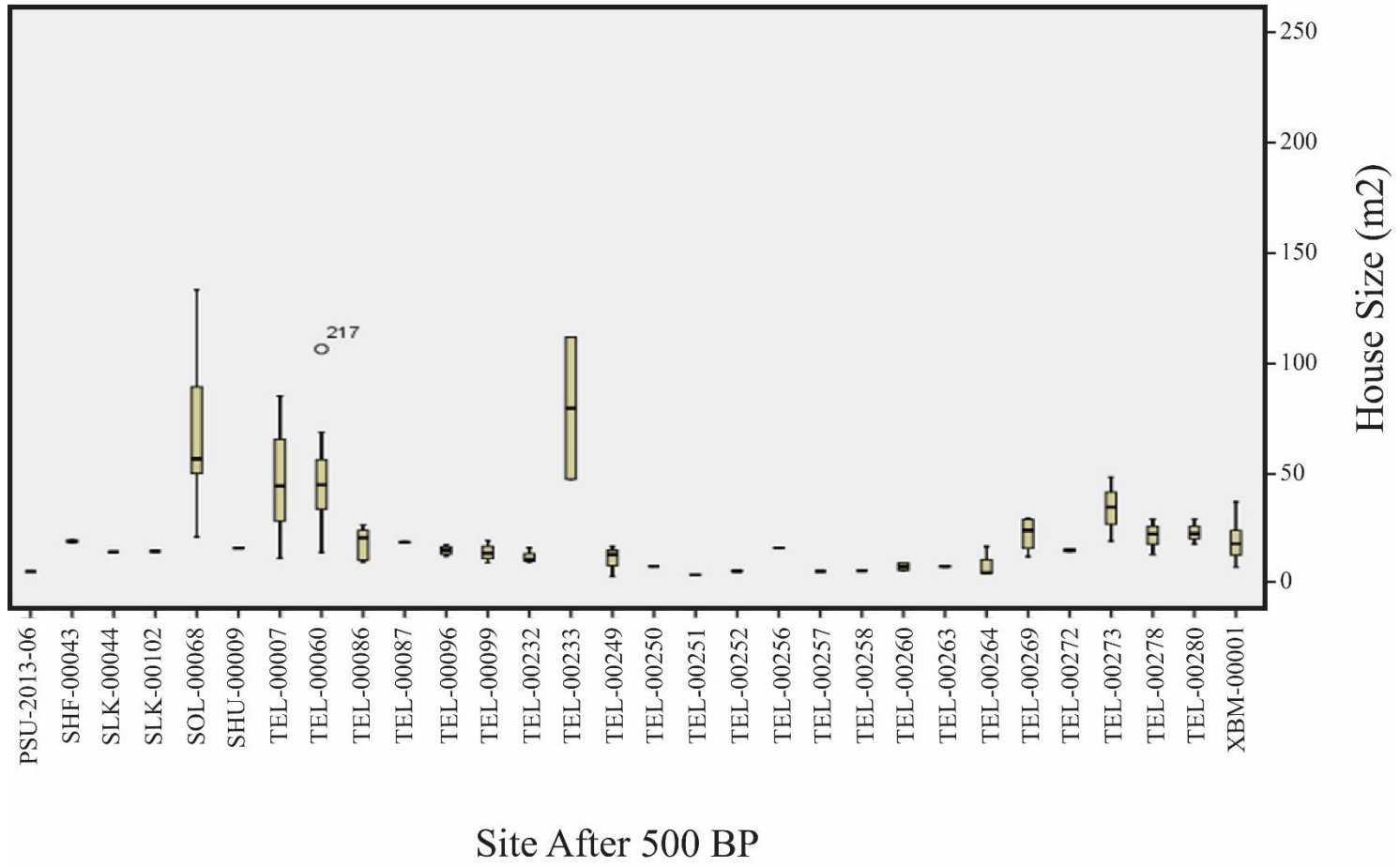


Figure 3. Range of house sizes within settlements, between PSU-2013-06 and XBM-00001, after 500 BP.

In the region, many sites are located on sand deposits or sediments that accumulated through aeolian, fluvial, or ocean processes. The primary deposits at Cape Krusenstern are gravels instead of other deposits. These gravel deposits may be contributing to the larger sizes of houses as the house depressions that were measured for the analysis may be bigger due to slumpage of the deposits over time. Whereas, the sand or other sediment deposits that make up the other sites in the region may hold the shape of the original collapsed semi-subterranean house better over time. While I currently cannot test whether this explanation is correct, the fact that without the Cape Krusenstern sites the average house sizes before and after 500 BP are relatively consistent and are being smaller than 50 m². What these site metrics do not address is the overall demographic change that is associated with the periods between 1200 - 500 BP and 500 - 100 BP.

A recent demographic study indicates a general trend of population growth during the late Holocene in northwest Alaska (Anderson, et al. Forthcoming). During the late Holocene, the observed trends fluctuate and may represent periods of population decline and growth. Bayesian analysis of 1034 radiocarbon dates indicate a period of population decline from approximately 1300 cal BP to 1000 cal BP. This is followed by a significant population increase between 1000 and 650 cal BP. This is followed by a period of population decline starting at approximately 550 cal BP. This study does evaluate possible alternative explanations for these patterns that include taphonomic effects, patterns in the calibration curve itself, archaeological biases, and large radiocarbon

sample sizes from specific sites (e.g. Cape Krusenstern). Though an archaeological bias of not dating sites that indicate contact or post-contact material exists, the period of population decline after 550 cal BP still appears in demographic studies that contain a robust sample of dates leading into the contact era (Anderson and Freeburg 2013, 2014). The results of this demographic analysis further lead us to expect a decline in the number of settlements, the average size of settlements, and average house sizes after 500 BP.

One explanation for the inconsistencies between the demographic study (Anderson et al. Forthcoming) and this thesis is that populations within in the region could have been more densely packed in settlements and houses before 500 BP than after 500 BP. Alternatively, the houses occupied before 500 BP may represent multi-use or multi-component activities where the people who used them would re-occupy a house rather than construct a new one. This argument is based on an assumption about house occupation that comes from the ethnographic record (Burch 2006; Giddings 1961). If more than eight people lived in a house (Burch 2006:97) or houses were occupied longer than one generation, the average number of houses per village would appear lower than the population living within the region. After 500 BP, the consistency in the number of houses and the size of houses with the overall decrease in expected populations could represent the generational movement of people or the construction of new houses within the settlement area rather than reoccupying a house. While these are plausible explanations, further analysis of multiple features per site to better understand house occupation histories is needed to test these idea. Until more data are collected, I can only say that site metric data do not appear consistent with the results of demographic analysis

of the regional radiocarbon data and that site metrics do not change over the last 500 years.

5.3 Broader Implications and Directions for Future Research

Overall, the results of this thesis show no observable changes in settlement patterns in northwest Alaska before and after 500 BP. It is still plausible that small-scale changes in settlement patterns occurred at key sites, i.e. Cape Krusenstern and Cape Espenberg, or more localized study areas that do not represent a region-wide shift. As stated before, the prehistory of the region was defined by archaeologists conducting research at unique sites that provided data for the cultural phase designations. While these cultural phases may provide rough temporal associations and assumptions of settlement patterns to test against, we should not apply their localized settlement patterns to the region. We must continue to conduct research that expands our understanding of the late Holocene on a broader regional and temporal scale and move away from focusing on specific temporal periods or cultural phases.

In addition to expanding our understanding of the late Holocene on a broad scale, research must focus on a better understanding of intra-site dynamics and occupation history. Many of the sites used for this analysis were temporally defined by a small number of radiocarbon dates (an average of 2 dates for the 34 sites that have radiocarbon dates). The Sisiivik site is one of these temporally questionable settlements. A total of three radiocarbon dates have been run to date a 160 house village (BIA 2015, personal communication; O’Leary 2007). The disproportion between the number of radiocarbon

dates and houses raises questions of the true site occupation history. Refined occupation chronology and settlement size data could provide a more developed analysis of settlement patterns across northwest Alaska and within sub-regions.

While testing the settlement patterns on a sub-region scale, e.g. within watershed or other smaller scales, would be beneficial to the study of settlement patterns in the region, I was unable to conduct this research at the time. As stated above, the original dataset of 486 settlements within the region may provide robust analysis of regional settlement patterns the current dataset does not have adequate data to run the spatial analytical tools, i.e. minimum of 30 per temporal period. Once that threshold is reached, further research can build on my analysis and test settlements at other scale to see if variation occurs within and between sub-regional areas.

5.4 Conclusions

The results of this study provide a comprehensive statistical and spatial analysis of regional settlement pattern change in Northwest Alaska over the last 1500 years. While archaeologists still cite the 30 year-old settlement pattern, when looking at the spatial distribution of settlement pre- and post-500 BP we see no significant change in the settlement pattern. I expected that the Moran's I and Getis-Ord G_i^* analyses would indicate a clustering of large settlements in key coastal locations before 500 BP and a dispersal of smaller settlements in different locations along the coast and into the interior after 500 BP. While the analyses did indicate large settlements in key locations along the coast, a shift to the interior and other locations does not appear to have occurred. It is

entirely possible, however, that the limited sample size of before 500 BP, the exceedingly large villages (e.g. Sissivik and Old Kotzebue), or the lack of comprehensive dating of houses within each village may be masking subtle changes in the settlement patterns on a decade or generational scale.

Based on the site metric analyses, average number of houses per settlement and the average house size, I expected to see a shift from larger settlements and large houses to smaller settlements and smaller houses pre- and post-500 BP. However, the Mann-Whitney U test show no statistically significant difference between the two time period in both the average settlement size and the average house size. These analyses indicate that this aspect of settlement patterns stays constant throughout the study periods just as the spatial distribution analysis showed. However, similar to the spatial analysis, it is possible that lack of comprehensive dating of the houses within each village or the lack of complete measurements for every house within every settlement may be obscuring possible changes to site metrics on smaller temporal scales.

While both the spatial distribution analysis and the site metric analyses did not meet my expectations, these tools and methods can provide archaeologists with ways to test if settlement patterns have changed and provide a level of statistical significance. GIS is a powerful platform with ever increasing ways to test, analyze, and interpret data. Yet, as discussed above, researchers need to be cautious with what data they include and exclude in their analyses as well as be explicit in listing and justifying their test parameters. Only by conducting research with complete transparency of methods and

data will other studies of settlement patterns and culture change comparable and replicable in other regions.

In addition to conducting transparent and replicable research within the region, more fieldwork is recommended to better understand the land use and activities in northwest Alaska. As pointed out previously in this thesis, much of northwest Alaska has not been systematically surveyed and specific ecoregions have likely only received aerial or photographic surveys because of many locations remote nature. By expanding systematic surveys beyond coastlines and rivers, archaeologists can gain begin to fully understand the complex interactions between humans and their environments and explore past hunter-gatherer land use within the region.

Furthermore, the statistical testing of settlement size and house size through time will broaden our understanding of other aspects of culture change. By looking at changes in settlement size and structure, researchers can expand our understanding of possible shifts in social organization through time. Similarly, additional research into changes in house size at small temporal or spatial scales may support current population reconstruction (Anderson, et al. Forthcoming) or indicate other shifts in regional population size. Through these steps we can continue to build upon current research and incorporate new and previously recorded data to expand our understanding of past human lifeways. It is a goal of future settlement pattern change research to further our knowledge of the complex nature of human-environmental interactions in northwest Alaska.

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Appendices

Appendix A: Settlement Data

96

AHRS Site Number	Site Name	Site Type	Number of Houses	Temporal Period	Temporal Association	Available Radiocarbon Dates (Conventional Dates)	AHRS site descriptions (AHRS 2015).
AMR-00001	Onion Portage (A)	Small Village	3	Before 500 BP	Cultural Association	Beta-211081 3770±40; Beta-211082 3600±40; AA-74553 3542±37; AA-74554 3533±37; AA-74556 3592±37; AA-74557 3761±37; AA-74558 3581±37; AA-74559 3845±37; AA-74560 3443±37; AA-74561 3551±37; AA-75777 3655±36; AA-75778 3533±36; AA-75779 3532±38; AA-75780 3552±36; AA-75783 3691±38; AA-75784 3966±38; GX-1503 1350±80; GX-1508 8195±280; GX-0261 5735±155; GX-1502 1445±110; GX-1503 1350±80; GX-1504 2450±85; GX-1505 2780±100; GX-1506 3590±120; GX-1507 5015±145; K-1583 9570±150; K-832 2750±140; K-835 3170±120; K-836	This is the Norton-Ipiutak-Thule Phases of Onion Portage. The principal site within the district, the Onion Portage site (AMR-170) is a deeply stratified series of river edge occupation layers. Immediately above the Onion Portage site is the perhaps 9000 year old Akmak site (AMR-169). Throughout the rest of the 16,000 acre district are numerous scattered settlement sites and surface remains. Onion Portage was first discovered by Louis Giddings in 1941 and excavation began in 1964. The results of his, and other's, work revealed eight stratigraphic occupation bands--each with subsidiary layers. [Sites within the boundaries of this district include the Jade Creek site (AMR-007), the Kayak Site (AMR-058), AMR-059, and AMR-060.]

						1570±140; P-1026 4640±70; P-1027 5110±70; P-1030A 4340±70; P-1031 4010±70; P-1032 3940±70; P-1064 1490±50; P-1065 1570±50; P-1066 2370±50; P-1067 2430±50; P-1068 3530±60; P-1069A 3640±60; P-1070 3710±60; P-1071 3710±60; P-1072 4270±70; P-1073 3530±100; P-1074 4120±80; P-1075 5320±80; P-1076 7900±100; P-1109 3700±60; P-1110 3200±60; P-1111 7180±90; P-1111A 7320±100; P-1112 900±50; P-4409 3700±60; P-591A 2450±60; P-593A 920±50; P-594A 1380±60; P-981 5070±70; P-982 5270±70; P-984A 7920±100; P-985 8100±100; P-987 3860±70; P-988 3850±70; P-998 3950±70; P-999	
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						4250±60	
AMR-00001	Onion Portage (A)	Large Village	20	After 500 BP	Cultural Association		This is the Arctic Woodland Phase of Onion Portage. The principal site within the district, the Onion Portage site (AMR-170) is a deeply stratified series of river edge occupation layers. Immediately above the Onion Portage site is the perhaps 9000 year old Akmak site (AMR-169). Throughout the rest of the 16,000 acre district are numerous scattered settlement sites and surface remains. Onion Portage was first discovered by Louis Giddings in 1941 and excavation began in 1964. The results of his, and other's, work revealed eight stratigraphic occupation bands--each with subsidiary layers. [Sites within the boundaries of this district includes the Jade Creek site (AMR-007), the Kayak Site (AMR-058), AMR-059, and AMR-060.]

AMR-00002	Ambler Island	Large Village	15	After 500 BP	Occupation Dates	Cams-141642 325±30; Cams-141643 265±35; Cams-141644 390±30; Cams-141645 370±25	Giddings located this site of fifteen house pits, all of which were excavated, on a sand ridge near the center of the island at the mouth of Ambler River.
AMR-00066		Small Village	2	Unknown	N/A		This site consists of two 4m x 4m house depressions and accessory pits (possible sod barrows). The house pits, some 50-70m apart, are marked by disturbed vegetation and some metal debris. Donald Smith (Kiana) reported visiting the site during the 1930s.
AMR-00083		Small Village	4	Historic Occupation	Historic Material		USNPS investigators noted historic features in two loci on a sand ridge feature. Locus A, just back from the edge of a 17m high erosion face, consists of a 6.3m x 4.3m raised berm feature (about 45cm deep), a 4.5m x 2.6m sub rectangular pit, and a 1.9m in diameter pit. Locus B, some 45m to the southwest, consists of the remains of two log cabins dug into the hillside (5.4m x 3.5m and 3m x 2.2m in size), three rectangular pits (1.2m x 1.2m, 1.1m x .8m, and .9m x .9m), a 2.7m x 1m rectangular trench, and a .8m x .8m possible feature corner. A .9m in diameter pit was also noted another 30m to the southeast. A metal detector scan yielded evidence of metal in and around the Locus B features, but not at Locus A.

AMR-00106		Small Village	2	Unknown	N/A	<p>USNPS investigators noted two house pits with tunnel entrances extending from the long side, seven circular cache pits and three rectangular cache pits on the crest of ridge rising 7-8m above the river. The houses measure 6.6m x 3.7m with a 3.9m long entrance tunnel and 4.5m x 2.5m with a 2.9m long entrance tunnel. The caches measure from 1m in diameter to 2.8m x 2.7m in size. A scan with a metal detector yielded no evidence of metal artifacts.</p>
AMR-00107		Small Village	3	Unknown	N/A	<p>USNPS investigators noted cultural features extending for about 200m along the crest of a ridge, about 8m above the river. Features noted include three house pits, a 5m x 4.1m rectangular depression feature (house?), two circular cache pits (the largest 1.5m in diameter), and four rectangular cache pits (the largest measuring 2.3m x 2.6m). The house pit features include a 3.5m x 2.7m house with a 3.6m long tunnel and a 2.6m x 1.9m entry room, a 4.5m x 3.6m house with a 4.4m long entrance tunnel, and a 3.5m x 3.3m house with a 2.8m long entrance tunnel. Structural elements are still evident in the latter two house features--several logs were collected for possible dendrochronological dating. A scan</p>

							with a metal detector produced evidence of metal at the three northernmost house pits, but no evidence at the rectangular feature to the south.
AMR-00108		Single House	1	Unknown	N/A		USNPS investigators located a 6.3m x 6.3m house pit with a 4.5m long entry tunnel at the edge of a 9m high erosion face. Two rectangular cache pits (2.9m x 2.7m and 2.2m x 1.5m in size) and a circular cache pit (2.7m in diameter) were noted adjacent to the house pit.
AMR-00109		Single House	1	Unknown	N/A		USNPS investigators located a 5.7m x 4.1m house pit, with a 3.9m long entry tunnel, and a 2.9m x 2.3m cache pit approximately 15m from the edge of a 7m high erosion face.
AMR-00111		Small Village	2	Historic Occupation	Occupation Dates		NPS investigators located a 5m x 5m semi-subterranean, heavily sodded depression built into the hillside, with an entrance on the downhill side. No metal was found during detector survey. Cut spruce within the pits were approximately 70 years of age when cut. Two Inupiaq house features with entry

							tunnels were also noted, one with a back room. Several cache pits were also noted. A modern drying rack was located just to the SW of the features. Native allotment within the NPS KOVA.
AMR-00112		Small Village	2	Historic Occupation	Occupation Dates		USNPS investigators located two Inupiat house features with entrance tunnels, a large rectangular dugout area (possibly the lower Hanson camp warehouse), several small pit features, and a can dump. Hole-in-top cans were present in the can dump.
AMR-00115		Single House	1	Unknown	N/A		A single house pit and two cache pits were located and mapped by USNPS investigators in 1998. The site is situated on a slight terrace, 5-10m above the river.
AMR-00116		Single House	1	Unknown	N/A		A single bermed historic house feature (6.1m x 3.85m) and two rectangular cache pits were located and mapped by USNPS investigators in 1998. The features are situated on the slope of a hill on the east side of a small drainage ravine, about 10m above Kobuk River.
AMR-00117		Village	9	Unknown	N/A		USNPS investigators located and mapped nine house pits and a number of cache pits situated along a 600m long stretch of a terrace overlooking Kobuk River.

							Structural members were present in several of the houses.
AMR-00170	Onion Portage Site	Village	Unknown	Outside Study Period	Occupation Dates		The principal site within the district (AMR-001), the Onion Portage site is a deeply stratified series of river edge occupation layers. Immediately above the Onion Portage site is the perhaps 9000 year old Akmak site (AMR-169). Onion Portage was first discovered by Louis Giddings in 1941 and excavation began in 1964. The results of his, and other's, work revealed eight stratigraphic occupation bands--each with subsidiary layers. [NATREG] This is the principle site within the district. It is a deeply stratified series of river edge occupation layers.
AMR-00220		Village	Unknown	Unknown	N/A		Cache pits, house depressions, lithics, and wood charcoal
AMR-00221		Village	Unknown	Unknown	N/A		Depressions and cache pits
AMR-00222		Village	Unknown	Unknown	N/A		Depressions and cache pits
AMR-00223		Village	Unknown	Unknown	N/A		House depression, cache pit, fire-cracked rock, charcoal, wood, fauna, lithics, and hearth
AMR-00224		Village	Unknown	Unknown	N/A		House depressions and lithics

BEN-00029	Kuzitrin Lake #1	Small Village	3	Unknown	N/A		This site consists of three rectangular house pits and a total of six small depressions thought to be storage pits. The house pits measure 3m x 6m x .4m deep, 4.5m x 2.5m x .3m deep, and 3m x 2m in size. One of the depressions, which is partially superimposed by another, was noted to have an apparent entrance along the long side. Pottery sherds, chert flakes, a bifacially worked chert object, and an abraded rock fragment were collected from a test pit in one of the houses. Schaaf relocated the site.
BEN-00030	Skeleton Butte	Large Village	25	Unknown	N/A		Old village site covers an area of 120m x 50m. Contains 25 stone-lined house pits, 37 smaller stone-lined depressions, three large, deep rock structures, and several hunting blinds. No artifacts were found; some testing was conducted.
BEN-00033	Cloud Lake Village	Large Village	9	Unknown	N/A		Nine stone-lined house pit structures and two stone-lined cache pits. Excavations produced pottery sherds, stone and bone/antler artifacts, beads and faunal remains. D.M. Hopkins also tested here in 1948.
BEN-00047	Gosling Cone Site	Large Village	9	After 500 BP	Occupation Dates	Beta-264829 140±40	Nine house pits with low stone walls around each, seven stone rings, 13 storage pits, and nine cairns. A large amount of antler was found within the house pits.

BEN-00052	Kuzitrin Lake #2	Large Village	6	Unknown	N/A		Powers, et al., originally recorded this site as consisting of several indistinct house depressions with poorly defined shapes, possibly due to superimposition of other structures. There appeared to be three large house pits and seven smaller depressions, possibly representing storage pits. Another house pit, oval in shape and measuring 2m x 3m, lies 20m to the east of the other features. Schaaf recorded the site as consisting of five to six house depressions, four rock rings, and two cache pits. A thin scatter of artifacts and features continued west of the site, along the lake terrace, for about 600m. Artifacts noted west of the site features included a microblade fragment and two biface fragments.
BEN-00053	Kuzitrin Lake West Village	Large Village	35	After 500 BP	Occupation Dates	Beta-13810 220±80; Beta-39514 4770±260; Beta-39515 380±80; Beta-39517 3770±80; Beta-39518 4750±170; Beta-39520 3810±65; Beta-39521 200±50; Beta-267448 130±40	Schaaf recorded the site as consisting of two areas. Area One (which corresponds to Powers' site as originally reported) consists of 35 house depressions and tent rings, two bone middens, at least five small cache pits, one rock alignment, and two rock piles within a 70m x 160m area some 80-100m west of the shore. A C14 date of BP 220±80 was obtained from an exposure associated with flakes, bone, and caribou teeth. Pot sherds were also noted. Area Two, located

							in a blowout within a dune formation 40m to the north of Area One, consists of a scatter of lithics within a 18m x 23m area. Artifacts noted include a side blade, burin spalls, microblades, a biface fragment, a mitten-shaped burin, and numerous waste flakes. In addition, a 3m long stone arc was located 4m to the north and a 6m in diameter ring of cobbles was located 35m to the southeast of the blowout.
BEN-00065		Small Village	3	Unknown	N/A		This site consists of a total of 21 stone-lined features and depressions situated within a 130m x 70m area in a boulder field which forms a small point on the lakeshore, 115m east of BEN-053 and 300m west of BEN-107. The western portion of this site consists of an 8m in diameter boulder ring associated with caribou bone, a 6m x 7m rectangular boulder-lined enclosure, four small depressions from 1m to 3m in diameter, a low rock wall encircling a 3m in diameter depression, two or three possible house depressions (from 3m x 3m to 4m x 4.5m in size), a 3m x 4m rectangular rock-lined depression, and a bone midden with bone and pot sherds exposed in the backdirt of what may be a previous test pit.

							The eastern portion of the site (some 30m away) consists of two hearths associated with charcoal flecks, burned and unburned bone, and pot sherds, two boulder enclosures capped by slabs, a 3m in diameter depression, three oval depressions measuring from 2.5m x 2m to 4.5m x 3m in size, and a rectangular 3m x 5m depression.
BEN-00158	Kogrupak	Small Village	3	Unknown	N/A		The site is composed of 8 features, 3 of which appear to be house remains. Other features may represent fish caches, and one may be a miner's assay pit. The location was noted by Elders as a fishing site that had been used for a long time. Based on the number of features and the proximity to the mouth of the Kougarok River, this may be the Village "Kogrupak" visited by Hobson in 1854.
BEN-00185		Single House	1	Before 500 BP	Occupation Dates	Beta-170273 1090±60	Habitation site remnant. Cutbank section revealed notched cobble sink and a hide sinker fashioned from air pump cylinder of a 1897 brazing apparatus. Nearby test yielded wire nails from 15cm and dated charcoal deposit from 43-48cm. These organic sediments yielded a data of 1090±60 (Beta-170273) and may represent a floor?

CAN-00004	Iqalugruaq	Small Village	2	After 500 BP	Occupation Dates	Beta-127629 120±50	This site along the bank of the Koyuk River consists of 2 sod house ruins and 3 associated pits. A small test inside one dwelling feature yielded worked antler, fishbone, and a ground slate blade. A radiocarbon test was dated at 120+/-50 BP (Beta-127629).
CAN-00025	Kuluvachak	Large Village	6	After 500 BP	Occupation Dates	DIC-2720 160±55; DIC-2721 90±65; DIC-2722 140±60	This is believed to be the site of the 19th century settlement of Culuvachak identified by Ray. In 1978, H. Smith noted pieces of pottery and bone implements eroding from the river bank. In 1991, Smith mapped 6 semi-subterranean features in the now stabilized area adjacent to the Buckland River.
CAN-00044	Minie Thomas Sod House	Single House	1	Unknown	N/A		Reported there was a sod covered house to the S of the butchering building. Location of house visible on 1966 aerial photograph, but was not observed during a walk over of site. This was the home of Minnie Thomas.
CAN-00046	Candle Cabin #1	Single House	1	Historic Occupation	Historic Material		Historic cabin built in the 1950s in Candle, moved to Buckland in the 1960s. Vacant or no longer in use.
CAN-00054	Unalitchuaq	Large Village	19	Historic Occupation	Historic Material		The site includes the remains of 19 sod houses, 1 pole scatter, 1 sod removal area, a possible grave, 2 small pits and a latrine. May be related to Ray, 1964 p.85, Kayuk.

CAN-00055	Unalitchuaq	Village	Unknown	Unknown	N/A		This site includes the remains of a log school house and a log store building, a log pile, a warm storage shelter, a semi-subterranean cache, and a garden area. May be related to Ray, 1964 p.85, Kayuk.
CAN-00056	Unalitchuaq	Small Village	4	Historic Occupation	Historic Material		Four sod houses, two pits, and a latrine. Ray recorded the significance and history of the site.
CAN-00057	Unalitchuaq	Small Village	2	Unknown	N/A		Includes the remains of 2 sod houses, 2 caches, a shed foundation, and a tent-use area. May be related to Ray, 1964 p.85, Kayuk.
CAN-00060	Unalitchuaq	Single House	1	Unknown	N/A		The profile of a single house and associated living surfaces were observed in the bank of the river such as a vertical, axe cut post. A variety of faunal remains were also observed.
DEL-00239		Village	Unknown	Unknown	N/A		A half-house, 3.5m x 3m, with a 2m entrance passage, occupied by Clinton Swan around 1923 (when he was 9-10); and a large, 6m x 5m, semi-subterranean house with a 2m entrance passage, which was said to have been abandoned prior to Clinton Swan's time. A square cache pit is located 2m east of the entrance to the earlier structure. BIA ANCSA investigators recorded 13 features. Nine were rectangular bermed depressions, the remnants of semi-subterranean dwellings, with from 1 to 6 associated smaller

							depressions. Five of these features had apparent antechambers. Most have historic remains, faunal remains, and/or structural elements remaining. A flake cobble, a ram horn, a post, a metal stove, and miscellaneous historic artifacts were scattered about the site. Charcoal, modified wood, and a glass bead were seen in the cut bank along the river. Kannirvik (the end or limit) is named in reference to its being the furthest settlement upriver from the mouth of the Kivalina River.
KTZ-00001		Village	30	After 500 BP	Historic Material		The modern village of Kotzebue, which was established as a permanent village when a reindeer station was located here about 1897, rests upon a series of beach ridges with the remains of earlier, seasonal habitations. During the 1800s a number of historic sources note a tent village at this location, which was reportedly an important trading location. Harritt (1994) found prehistoric deposits in a shovel test below a 48cm thick historic fill overburden.[See also Intermediate Kotzebue (KTZ-030) and Old Kotzebue (KTZ-031).] Williams of NLUR states that the starting date for "Historic Kotzebue" could be 1826 (Beechey's trip and exploration of the mouth of Hotham

							Inlet), 1880 (when the regional trade faire moved here from Shesalik), or 1897 (Friend's Mission est.). Reindeer were loaned to the mission in 1901.
KTZ-00003	Inmachukmiut	Village	Unknown	Unknown	N/A		This was reportedly the location of an old village site which has since been completely destroyed by gravel extraction. On the east side of the river, across from the reported site, Powers, et al., noted several depressions which may be the remains of houses or caches associated with the site.
KTZ-00004	Kugruk	Village	Unknown	Unknown	N/A		Ray noted that an old settlement was located on the right bank of Kugruk Lagoon, possibly one of the sites noted by Beechey in 1826. It is possible that Ray was in fact referring to the sites on the spit across the river, KTZ-008, KTZ-027, KTZ-028, and KTZ-029.

KTZ-00005	Sheshalik	Village	Unknown	Outside Study Period	Cultural Association		Orth notes that this former Eskimo village and summer camp, famous as a trading area, was recorded in Beechey's 1831 chart. A population of 100 was recorded in the 1880 Census. Giddings noted a succession of beach ridges in the area, with remains of apparent summer camps, consisting of a few house pits and numerous cache pits and burials. Giddings excavated one large house (burned) of Western Thule culture [apparently at NOA-008] and performed a number of tests, all of which indicated occupation within the last 1000 years. The site is still used by large number of seal and beluga hunters during the summer. [See also NOA-007 and NOA-008.]
KTZ-00007	Sheshalik Spit	Village	Unknown	Outside Study Period	Occupation Dates	P-175 2244±133; P-203 2646±177; P-96 2635±125; P-611 2190±51	Giddings originally noted house pits on a series of beach ridges at this spit. House pits, cache pits, and tepee burials are present at the site.[See also KTZ-005.]
KTZ-00008	Kugruk Lagoon	Large Village	20	Unknown	N/A		Powers, et al., reported 38 depressions in a 100m x 30m area on the third beach ridge from the sound. At least 20 of the depressions were identifiable as house pits. Tests in two of the house pits produced worked antler items and a toggling harpoon head. It seems likely that this is the site that Giddings visited in 1958, when he

							noted that the earliest houses on the series of beach ridges were apparently more recent than Thule age. [See also KTZ-004.]
KTZ-00009	Kividluk	Large Village	32	After 500 BP	Occupation Dates	Beta-17958 290±70; Beta-17973 170±70	Ray notes that Kividluk had seven houses in 1892 and possibly a kazgi (Jackson, Sheldon 1895) [Ray's map, however, locates the site on the opposite bank (see KTZ-010)]. Schaaf located four areas of cultural occupation. Area A consists of two intact house depressions, three cache depressions, a large rectangular depression with a standing entryway arch constructed of wood ship parts (the kazgi?), and 12 house and cache floors exposed by erosion. A C14 date of BP 170+/-70 was obtained and a number of artifacts were recovered. Area B consists of nine house depressions and 13 cache depressions. Area C consists of a group of 11 single and multi-room house depressions and 26 cache depressions. A C14 date of BP 290+/-70 was obtained and artifacts were collected. Area D consists of Harvey Pootoogooluk's abandoned sod house, a raised cache, a grave, and historic debris.

KTZ-00010	Singyuk	Small Village	5	Unknown	N/A	Ray notes that Singyak had only one or two houses within memory, but has ancient house depressions [Ray's map, however, locates the site on the opposite bank (see KTZ-009)]. Schaaf identified a standing roofed cabin, an outbuilding or small cabin, three sod house foundations, four to five house depressions, and a latrine trench on the site shown is Singeak on the USGS map.[See also KTZ-155 and KTZ-156, sites just to the south, which may represent or be associated with Singyuk.]
KTZ-00012	Nugnugaluktuk	Single House	1	Unknown	N/A	Schaaf located an isolated sod house mound on the north side of the mouth of Kungealoruk Creek. The feature measured 4.65m x 5.7m with 85cm high walls, and had three intact corner posts inside. A circular sod borrow area was noted on the southwest side of the house and about 50m to the south was an upright post and a scatter of reindeer antlers. The site was reportedly the winter camp of two reindeer herders. There were reportedly two sod houses at this location. Nugnugaluktuk was noted by Ray to be a seasonal fishing and/or sealing site, located at the mouth of the stream draining one of the lakes called Kealik (ie., perhaps at the mouth of the stream about 3.8km

							north of the plotted location of this site). No evidence of such was found.
KTZ-00014	Tugmagluk	Large Village	10	Unknown	N/A		Schaaf noted ten house depressions and 11 cache depressions situated along a low beach ridge between the shore of Goodhope Bay and a low wetland to the west. An additional 22 cache pits are located in a group southeast of the house depressions. The house depressions are variable in form. Some looting has taken place. Ray noted this as a seasonal fishing and sealing site with old depressions. BLM reported an unspecified number of depressions, tentatively identified as house pits, with modern camps and a fish netting site also noted.
KTZ-00015	Likliknuktuk	Village	Unknown	Unknown	N/A		Ray noted this as a seasonal fishing and sealing site, thought also to have been a winter village with old depressions.[Jeanne Schaaf (1986:p.c.), NPS, was unable to locate a site at this location, but did find a large site to the southeast (see

							KTZ-064).]
KTZ-00016	Pittak	Village	Unknown	Unknown	N/A		Ray noted this as a village site, possibly that visited by Hobson in 1854.
KTZ-00017	Uyauks	Single House	1	Unknown	N/A		A single 5.1m x 4.9m rectangular house depression was located on the west side of the mouth of Clifford Creek. The entry of the house depression is eroding into the creek and cultural material is exposed in the cut bank. Items noted include seal and caribou bone, fire cracked rock, pot sherds, an octagonal rifle barrel. Evidence of two other apparent features was noted in the cut bank northeast of the house depression. An informant suggests that the remaining feature may be the remains of the sod house occupied by Charlie Goodhope during the early 1930s. Ray noted this as a small village site.
KTZ-00018	Siknaugrurak	Large Village	12	Unknown	N/A		Twelve house depressions and at least four cache pits are situated along the first beach ridge, about 200m east of the mouth of Rex Creek. All but two of the house depressions are sub-rectangular and single-roomed, with straight entry tunnels. No artifacts or structural members were noted. Ray noted this

							as a small village site.
KTZ-00019	Toalavik	Village	Unknown	Unknown	N/A		Ray noted this site, apparently a small village, in an area of good beluga hunting.
KTZ-00020	Kiplaut	Small Village	4	Unknown	N/A		When visited by Hobson in 1854, this village consisted of two good huts (one inhabited) and two in poor condition. Melchoir and Bennett reported finding only two house pits in 1973. Powers, et al., visited the site in 1974 and found it further deteriorated. The surface was littered with cultural debris and pockmarked with shovel holes. The original house pits were difficult to observe. Approximately 50m to the northwest an undisturbed house pit was noted. Artifacts collected from the surface include a chert end scraper, an antler ice pick, an antler wedge, and potsherds. This is apparently the site investigated by Townsend in 1969. She noted several house pits and recovered artifacts suggesting a late Eskimo occupation.

KTZ-00021		Large Village	11	Unknown	N/A		Melchoir and Bennett noted an eastern group of five or six house pits, separated by approximately 500m from a western group of five house pits. The western group appeared much older than the eastern group. A series of recent burials was located between the two groups of house pits.
KTZ-00023	Deering Qualgi	Single House	1	Before 500 BP	Occupation Dates	C-260 973±170; K-2605c 1190±45; K-2606 1240±75; K-2607c 1400±55; K-2609c 320±55; K-532 1380±200; K-537 1290±200; K-2608 1250±75; K-2605a 1180±55; K-2605b 1220±75; K-2607a 1440±75; K-2607b 1370±75; K-2609a 1290±75; K-2609b 1340±75	In 1950 Larsen excavated this Ipiutak ceremonial house. The 8m x 12m log structure had a large rectangular fireplace in the center and an apparent shed at one end. Artifacts included sled and snowshoe parts, in addition to workshop items. Powers, et al., reported in 1982 that the excavation is visible at the W of Deering, along the S side of the airstrip. A local resident found a Western Thule style toggling harpoon head associated with a hearth, while excavating a storage pit behind his house in the same location. In 1994 Dixon revisited the site and found it to consist only of a shallow hole in the ground in a grass and willow covered area. 2 new depressions (1m in diameter X 25cm deep; 4m x 2.5m x 50cm deep) were found. A test pit at the site produced 70 items; including 24 Euroamerican artifacts, 17 mammal bones, sawn whale bone, decayed wood

							fragments, and 21 splintered bird bone fragments.
KTZ-00026		Large Village	18	Unknown	N/A		Powers, et al., noted 18 house pits approximately 20m from the waters edge, on an old beach ridge approximately .5m above the active beach, immediately across the mouth of Inmachuk River from Deering. The site, which is eroding, appears to be post-contact in age.
KTZ-00027		Small Village	2	Unknown	N/A		Powers, et al., located two house pits on a beach ridge, approximately 800m west of KTZ-008. Both pits appear to have large central rooms (measuring 2m in diameter and 2m x 3m in size) with a tunnel and cold trap at the end. One pit has a side tunnel leading from the tunnel to a small room.

KTZ-00028		Small Village	3	Unknown	N/A		<p>Powers, et al., located three house pits on a beach ridge near the tip of the spit at the mouth of Kugruk Lagoon. Each pit has several rooms that are connected by tunnels. Several small depressions nearby appear to be cache pits. An area approximately 15m to the west had a very irregular surface that indicated some kind of disturbance, possibly additional house pits obscured by the vegetation.</p>
KTZ-00029		Small Village	3	Unknown	N/A		<p>Powers, et al., located three house pits, six square depressions, a larger rectangular depression, and a T-shaped trench on the very tip of the spit at the mouth of Kugruk Lagoon. Each house pit has a large central room (measuring 3m, 5m, and 6m in diameter) and an entrance tunnel (two with apparent cold traps). The large rectangular pit and the T-shaped trench are the result of very recent activity.</p>

KTZ-00030	Intermediate Kotzebue	Large Village	30	Continuous Occupation	Occupation Dates	<p>Some 30 house pits are situated on three beach ridges between the beach and Issac Lake. Giddings excavated five house pits here during the 1940s, one of which was a large kazigi. Dated from about AD 1550, this site is more recent than the remains at Old Kotzebue (KTZ-031). Historic items were recovered from tests at the southernmost end of the site. Scott excavated multiple burials at the site in 1976. In 2014 newly discovered cultural resources and human remains found within the Isaac Lake Material Site construction area were discovered and contributed to KTZ-030. The boundary for the Kotzebue Archaeological District (KTZ-036) were revised according to the findings.</p>
KTZ-00031	Old Kotzebue	Large Village	200	Before 500 BP	Occupation Dates	<p>Within, and at the outskirts of, the modern village of Kotzebue (KTZ-001) lie the remains of an older site that Giddings called Old Kotzebue. As many as 200 house features have been estimated for the site, with the majority within the confines of the present village. Giddings excavated three houses here during the 1940s, which he dated to AD 1400, predating Intermediate Kotzebue (KTZ-030). VanStone excavated eight house pits here in 1951. [The exact location of the excavations</p>

							conducted by Giddings and VanStone is unknown.] Harritt (1994) documented both surface and subsurface cultural deposits of fauna, pottery, and FCR beneath lot 4601.
KTZ-00033	Kividluk Shelter Cabin	Village	7	Unknown	N/A		A 12' x 16' plywood shelter cabin, numerous posts, and over 37 depression features, at least some of which are cultural in origin, were noted during a brief reconnaissance. The pits range from 1m to 3m in diameter and are up to 1m deep. The house pits, perhaps about seven, have entrance tunnels. Two 50cm x 50cm tests, placed adjacent to the cabin, revealed no cultural material. The cabin was built during the 1980s.
KTZ-00038		Single House	1	Unknown	N/A		Surface manifestations of this site consist of the wooden structural remains of a house wall. By the angle of the logs it appears to be the back wall, the rest of the house has likely been destroyed by erosion.
KTZ-00040		Small Village	2	Unknown	N/A		This site represents an occupational area spanning two beach ridges,

							along an old channel. Two different occupations or two residential areas may be represented. Two possible house depressions were noted, both threatened by erosion. Numerous cache pits were noted, and up to five cache pits have eroded away, as evidenced by large amounts of cemented sands on the channel beach and eroding support and lining logs. Up to 20 posts, representing at least two dog yards and several rack structures, were noted. A few feature depressions were noted between the ridges.
KTZ-00048		Single House	1	Historic Occupation	Occupation Dates		This site consists of a small sod structure and a scatter of historic artifacts and bone within a 30m x 60m area about 23m from the lakeshore. The sod walls are 30cm high and the bases of five posts are present. The structure has two rooms, measuring 80cm x 90cm and 2.4m x 2m (interior dimensions). Artifacts noted include a star drill, a curved 1m section of iron pipe, a large tree trunk chopping block, stovepipe, an enamel coffee pot, and rusted cans. The site is located along a volcanic beach. A large ice pressure berm buries some of the artifacts. The site is reportedly a fox hunting camp belonging to James Moses and was occupied from the 1930s to the 1950s.

KTZ-00052		Large Village	47	Continuous Occupation	Cultural Association		This site consists of 47 house depressions and some small cache pits within a 520m x 50m area on the second relict ridge from the north shore of the lake. The depressions are shallow and the entryways open towards the lake. At the west end of the site is a scatter of historic artifacts, including the remains of a tent camp (tent stakes, door frame with leather hinges, stovepipe, fuel cans, rusted cans, and scrap lumber). A bone sled runner was found in a test in one of the house depressions.
KTZ-00053		Small Village	3	After 500 BP	Cultural Association		This site consists of three sub-rectangular house depressions within a 120m x 30m area along Kitluk River. The entryways have enlargements at the end opposite the house depression. Artifacts found on the surface include a wooden bow fragment and a small scatter of pot sherds. The house pits measure 4.5m x 2.15m x .45m, 3.9m x 1.5m x .25m, and 4.36m x 2m x .35m.
KTZ-00054		Small Village	2	After 500 BP	Cultural Association		This site consists of two house depressions and three cache pits within a 60m x 15m area on the beach ridge above White Fish Lake. Both houses have entryways, with small entry rooms, oriented roughly towards the lake. The house pits measure 3.1m x 1.7m x .7m and 2.2m x 3.2m x 1.2m. The cache pits

							measure .7m x .7m x .5m, .9m x 1.1m x .4m, and 1.8m x 1.1m x .5m. The features appear to be relatively recent in age, either late prehistoric or early historic.
KTZ-00055		Large Village	12	After 500 BP	Cultural Association		This site consists of 12 house depressions and five possible cache pits within a 40m x 150m area on an old beach ridge. The round to sub-rectangular house depressions range in size from 1.8m x 1.9m to 4.1m x 2.3m, and have short entryways oriented towards the lake.
KTZ-00056		Large Village	16	After 500 BP	Cultural Association		This site consists of 16 house depressions and four possible cache pits within a 220m x 30m area along an actively eroding beach ridge, about 500m ESE of KTZ-055. Partially eroded depressions and artifacts were noted in the cutbank, as were bone, ash, and charcoal. Several artifacts were collected from the beach, including an ivory ulu handle, a slate ulu blade, plain ware pot sherds and a lamp fragment, and a "lance" type projectile point.
KTZ-00058		Small Village	4	Unknown	N/A		This site consists of four poorly-defined possible house depressions and two small cache pits within a 40m x 15m area along the edge of a terrace stranded above a dry meander of Singeakpuk River. No

							entryways were defined on the house pits, which measured 2m x 1.6m x .18m, 2.3m x 2.1m x .25m, 2m x 3.6m x .22m, and 2.3m x 2.7m x .32m. Several shovel tests yielded negative results.
KTZ-00060		Single House	1	After 500 BP	Cultural Association		This site consists of a single rectangular house depression (measuring 7.2m x 3.7m x .45m deep) and a small cache pit located on a small ridge on the west side of the mouth of a small drainage. The site is 900m east of KTZ-061 and 1.4km east of KTZ-018. The house pit has been vandalized. A unilaterally barbed ivory point, an ivory object, and a pot sherd were collected from the eroding beach face.
KTZ-00061		Small Village	4	Unknown	N/A		This site consists of four house depressions and three cache pits along a low dune beach ridge about 250m east of KTZ-018 and 900m west of KTZ-060. Three of the house pits are rectangular, single-roomed sod block features having short, ocean oriented entryways with enlarged entry chambers. One of these features has exposed structural members with round nails. The fourth house pit is vaguely defined, has an oval main room measuring 3.5m x 4.6m, with a 2m long entryway facing inland.

KTZ-00063		Small Village	5	Unknown	N/A	<p>A total of five house depressions and five cache pits were found on a terrace about 1km west of KTZ-013. A small drainage bisects the site. Three of the house depressions average 5m x 3m in size and have relatively short entryways facing inland. Two vaguely defined house depressions, on the opposite side of the drainage, measure 3.2m x 4.3m and 5m x 3.2m in size, and have short entryways facing the water. A pot sherd and a utilized flake were noted on the beach.</p>
KTZ-00064		Large Village	11	Unknown	N/A	<p>Roughly 11 house depressions and at least six cache depressions were found along the back edge of a gravel terrace, at the base of the bluffs near a small point on the east side of the Pish River estuary. In general the houses are sub-rectangular single-room features with long straight entryways, measuring on the average, 7.5m x 5m x 0.4m deep, with entries 2-4m long. Occasionally there is evidence of an axillary room off the entry.[This may be the site of Likliknuktuk (KTZ-015), which Ray's map places to the northwest of here, but which Schaaf was unable to locate.]</p>

KTZ-00065		Small Village	3	Unknown	N/A		The foundations of three sod houses, one large cache, and six small rectangular cache pits were found on a terrace at the base of a bluff on the east side of the mouth of Francis Creek. A number of historic artifacts were associated with the site. Two of the houses have suffered vandalism.
KTZ-00066		Small Village	2	Unknown	N/A		The standing walls of a two-room sod house, one grave, four rectangular cache pits, and two sod borrow areas were found on a terrace along the shore about 300m south of the mouth of Singeakpuk River. The house measures 3.2m x 5.1m overall and its walls still stand about 40cm high. The house is eroding along the lagoon shore. The grave consists of the scattered remains of a plank box and miscellaneous skeletal members. About 200m NNE of the house is a small mound with the remains of a small wooden structure (possibly an elevated cache or box burial) and a rectangular, 1m x 0.65m x 0.2m depression.

KTZ-00067		Small Village	3	Unknown	N/A	<p>This site consists of three rectangular depressions, probably cache pits, and one amorphous feature at the base of the long sand peninsula formed where Singeakpuk River empties into Shismaref Inlet. The site is situated on two adjacent ridges on the west side of the river mouth. The depressions range in size from 1-1.85m long, 0.8-1.4m wide, and are about 0.25m deep. A test in the other feature, a subtle 3m x 4m rectangular depression, revealed clay, charcoal, and pulverized fish bone lenses and a single pot sherd.</p>
KTZ-00068		Single House	1	Before 500 BP	Cultural Association	<p>This site consists of a house depression, a cache depression, and a grave on a dune ridge on the barrier bar between Shismaref Inlet and Chukchi Sea. The house feature measures 13.2m long, with a sub-rectangular main room measuring 4.1m x 3m x 0.55m deep. The house entry descends the dune slope, widening to a 2m x 5m room. An axillary room may be present off the east side of the entryway, but it is poorly defined. Three upright posts are present, one in each of the rooms. An oval, 2.85m x 2.3m x 0.3m deep cache depression is located near the house. Also nearby is a driftwood log pile, possibly a collapsed rack or firewood cache.</p>

							<p>About 35m east of the house is a wooden cross lying in a slight depression on the crest of the dune. Human skeletal members were noted on the wet tundra below the dune.</p>
KTZ-00069		Large Village	27	Continuou s Occupatio n	Occupation Dates	Beta-17965 590±90	<p>This site consists of a series of 27 house depressions and 18 cache pits situated along a narrow ridge, on either side of a prominent drainage. The houses include single-room features, houses with one or two axillary rooms off the entry tunnel, and houses joined at the entry. Thirteen houses are oriented toward the sea, seven toward the mainland, and four toward the channel dividing the site. Cultural material noted in deflation exposures and in a subsurface test included shell, burned and unburned bone, fire cracked rock, pot sherds, a drilled ivory item, and lithics. A C14 date of BP 590+/-90 was obtained.</p>

KTZ-00086		Large Village	11	Continuous Occupation	Cultural Association		<p>Eleven house depressions and nine cache pits were located along the crest of a prominent ridge about 120m south of the outer coast of the cape, approximately 30m north of KTZ-069 and west, across a prominent channel, of KTZ-090. Seven of the houses are 3-4m x 3m single-room features with long entry tunnels, an enlarged entry chamber, and a lateral room of the entry. Three of the houses are features with 4-5m x 3m main rooms with entryways having two axillary rooms. A 6.7m x 4.3m house feature, with a 3.7m long entry off one corner and of four-corner post construction, appears to be more recent than the other features. Structural members are visible in some of the features. A single ground slate point "toy" was noted in a minor deflation exposure and midden deposits were exposed in a fox den.</p>
KTZ-00087		Large Village	10	Before 500 BP	Occupation Dates	<p>Beta-28006 700±70; Beta-28007 1020±120; Beta-28008 790±70; Beta-28009 720±70; Beta-28011 730±90; Beta-28194 440±60; Beta-286171 250±40; Beta-286172 360±40; AA-78262 740±38</p>	<p>This is a large, probably multi-component village site composed of an unknown number of house and cache depressions. Due to time constraints, only the easternmost 50m of the site (that portion which is subject to immediate erosion) was mapped. Ten house depressions and 24 cache pits were mapped within this portion of the site. Scatters of</p>

							burned bone fragments, shell, caribou/reindeer bone, small mammal bone, fire cracked rock, and the occasional artifact have been exposed by deflation around the houses.
KTZ-00088		Large Village	9	Continuous Occupation	Occupation Dates	Beta-17963 310±80; Beta-28013 730±100; Beta-28195 300±50; Beta-286170 120±40; AA-78263 207±34; AA-78264 436±55	This site consists of an unknown number of house and cache depressions on a low ridge truncated by erosion along the Kotzebue Sound coast. Only the easternmost 50m of the site, that most threatened by erosion, was recorded. In that portion, eight multi-room and single-room house depressions and three cache depressions were mapped. Exposures of shell, bone, and fire cracked rock were noted. Artifacts noted include a straight-stemmed triangular chipped point, plain pot sherds, and a ground slate punch.
KTZ-00089		Small Village	2	Continuous Occupation	Cultural Association		A series of six discrete artifact scatters, two house depressions, and a number of isolated artifacts were found along a 250m extent of a relict beach ridge on the west side of the prominent channel on the outside coast of the cape, about 110m south of KTZ-069, 80m west of KTZ-091, and 270m east of KTZ-092. Cultural material noted include a bone arrow point, waste

							flakes, slate flakes, an abraded, pot sherds, fire cracked rock, shell fragments, burned and unburned bone fragments, and oil-soaked sand chunks. The indistinct house depressions resemble Western Thule houses.
KTZ-00090		Large Village	10	Unknown	N/A		Nine well-defined, very deep house depressions, one less-defined house depressions, and four cache pits were located on relict beach ridges east of the prominent channel on the outer coast of the cape, about 50m north of KTZ-069 and east, across the channel, of KTZ-086. Exposed cultural material included shell, bone, charcoal, cemented sand, iron fragments, a bone point, a bone harpoon socket with iron stains, and a flake.
KTZ-00101		Large Village	9	After 500 BP	Occupation Dates	Beta-17967 210±60; Beta-28019 260±50; Beta-28021 290±90; Beta-28022 240±70; Beta-28196 100±90; Beta-28197 200±70	Nine house depressions and 12 cache pits were found on the eroding east end of a ridge on the eastern tip of the cape, about 100m east of KTZ-088. Due to time constraints, the further westward extent of the site was not mapped. The house depressions within the eastern 60m of the site are well-defined, consisting of large rectangular main rooms, long entryways having chambers at the terminus, and one or two rooms

							connected to the entryway. Scatters of burned bone, shell, and pot sherds were exposed. A C14 date of BP 210+/-60 was obtained from an apparent eroded house floor. A human skull cap and a fragment of a ground slate artifact were found in the mud flats below the site.
KTZ-00111		Large Village	22	Unknown	N/A		At least 22 house depressions, 27 cache depressions, and three graves were found along the west bank of Espenberg River, on the second and third ridges inland from the Chukchi Sea coast. Most of the house depressions have vague outlines, obscured either by the dense vegetation or looter's diggings. Artifactual material noted on the surface include waffle-stamped pot sherds, worked bone, waste flakes, charcoal, and faunal material.
KTZ-00130		Large Village	25	Before 500 BP	Occupation Dates	Beta-17970 500±80	This multi-component village site is located on the second coastal ridge, about 100m south of the Chukchi Sea coast. Twenty-five single-room and multi-room house depressions and 10 cache depressions were noted. A C14 sample collected from an eroding hearth yielded a date of AD 1422 (calibrated). Cultural materials noted in the blowout below the hearth include a biface fragment, waste flakes, pot sherds,

							bone, a steel trap, metal fragments, and cemented sand. Recent graves were noted about 200m to the east of the site.
KTZ-00131		Large Village	10	Before 500 BP	Cultural Association		Ten large house depressions, three smaller possible house depressions, and two caches were noted on the fourth ridge inland from the Chukchi Sea coast, on the west bank of Espenberg River. Two of the house depressions are eroding into the river and a number of the features have been severely damaged by looting. Exposed cultural material includes pot sherds, slate fragments, fire cracked rock, and faunal remains.
KTZ-00137		Single House	1	Unknown	N/A		This site is located on the east edge of a ridge on the west side of Espenberg River. The site was incompletely recorded, but whale bone, the remains of a possible cache structure, pot sherds, a faint house depression, and an adjacent cache depression were noted.
KTZ-00138		Large Village	15	After 500 BP	Cultural Association		This large multi-component village site is located on the second ridge inland from the Chukchi Sea coast, west of Espenberg River. The site was only briefly examined, but 15 house depressions, a number of

							cache depressions, whale bone, waffle-stamped pot sherds, and an ivory foreshaft were noted.
KTZ-00140		Large Village	9	Historic Occupation	Occupation Dates		Nine sod house depressions, an elevated cabin (on wood posts), and several associated caches were located on the inland-most ridge of the series of ridges just west of Espenberg River, just south of the Goodhope reindeer corral. This settlement was associated with reindeer herding and with early use of the adjacent corral and was occupied in the early 1900s. The cabin was used until 1947.
KTZ-00145		Small Village	5	Unknown	N/A		The remains of five eroded house features and at least two probable caches are exposed in profile along the severely eroding dune face on the east side of the mouth of Kitluk River. The houses are constructed of driftwood posts and hewn planks. Faunal remains, a ground slate ulu, a retouched flake, a waste flake, bone sled runners, decorated pot sherds, a single notched pebble, and trade items (a copper sheet and a glass bead) were associated with the features. Additionally, the remains of a recent tent camp were noted.

KTZ-00148		Large Village	11	Unknown	Occupation Dates	Beta-17959 430±80	<p>This site consists of two loci situated on the west bank of an unnamed drainage on the Chukchi Sea coast. Loci A consists of five eroded feature floors exposed in a cut ridge face. Apparent rotted floor remnants, charcoal, and bone were noted, but no artifacts. Loci B consists of six house depressions, five cache depressions, and isolated scatters of cultural material located on ridges about 150m southwest of Loci A. Cultural material noted included scatters of shell and bone, decorated pot sherds, a bone blunt, and a bone sled runner. An upright configuration of posts and some historic debris was also noted, 69-126m to the west of Loci B.</p>
KTZ-00149	Ullugsaun	Large Village	25	After 500 BP	Cultural Association		<p>This site consists of at least 25 cultural features extending for about 500m along an eroding beach ridge on the Chukchi Sea coast. The features noted include six late historic sod houses, with associated racks and caches, and 13 eroded structural features from earlier occupations. A variety of miscellaneous historic items were noted, as were faunal remains, decorated pot sherds, a bone sled runner, and an apparent wooden box. The more recent portion of the site is reportedly the settlement of Ullugsaun, and early 1900s winter</p>

							village.
KTZ-00155		Large Village	6	Unknown	N/A		Six historic period sod house depressions, five cache depressions, and unidentified feature remains were located along a sand ridge, about 500m southwest of the Singyuk cabins (KTZ-010). Two of the features are partially eroded and the others are very near the eroding bank. A small amount of historic debris was noted. A faint sub-rectangular depression also noted may represent an earlier house depression. It is possible that this site represents the late 1800s village of Singyuk (see also KTZ-010).
KTZ-00157		Single House	1	Unknown	Occupation Dates	Beta-28024 1300±70; Beta-28026 1410±60; Beta-28198 1360±90	This site consists of house pits and cultural material (including human remains) eroding from blowouts on a beach ridge (E-8). Extensive testing of three house depressions and an activity area was conducted, yielding apparent Ipiutak artifacts and C14 dates (uncalibrated) from BP 1300+/-70 to BP 1410+/-60.

KTZ-00158	Fletcher Gregg Spit Site	Village	Unknown	Outside Study Period	Cultural Association		Several semi-subterranean houses located on this gravel spit. A test excavation in one of these yielded numerous historic artifacts. The finds included a toggle harpoon head, worked bone, worked wood, and forged iron. Another harpoon head and a bone projectile point were also found on the gravel road on the property.
KTZ-00162		Single House	1	Unknown	N/A		A house depression, measuring about 4-5m square with 50cm high berms, was noted at the head of a surge channel (Bf). No metal or historic debris were noted during cursory inspection.
KTZ-00171		Small Village	4	After 500 BP	Cultural Association	Beta-41833 100±70	USNPS investigators identified at least four house pits during a brief site visit to document a reported looting incident. Four house pits were noted at the site. Feature 1 consists of three rooms connected by long tunnels to an entrance room. Feature 2 consists of a main room and a possible kitchen connected by tunnels to the entrance room. The other two features are apparently single room houses with long entrance tunnels.

KTZ-00298	Akmaq	Large Village	11	After 500 BP	Occupation Dates	Beta-304045 100±30	This site consists of a single grave from 1952 marked with a white painted cross, 11 probable house depressions, 59 other depressions, 6 tent-use areas, a scatter of poles and a cluster of stakes. Modern debris was found scattered throughout the sites. Oral history documents 3 occupations at Akmaq (brown bear): a contact-period village which was abandoned prior to 1900, a fall fish camp, and a reindeer herder's camp.
KTZ-00299		Single House	1	Before 500 BP	Occupation Dates	Beta-138564 1620±80; Beta-138562 1250±40; Beta-231493 1220±40	Buried Ipiutak house under what is now the new Post Office building. The house is semi-subterranean and roughly rectangular in shape. The S corner is replaced by a short entrance tunnel. The cache pit is about 1m in diameter, with irregularly sloping walls. The date of the house features matches remarkably closely with a radiocarbon date from Ipiutak Burial 4 (Reanier et al. 1998a) and an Ipiutak Karigi or men's ceremonial house excavated in the early 1950s by scientists from the Danish National Museum in Copenhagen (Larson 2001). [Located within Deering Archaeological District, KTZ-169].

KTZ-00300	Deering Western Thule House 1	Single House	1	Before 500 BP	Occupation Dates	<p>Beta-138565 920±40; Beta-138566 1080±80; Beta-138567 1190±40; Beta-138568 870±40; Beta-224229 830±40; Beta-224230 900±40; Beta-224231 850±40; Beta-224232 870±40</p>	<p>This feature is a 2.5m square house with a main room, 6.4m long S-facing entrance tunnel and a side room presumably functioning as a kitchen. It was constructed of driftwood, whalebone, and sod. A total of 4 C14 dates were obtained, the most reliable date is from charcoal beneath the main house room floorboards, BP 910+/-40 (Beta-138568). Charcoal from the base of the house entrance tunnel dates to BP 940+/-40 (Beta-138565). Two additional C14 samples from the house kitchen antechamber may have been contaminated by ancient sea mammal oil. A single tree ring date of AD 1203 was obtained from analysis of structural wood from the house timbers. This wood had a growth span of 163 years between AD 1040-1203 and was probably obtained as driftwood. [Located within Deering Archaeological District, KTZ-169].</p>
KTZ-00301	Deering Western Thule House 2	Single House	1	Before 500 BP	Occupation Dates	<p>Beta-189091 790±40</p>	<p>Site consists of a main room measuring 3.7m x 3.2m. The length of the entrance tunnel and presence/absence of a side room are unknown due to limits of test excavations. An age estimate of AD 1260 is assumed for the site. [Located within the Deering Archaeological District, KTZ-169].</p>

KTZ-00382		Single House	1	Unknown	N/A		One multi-room house pit and one cache pit.
KTZ-00383		Large Village	8	Unknown	N/A		At least eight house pits.
KTZ-00384		Single House	1	Unknown	N/A		A cemented sediment feature and possible hearth feature.
KTZ-00386	GCI Trench Site #1	Single House	1	Unknown	N/A		This site contains a pre-contact buried semi-subterranean house semi-subterranean house and feature, either a cache pit or midden. The site was identified by THRC when a GCI trench cut through the site in 2013 and disturbed the deposits. The same trench also disturbed site KTZ-347. THRC conducted data recovery by collecting artifacts and faunal remains that were disturbed by trenching from both sites. A count of 2329 artifacts and unmodified faunal remains are reported from the two sites combined. GCI trench was approximately 1 meter deep. The cultural deposits were likely from between ~75 and 100 centimeters below surface, consistent with what was found in testing in KTZ-347, a nearby site also consisting of a prehistoric semi-subterranean house semi-subterranean house.

MIS-00032	Lake Kaiyak	Large Village	8	After 500 BP	Occupation Dates	Cams-141635 385±30; Cams-141636 245±30; Cams-141637 405±30; Cams-141638 400±30	Hall reported locating eight rectangular semi-subterranean house pits, with medium length entrance passages, on the lakeshore. No karigi was noted. A small test in one of the house pits produced 33 flint flakes and a fragment of a large leaf-shaped biface. A second test, in another house pit, produced six spalls and three biface fragments. The condition of caribou bone found in the test pits indicated that the features are relatively older than others found during the survey, perhaps circa AD 1500-1600. Following the 1995 discovery of vandalism at the site, in 1996 excavations were conducted in the two of the house features damaged. Dating to circa AD 1750 is anticipated. [Additional sites/features were identified on the nearby lake shore: 13 cache pits located on the knoll 425m to the SSW; an apparent house pit with tunnel and three cache pits located on a knoll 570m to the SSW; and a cache of old Blazo cans on the shore 575m to the southwest.]
MIS-00070		Village	Unknown	Unknown	N/A		Foote reported late prehistoric or historic Eskimo winter houses.
MIS-00071	Ninguqtutsiaq	Village	Unknown	Unknown	N/A		Burch (p.c. to Hall) noted this as a fall concentration zone for families from the Upper Noatak regional

							group.
MIS-00079	Katyaak	Village	Unknown	Unknown	N/A		Burch (p.c. to Hall) noted this as a fall concentration zone for families from the Upper Noatak regional group.
MIS-00352		Large Village	21	Unknown	N/A		Site found in approximately 1951 by a geological survey group. According to Mr. Mangus, the site is located on a flat spot above the lake on a moraine feature. The site appears to represent a long occupation as the artifacts ranged from clear obsidian microburins and microblades to decomposing snowshoes that were half buried in the soil. Also present at the site 21 rectangular semi-subterranean houses, midden deposits, and a karigi/"council circle" consisting of 13 sets of seats. Near one seat was a quartzite boulder decorated with a starburst design. A number of other quartzite boulders (ranging from 18in. to 24in. in diameter) are present. These boulders are not indigenous and must have been transported into the area. Hall noted that the karigi was U-shaped and that the open end faced the lake. Two small tests by Hall produced 27 flakes, 6 cut antler pieces, the base of a hand drill, and 1 thick potsherd.[Originally described as

							part of MIS-077, on west side of lake.]
MIS-00697		Small Village	5	Unknown	N/A		Site consists of 5 semi-subterranean houses and cache pits.
MIS-00698		Village	Unknown	Unknown	N/A		Several house pits located on a knoll directly south of MIS-00352.
NOA-00003	Aniyak	Large Village	7	After 500 BP	Cultural Association		Former Eskimo village recorded with a population of 25 in the 1880 Census and visited by Lt. D.H. Jarvis, USRCS, in 1898. Anderson noted remains of winter house pits, fish camps, fish racks, and cache pits on the beach ridge spit at the mouth of Tukrok River, with the oldest apparently being located near the base of the spit. NPS investigators noted a total of 197 features, including house pits, cache pits, and other features, in the vicinity of the current ranger station and Shelter Cabin. The shelter cabin is a mail run cabin built by the

							Alaska Road Commission about 1925. Excavations were conducted at the cabin in 1987.[See also NOA-140.] CAKR project mapped the site and recorded 7 house features. The BIA report indicated 20 house features.
NOA-00004	Kivilina	Village	Unknown	Unknown	N/A		Eskimo village originally located at the N end of the lagoon, reported in 1847 by Lt. L.A. Zagoskin. In 1920 the population was 87. The post office was established in 1940. Anderson noted that house pits are readily visible along the Kivilina beach ridges, although none appeared to be older than a few centuries. BIA investigators noted the presence of two depressions (reportedly the house and cache of the property owner's parents) and a low mound (said to be an "old house") on Lot 1, Block 12, Kivalina town site, USS 5582 (owned by Willard and Alice Adams). Burned bone fragments were noted on the ground surface of the low mound. In 2005 this number was determined to include all of the features within the village and

							extending N along the spit to at least the S end of the runway. Specific areas/features within the village have been given individual AHRS numbers, including NOA-311 through NOA-328.
NOA-00005	Cape Sepping	Village	Unknown	Unknown	N/A		Eskimo village or camp, now abandoned, mentioned by P. Tikhmeniev on his 1861 map as "Kivalinag-miut." This may refer to the present village of Kivalina (NOA-004). On U.S. Navy Hydrographic Office Chart 68, shown as "Kechemudluk."
NOA-00008		Small Village	4	Before 500 BP	Cultural Association		Giddings noted four deep semi-subterranean rectangular house pits with long entrance passages here, and excavated the one that had not been rather extensively potted. Excavation of the structure, which had burned, produced evidence of a Western Thule culture occupation within the last 1000 years.[See also KTZ-005 and NOA-007.]
NOA-00009	Kitqlikquriaq	Village	Unknown	Unknown	N/A		This willow and tundra covered deltaic island was noted by E.S. Burch, Jr. (p.c. to Hall) as a fall

							concentration zone for families from the Kotzebue regional group. Probably the same as Hall's N 13 site.
NOA-00010	Qipisungnik	Village	Unknown	Unknown	N/A		Giddings originally noted several houses at this apparent location. Hall noted a considerable number of houses, at the willow-covered base of the bluff in 1965, and others reported by Eskimos in 1972. E.S. Burch, Jr. (p.c. to Hall) the willow covered point as a fall congregation zone for families from the Kotzebue regional group.[Previously this location was given three AHRS numbers; NOA-011 and NOA-012 have since been subsumed.]
NOA-00015	Kimmik	Small Village	2	Unknown	N/A		Giddings located two houses and tested at this apparent site of a reindeer corral. E.S. Burch, Jr. (p.c. to Hall) noted this as a fall congregation zone for families from the Kotzebue regional group.[Subsumes NOA-016.]
NOA-00017	Saniniq	Village	Unknown	Unknown	N/A		E.S. Burch, Jr. (p.c. to Hall) noted this as a fall concentration zone for families from the Kotzebue regional group.
NOA-00020		Village	Unknown	Unknown	N/A		Giddings noted this as the site of an old village reported by a Native on hearsay.

NOA-00021	Nauyoazag	Village	Unknown	Unknown	N/A	Apparently the site of an old Native settlement was noted here by Philip S. Smith (1913:45), USGS. E.S. Burch, Jr. (p.c. to Hall) noted the area as a fall concentration zone for families from the Kotzebue regional group. W.N. Irving (p.c. to Hall) reported a tepee grave (the identity of the interred is known to people of Noatak Village) on the riverbank.[Subsumes NOA-022; see also NOA-057.]
NOA-00024	Arviraq	Large Village	30	Unknown	N/A	Hall reported over 30 house pits and over 52 cache pits at this site, which was noted by E.S. Burch, Jr. (p.c. to Hall) as a fall concentration zone for families from the lower Noatak regional group. D.C. Foote (1965:Map 24) also apparently noted winter houses here. Hall tested two houses, recovered historic items such as rifle shells, a musket ball, a flint, a kaolin pipe stem, cut antler, seal and caribou bone, beads, metal items, and a felt hat. The site owed its existence to the heavy salmon run up the Eli and Noatak Rivers that could be easily tapped at the village. Other, older houses are probably located back from the river.[2012 BIA survey attempted to re-locate the site in the area that it was mapped in the AHRS, it was determined that it was mis-located and actually needed to

							be approx 2mi. S of where it was, although the site was not visited this will be corrected]
NOA-00026	Maraqtuq	Large Village	7	Unknown	N/A		E.S. Burch, Jr. (p.c. to Hall) noted this as a fall centration zone for families from the lower Noatak regional group. During survey in 1974 Hall noted a total of seven major house features (including collapsed log cabins and depressions marking older houses), cache pits, and historic debris. Reportedly three of the cabins were occupied in 1949, the others date from earlier, perhaps around 1900.[Subsumes NOA-043.]
NOA-00027	Uninyuaq	Village	Unknown	Unknown	N/A		E.S. Burch, Jr. (p.c. to Hall) noted this as a fall concentration zone for families from the lower Noatak regional group.

NOA-00028	Napaktusugruk	Village	Unknown	Unknown	N/A	D.C. Foote (1965:Map 24) apparently noted winter houses here and E.S. Burch, Jr (p.c. to Hall) noted it as a fall concentration zone for families from the lower Noatak regional group. During survey in 1974, Hall noted a collapsed 4m x 4m historic cabin with axe cut logs and a 2m long entrance passage, two 1m x 1m cache pits, and historic debris.[Subsumes NOA-046.]
NOA-00029	Inilaq	Village	Unknown	Unknown	N/A	E.S. Burch Jr. (p.c. to Hall) noted this as a fall concentration zone for families from the lower Noatak regional group.
NOA-00030	Kiiziq	Village	Unknown	Unknown	N/A	E.S. Burch Jr. (p.c. to Hall) noted this as a fall concentration zone for families from the lower Noatak regional group.
NOA-00031	Kakiaq	Village	Unknown	Unknown	N/A	E.S. Burch Jr. (p.c. to Hall) noted this as a fall concentration zone for families from the lower Noatak regional group. D.C. Foote (1965:Map 24) noted winter houses in this vicinity. In 1964 Hall located a house floor composed of spruce logs and recovered .44 caliber shells.[In 1974 Hall was unable to relocate this site; see also NOA-044.]
NOA-00033	Qamaniq	Village	Unknown	Unknown	N/A	D.C. Foote (1965:Map 23 and p.c to Hall) apparently noted the houses of a winter village at this location. BIA

							ANCSA investigators recorded 15 features and 6 upright posts in a clearing. The features include: the remains of 3 log cabins, 5 small, circular or square depressions (possible storage pits), 4 small, shallow, rectangular depressions (possible storage pits, sod barrow pits, etc.), and 3 piles of boards, logs, and posts. Each house had one of these woodpiles nearby. The 6 upright posts extended from 80cm to 95cm above the ground and were cut with an axe. All had thinning in the middle ("hourglass" shape) which may indicate that these were dogs stake outs. [Hall mentions Kasmanik in a 1966 report, which may be the same site].
NOA-00035	Akaekkingyorrulk	Village	Unknown	Unknown	N/A		D.C. Foote (1965:Map 25 and p.c. to Hall) apparently noted houses of a winter village at this location.
NOA-00036	Imarvik	Village	Unknown	Unknown	N/A		E.S. Burch Jr. (p.c. to Hall) noted this as a fall concentration zone for families from the lower Noatak regional group, however, as this location is considerably upriver from the other lower Noatak fall activity zones, there is some question as to its authenticity.
NOA-00037	Dr. Rabeau's Cabin	Village	Unknown	Unknown	N/A		Hall located and tested three rectangular cache pits and a number of possible houses on the tip of a low spur immediately behind Dr. Rabeau's cabin. He also noted an

							above ground burial box on the spur, 300' behind the cabin.
NOA-00038		Large Village	20	Unknown	N/A		Hall noted a total of 20 semi-subterranean houses and over 52 circular cache pits scattered along 2 miles of a beach ridge 10' above and 20-100' north of the present water line. Twelve houses and a number of cache pits were in one cluster. Hall performed a number of small tests and recovered glass, chert, cut antler, and ground slate. One house pit was cruciform in outline.
NOA-00048	Tununaaq	Single House	1	Unknown	N/A		Hall noted a 4m x 4m ground level log cabin, a probable house with five cache pits(?), a slight 7m x 3.5m rectangular depression (with apparent logs under the surface running parallel to its long axis), and a total of six more probably old house depressions. E.S. Burch Jr. (p.c. to Hall) noted this vicinity as a fall concentration zone for families from the lower Noatak regional group.[See also NOA-047; subsumes NOA-025.]
NOA-00055		Small Village	2	Unknown	N/A		Hall noted two possible rectangular house depressions, measuring 4m x 3m and 3m x 2m in size.
NOA-00062		Single House	1	Unknown	N/A		This site consists of a 4m x 3m house pit with a short entrance tunnel located at the southeast corner of the depression. A wide

							berm surrounds the house pit, which is about 1.2m deep.[This site may be a duplicate of NOA-165.]
NOA-00099		Village	Unknown	Unknown	N/A		This site consists of a large house feature, a somewhat smaller house, a number of cache pits, and two possible graves. The larger house feature measures 7m x 5m, is a typical winged semi-subterranean structure with benches on either side of a central hearth depression and a 3m long entrance passage terminating in an antechamber. The second house feature measures 4m x 4m and is similarly constructed.
NOA-00100		Large Village	6	Unknown	N/A		A low bipartite mound contains evidence of at least six sod houses, with substantial sod walls still standing to a height of 1m and some visible wall supports. The site is probably of late prehistoric or early historic age.
NOA-00104		Village	Unknown	Unknown	N/A		Several suspicious depressions, including a possible semi-subterranean house measuring 4.5m x 3m with a 3m long entrance passage, were noted 40m north of an old river channel and 400m north and 3m above the present river channel. A test revealed only river silt to frost at a depth of 40cm.

NOA-00140	Anigaaq	Large Village	7	After 500 BP	Occupation Dates	USNPS investigators noted five house pits and four grave sites (at least five burials) distributed along 1km of the bluff edge. The single room house pits measure from 4.4m x 6m to 6m x 7m in size, with entry ways up to 3m long. Wood coffins, human bone, and a steamer trunk were noted in the graves. The village site was reportedly occupied through 1925.[See also NOA-003.]
NOA-00158		Single House	1	Before 500 BP	Cultural Association	A possible house pit and two cache pits were noted on the fourth beach ridge back from the north shore of Kotlik Lagoon, by USNPS investigators in 1987. The house feature consists of an irregular depression measuring about 7.5m x 6.3m x .4m deep. Two large whale vertebrae were noted in the depression, which has been disturbed by burrowing. About 6m east of the house feature, a 30.5cm x 24cm wooden bowl was noted. Both of the cache pits measure approximately 1.6m x 1.4m x .7m deep. USNPS investigators briefly revisited the site in 1995 and collected the wooden bowl (which had moved about 30m east of its earlier location).

NOA-00161		Small Village	3	After 500 BP	Cultural Association	<p>In 1987, USNPS investigators reported two well-defined house pits, one possible house pit (seriously disturbed by ground squirrel burrowing), and two probable cache pits on the third and fourth beach ridges back from the northern shore of Kotlik Lagoon. The cache pits measure 1.9m x 1.7m x .24m deep and 1.2m in diameter x .25m deep. Feature 3, a sub-rectangular house pit, measures 3.6m x 2.7m x .32m deep, with a 1.8m x 1.4m entryway. Feature 4, another sub-rectangular house pit, measures 4.83m x 4m x .3m deep, with a 6.1m x 1.22m entryway. USNPS investigators briefly revisited the site in 1995.</p>
NOA-00162		Single House	1	After 500 BP	Cultural Association	<p>As reported by USNPS investigators in 1987, this site consists of a single house pit, situated on the first beach ridge, approximately 20m from the shore of Kotlik Lagoon. The feature measures 7.7m x 4.5m x .46m deep, with a 2.7m x 2m entryway facing the lagoon. In 1995, USNPS investigators excavated a 50cm x 50cm test inside the house feature. Although the stratigraphy indicated the presence of roof fall and floor material, no artifacts were recovered.</p>

NOA-00163		Single House	1	After 500 BP	Cultural Association	<p>As reported by USNPS investigators in 1987, this site consists of 12 circular to sub-rectangular cache pits and a larger depression which may represent a house pit, located on the second beach ridge back from the northern shore of Kotlik Lagoon. The possible house consists of a slight basin, measuring 4.2m x 3.2m in size. The cache pits vary from a 1.05m in diameter x .2m deep circular depression to a 2.3m x 2.1m shallow basin. The remains of a wooden freight sled with iron runners were also noted about 30m to the southwest. USNPS investigators briefly revisited the site in 1995 and noted several additional features, possibly small cache pits.</p>
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NOA-00164		Small Village	2	After 500 BP	Cultural Association	<p>In 1987, 2 possible house features and 4 apparent cache pits on the 5th beach ridge back from the NW shore of Kotlik Lagoon, approximately 1.5-2m asl. One house feature is roughly circular depression measuring 5.3m x 4.8m x .2m deep, the other is sub-rectangular depression measuring 7.4m x 4.5m. The rectangular cache pits vary from a 2.6m x 2.2m x .8m deep to a 2m x 1.2m x .13m deep. Two squirrel burrow disturbed areas, possibly representing cultural features were also noted, 122m and 128m NE of the site datum. In 1995, a number of additional potential features, both within the previously identified main site area and to the SW, towards the end of the beach ridge. Two possible features, apparently previously unrecorded, were also found 275m and 310m NNE of the 1987 datum. Three 50cm x 50cm test pits were placed in or adjacent to poss features. No artifactual material was recovered from the tests. Only TP #3 had a possible cultural layer, it was extensively damaged by (and perhaps totally the result of) ground squirrel activity.</p>
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NOA-00170		Single House	1	Before 500 BP	Cultural Association	<p>In 1987, USNPS investigators reported features and cultural material exposed for some 120m along the erosion face, which included at least 1 house floor, 2 seal oil poke storage pits, an oil-soaked hearth, wood and bark fragments, sea mammal and caribou bone, and a chert block fragment. No features were visible on the surface. The site was relocated, mapped, and tested in 1995. The 1987 site datum was not relocated, so correspondence between the 1987 and the 1995 cultural material was not possible. Cultural material was noted eroding from the bank for a distance of about 210m. Along the top of the beach ridge, possible features were mapped for a distance of about 415m, all within 50m of the eroding bank. The features were generally small pits of unknown genesis, but may be cache pits. Several larger depressions could be house pits. Historic period debris were scattered on the surface and in the sod. A number of subsurface tests bank stratigraphic cuts, auger tests, and test pits were excavated.</p>
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NOA-00188		Single House	1	After 500 BP	Cultural Association	One house pit, five cache pits, a tent ring, and two unidentified stone features were located in a small clearing. Oval house pit is 4.8m x 2.7m x .22-.39m deep with a tunnel measuring 4.8m long and 6 m wide. Large post, possibly whale bone, found at each end of the entryway. Tent ring measuring 1.65m x 1.22m in size made up of large cobbles and small boulders.
NOA-00217	Agiaguat	Small Village	2	After 500 BP	Cultural Association	In 1987, 2 house pits (a 6.4m x 5.5m depression with a 3-3.5m x 1.6m wide entry tunnel and a 8.4m x 5.8m oval depression with a 4.5m long entry tunnel), 2 or more graves, and a number depressions (some cache pits) were noted. Remains of crosses marking 2 of the shallow grave depressions read KATHRINE WEBSTER and ...TUCK. One bifacial end or side blade, chert flakes, pot sherds, and faunal remains were also noted. This is also this location that Burch records as Agiagruat, a spring settlement of the Napaaqtugmiut. In 1995, the site was mapped. A number of subsurface tests were excavated to evaluate the damage to features from recent vandalism and the total site context. Cultural material collected included chipped bifacial and unifacial tools; waste, utilized, and retouched flakes; ground slate

							tools and fragments; whetstones; worked and cut antler and whale bone; plain pottery sherds; wood and soil samples; metal fragments; a 30-30 cartridge casing; and faunal remains.
NOA-00274		Small Village	3	Before 500 BP	Cultural Association		This site consists of three or four house pits, a possible grave, and a number of cache pits and other depressions on the north edge of a low beach ridge between Tukrok River and the Chukchi Sea coast. The distinct house pits include a shallow 4m x 4m depression with a 3m long entry and a 1.9m x 1.8m room off the entry; a shallow 5.8m x 4m sub-rectangular depression with a 3m long entry and a 2.5m x 1.9m room off the entry; and a shallow 5m x 3m rectangular depression with a 5.9m long entry. Two square posts were noted in the entryway near the house wall in one of the house pits. The possible grave is marked by the remains of a whalebone jaw. A modern hunting

							blind or dried grass and limbs was also noted on the site.
NOA-00284	Atiligauraq	Small Village	2	After 500 BP	Cultural Association		Features include a 3.9m x 2m house with a 2.2m long entry marked by at least 25 wall posts (Feature 1); a 4.6m x 3.4m house with a 2.3m x 1.6m attached room marked by at least 42 wall posts (Feature 6). Other features include a 5m x 3m depression which may mark a wall tent site (F3), several cache pits, and several triangular, post configurations. In 1995, the site was mapped and 9 subsurface tests were excavated. A test outside Feature 1 yielded wood chips, charcoal, fire cracked rock, bone, and the jacket of an approximately .50 caliber bullet. A test within the main room of Feature 6 yielded wood structural material, wood chips (possibly axe-cut), worked wood, bone, and charcoal, a grey chert flake, a wooden plank, a wooden wick trimmer, and a glass bead. In 1995,

							Feature 9 consisted of 12 posts protruding from the beach (which may be the remains of part of a large house), aligned in two parallel rows about 1.7m apart and perpendicular to the beach. The additional posts exposed in 1995 may be attributed to continued erosion since 1988.
NOA-00288	John Goodwin Cabin Site	Small Village	4	Unknown	N/A		Historic site. Remains include a recent cabin, built of plywood and 2x4s. The roof is gabled and has a tarpaper covering. Furnishings and clothing have been rummaged through, presumably by bears, and scattered for about 20m upriver. There is an outhouse, set on logs, about 30m to the SE. A sod structure of traditional Eskimo construction stands 26m N of the cabin. Its sloping walls are constructed of trimmed spruce poles and the roof is of plywood. Sod is laid over all, but has mostly fallen away, creating a wide berm around the structure. The windows in the walls and in the roof were covered with plastic. Four semi-subterranean

							houses were found, three of these are in close proximity to the cabin and the standing sod structure, the fourth is at the edge of a ravine 100m to the W. These house pits are well defined, with high, square shaped berms, and are probably historic. A shovel test dug in one of the pits produced no cultural remains.
NOA-00299	Imikruk Lagoon	Village	Unknown	Unknown	N/A		This site consists of many small, square and rectangular pits, round depressions, and 55gal drums placed in the ground, scattered along a beach ridge on the NW end of Imikruk Lagoon. The heaviest concentration of features is near the Chukchi Sea on the upper side of the ridge. The 25 round features were about 0.85m diameter and 0.3m deep. Feature 46 was a large depression 8.71m diameter, Feature 44 was 5.5m diameter, and Feature 47 was 2.84m diam. There were numerous sharply rectangular features averaging 1.5m x 1m and from 0.6m to 0.2m deep. Their regularity leads to the speculation that they may have held boxes or cans at one time. There were also 11 55gal drum storage containers placed in the ground. There is no evidence that the site was used in the last few years. The residents of Kivalina could not provide much

							<p>historical info about this site. This may be the same recorded site as NOA-476. This may be the spring camp of Usak, which was named for a person, but the reason was lost. Used until recently, a definite age could not be assigned to the site. It represents more recent subsistence patterns that are not well studied. In 2010 the Lieb allotment was accessed via float plane by BIA archeologists M. Garcia and R. Meinhardt in response to a request from the Maniilaq Association for an archeological inventory prior to an advertised sale of the property. Landing at Imikruk Lagoon, the crew proceeded west and came upon what was later found to be site NOA-299; numerous metal drum lined cache pits, possible house pits, and similar features. In 2011 the Lieb allotment was re-visited by archeologists M. Garcia and M. Goade. After being surveyed multiple times and interviewing the land owner BIA has determined that there are at least two components to the site.</p>
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NOA-00301	Igrugaivik Creek Camp	Small Village	2	After 500 BP	Occupation Dates		This site (about 120m x 140m) consists of many small round and rectangular depressions along Igrugaivik Creek bank. There are 55gal barrels buried vertically into the ground that may have served as storage containers. There are 34 round features 1.2-0.5m in diameter and 16 rectangular features averaging 1.5m x 0.75m x 0.6m deep. The 2 large rectangular features that may be the remains of house pits or tent floors were 6.2m x 3.5m and 4.44m x 2.06m. More recent evidence of use were 2 upright posts that served as a drying rack with a folding table, and plywood lying nearby, a wall tent frame and an overturned couch in poor condition. Camps closer to Kivalina are still being used. This spring camp may be part of Kiniktuuraq, which means "little old rise in the ground." During the 18th century, the major outlet of Kivalina Lagoon was here.
NOA-00322		Village	Unknown	Unknown	N/A		Site consists of possible house pits visible on a 1967 aerial photo.
NOA-00323		Single House	1	Unknown	N/A		Reported possible gravesite and location of historic sod house.
NOA-00328		Village	Unknown	Unknown	N/A		Local informant reported that several families had occupied several historic sod houses at the extreme western end of town. Site

							may be the same as that located during a BIA 1989 survey of the Adams allotment.
NOA-00341		Village	Unknown	Unknown	N/A		The village of Noatak was listed by Petroff in the 1880 Census as Noatagamute. In 1908 the Friends Church began a government sponsored mission and school at the present village site. In a 1937 survey the school parcel consisted of the Friends Manse, a log church, a frame schoolhouse, a tramway and track up the river bluff to the school, a log cabin, a galvanized iron cache and shed, and a frame outhouse. The parcel is listed as USS 2037. The surrounding buildings were listed as Native built log cabins and caches. A post office opened in 1940. Lithics possibly related to the Northern Archaic tradition were found on the ground surface in the vicinity of Block 6, USS 4486 in 1976 prior to the installation of water and sewer lines.
NOA-00342		Single House	1	Unknown	N/A		Local informants report a house ruin between the end of the existing Noatak runway and the westernmost channel of the Noatak River. The ruin may be associated with the Wendell Booth family and predate the settlement of Noatak in 1908. May have been destroyed by river erosion.

NOA-00343		Single House	1	Unknown	N/A		The site consists of one semi-subterranean house made from spruce logs. Site was observed only from the air and at a relatively high altitude and speed.
NOA-00346		Village	Unknown	Unknown	N/A		This is actually several sites strewn 3/4km along the beach. The size of each individual site was difficult to determine from aerial inspection alone. The site consists of several semi-subterranean house depressions and numerous cache pits. The house pits could represent any cultural affiliation and temporal period over the past 500 years. Thus these sites have the potential to provide significant knowledge to the regional prehistory. The site was observed only from the air and so no collections were made.
NOA-00383		Large Village	7	Before 500 BP	Occupation Dates	OS-93950 1190±25; OS-94051 1480±30	Site within the Cape Krusenstern National Monument
NOA-00384		Small Village	2	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00397		Single House	1	Unknown	N/A		Cape Krusenstern National Monument
NOA-00398		Single House	1	Unknown	N/A		Cape Krusenstern National Monument
NOA-00408		Single House	1	Unknown	N/A		Cape Krusenstern National Monument
NOA-00425		Single House	1	Unknown	N/A		Cape Krusenstern National Monument

NOA-00427		Single House	1	Unknown	N/A		Cape Krusenstern National Monument
NOA-00434		Single House	1	Unknown	N/A		Cape Krusenstern National Monument
NOA-00440		Single House	1	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00453		Single House	1	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00454		Single House	1	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00456		Single House	1	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00457		Single House	1	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00468		Single House	1	Before 500 BP	Occupation Dates	Beta-226688 1030±40	Site within the Cape Krusenstern National Monument
NOA-00473		Large Village	7	Before 500 BP	Cultural Association		Site within the Cape Krusenstern National Monument
NOA-00474		Single House	1	After 500 BP	Occupation Dates	OS-93710 170±25; OS-93686 485±25; OS-93687 115±25; OS-93688 410±25; Beta-326114 210±30	Site within the Cape Krusenstern National Monument
NOA-00476		Village	Unknown	Unknown	N/A		This site was first identified in 2010 by BIA archaeologists. A revisit to the site in 2011 revealed five areas of cultural remains. Forty features were identified along a 197m stretch of berms. This may be the same recorded site as NOA-299.
NOA-00509		Small Village	2	Before 500 BP	Occupation Dates	OS-93954 745±35	Site within the Cape Krusenstern National Monument

NOA-00513		Large Village	45	Continuou s Occupatio n	Occupation Dates	Beta-223219 280±40; Beta-223220 1590±40; Beta-223222 6420±50; Beta-226148 380±40; Beta-226149 400±40; Beta-226150 190±40; Beta-226151 570±40; Beta-226152 1050±40; Beta-226153 320±40; Beta-226687 470±40; Beta-226692 390±40; Beta-226693 1780±40; OS-81279 1350±25; OS-81281 430±25; OS- 81284 1600±25; OS- 81428 1850±30; OS- 81429 1780±25; OS- 81431 540±30; Beta- 326105 2230±30; Beta- 326106 1020±30; Beta- 326107 1110±30; Beta- 326109 1170±30; OS- 93953 505±25; OS- 93955 1620±35; OS- 93975 325±30; OS- 96757 385±20; OS- 93957 1330±30	Site within the Cape Krusenstern National Monument
NOA-00516	Associated with NOA-00002 and NOA-00242.	Large Village	9	After 500 BP	Cultural Association		Site within the Cape Krusenstern National Monument
NOA-00519	Associated with NOA-00002 and NOA-00242.	Single House	1	Outside Study Period	Occupation Dates		Site within the Cape Krusenstern National Monument

NOA-00531	Associated with NOA-00002 and NOA-00242.	Small Village	2	Before 500 BP	Cultural Association		Site within the Cape Krusenstern National Monument
NOA-00532	Associated with NOA-00002 and NOA-00242.	Large Village	10	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00533	Associated with NOA-00002 and NOA-00242.	Large Village	8	Continuous Occupation	Occupation Dates	OS-78583 675±25; OS-78584 330±25; OS-78585 590±35; OS-81283 1470±25; OS-81403 1300±50; OS-81427 1390±30; OS-81434 830±30; OS-81440 595±25; OS-81441 510±30; OS-81442 625±25; OS-81582 570±25; OS-81743 720±25; OS-81746 110±30; OS-93947 305±25; OS-93948 685±30; OS-93934 755±25	Site within the Cape Krusenstern National Monument
NOA-00534	Associated with NOA-00002 and NOA-00242.	Small Village	3	Before 500 BP	Occupation Dates	OS-78588 1630±25; OS-81644 910±35; OS-81677 1030±25; OS-81678 650±30; OS-81753 2430±25; OS-81968 1210±80	Site within the Cape Krusenstern National Monument
NOA-00538	Associated with NOA-00002 and NOA-00242.	Large Village	8	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00544	Associated with NOA-00002 and NOA-00242.	Single House	1	Unknown	N/A		Site within the Cape Krusenstern National Monument

NOA-00553	Associated with NOA-00002 and NOA-00242.	Large Village	7	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00554	Associated with NOA-00002 and NOA-00242.	Small Village	2	Unknown	N/A		Site within the Cape Krusenstern National Monument
NOA-00555	Associated with NOA-00002 and NOA-00242.	Single House	1	Before 500 BP	Occupation Dates	OS-93938 1320±40	Site within the Cape Krusenstern National Monument
NOA-00556	Associated with NOA-00002 and NOA-00242.	Small Village	3	Before 500 BP	Occupation Dates	OS-94112 1140±25; OS-93718 955±25; OS-93897 585±30; OS-93720 490±25; OS-93721 675±25; OS-93748 695±25; OS-93749 875±25; OS-93756 950±25; OS-93757 1020±25; OS-93760 1090±25; OS-94384 900±30; OS-93936 570±30; OS-93937 9430±40	Site within the Cape Krusenstern National Monument
NOA-00558	Associated with NOA-00002 and NOA-00242.	Large Village	6	Continuous Occupation	Occupation Dates	OS-93689 965±25; OS-93712 975±25; OS-93713 810±25; OS-93714 830±30; OS-93715 1010±25; OS-93716 910±30; OS-93717 100±25; OS-93719 630±25; OS-93750 390±25; OS-93751 920±25; OS-93753 275±25; OS-93754 665±25; OS-	Site within the Cape Krusenstern National Monument

						93755 715±25; OS-93758 745±25; OS-93759 370±25; OS-93761 925±35; OS-93763 290±35; Beta-326115 510±30; Beta-326116 1450±30; OS-93764 160±25; OS-93879 585±25; OS-93880 740±25; OS-93932 645±30; Beta-326117 1410±30; OS-94064 490±30; OS-93940 715±25; Beta-326118 1280±30; OS-96756 765±35; OS-93952 210±25; Beta-326120 640±30	
NOA-00578	Associated with NOA-00002 and NOA-00242.	Small Village	5	Before 500 BP	Cultural Association		Site within the Cape Krusenstern National Monument
NOB-00002	Iyatayet	Village	Unknown	Before 500 BP	Cultural Association		Between 1948 and 1952, Giddings conducted extensive excavations of this large multi-component midden site, which reached depths of over 7'. The upper levels contained Nukleet phase materials (AD 1000 to AD 1700), the middle level deposits contained Norton phase materials (BC 500 to AD 400), and the lower levels contained Denbigh Flint complex materials (earlier than BC 2500).

NOB-00004	Koyuk	Village	Unknown	Unknown	N/A	<p>Eskimo village reported in 1842-1844 by Zagoskin, who recorded its name as "Kvynkhak-miut." Baron Otto von Benedeleben, of the Western Union Telegraph Expedition, wrote the name "Konyukmute" in 1865. The village became a supply center for local mining, and a trading station, called "Norton Bay Station," was established in 1900 [see also NOB-019 and NOB-061]. It has been investigated by Hrdlicka, Collins, Giddings (see Gal, Robert 1971: Appendix), and Gal, as well as others. Midden deposits have been located, disturbed by both construction and pot hunting. The artifacts reported by Giddings appear to represent historic occupation only, but other artifacts reported may represent late prehistoric occupation. Site of Big Sam's Roadhouse. In 1994, PHS construction disturbed 2 burials and a habitation feature. The human remains and associated artifacts were reinterred in the village cemetery. Area redefined in 1992 to be that of the large midden occupying part of the eastern beach front-approximately 185m long, 60m wide, and 1m deep.</p>
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NOB-00013	Kwighuk	Village	Unknown	Unknown	N/A	Reported by Ray to be a summer village for fishing and berry picking. Though no tests were dug, Gal thought the likely location of the village was the grassy north slope of the headland immediately south of the mouth of Kuiuhtulik River, where a number of depressions occur.
NOB-00017	Maqluktuliq	Small Village	3	Unknown	N/A	Gal noted an old village site consisting of three house pits. Two tests were attempted, but permafrost conditions prevented the excavation of cultural material.
NOB-00018		Village	Unknown	Unknown	N/A	A house pit was reported to Gal as being at this location. Gal did not locate the house pit, though some depressions were observed, which he was unable to test due to permafrost conditions. He did note a rotted pile of wood, a broken sled with metal shoeing, and a series of upright posts presumed to be for stretching nets. Johnson and Sorensen relocated this site, identifying the pile of wood as a pre-Christian burial.
NOB-00023		Village	Unknown	Before 500 BP	Cultural Association	Although Gal did not examine this site, he received repeated reports of its existence. Indeed, there may be two settlements, on opposite banks of the river. An informant also gave Gal three artifacts (and he saw a fourth) which could be placed within Nukleet culture.

NOB-00031	Tunbuktulik	Village	Unknown	Historic Occupation	Cultural Association		This village, reported by Zagoskin as being a very large settlement, was located at the mouth of Tubuktulik River. One of Ray's informants said that long ago it was a large village with a kazgi, but that most of the village had washed away. Other informants remember it only as a summer fishing village, as did W.C. Mendenhall (Brooks, A.H. et al. 1901:215).
NOB-00053	Tipuktuliuraq	Village	Unknown	Historic Occupation	Historic Material		Cultural remains are in the clearings dominated by disturbance grasses. Site features include house remains (three grassy mounded area in the southern half of the site with associated cache pits and debris), above ground structures (remains of two log structures in the N end of the site with associated debris scatter), and two recent trapping campsites in N part of the site. Evidence of wood cutting is present throughout the S portion of the site. Artifacts were found in a 50cm x 50cm test pit. The site is associated with reindeer herding and fishing. It was first used as a winter fishing site by Koyuk people (Eskimo) since late 1800s or early 1900s. In the late 1920s, a Koyuk man built a cabin north of where the earlier occupants dwelled, operating a fish trap in the creek and trapping nearby. From the late 1920 up to the

							1940s, other Koyuk residents also used the site, but camped in tents. In 1929 or 1930 the Koyuk Reindeer Co. built a shelter cabin at Tipuktuliuraq, using the surrounding area as winter grazing land.
NOB-00063	Ungalik	Village	Unknown	Historic Occupation	Cultural Association		Abandoned native village site on Iditarod Trail. The Bonanza Roadhouse (NOB-029), which is associated with the Iditarod trail, was located in the village site.
NOB-00067		Large Village	15	Unknown	N/A		Site consists of at least 15 semi-subterranean house depressions, extending 1,300' along the narrow beach ridge, immediately E of village, across the river.
NOB-00069		Village	Unknown	Unknown	N/A		Site consists of Rectangular and square depressions. Most lie along the beach ridge edge overlooking the Tagoomenik River.
NOB-00084	Utkusinnaq	Village	Unknown	Unknown	N/A		N/A

NOM-00004	Salmon Lake	Village	Unknown	Unknown	N/A	D. Sparks reported house pits on high ground, about 100 yards back of the beach, at the narrows between the two portions of Salmon Lake.
NOM-00006	Singigyak	Large Village	6	Unknown	N/A	Ray reported this as a village of about six houses which was occupied until the 1918 influenza epidemic wiped out the entire village. A fox rancher, Peter X. Peterson, reportedly lived on top of the village site. This site is also reportedly occupied by King Islanders in the summer and the site to which they would like to move to permanently.
NOM-00007	Pingo	Village	Unknown	Unknown	N/A	Reported by Ray to "supposed to have been a village of several houses long ago, but no one has lived there within memory."
NOM-00009	Ayasayuk	Village	Unknown	Before 500 BP	Cultural Association	Bockstoce noted this as a still inhabited small settlement, at a good winter sea mammal hunting location. Its midden was approximately 150m long and showed the remains of many house pits. The midden was eroding into the sea. Excavations in the up to 1m deep midden in 1974 produced evidence that the site was not more than 500 years old.

NOM-00010	Uinakhtaguik	Village	Unknown	Unknown	N/A	Ray noted this as the name of Nome River as well as a summer fish camp, and possibly a winter settlement of a family or two. The 1880 Census reported a population of 10 for "Oo-innaktagovik." Today a dozen or more families have summer fish camps here and some are year-round residents. Apparently the Lomen Brothers slaughterhouse is also located here, in the vicinity of the former site of Fort Davis (NOM-002).
NOM-00015	Ayak	Village	Unknown	Unknown	N/A	The name applies to both the island and the primary village on the island. The island was visited by E.W. Nelson in 1881, and the site is noted in both the 1880 Census and 1890 Census. The site was occasionally referred to, apparently incorrectly, as Aziak. Sources indicate that the site is located on the east side of the island. Reportedly, there is at least one other village site on the island.
NOM-00025	Sitnasuak	Village	Unknown	Unknown	N/A	Ray noted that a formerly small village existed at the mouth of Snake River, now the site of Nome, known for its King Crab fishery offshore. Ray indicates that this is the village of "Chitnashuak" of the 1880 Census, which had a population of 20 [see also NOM-089, which is Orth's location for "Chitnashuak"].

NOM-00026	Nagoluk	Village	Unknown	Unknown	N/A		Noted by Ray as a small year-round village at a stream mouth between Snake River and Sinuk River.
NOM-00027	Kailiosuak	Small Village	5	Unknown	N/A		Noted by Ray as a small year-round village, once with five houses.
NOM-00029	Singuk	Village	Unknown	Unknown	N/A		Noted by Ray as a very old, but probably small, settlement aboriginally, sometimes occupied year-round, located on the left bank of the river. In 1895 it became the headquarters for the first Eskimo-owned reindeer herd, that of Charlie Antisarlook (Antesiluk). A Methodist mission and a public school were established on the right bank of the river. The village was wiped out by the influenza epidemic of 1918.
NOM-00045	Woolley Lagoon Site	Small Village	2	Unknown	N/A		Two circular house depressions and a rectangular sod walled feature front on the lagoon channel, approximately 170m south of the turnaround at the end of Woolley Lagoon Road. Directly across the channel from the turnaround, on the barrier beach, is the summer camp of King Island Natives. A single shovel probe within the 8m x 10m rectangular feature appeared to be culturally sterile. A 50cm x 50cm test was placed within the southernmost of the two 4m in diameter house depressions. An

							apparent rock-lined hearth area and structural timbers were noted. The site is estimated to be a short-term, perhaps single-season, occupation of relatively recent age.
NOM-00089	Sitnasuakak	Village	Unknown	Unknown	N/A		Ray noted that a year-round village was located at the mouth of Penny River, where seal and duck hunting and fishing were especially good, and that it was still occupied during the summer.[See also NOM-025.]
NOM-00092	Rodney Creek	Small Village	3	Unknown	N/A		Ray noted that Rodney Creek once had three houses, supposedly for hunting and fishing.
NOM-00093	Kalulik	Large Village	10	Unknown	N/A		Ray noted that, according to informants, this village was very old and had a kazgi. In 1893 it reportedly had ten houses, in 1867 there were two deserted houses and one occupied house reported, and after 1900 five houses were reported. This location was, apparently mistakenly, shown as "Nook" on Nelson's 1899 map and by Petroff in the 1880 Census.[Formerly listed as TEL-003.]

NOM-00113	Glacier Lake 1	Village	Unknown	Unknown	N/A	Originally D. Sparks (BLM, 05/02/69, report to UAF) reported old-looking houses on a small spit on the east shore of Glacier Lake. In 1976 Bockstoce noted a chipping station at this location. CPSU investigators noted a stone ring 1m in diameter and 12 lithic scatters at this location, their Parcel A. Two other localities were also noted on the west side of the lake. Parcel B (NOM-112), directly across from the peninsula, consists of two stone rings, scattered lithics, and exposed midden to a depth of 40cm. Parcel C (NOM-113), just to the southwest of Parcel B, includes four stone tent rings, two of which had hearth rings inside. Scatters of caribou bone were noted and 670 artifacts, of apparent Choris and Norton affiliation, were surface collected.[NOM-003 originally included all three parcel, but has been separated into three sites. NOM-003 on the east shore of the lake, and NOM-112 and NOM-113 on the west shore of lake.]
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NOM-00146	Snake River Spit Site	Small Village	2	After 500 BP	Occupation Dates	<p>Beta-206697 240±60; Beta-222485 130±40; Beta-222486 110±50; Beta-222487 250±50</p> <p>Heavily disturbed late prehistoric semi-subterranean house located during construction. Appears to be late Thule period, charcoal dated to B.P. 240 +/- 60 (Beta 206697). Artifacts recovered include 20 pottery sherds, an ivory wedge, antler point, and a drilled caribou rib. The pottery sherds were re-fitted, it seems to be a Yukon Lined style pot. A 4' tall sharpened house post was also present. Semi-subterranean house was destroyed during construction activities. Later construction uncovered a second semi-subterranean house that was completely excavated and a sheet midden that was more than 50% excavated. Radiocarbon dates were between B.P. 290 +/- 50 (Beta 222487) and B.P. 100 +/- 50 (Beta 22486). Artifacts collected include a single blue trade bead, hunter's tool cache, diagnostic pottery, charcoal, and faunal remains. In 2006 the partial remains of a second pre-contact semi-subterranean house was encountered, as well as a concentration of artifacts. This artifact deposit was relatively thin and yielded tools and other items. This collection appears to date to the Late Western Thule period. Confirmed by several radiometric samples. The highest and lowest</p>
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							conventional radiocarbon date are listed here, BP 250+/-50 and BP 110+/-50. This site has thus far yielded two late prehistoric houses, tools, pottery shards, an ivory wedge, an antler point and other items.
PSU-2013-006 (Nuluk)		Single House	1	After 500 BP	Cultural Association		Single occupation.
SHF-00002	Itibluk	Village	Unknown	Unknown	N/A		Ray noted this as a small village considered to be a year round settlement and always occupied during oogruk and seal hunting seasons. The site is mistakenly identified as "Sinrazat Shelter Cabin" on the USGS map (see SHF-001). Koutsky notes that this site was also known as Owevuk, which Ray records as a separate site (see SHF-003).

SHF-00003	Owevuk	Small Village	4	Historic Occupation	Occupation Dates		Ray noted that Owevuk had four houses in 1892 (Jackson, Sheldon 1895:97). At this location K. Woodworth, BLM, noted several depressions, probably house pits, located on an elevated sand ridge, approximately 700-800' south of the outer shoreline; it is assumed that these are the same site. Koutsky associates the name of Owevuk with Itibluk (SHF-002).[Previously also listed as SHF-012.]
SHF-00004	Kikiktuk	Village	Unknown	Unknown	N/A		East of the Shishmaref runway are the heavily disturbed ruins of the original site of the present day village of Shishmaref. First reported by Otto von Kotzebue, who visited the site in 1816, it was the largest village in the area. Hrdlicka visited the site in 1926, noted that it was disturbed at that time by a fox farm. Wiersum noted a large number of house and cache pit depressions on a series of parallel beach ridges and evidence of human burials.
SHF-00006	Nonatak	Village	Unknown	Unknown	N/A		Ray noted this as a former fishing village.
SHF-00007	Lungyat	Village	Unknown	Unknown	N/A		Ray noted this as a former fishing village.

SHF-00019		Large Village	17	Unknown	N/A	<p>A stratified midden deposit and a series of 17 shallow rectangular depressions were found along the primary alluvial terrace on the north side of the mouth of Trout Creek. The midden, in a linear mound 2m high and 30m long, is located at the base of a high knoll at the west end of the site. The midden has been heavily disturbed by looting. One exposure revealed midden extending to a depth of 1.8m below the surface. A pot sherd, an abrader, a fossil bone adze, and some minimally altered cobble tools were noted. Faunal remains present include bird, caribou, whale, and seal bone. The depressions, which extend for some 105m along the terrace, range from 1m x 2.3m to 2.3m x 1.8m in size and from 10cm to 30cm in depth. Many more of these subtle depressions are apparently present. Several recent camp sites were also noted at the locality.</p>
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SHF-00021		Village	Unknown	Unknown	N/A	<p>This site consists of three loci, containing burials, house remains, and caches, within a 120m x 100m area located on the south side of the coastal barrier bar between Arctic Lagoon and Chukchi Sea. Locus A consists of seven definable features and a number of shallow depressions which may be either blowouts or altered features. Present are at least one house depression, several caches, and the probable base of a burial box. Locality B consists of five intact burial boxes, with human bone apparent only with one of them. Nails and a bone sled runner were noted. Locus C consists of a series of shallow oval depressions, a 6m long scatter of wood, charcoal, cemented sand, pot sherds, and rocks, an eroded infant and adult burial, and a wood-lined seal oil cache.</p>
SHF-00024		Small Village	5	Unknown	N/A	<p>This site consists of five depressions, standing rack supports, an isolated cache pit, and an isolated artifact located on a sand ridge immediately behind the Chukchi Sea coastal ridge of the barrier bar fronting on the northeastern arm of Shishmaref Inlet. Four of the depressions appear to be cache features while the fourth may be a house feature. The artifact consisted of a broken, 18cm long wood shaft</p>

							with a piece of rawhide tied around it.
SHF-00025		Single House	1	Unknown	N/A		A 20th Century sod house, an earlier plank-lined house depression, and a cache depression were noted on the barrier bar fronting on the northeastern arm of Shishmaref Inlet, approximately 750m west of VABM "Tart." The sod house remains measure 4.5m x 3.2m. Structural members, historic debris, and faunal remains are present. Several sod borrow areas were also noted. The older house is located in a blowout about 66.5m to the northwest of the sod house. It has an oval or sub-rectangular main room measuring 2m x 1.7m, a 3.9m long straight entryway, and a 1.7m x 1m axillary room off the entryway. The 2m x 1.1m x .7m deep cache is located about 59m southeast of the sod house.
SHF-00027		Small Village	2	Historic Occupation	Historic Material		A partially collapsed sod house, a standing shelter cabin, a house depression, two cache depressions, and a scatter of metal and rubber debris were found on a relict sand ridge about 35m south of the Chukchi Sea coast, on the barrier

							bar fronting the northeastern arm of Shishmaref Inlet. The house depression is a vaguely defined, two-room feature measuring 7m x 4m. A cache, which is 2m from the house depression, measures 1.1m x 0.9m and has a driftwood pole cover. The sod house measures 4.3m x 3.6m and has an entry room attached via a short passageway. The plank-lined walls and a portion of the split log and sod roof are still standing. The shelter cabin measures 2.75m x 2.09m. A number of other, unidentified features were noted.
SHF-00033	South Sarichef	Village	Unknown	Unknown	N/A		Wiersum noted a number of rectangular house depressions with their entrances facing a dry pond. The site is situated on a sand dune. There is some evidence of looting, but the site generally appears to be well preserved.
SHF-00036		Single House	1	Unknown	N/A		A house depression, a log-lined cache, and four cache depressions were located within a 40m x 30m area on a small dune on the coastal barrier bar fronting the northeastern arm of Shishmaref Inlet, about 120m south of the Chukchi Sea coast. The house feature has a 4.2m x 3m x .65m main room and a 7m long entryway with a small lateral room off one side. A few upright plank and post structural members

							are still present. A wooden bowl fragment was found on the ground surface.
SHF-00038		Single House	1	Unknown	N/A		A subterranean driftwood house, a wood-lined cache depression, and an eroded cache feature were found within a 40m x 50m area on the barrier bar fronting the northeastern arm of Shishmaref Inlet, approximately 500m south of the Chukchi Sea coast. The house has an intact driftwood frame and pitched roof which protrudes 53cm above the ground surface. The house measures 3.65m long, has a 1.55m x 1.87m rectangular room with 1.3m high canted walls, a 1.57m x .85m entry chamber, and is constructed with the use of round iron nails.
SHF-00042		Single House	1	Unknown	N/A		A large plank-lined house and the possible remains of a cache structure were found on a ridge on the barrier bar fronting the northeastern arm of Shishmaref Inlet, about 250m south of the Chukchi Sea coast. The house walls are outlined by in situ posts and planks and the roof appears to be intact below the drifting sand. The

							feature is 13m long with a trapezoidal main room measuring 4m x 3.75m, a 2.5m x 1m passageway leading to a 6.5m x 2.5m entry chamber, and another 3m x 1.5m passage connecting to another room or house measuring about 3m x 4m. Artifacts noted include a bone harpoon foreshaft, bone sled runner fragments, and a decorated pot sherd.
SHF-00043		Small Village	2	After 500 BP	Cultural Association		Two grass-covered house depressions were found on the crest of a low dune eroding along the Chukchi Sea coast of the barrier bar fronting the northeastern coast of Shishmaref Inlet. One house has a 5m x 3.5m main room, with an entry way and an axillary room measuring about 3m in diameter. The second feature has a 4.1m x 4m main room and a short passage which connects to a 5.5m x 2.5m entry chamber. Structural members are present.
SHF-00045	Shishmaref	Village	Unknown	Historic Occupation	Historic Association		The "modern" village site that dates back to the 1920s. The site is marked by scattered and sporadic midden deposits that appear to be concentrated in the SW end of town. The midden deposits are comprised of sea mammal bone mixed with other refuse. The deposits are located along the eroding bluff edge.

SHF-00052		Single House	1	Unknown	N/A		Possible house pit, possible post, three cemented sand lenses.
SHF-00053		Small Village	2	Unknown	N/A		Two house pits, four caches, four marine mammal bone scatters.
SHF-00054		Small Village	5	Unknown	N/A		Five house pits, seven cache pits, mammal cranium, contemporary wooden feature, and nine posts.
SHF-00056		Single House	1	Unknown	N/A		One multi-room house pit and one cache pit.
SHF-00059		Small Village	3	Unknown	N/A		Three house pits and seven cache pits.
SHF-00065		Small Village	3	Unknown	N/A		Three house pits, 39 cache pits, and human remains.
SHU-00006	Kuutchiaq	Small Village	4	Unknown	N/A		Anderson and Anderson noted three and possibly four house pits and at least 15 cache pits on the northeast side of the creek. This summer camp was utilized into the 1900s.
SHU-00007	Panuksigvik	Small Village	2	Unknown	N/A		Anderson and Anderson located grassy midden areas on both banks of Kugarak River. Two house pits are situated in the larger midden area on the west bank of the river. One house pit is on the east bank. Further to the east of the eastern locality is a 1930s reindeer corral area. Several shallow pits, possibly cache pits are located at the confluence of Panuksigvik Creek. There may be earlier houses somewhat away from the eastern bank.

SHU-00008	Isigalik	Large Village	15	Unknown	N/A	Anderson and Anderson reported about 15 house pits facing Isragalik Creek, which drains the largest lake in the region. Additional cache pits and shallow depressions which may be house pits are located at the mouth of the creek. Tests produced a graphite nodule, a chert flake, and some pottery lamp sherds.
SHU-00009	Shungnak Site	Small Village	5	After 500 BP	Cultural Association	Giddings excavated one of several shallow pits concealed by willow thickets, on the bank opposite the present village of Shungnak. The 9.5' x 15.5' house, with a 12' tunnel, was built on the same plan as the Ambler Island houses. A nearly 6' long oval fireplace was outlined by large stones. The house was estimated to date from the mid-1800s, or perhaps a little earlier.
SHU-00010	Pick River	Small Village	2	Unknown	N/A	Giddings excavated the two houses found at this site, both of which differed from the Ambler Island pattern only in having an apparent entry chamber at the outer end of the tunnel.
SHU-00013		Single House	1	Unknown	N/A	Anderson noted a single 4.5m x 2m house pit, with a 2m long entrance, half way between a high cut bank of Kugarak River and a lake, about two bends above the mouth of Rabbit River. A 50cm x 50cm test pit in the center of the depression revealed the edge of a hearth at about 42cm.

SHU-00021	Tekehuguruk	Small Village	5	After 500 BP	Cultural Association		Giddings excavated two of at least five houses located at this willow and alder covered site. The houses were like those at Ambler Island. Many jade fragments were noted. A single blue bead indicated a relatively recent age for one of the houses.
SHU-00022	Black River	Large Village	8	After 500 BP	Cultural Association		Giddings noted eight house pits and approximately 30 cache pits on a sand ridge on the left bank of Black River. All eight houses, one of which may have been a kazgi, were excavated. The houses differed from the Ambler Island pattern only in the apparent roof design. The site may be slightly older than those at Ambler Island.
SHU-00023	Slough Opposite Black River Mouth	Village	Unknown	Unknown	N/A		Giddings noted several house pits and tested at this site.
SHU-00024	River Bend Below Black River	Village	Unknown	Unknown	N/A		Giddings noted several houses at intervals.
SHU-00028	Cleveland Homestead Site	Small Village	3	Unknown	N/A		BIA investigators noted a log cabin, a standing cache, and posts for an additional cache in a cleared area and three large depressions just E of the clearing. Depression 1 measures 4.7m x 3.2m x 1m deep and has a 2m long entryway. Two small cache pits are associated with this depression. Depression 2 measures 4.7m x 3m x 1.2m deep, is well-

							defined, and has a T-shaped entryway. A rectangular pit lies off one corner. Depression 3 measures 3.1m x 3.5m x .6m deep, has well-defined walls, but has no apparent entryway.
SHU-00036	Qimmin Akuniq	Large Village	11	Historic Occupation	Historic Material		Cultural remains consist of a collapsed wooden cache, 11 small pits, 6 log piles, and an arrangement of stakes.
SLK-00006	Inuktut	Village	Unknown	Unknown	N/A		A former Eskimo village or camp was reported on Igloo Point in 1898 by Lt. E.P. Bertholf, USRCS. Apparently Charles Lucier, UAF, conducted excavations here. In 1883, Jacobsen stayed at the house of his guide, Inuktok, on a point of land in the bay. Ray notes that the village of Inuktok (Inyuktuk) on Igloo Point refers to a deadly fight with Selawik people. Keith Woodworth, BLM, reported a site consisting of several probable house pits and what was identified as an old cemetery site at this location. Buckland informants stated that the site represented a battleground resulting from an attack by Selawik residents, and also stated that some excavations had been performed at the site by Otto Geist. It is assumed that all of this refers to the same site, at this particular location.

SLK-00001	Oksik	Village	Unknown	Unknown	N/A	Giddings reported an extensive village abandoned in historic times, with structures partially standing. Giddings' map location is as plotted; see also Ten mile Post, some 8km to the east, which according to Orth is also known as Oksik.
SLK-00002	Kiana	Village	Unknown	Before 500 BP	Cultural Association	Giddings reported that the area about the mouth of Squirrel River encompasses a large number of house pits, most of them occurring singly at intervals along sand ridges near the present streams as well as along an oxbow lake which was once an open slough. One excavated house pit, on the right limit of the Squirrel, was built along Ambler Island patterns. A second excavated house pit, on the left limit of the Squirrel, proved to be somewhat older, combining some slate with jade work and containing both armor plate and sled shoes. By inference it was dated in the early 1600s. The village of Kiana became a supply center for the Squirrel River placer mines about 1909.

SLK-00004	Kiwalik	Village	Unknown	Before 500 BP	Cultural Association	This village was first reported by Zagoskin as being "large." In 1881 crew members of the CORWIN saw a deserted hut at the mouth, probably the fishing site of Kikkiktuak. About 1890 it became a supply point for mining activities in the Candle area. In 1950-1951 Charles Lucier, UAF, excavated a deep, probably early Thule, house pit located well west of the tip of the spit. The structure may have been burned at abandonment. Of the material found inside the house, a headless human skeleton and a wolf skull, minus the mandible, were of especial note. Artifacts collected included an open socketed barbed harpoon with a blade slot opposite the barb, concentric circle paddled pottery fragments, and a bone lance head with a sloping shouldered tang.
SLK-00005	Chamisso Island	Village	Unknown	After 500 BP	Cultural Association	A former Eskimo camp or settlement was reported on Chamisso Island by Beechey in 1827. Apparently Charles Lucier, UAF, conducted excavations here; the site may be of later age, ranging through the Kotzebue phase.

SLK-00007		Village	Unknown	Before 500 BP	Cultural Association		The site refers only to Giddings' "Choris Village and Area", the nearby "Late Choris Hearths" and several associated features. In 1956 and 1958 Giddings excavated 3 houses on the back beach ridge. The large, oval houses measured 42' x 24', 31' x 24', and 38' x 24'. Each had an smaller associated feature to the seaward side. Notably, a heavy proportion of Raindeer (a small variety) bone was present. Linear stamped pottery, scapulimancy, and fine diagonal flaking were evidenced. Giddings felt the Choris remains dated to BC 700-1000. Flints of an intermediate cultural affinity and house pits of both modern age and BP 500 age were also present on more seaward beach ridges. Also included in the site is an historic shaman's grave site marked by 2 large whale mandibles standing together to form an arc. The site is associated with SLK-046-048 and SLK-056-058.
SLK-00013	Napaklulik	Village	Unknown	Historic Occupation	Historic Material		Former Eskimo village or camp recorded in 1886 as "Nah-park-lulik" by Lt. G.M. Stoney, USN.

SLK-00016	Katlisiguik	Large Village	6	Unknown	N/A	Anderson and Anderson located this archaeological site and spring camp on a grassy bank surrounded by willow and alder. They reported six house pits and at least five cache pits on the east side of the stream mouth and four cache pits and a small midden-like mound on the west side. The remains of a recent spring muskrat hunting camp with a camp stove and wash tub were also located on the west side.
SLK-00017	Ikaagiak	Village	Unknown	Unknown	N/A	Anderson and Anderson located this archaeological site and fall tent camp on a high grass bank at the mouth of a swift flowing stream which drains a lake. Two house pits and three cache pits were mapped and other house pits were noted on the river bank. Signs of recent activity were noted. Reportedly a traditional caribou crossing and an excellent fall and winter fishing spot, use continues today. The last winter house was built here in 1909 or 1910.

SLK-00018	Napaaqtuqtuugruaq	Large Village	10	Unknown	N/A	Anderson and Anderson located this archaeological site and spring muskrat hunting camp on both banks (25' high) of a small stream draining a lake. Five house pits and five cache pits are situated on the southwestern side of the creek. The house pits are relatively recent and are outlined by well-defined sod blocks. A midden mound is behind the house ruin nearest the main river. Tent stakes outline a 5m x 5m area and adjacent to them were two stacks of willow poles for tripod caches. Four to six house pits, one of which is exceptionally deep, and five cache pits are situated on the northeastern side of the creek. A large midden mound is between the two southernmost house pits.
SLK-00021	Nilik	Small Village	2	Unknown	N/A	Anderson and Anderson reported a large corrugated sheet metal warehouse in good condition, two house pits, and many other features, such as cache pits, racks, etc.
SLK-00023	Navapraat	Large Village	40	Unknown	N/A	Anderson and Anderson reported an estimated 40 house pits of various sizes situated on a large sloping hill on both sides of the mouth of a lake which empties into Kugarak River. Two test pits were dug, the deeper reaching 88cm depth before ground frost was encountered. Historic items were encountered, although a prehistoric component is expected

							to be present. This is the largest winter village site located in the Selawik River drainage.
SLK-00024	Niglaaqtuq	Large Village	9	Unknown	N/A		Anderson and Anderson reported at least six house pits on the north bank and three house pits on the south bank of the now almost dry creek draining Niglaktok Lake, just east of Selawik. The site has been heavily potted by Selawik residents. In 1969 Anderson and Anderson excavated one of the house pits. The apparently prehistoric dwelling was formed of a 14' x 13' room with a short entrance tunnel. Numerous artifacts, including organics, and construction details were collected.
SLK-00025	Tuklomararak River	Large Village	7	Unknown	N/A		Anderson and Anderson noted a total of seven house pits on the north bank of "Tuklomararak River" and on the tip of the peninsula at the confluence of a lake outlet. A graveyard is situated on the highest ground of the peninsula. BLM investigations noted two low mounds, measuring 4m and 3m in diameter, at this location (between the river channel and a shallow, unnamed lake to the north). The larger mound, which has apparently been potted, has the remains of a

							raised burial box on one slope.
SLK-00026	Tuqlumaagruk Paanga	Small Village	3	Unknown	N/A		Anderson and Anderson noted three house pits and a small metal shed on the tip of the peninsula. Informants reported that other house pits have eroded away.
SLK-00028	Kaiyuqtuq 1	Large Village	9	Unknown	N/A		Anderson and Anderson reported three house pits on the east bank and six house pits on the west bank of a stream channel connecting a small lake with Fox River. The group of six house pits have entrance tunnels facing a dried up channel. BLM investigations noted only a single 2m x 3m depression on the west bank of the stream channel and a low mound located in grass covered area just W of small channel and E of dense alder growth. Potting has been considerable. Anderson and Anderson (1977:20) make mention of excavating a circa 1900s house pit at this site in 1976 [but they may have been referring to SLK-030].

SLK-00029	Kaiyuqtuq 2	Small Village	5	Unknown	N/A	Anderson and Anderson located five deep winter house pits on the south bank of Fox River, opposite SLK-028. This site is likely that visited by Purcell in 1884, and that of one of the old trading families whose decedents moved to Selawik in 1908.
SLK-00030	Kaiyuqtuq 3	Large Village	7	Unknown	N/A	Anderson and Anderson located seven house pits on the western bank and three house pits on the eastern bank of a former channel of Fox River. On the opposite, northern, bank of Fox River two additional house pits and a tent site were noted. Several of the house pits are eroding into the river. Two circa 1900 house pits were excavated in 1976.
SLK-00031	Kaiyuqtuq 4	Village	Unknown	Unknown	N/A	Anderson and Anderson noted that several depressions have been reported on this high bank along the former channel of Fox River, approximately 50-100m from the channel. The site was noted from a boat in passing.
SLK-00033	Kaiyuqtuq 6	Small Village	4	Unknown	N/A	Anderson and Anderson reported four house pits on a low gray peninsula formed at a tight meander of the old channel of Fox River. Additional house pits may be located at the mouth of a slough on the opposite bank of the channel, about 200 yards to the east.

SLK-00035	Iggiaq	Small Village	3	Unknown	N/A	Anderson and Anderson reported three exceptionally large house pits, two of which were over 5' deep. Other possible house pits may be located on the stream bank opposite.[The locational description provided by Anderson and Anderson does not at all match the map location provided in their 1972 report.]
SLK-00036	Imukgiatchiaq	Large Village	13	Unknown	N/A	Anderson and Anderson reported that at least 13 house pits and probably more lie scattered around this site, described as being situated on high grassy terrain surrounding a large marsh and lake area connected to Selawik River. Six of the house pits are on the peninsula facing Selawik River and two are eroding into the lake. Several fish drying racks, tent frames, and a gravesite are dispersed over an area between two lakes. Some of the houses were built since the 1930s. [The location of this site is unclear. The locational description could not match the map location provided in their 1972 report.]
SLK-00037	Paalitkiing	Small Village	4	Unknown	N/A	Anderson and Anderson reported four and possibly five house pits on the grassy bank of the stream connecting Niglaiktok Lake to a series of other lakes to the west. Additionally, a garden plot, used in 1968, and two disturbed areas,

							which may be tent sites, were noted. Apparently the stream was created by the digging of a ditch between two waterways.
SLK-00038		Single House	1	Unknown	N/A		An apparent house pit was located in a shallow swale between a narrow stream channel and a small cove of an unnamed lake. No outline was apparent, but the area is covered with grass as opposed to the willow and alder in the surrounding area. The site has been potted by the allotment applicant and his family; charcoal was noted in the back dirt. During examination of the site, an incised pottery vessel fragment, a fragment of bone armor or sled runner, birch bark, apparent ground stone fragments, and a bone implement were noted.
SLK-00042		Small Village	2	Unknown	N/A		This site consists of two (more or less) depressions, possibly house pits, located immediately adjacent to Buckland River. A tent frame and cache were located just to the north of the depressions.

SLK-00044		Single House	1	After 500 BP	Occupation Dates	Beta-208261 60±50	<p>Several widely scattered cache pits, a single Kotzebue period house, 3 driftwood grave markers, a single surface grave with associated human remains, modern fish track remains on the N side of a lagoon outlet in the vicinity of the "Arctic Circle" land strip (local name). The house semi-subterranean house is 7m x 4m with a 5m tunnel entrance opening to the beach. Tests revealed poor structural preservation, few artifacts, and an uncalibrated date of 220±70 years BP (Beta-195604). Hearth slabs, wooden stakes, and charcoal at a depth of 30-35cmbs. An area of relatively dense vegetation and 3 vague depression are approximately 60m S of the house. Test revealed cultural material at a depth of 70cm. Charcoal, bird bone, and the tip of a bone liester recovered. Date of 190±50 years BP (Beta-195605) returned. Close proximity of dates supports single site designation. The remains continue on the S side of the outlet with additional graves cache pits, house depressions and 1930s era cabin remains. Singak refers to 2 lagoon outlets about 2mi. apart, this is the northern one.</p>
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SLK-00045	Tommie Snyder Allotment	Small Village	2	Historic Occupation	Historic Material	The site was used as a fish camp. The site consists of two house depressions, 3.09m x 2.1m and 0.85m x 2.35m, four other depressions, a collapsed sod structure, 1.38m x 1.5m, and a 2m x 4.67m cache with the height of the ridge pole being 2.15m. There is a grave site located on the allotment, marked by spruce-poles. The upright posts represent the remains of a fish rack.
SLK-00046	Qutisugruk	Village	Unknown	Continuou s Occupatio n	Cultural Association	A multi-component site along the beach and on the bluffs above. It includes the main "Choris Village and Areas" and "Late Choris Hearths" (SLK-007), the South Bluff Locus (SLK-058), North Bluff Locus (SLK-056), Thule-Kotzebue Village (SLK-047), SLK-057, and the historic Mendenhall Camp (SLK-048). A total of 225 prehistoric and historic features have been identified, including 2 standing structures, 5 tent pads, 5 tent rings, 5 hearths, 3 rock cairns, and 4 burials.
SLK-00047	Thule-Kotzebue Village	Large Village	6	Continuou s Occupatio n	Cultural Association	The site consists of 2 house features along the beach N of Choris Village. "House 4" was a small dwelling dating from the 18th century. "House 5", which is about 150m S, dates to about the 15th century. The site is part of the Choris Site (SLK-046). BIA

							ANCSA report indicates 6 houses in the village.
SLK-00048	Mendenhall Camp	Small Village	2	Historic Occupation	Historic Material		The site includes 2 standing sod houses and a probable Native grave (features 7,8, 53-55 of the Choris site, SLK-046). Both houses are rectangular, semi-subterranean, sod-covered dwellings. Feature 7 has a collapsed gable roof and measures 16.6m x 9.8m. Feature 8 has an intact roof standing 1.8m high and measures 9.9m x 9.3m. Features 53 and 54 are depressions, roughly 5m square and 5.4m x 5m, respectively. Feature 55 is the possible grave feature, which consists of a depression 2.2m x 1.5m with associated wood and metal artifacts.
SLK-00049	Sisiivik	Large Village	160?	Continuou s Occupatio n	Occupation Dates	Beta-23386 610±100; Beta-287532 300±40; Beta-287533 400±40	On two beach ridges a total of 160 house and cache depressions, 8 graves, a light chert lithic scatter, and several cultural distribution areas. A test pit was excavated within a house depression. Cultural material recovered from the test pit included pottery pieces, burnt bone fragments, numerous chert and lithic debitage, and charcoal.

SLK-00054	Katayaak	Village	Unknown	Unknown	N/A	Anderson and Anderson located at least one house pit and an old willow frame (qaanaq) for a round tent on the point bar formed at a broad bend in Selawik River, where it is joined by Taggagvik River. Also noted were two large areas that appear to have been disturbed through digging.[Listed in report as SHU-011.]
SLK-00055	Anigulaaq	Single House	1	Unknown	N/A	Anderson and Anderson located six deep cache pits, one house pit, and cut logs (apparently from a log cabin) on a flat bench of a high cut bank on the outer bend of a meander of Tagagavik River, where a small stream channel joins the main river.[Listed in report as SHU-012.]
SLK-00060	Kivgalum Kuuvgitchiam	Single House	1	Unknown	N/A	Anderson and Anderson located one, possibly two, house pits and four cache pits on the east bank of Fish River, near the mouth of a small stream.
SLK-00063	Qusrimaktuiaq 2	Single House	1	Unknown	N/A	Anderson and Anderson located a rapidly eroding house pit on a tiny island in a lower channel of Selawik River.

SLK-00064	Qilagaq	Small Village	4	Unknown	N/A	Anderson and Anderson located this site at the mouth of a small stream draining a lake into the lower Selawik River and the area at the bend in the main channel on the opposite bank. One nearly complete and two partially eroded house depressions and two cache pits on one bank inside the mouth of the creek. Fish racks, a tent frame, and a small fish storage house were located at the mouth of the creek on the same side of the channel and fish racks and another tent frame were located on the opposite bank of the creek. One possible house pit, one intact and two partially eroded house pits were located on the opposite bank of the main channel.
SLK-00067	Sikanugan	Single House	1	Unknown	N/A	Anderson and Anderson located one large house pit with a tunnel, four rectangular depressions of undetermined function, and three cache pits on a grassy peninsula at the entrance to a lake. The walls of the depressions are steep and appear to have been made relatively recently. The end of the tunnel and one rectangular depression are eroding.
SLK-00068	Ayugrauq	Small Village	2	Unknown	N/A	Anderson and Anderson located two house pits, an old cache/storage pit, and a recent tent frame and fish racks on a grassy bank at the outlet of a small stream into a tributary of

							the lower Selawik River.
SLK-00069	Utqusriasaq	Small Village	4	Unknown	N/A		Anderson and Anderson located four house pits on the edge of a large grassy bank along a waterway leading from a large lake in the lower part of Selawik River. Two of the house pits are half gone through erosion and the site is suffering from local pot hunting.
SLK-00070	Paaqliq	Small Village	3	Unknown	N/A		Anderson and Anderson located at least three house depressions and numerous recent occupation features (including deep cache pits, a large lookout tower, a fish rack, and a plank boat) on both sides of Noyyatuq River. About 400m upstream a grave box was noted. The site has several high mounds on it, apparently the result of a great deal of digging for the house pits.
SLK-00071		Small Village	4	Unknown	N/A		Anderson and Anderson located at least four house pits and two cache/storage pits in a grassy area along the Kuutchiaq River, near the outlet of a small lake. The largest depression is trapezoidal in plan and may be the result of two partially superimposed house pits. At least one house pit is eroding into the river.
SLK-		Small	4	Unknown	N/A		Anderson and Anderson located

00072		Village					four house pits and three cache pits on a high tundra covered knoll at a sharp bend in Kuutchiaq River. Two of the house pits are intact and two are eroding. The intact house pits have relatively long entrance tunnels which apparently terminate in storm sheds.
SLK-00074	Milugiivik	Large Village	6	Unknown	N/A		Anderson and Anderson located six house pits and several cache pits on a high tundra covered peninsula between Kuutchiaq River and a large lake. One of the depressions lacks a tunnel and may be a karagi, one appears to have two entrances extending in opposite directions and may be two superimposed houses, and two other house pits have long entrance tunnels with storm shed-like areas at the outer end.
SLK-00076	Kuutchiapaamiit	Single House	1	Unknown	N/A		Anderson and Anderson located one large sod-lined house depression adjacent to a large grassy midden area along a dense willow covered bank of Kuutchiaq River, just upstream of its first bend from Inland Lake. A cache pit was noted at the opposite of the midden. Several other house pits are reported to have eroded away.
SLK-00082		Single House	1	Unknown	N/A		This site consists of 4.5m x 3m house depression, with a 40cm high berm and a 2m long entry. Two accessory pits are along the house pit's SW and NE margins. Standing

							wood structural elements and debris were noted, as were large round nails.
SLK-00086		Single House	1	Continuou s Occupatio n	Cultural Association		A 5.5m x 2.8m x .35m deep depression was noted at the base of the bluff, about 25m from the modern beach. 1x1m unit was excavated within the depression. Vague stratigraphic contours, structural members, and a nail were recorded in the unit.
SLK-00088	Selawik House Depression	Single House	1	Historic Occupatio n	Historic Material		The site consists of a well-defined house depression with an expanse of disturbance vegetation (150m x 20m) extending E to the shore of a small lake. The depression is the remains of a sod house built by Annie Sun and the disturbance area was the dog yard.
SLK-00095	House Depressions Above Okok Poiny	Small Village	4	Unknown	N/A		Consists of four regular house depressions with entry tunnels and several small circular depressions that are probably cache pits.
SLK-00097	Johnson Fish Camp	Single House	1	Unknown	N/A		The site is a historic seasonal fish camp. Features includes an ax-notched log pole cache, split-log shed, cache depression with two rows of ax-notched foundation posts, smokehouse, an old house foundation, structural foundation, and a rectangular house depression.

SLK-00100	Kiwalik Spit Village	Small Village	5	Continuou s Occupatio n	Cultural Association		This site contains at least 5 house depressions and numerous cache pits. Three of the house depressions consist of one room with entrance tunnels. The other 2 have 2 rooms with no discernable entrance tunnel. A test pit was done in 3 of the house depressions.
SLK-00102	Dobuk	Single House	1	Historic Occupatio n	Historic Material		This site consists of a 3.5m x 3.5m house depression on a steep slope adjacent to a small tributary stream. Three associated pits were noted, at the base of the slope and above the house depression. A wooden box with square nails was found near one of the pits. The house was estimated to be of 19th century age. Donald Smith (Kiana) reported the site name. [In Gannon's report this site is referred to as SLK-093.]
SLK-00105	Kobuk House Depressions	Small Village	4	Historic Occupatio n	Cultural Association		The site consists of 4 house depressions and a possible cache pit. Tests on house depression revealed burned wood and charcoal and structural elements consisting of ax-hewn wood which is beveled and notched. Another house depression consisted of 3 upright support poles, 3 rafter beams, and 9 wall and roof poles. A third house depression appeared more recent than the rest of the site. Several remnants of upright poles were noted at corners and wall supports.

SLK-00108	Blankenship Grave Site	Small Village	2	Historic Occupation	Historic Material	<p>This site consists of 2 burials, 2 (and a possible third) sod house depressions, and 2 cache pits. One of the burials has a marble headstone that reads Blankenship, Walter Robert Blankenship (1884-1959) and Nellie E. Flood (1903-1953). This is the burial site of Walter Blankenship. The second grave, which is fenced, has a wooden grave marker and is the actual grave site of Nellie (nee Flood) Blankenship. (Mrs. Blankenship was born and raised in the immediate area.) The depressions predate the burials. The 2 somewhat rectangular sod houses have entrance tunnels on the northwesterly walls. There is a large square depression (to the S and W of the sod houses) that was suggested to be a large cache or a small house, but it lacks an entrance tunnel. Two sub-rectangular cache pits were also noted at the site.</p>
SLK-00109	Kobuk River Depression	Single House	1	Historic Occupation	Historic Material	<p>The site consists of a small ovoid house depression, which could have been a sod or frame cabin. It is 5.4m x 3.4m, and has an entrance on the SW. The NW side is cut about 1m into the bluff. A berm measuring slightly more than 0.5m high, skirts the wall which faces the river. Possible structural elements, in the form of upright poles, are on the NE</p>

							corner. Historic debris in the area consists of coffee cans, kerosene containers, and a square gallon can.
SLK-00111	Saayou	Village	Unknown	Unknown	N/A		N/A
SLK-00118		Single House	1	Historic Occupation	Historic Material		The site is composed of a collapsed sod house approximately 9.5m long x 7m wide with the long axis oriented parallel to the west bank of the Selawik River. The house was originally built by Phillip Carter in 1940 and is reported that he lived in the house until 1971. The end of a drum furnace (55gal?) can be seen protruding from the surface, as well as other unidentified metal objects. A stick frame house, built on a wood foundation, is on the northern edge of the sod house. Overall site integrity appears to be intact.
SLK-00175		Village	Unknown	Unknown	N/A		Semi-subterranean houses.

SOL-00002	Nuk	Village	Unknown	Continuous Occupation	Cultural Association	<p>Called by Bockstoce the "New Beach Sites," this designation apparently includes the relatively recent villages of Nuk (the eastern site) and Mupterukshuk, as noted by Ray. When Hrdlicka visited the area in 1926, he apparently counted over 30 house structures at both sites. Bockstoce notes that a large storm in 1974 and later road construction most of the houses. In 1977 only about six house depressions could be located at Nuk, where Smith conducted excavations of two of them (including a possible karigi). In 1993, OHA investigators stated that this site is comprised of approximately 8 squared and bermed house depressions, ranging from 4m to 8m. The depressions are located just above the upper edge of the beach in a linear arrangement, and are characterized by extended entryways which face the beach (SE). Some may be partially filled with storm debris. [The western complex is now designated SOL-093.]</p>
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SOL-00012	Chiukak	Small Village	4	Unknown	N/A	Site of an Eskimo village reported in 1861 as "Chiukak-mytut" by P. Tikhmeniev. The Western Union Telegraph Expedition, 1865-1867, reported the village as "Knecktakimut," apparently, according to Ray, following the lead of Zagoskin and Hrdlicka in mislocating the village at Ignituk. Petroff, in the 1880 Census, listed "Chiookak" ("Chiokak" on his map) with a population of 15. Ray's informants consider the village to have been large, consisting of four or five houses prior to the gold rush. According to one prospector, it "was at one time a populous center of the Eskimos. A great many deserted igloos remained and only a few bore marks of recent habitation, but their burial grounds reached away back to the tundra on both sides of the stream." Koutsky notes that there are said to be two sections of the village, at opposite ends of the lake, and that a graveyard with old-style graves is behind the village. Apparently a relief cabin is located here.
SOL-00017	Kuiuktalik	Village	Unknown	Historic Occupation	Historic Material	Site of an Eskimo village shown on the 1900 "Map of Nome Peninsula" by J.M. Davidson and B.D. Blakeslee.

SOL-00024	Fish River Village	Village	Unknown	Unknown	N/A		This village, the main village in the Fish River region, was visited by Bouchier in 1851.
SOL-00028	Tapqaq	Village	Unknown	Unknown	N/A		Former Eskimo village reported in the 1880 Census as "Tup-ka-ak," population 15, and listed in the 1890 Census as "Taphok." A mining camp appears to have been set up here about 1900 and the 1908 "Map of Seward Peninsula" by Arthur Gibson shows a "Topkok Roadhouse" at this site. The Alaska Road Commission purchased the Christianson Cabin at Tapqaq in 1922 and repaired it for use as a shelter cabin (ARC 1922:90).[Formerly also listed as SOL-067.]
SOL-00033	Kuksuktapaga	Small Village	2	Historic Occupation	Historic Material		CPSU investigators noted two dwelling structures, one 3.6m x 8.4m above ground log structure and one semi-subterranean structure with sod around the framed walls. A 1.5m in diameter pit, 12" deep, was also noted, as were historic debris. Kuksuktapaga was noted as early as 1851, as both a winter and summer settlement, and was reported to have two houses. The remains noted apparently relate to later use or modification.

SOL-00043	Kukuktaoluk	Village	Unknown	Before 500 BP	Cultural Association		This seasonal site reported by Ray may be the site noted by Giddings, where the "house pits were obscured by a combination of soil creep and thick moss, but we determined that they also belonged to the Nukleet, rather than an earlier, culture. This site lies about fifty feet above sea level, on a gentle slope at the top of a bluff" [See also SOL-044 for another candidate].
SOL-00047	Chauipak	Village	Unknown	Unknown	N/A		Ray noted that there was a small settlement on Fish River 5 miles above the mouth of Niukluk River.
SOL-00051	Chungauroktulik	Village	Unknown	Historic Occupation	Historic Material		Ray noted this as a village which was often occupied year round. It was reportedly wiped out in a landslide. It may be Jacobsen's Singakloget, which was inhabited in 1882.
SOL-00052	Popikiuk	Village	Unknown	Historic Occupation	Historic Material		Ray notes this as a village which was often occupied year round. Its inhabitants died in the 1900 measles epidemic. This may be Jacobsen's Ojeralik, which was inhabited in 1882.

SOL-00065	Kuvrawik	Large Village	7	Continuou s Occupatio n	Occupation Dates	<p>Beta-123465 190±60; Beta-23391 390±70; Beta-23392 770±50; Beta-23393 620±80</p> <p>According to Ray, this was the largest village of the Golovin area. Apparently Zagoskin and Hrdlicka mistakenly placed Chiukak (SOL-012) at this location. Jacobsen (1884:259-267) visited the site in 1882, when 200 people had gathered to celebrate a Feast to the Dead, which he describes in detail. The village was also noted by Otto von Bendeleben in 1866 and in 1880 by E.W. Nelson (1899:252), who described it as built at the mouth of a small canyon, with the lower houses on the upper edge of an abrupt slope 40-50' above the beach. The 1880 Census listed a population of 100; the 1890 Census listed a population of 64. BIA noted seven house pits and 17 graves along a terrace, and remains of log cabins. Buried cultural deposits yielded 3 radiocarbon dates.</p>
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SOL-00068	Okpiktulik	Large Village	14	After 500 BP	Occupation Dates	Beta-127628 10±80	According to Ray, this village, situated at the mouth of Spruce [Cache] Creek, is said by informants to have had as many as 10 houses, although Petroff reported only 12 inhabitants in 1880. Apparently Zagoskin and Hrdlicka mistakenly located the village at Topkok Head. In 1984, BIA ANCSA archaeologists reported documented approximately 124 features (numerous house pits and graves) scattered over a 600m long area, extending westward from the western end of Taylor Lagoon. This site has recent remains (including a portion of the Iditarod trail that passes through the site), a late mining era structure, the remains of earlier cabins, depressions (some multi-roomed structures) from traditional semi-subterranean houses and associated features and remains of aboveground graves.
SOL-00070	Setuk	Village	Unknown	Unknown	N/A		This was reported by Ray to have been a permanent village site, located on high dry ground on the east side of Cape Nome. It was apparently still inhabited as late as 1899. Bockstoce was unable to locate the site, which was perhaps destroyed by road building and fill collection.

SOL-00093	Nuglene Site	Large Village	9	After 500 BP	Occupation Dates	Beta-48454 260±90; Beta-48455 360±90	The site consists of a least 9 pit features, including multi-room house depression as well as smaller features, on both side of the Nome-Council Road. In 1926 Hrdlicka found that the "Nook" site was comprised of about 30 depressions in two discrete areas. The eastern locus is the Nuk site (SOL-002) while the western locus is the settlement of Mupterukshuk. In 1993, BIA archaeologists mapped the features (8 major structures and 6 other surface features), recorded vandalism, and conducted minor excavations in the main room of one of the multi-room structures. These excavations revealed a collapsed wooden structure and a sequence of preserved wood floors in stratigraphic context. The site is thought to date around AD 1700-1750, at the beginning of European influence. In 1995, Feature 12 was mitigated and found to contain cultural materials only in the upper 5cm.
SOL-00111	Imaqliq	Small Village	4	Unknown	N/A		Between four and seven house pits were noted, extensively disturbed by erosion and vandalism. Sea mammal remains and pottery were scattered about the site. Reportedly, Diomedes Islanders returning home from St. Michael encountered an early winter storm and were forced

							to build sod houses and winter over here. Reportedly many died of starvation. The site may have both prehistoric and historic components represented.
SOL-00130	Ipnuchauk	Village	Unknown	Unknown	N/A		Ray noted that this village was thought by Eskimos to have been "a pretty big village once, and inhabited all year." This may be the village of "Chaimut" referred to by Zagoskin. Koutsky reported that the site was later used by reindeer herders and that a corral built in the early 1900s still stands.
SOL-00131		Small Village	2	Continuous Occupation	Cultural Association		In 1976 Bockstoce carried out test excavations on one of two house pits noted here. Bockstoce estimated that the house pit tested was inhabited about 500 years ago.[In passing Bockstoce mentions that several house pit clusters were noted on the lake.]
SOL-00138	Kuvrawik	Village	Unknown	Unknown	N/A		The site was investigated and labeled a village, but no other descriptions were given.

SOL-00142		Village	Unknown	Unknown	N/A	<p>This visible part of this site consists of a semi-subterranean house located underneath a modern house. Subsurface remains were reported by Tommy Punguk under building 92. The remains included trade beads, pottery fragments, bone fragments and the corner of an old "cabin" foundation. Shaw found a single drilled antler artifact (probably half of a net weight) beside building 92. Mr. Punguk also provided information on the site boundaries. Mr. Punguk found a jade adze eroding from the embankment created in cutting the platform for his house (building 84). Stone arrowheads had been found during the construction of building 86. A petroglyph consisting of a circle enclosing an X was found at the site was shown to investigators by Mr. Punguk. This may represent a land claims corner marker dating from the before 1910. The landowner, Mr. Tommy Punguk, indicated that a number of artifacts had been collected on the property by his mother and that three house depressions were located north of his current house.</p>
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SOL-00143	Qitchauvik Qargi	Single House	1	Outside Study Period	Occupation Dates	The site consists of single large structure (>100 square m) with a driftwood frame resembling the Ipiutak qargi at Cape Krusenstern. Wood was extensively used at this site for construction and heating. Caribou bones were abundant as were caribou carvings. Artifacts are similar to both Ipiutak and Norton. Two ceramic oil lamps (made with a pottery paddle) indicate oil was burned. No iron was recovered but cut marks on several ivory pieces are typical of those made by iron tools. Site was excavated 1998 as a field school by the Golovin Native Corp.
TEL-00001	Sungiyorat	Small Village	3	After 500 BP	Cultural Association	In 1854 Hobson noted 30 inhabitants and two small dirty huts on the old channel of Kuzitrin River. Powers, et al. located three house depressions, none larger than 3m x 3m, at this apparent location.

TEL-00005	Singaurak	Village	Unknown	Unknown	N/A	Site of former habitations and current fish camps on both sides of the mouth of Tuksuk Channel. Powers, et al., noted at least two dozen structural features within a 5000 square meter area on a low, grassy peninsula on the west bank. Nearly all of the features have stone-lined entry passages. On the east bank two apparent localities were noted, one on a small spit and the other on a low bluff just to the north. Two large circular depressions (5m and 7m in diameter) were noted at the spit locality, the larger also having an entry room and passageway. On the bluff to the north, two rectangular depressions (measuring about 4m x 4m) were located on either side of a circular depression (5.5m in diameter), and ten or twelve storage pits were noted. About 150m further to the north additional cultural remains were noted on a storm beach, severely eroded by wave action.
TEL-00006	Amilrokmiut	Small Village	5	After 500 BP	Historic Material	Eskimo village or camp reported in 1867 by a Western Union Telegraph exploration party. Apparently the village had four houses and a kazgi.

TEL-00007	Kauwerak	Large Village	29	After 500 BP	Historic Material	Establish by the late 1700s, if not earlier, this village was first noted by Europeans in the 1800s. In 1854 Hobson noted it as having seven large houses and a qargi. During an archaeological survey in 1929, Collins noted 16 house pits in what his testing indicated was a relatively late site. Collins also collected a number of burials, all but one of which were extended. Powers, et al., mapped a total of 29 complete or partially eroded large depressions at the site, a number of which could be interpreted as cache pits. A 4m thick section of eroding midden was exposed along the river bank. In general, the depressions are oriented in two lines parallel to the river, with their entrances for the most part facing in opposite directions. Cemetery areas were also noted.
TEL-00009	Akavingayak	Village	Unknown	Unknown	N/A	Ray notes that this settlement was located on the southwest side of a bluff between Fox Creek and Nickle Creek. Koutsky reports that the village was abandoned before the 1918 influenza epidemic.
TEL-00011	Singauruk Channel	Village	Unknown	Outside Study Period	Cultural Association	Giddings noted cultural material in three cross sections of old beach ridges cut by Singauruk Channel. Artifacts had eroded out and house floors were visible in the banks. The youngest beach ridge contained items similar to Old Bering Sea

							artifacts. The two older beach ridges contained Norton culture stonework.
TEL-00020	Mitletukeruk	Village	Unknown	Before 500 BP	Cultural Association		According to Ray an Eskimo missionary was established at this site in 1897. The village was abandoned following the 1918 influenza epidemic. H.B. Collins apparently excavated here in 1928, making note of the house type as being related to the Thule type.[There is apparently some confusion between this site and another site also called "Mitletavik" (TEL-147) shown as "Mugistokivik" on the USGS map).
TEL-00025	Wales Hillside Site	Village	Unknown	Before 500 BP	Cultural Association		This 200m long site is located on the steep bank of the bluffs to the S of the present village of Wales. Site contains extensive and deeply stratified deposits from at least the Thule times. In 1928 Jenness excavated two superimposed houses on the brow of the bank. The floors of these structures were 2'-6" and 5' below the surface, respectively. A more modern ruin, containing several historic items, was also excavated. In 1936 Collins also conducted excavations at this site. Site has been only superficially investigated.

TEL-00026	Wales Beach Site	Village	Unknown	Before 500 BP	Occupation Dates	Beta-129590 460±50; Beta-134829 1030±50; Beta-164464 520±50	<p>In 1926 Jenness excavated two house sites on the sand spit in the heart of the village of Wales. The villagers asserted that their forefathers, harassed by Siberian raiders, once abandoned Wales and fled to Barrow. Jenness recovered an extraordinary number of artifacts, including apparent European items, which he felt indicated just such a sudden exodus. Most of the modern City of Wales is located on top of the Beach Site, which is also known as Kiatanamiut. CRC conducted archaeological testing here in 2014 and collected over 500 items. The cultural materials recovered during testing appear to represent a diverse assemblage representing domestic life during the transition between the prehistoric and historic periods. Faunal remains were recovered from seven of the shovel tests excavated within the Wales Beach Site. Mammal bones were the most abundant type and were divided into three categories: sea mammal, land mammal, and mammal that could not be immediately identified to a lower classification. Only one fish bone was recovered from testing. Several pieces of bone exhibit some type of modification. A total of 24 bone fragments are burned or</p>
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							<p>calcined. Nearly half of the identified phocids are either neonates or juveniles. Preliminary analysis allowed only a basic inventory of the specimens collected. Two grind- or whetstones, three flakes of light blue chert, and four flakes of fine-grained black basalt were recovered during testing. Several metal fragments were found in intact deposits in shovel test 5, between 45 to 82cmbs. Logs, timbers, and other pieces of wood were encountered in most of the tests containing cultural material. A below ground meat cache and a round surface depression were found in the vicinity of this site as well.</p>
TEL-00028	Qikiqtagruk 1	Single House	1	Unknown	N/A		<p>Powers, et al., located one possible house depression (3m in diameter) and nine circular pits used for herring storage on the north half of the island. This site (Powers #23c) is associated with TEL-139 and TEL-140.</p>

TEL-00033	Ukuivuk	Large Village	40	Unknown	N/A	Former Eskimo village, reported in the 1880 Census as having a population of 200, and in the same year as having about 40 houses. In the summer the residents lived in square parchment houses on stilts and in the winter in rock houses. The former residents have moved to the mainland, returning to the island only seasonally. A 2005 monitoring project documented the removal of the access stairs (from tidewater to the village) and the moving of small items to clear a trail through the village.
TEL-00034	Ikpiung	Village	Unknown	Unknown	N/A	Ray notes that a settlement was located here.
TEL-00035	Mizek	Village	Unknown	Unknown	N/A	According to Ray, "this settlement on a spit near Point Jackson had 'quite a few houses at one time,' but they were in constant danger of inundation. In the 1890s Reverend T.L. Brevig said that four families lived at Point Jackson."
TEL-00036	Sinramiut	Village	Unknown	Unknown	N/A	This village was once the largest in Port Clarence. Beechey noted a kazgi and a burial ground when he visited in 1827. It was a short distance to the east of here where Sheldon Jackson established, in 1892, the Teller Reindeer Station (TEL-037, with which there is some confusion). [TEL-153 may be duplicate of this site.]

TEL-00039	Ikpiumizua	Village	Unknown	Unknown	N/A		Ray noted this as a small village composed of a family or two.
TEL-00040	Iklighilauk	Single House	1	Unknown	N/A		Ray noted that one winter house and 10 or 12 summer fishing camps were located on this sand spit in 1894.
TEL-00042	Kasilnuk	Large Village	20	Unknown	N/A		Noted by Ray as a settlement often inhabited in both winter and summer, the name may have been strictly applied to the group of approximately 20 house pits just west of the mouth of Offield Creek, which were reported by Powers, et al. These house pits are situated along a 200m extent of a beach ridge some 50m from the present shoreline. The name, currently, is also applied to the area between Offield Creek and McKinley Creek, where Powers, et al., noted 12 isolated mounds running parallel to the shore. The mounds are formed of accumulated midden deposits, backdirt from the excavation of semi-subterranean houses, and dense grass vegetation. The largest mound covers an approximately 1500 square meter area. Each mound contains surface features of one or more house pits.

TEL-00045	Kektoaschliuk	Village	Unknown	Unknown	N/A		Powers, et al., noted at least 39 depressions in four distinct groups, on both banks of Kuzitrin River. Twenty-two depressions were located in one group on the north bank of the river; on the south bank groups of eight, three, and six depressions were noted. The depressions measured from 2m x 2m to 6m x 5m in size, many with passageways and several with entry rooms. The house sits on the south side of the river were larger, deeper, and more clearly rectangular than those on the north bank. A test of one of the house pits on the north side of the river produced historic items. The first historic reports of the village were during the early 1850s.
TEL-00046	Anaktkowatuk	Village	Unknown	Unknown	N/A		Reportedly an old village, extinct in the nineteenth century, was located here. In 1900 a mining camp was established here. A post office was established here in 1900 and was discontinued in 1902. By 1907 York was described as "a small collection of cabins and tents."
TEL-00047	Palazrak	Large Village	6	Historic Occupation	Historic Material		This small year-round village is said to have had six or seven house at one time. In 1894 the winter population was 40. One of Ray's informants thought the village was placed about 2 miles too far to the northwest on the USGS map of

							1950.
TEL-00049	Umeveyuk	Village	Unknown	Unknown	N/A		This place between Palazrak (TEL-047) and Tapkarak (TEL-048), thought to have been an ancient village site, was a reindeer herding camp in the 1890s. [The AHRS maps have this site located in the Tin City LRRS facility (TEL-141), but an archaeological survey did not locate the site within the facility. Hoffecker did find a new site (TEL-155), which may be the same site.]
TEL-00051	Aghudlawak	Small Village	3	Historic Occupation	Historic Material		This village, in an area noted for its goose hunting, reportedly had three houses in 1892.
TEL-00052	Issak	Small Village	4	Unknown	N/A		CPSU investigators reported finding four house pits and a reindeer corral. The driftwood corral measures approximately 200m x 100m. The house pits measure 10m x 5.5m x 1m deep with and attached room, 14m x 8m x 1-2m deep, and 12m x 5m x 1m deep (overlying a smaller house pit, measuring 4m x 3m x 1m deep). A bowl-shaped wood artifact and pottery fragments were noted. In 1892 three houses were reportedly located here.
TEL-00053	Imiengnak	Village	1	Historic Occupation	Historic Material		Ray noted this as a small village reportedly having one house in 1892.

TEL-00055	Singaurak	Small Village	3	Historic Occupation	Historic Material		Ray noted that this village, reported to have three houses in 1892, was said by informants to have had more than ten houses and a kazgi before that. The area was apparently noted for its flounder fishing. K. Woodworth, BLM, located three house pits and three graves just behind the beach here in 1976.
TEL-00060	Metoktu	Large Village	17	After 500 BP	Occupation Dates	Beta-325694 230±30	CPSU investigators reported locating two loci, on opposite sides of a slough. Parcel A consists of some 23 features, including multi-room house pits, squared house pits, possible cache pits, and a rectangular mound with posts. Milled lumber and wire nails were also found on the site. Parcel B consists of some 11 burials. The site was reportedly abandoned following the 1918 influenza epidemic. [CPSU reports that this is the site reported, but they say incorrectly located, by Powers, et al. (1982:113-115; see TEL-129 for that site/location entry).]
TEL-00061	Igloo	Small Village	4	After 500 BP	Historic Material		CPSU investigators noted four house pits, one sod structure, two cache pits, a frame cabin, and recent paraphernalia. The house pits reportedly date to the early 1800s. The site was abandoned as a winter village following the 1918 influenza epidemic. The cabin, built during the 1920s by Lomen Company, is

							associated with Igloo Corral (TEL-062). It was abandoned during the 1930s.
TEL-00063	Olanna Graves	Large Village	46	Unknown	N/A		CPSU investigators located approximately 46 house pits (including multi-room features), six reported graves, and miscellaneous artifacts (historic and apparently prehistoric) in three loci, and an area possibly used for the staking out of dogs.
TEL-00066	Koksuktik B	Large Village	11	Unknown	N/A		CPSU investigators noted 11 house pits (from 2.5m x 2.5m to 4m x 5.2m in size), five cache pits, and miscellaneous historic debris. Generally associated with reindeer herding, the site may have a prehistoric component associated with caribou hunting.
TEL-00067	Aveoltvik	Small Village	5	Unknown	N/A		CPSU investigators reported a village site consisting of five house pits from 4m x 3m to 8.5m x 3m (two rooms) in size and six mounds measuring from 1m to 2.8m long, 1m to 2.5m wide, and .6m to 1.2m high, all oriented along the terrace edge. Vandalism was evident.

TEL-00078	Nutaat	Single House	1	After 500 BP	Cultural Association		Semi-subterranean community house structure of planks, drift logs, and native stone, measuring about 20' x 20'. Entrance is gained through an underground tunnel and a hole in the floor. Although deteriorating, this traditional structure is in the best condition of the three such kazgi structures in the village. A 2005 monitoring survey found the roof to be collapsed, although the entrance tunnel appeared to be intact.
TEL-00086		Large Village	7	After 500 BP	Occupation Dates	Beta-17951 220±70; Beta-33761 10±60; Beta-33762 410±50; Beta-33763 330±90	This village site consists of at least six deep, multi-room house depressions, one possible kazgi, six cache depressions, and the posts of an elevated rack or cache. The site is located within a 60m x 70m area on the tundra bluff about 300m from the shore, 86.6m southwest and across an old drainage from TEL-085 and 50m northeast of TEL-087. Walrus, whale, and recent reindeer bones are scattered across the site and pot sherds were noted near one of the features. The house features appear to have from one to four rooms each.
TEL-00087		Small Village	2	After 500 BP	Cultural Association		Two multi-room house depressions and at least three cache pits were found at the north end of a dune on top of the tundra bluffs about 250m from the shore, about 50m southwest and across a small

							drainage from TEL-086 and 80m northeast of TEL-088. The house features appear to have three or four rooms each.
TEL-00093		Small Village	3	Before 500 BP	Cultural Association		This site consists of a linear series of features arranged along the crest of a relict beach ridge, about 150m from the present shore, approximately 118m northeast of TEL-092 and 50m southwest of TEL-094. The cultural features have been modified by deflation and are somewhat difficult to define, except as diffuse scatters and indistinct depressions. One plank lined, Western Thule style house feature and at least four cache depressions are present. A variety of structural members are present in the features, and more than one house may be represented. Fire cracked rock and whale and walrus bone were also noted.
TEL-00096		Small Village	4	After 500 BP	Cultural Association		Three or four house depressions, five cache depressions, at least two burials, and an extensive but sparse scatter of isolated cultural material were found in the dunes on top of the tundra backed bluffs about 300m inland from the present shore. A bone arrow point with a single lateral barb, pot sherds, and faunal remains were noted in association

							with the multi-room house features. The site has suffered some potting. Additional burials and cultural material were noted to the north, within a Native allotment, which USNPS was not permitted to investigate.
TEL-00098		Small Village	5	Unknown	N/A		At least five historic or protohistoric house depressions, 12 cache depressions, and an extensive scatter of bone, wood, enamelware, grinding stones, and other cultural remains were located on two sand dunes on top of the tundra bluffs, about 150m southwest of TEL-100. The house features are deep and well-defined, with many structural members visible. A variety of artifacts were noted, including an iron rifle barrel, a cast iron bucket, wood bucket and wood bowl fragments, wood barrel parts, bone and iron sled runners, and a decorated pot sherd.
TEL-00099		Small Village	4	After 500 BP	Cultural Association		Four house depressions and 11 cache depressions were found on a dune formation, adjacent to a thaw lake outlet channel, on the tundra-backed bluffs about 150m inland from the coast. The house features consists of a rectangular main room, connected to an entry chamber by a long narrow entryway having one

							axillary room. Whale and walrus bone are associated with the features. A bone, adze-like artifact and decorated pot sherds were noted in blowouts. Date inferred from the cultural material found in 1986.
TEL-00104		Large Village	7	Continuous Occupation	Occupation Dates	Beta-17954 590±80; Beta-17955 100±70; Beta-20029 250±70; Beta-33765 200±70; Beta-33766 470±70; Beta-33767 770±130; Beta-33768 760±50	Seven single and multimulti-room house depressions, 18 cache depressions, three eroding wood-framed seal oil caches, and deflation exposed scatters of cultural material were mapped at this site, which is located in a sand dune formation capping the high bluffs about 150m from the coast. Cultural material noted includes structural members, shell and bone remains, a bone sled runner, a whetstone fragment, decorated pot sherds, and rock spalls.
TEL-00105		Large Village	8	Continuous Occupation	Occupation Dates	Beta-17953 290±60; Beta-388179 1000±30; Beta-388180 180±30; Beta-408915 540±30; Beta-408916 880±30	Seven multi-room house depressions, at least 15 cache depressions, and at least one burial were found on two dune crests at the edge of the bluffs, about 175m inland of the coast and 250m northeast of TEL-106. Cultural material noted includes cobble manuports, wood and cemented sand scatters, a wood bowl fragment, pot sherds, whale bone, and a ground slate ulu blade. A C14 date of BP 290+/-60 was obtained.

							Research in 2012 identified a possible new house feature and cache pit. Additional radiocarbon samples collected and sent for analysis.
TEL-00108		Single House	1	Continuous Occupation	Occupation Dates	Beta-388178 70±30; Beta-408917 1100±30	Four small cache-like depressions and the subtle remains of a possible house depression were found on the edge of a vegetated dune, overlooking a relict thaw lake drainage, on the edge of the bluffs about 175m from the coast, approximately 300m northeast of TEL-109 and 200m southwest of TEL-107. Two rectangular caches measure 1m x 1.5m and 1.5m x 2.5m, a third is a 2m x 1m oval, while the fourth measures 1m in diameter. The possible house depression consists of a shallow 3m x 3m depression connected by a subtle passage to a larger rectangular depression, only partially discernable. Two eroded, wood-framed seal poke caches, walrus bone, and some posts were also noted.
TEL-00123	Puubluk	Large Village	38	Unknown	N/A		Powers, et al., noted house depressions concentrated in two distinct localities at this site. A series of 20 apparent house

							depressions were located along 300m of beach on the east side of the peninsula. Another 18 house pits are located on the hillside south and east behind the first loci. Nearly all are large circular depressions (from 3m x 3m to 6m x 6m in size) connected by a short passageway to a smaller depression. A few features may represent more complex, multi-room houses. Noted by Ray as an old camp, the site was reportedly inhabited as late as 1903.
TEL-00124	Kangaruk	Large Village	25	Unknown	N/A		Powers, et al., noted house ruins in three loci at this site reported by Ray as an old village site located at a modern fish camp. West to east, the loci consist of: 15a) the remains of seven old houses and a modern fish camp; 15b) eight poorly defined house depressions situated behind the present storm beach; and 15c) approximately 10-12 disturbed house pits and three large mounds on the hillside behind this loci. A large depression, some 9m across, found in the third loci may represent a qargi feature. Various house members and artifacts were noted.
TEL-00126	Tapqaq	Village	Unknown	Unknown	N/A		Powers, et al., located a possible former village site in an area disturbed by a former fox farm operation. Just east of the modern cabin was at least one 4m x 4m house pit. Across a small inlet 500m

							to the east, lush vegetation suggested the location of another site. An obscure rectangular depression measuring 3.5m x 4m was noted, however it could be interpreted as a natural feature.
TEL-00129	Metuktuk	Large Village	9	Unknown	N/A		Powers, et al., noted nine houses, one with sod walls still standing. Milled lumber and wire nails were in evidence. Most were rectangular, but one circular house was noted, as were three small cache pits. A series of modern fish racks were also present. About 1km to the north was a recent cemetery with 15 burials. On the west side of the river, west of the village, rim sherds and bone artifacts were collected from a gravel bar, although their source was not located.[CPSU reports that Powers, et al., incorrectly located the site, that it is instead located to the north, at TEL-060.]
TEL-00130		Small Village	2	Historic Occupation	Historic Material		Powers, et al., noted two house depressions on a low bluff overlooking the river. One was rectangular and measured 3m x 3.5m (Feature 1). The other (Feature 2) was circular and measured 3m in diameter. In 1993, BSNC archaeologist noted historic debris (barrel-type stove remains and a 2.5 gallon galvanized bucket) associated with Feature 1, which was a sod cabin probably dating

							from the first 20 years of this century. Feature 1 appears to be older than Feature 2. Both features have exposed, shallow (<20cm) shove probes, apparently the result of pot hunting. [Powers had this site located further downstream in the SW quarter of Sec. 20.]
TEL-00132	Paniruhk	Small Village	3	Unknown	N/A		Powers, et al., reported a cluster of three depressions, measuring 4m in diameter, on the tip of the spit. A similar house pit, noted 120m away, had whale bone exposed. Twelve apparent cache pits were also noted. Ales Hrdlicka (1930:118) may have visited the site in 1926.
TEL-00133	Isuktukpaga	Small Village	5	Unknown	N/A		Powers, et al., located five house pits on the south bank of the slough entering the lake. Four were square to rectangular in outline. One measures 4m x 5m and has a 2m x 2m storm entrance; the others measured 3m to 4m square. A fifth depression, circular and 2.5m in diameter, was also noted.
TEL-00134	Isuqtuq	Large Village	11	Unknown	N/A		Powers, et al., noted 11 collapsed houses group in two clusters, all but three of which are eroding at the slough edge. The southern loci consists of six circular depressions, one with a sod wall still standing over 1m high. The northern loci

							consists of five house pits, in one of which were found milled lumber and a rusty tin can. All features were no mere than 3m in diameter.
TEL-00135	Isuqtum Kania	Village	Unknown	Unknown	N/A		Powers, et al., located several house features situated on opposite sides of a small inlet. The eastern locality consists of a 4m x 4m depression and a 3m x 2m auxiliary depression possibly used for storage. The western locality consists of two, 3m in diameter, circular depressions.
TEL-00136	Iglaurak 1	Small Village	4	Unknown	N/A		Powers, et al., located four house depressions, measuring from 3m x 3m to 4m x 4m in size, on a relatively high knoll within sight of the associated sites, TEL-137 and TEL-138.
TEL-00137	Iglaurak 2	Small Village	3	Unknown	N/A		Powers, et al., located three large house depressions, measuring 7m across, on a relatively high knoll within sight of the associated sites, TEL-136 and TEL-138. Within one a post apparently shaped with a stone adze was noted. Vandalism has revealed potsherds of a thick-walled, sand-tempered type.
TEL-00138	Iglaurak 3	Single House	2	Unknown	N/A		Powers, et al., located a single house depression, measuring 3.5m across, on a relatively high knoll within sight of the associated sites, TEL-136 and TEL-137.

TEL-00139	Qikiqtagruk 2	Single House	1	Unknown	N/A	Powers, et al., reported a house pit site on the mainland north of a small island at the head of Imuruk Basin. This site (23a) is associated with TEL-028 and TEL-140.
TEL-00140	Qikiqtagruk 3	Single House	1	Unknown	N/A	Powers, et al., noted a 3m x 5m rectangular house depression and an associated cache pit on the mainland southwest of a small island at the head of Imuruk Basin. This site (23b) is associated with TEL-028 and TEL-139.
TEL-00142	Atnaq	Small Village	3	Unknown	N/A	Powers, et al., noted one definite 3m x 2m house depression, two possible house depressions, and 13 small circular and square depressions, evidently used for whitefish storage.[See also BEN-009.]
TEL-00143	Qasigiat	Small Village	3	Unknown	N/A	Powers, et al., noted three depressions, and a possible fourth, on a low sandy ridge on the east side of the river. The area has been heavily disturbed by fox denning activity, and as no cultural remains were noted in tests of three of the depressions, their origin may be a result of such activity.
TEL-00147	Mitletavik	Village	Unknown	Unknown	N/A	According to Orth, "Mugisitokiwik" is the site of an Eskimo village or camp reported about 1940 by USC&GS and published on Chart 9380. According to Ray, this village was unknown by that name. The area was noted for its productive

							flounder fishery.[See also TEL-020.]
TEL-00148	Topp-Cut-Atawne	Village	Unknown	Unknown	N/A		Ray notes that "Topp-cut-atawne," visited by Hobson in 1854, probably referred to an old village site at the mouth of Dese Creek.
TEL-00149	Pond Site	Village	Unknown	Unknown	N/A		While performing reconnaissance of beach ridges in 1959, Giddings located prehistoric remains on "Kugzruk Island." In an approximately 200' x 50' pond he originally noted Norton culture lithics, pottery, and organics eroding from a winter house ruin. Nearby were the remains of two additional houses which were excavated. C14 dates of BC 600 and BC 350 were returned.
TEL-00153		Large Village	14	Unknown	N/A		Fourteen house pits and several cache pits. Wood structural elements are present in several depressions (not visibly sawn). Historic glass bottles, ceramic, and metal fragments were found in several houses.

TEL-00176	Port Clarence House Pits	Village	20	Outside Study Period	Occupation Dates	This site consists of at least 20, possibly more, circular house depressions on the shoreward beach ridge slope above a marshy area. They tend to occur in clusters of 3 to 5, in lineal fashion over a distance of approximately 1 mi. (1.6km). There are no apparent organic middens, but each occupation site is marked by quantities of sea mammal bone, in stark contrast to the surrounding areas. Observed artifacts include pierced, sand tempered pottery exhibiting a lineal pattern and an ivory point with a triangular cross-section (perhaps Choris period, 2550 to 2000 BP?).
TEL-00191		Village	Unknown	Unknown	N/A	At south end of site is a small depression and three parallel graves, one with "Ailak Died Oct 1908" carved on the marker. East along the Grantley Harbor shoreline is a somewhat low and discontinuous mound that parallels the shore for about 40m. Shallow and irregular small mounds and depressions continue more or less continuously north of the graves, and there is also a modern outhouse and a fairly recent cold storage cache similar to those seen along the bluff (TEL-00199). As the shoreline mound ends, a cluster of larger mounds and depressions occurs, including one

							<p>mound approximately 10x30m and including several house pits with multiple rooms. North of this is another distinct mound with clear potholing activity and several more small but distinct pits. There has been some disturbance at this site but there are still many undisturbed features. The date on the grave and the relative visibility of the features imply that it is of proto-historic age.</p>
TEL-00196		Small Village	3	Unknown	N/A		<p>Consists of two mounds, one with two house pits within it and the other with one, several other pits without mounds, and many smaller irregular depressions. The trail runs west of the site, removed by about 20 meters, and a distinct gravel ridge runs near the east edge. Another worked bone piece with a drilled hole similar to the antler artifacts observed at TEL-193 was observed near the northern pit in the larger mound. A large square hole with modern trash near the north end of the site is not considered historic. There is little obvious evidence of recent pot hunting at this site, and it is considered to have historic significance. Just south of Allotment 12585</p>

TEL-00198		Single House	1	Unknown	N/A		<p>The possible house pit is about 8m long, more than a meter deep at its lowest point, and is an irregular oval, which is consistent with the remains of a semi-subterranean traditional house. The depression is partially flooded and there is a possibility that it represents a drainage or frost feature. No cultural materials were found eroding out of the adjacent bluff face. There are seven apparent small pits west of the larger pit (3 of them quite shallow), one off the northwest corner, and about 20 strung out along the bluff to the east. Several of these pits have driftwood poles in each corner, but many do not, one has plywood inside, and three have "fresh" back dirt piles. As this site was about 50m from the transmission line corridor and potentially subject to erosion, test pits were not dug here. Archaeological excavation would be necessary to date the site and confirm whether the large pit is a house.</p>
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TEL-00216		Small Village	4	Before 500 BP	Cultural Association		Site consists of a cluster of 4 stone house features. The floor plan may have been rectangular with rounded corners, there are no discernable entryways. Feature KI-F002 has an alcove with a partial wall visible on the W side. No other feature had similar alcoves. House dimensions range from 7m x 8m to 3.5m x 4m. Two test pits were dug using a soil probe outside the features, each to approximately 50cm below surface. Artifacts located in the test pits include charcoal, pottery fragments, and fragmentary sea mammal bones.
TEL-00218		Single House	1	Unknown	N/A		Site is a semi-lunate stone windbreak or house. The feature commands a panoramic view of the island and the ocean to the NW. According to a local informant, an "Isrigak" house was reported for this locale. The Isrigak is a "hiding man" or someone who has become detached from the community of humankind.
TEL-00232		Small Village	4	Unknown	N/A		Several possible house features.
TEL-00233		Small Village	2	Unknown	N/A		Two probable house features associated with cache pits and activity area.
TEL-00237		Single House	1	Unknown	N/A		A single cemented sediment feature with associated wood.

TEL-00238		Single House	1	Unknown	N/A		A single cemented sediment feature with four wooden posts protruding horizontally from sediment. A ground slate tool was found 5 cm from the feature.
TEL-00249		Small Village	5	After 500 BP	Cultural Association		PSU-2013-007 consists of five features of cemented sediments with associated vertical posts, two faunal scatters, and a single piece of lithic material.
TEL-00250		Single House	1	After 500 BP	Cultural Association		PSU-2013-008 consists of a feature of cemented sediments, a buried layer of cemented sediments, three faunal scatters, two vertical posts, and a glass scatter.
TEL-00251		Single House	1	After 500 BP	Cultural Association		PSU-2013-009 consists of a feature of cemented sediments, three pieces of structural wood, and burned marine mammal bones.
TEL-00252		Single House	1	After 500 BP	Cultural Association		PSU-2013-011 consists of a single feature of cemented sediments and wood debris, thought to be the remnants of a single occupation feature.
TEL-00256		Single House	1	After 500 BP	Cultural Association		PSU-2013-015 consists of a feature of cemented sediments, two wood scatters, four vertical posts, and faunal remains scattered across a 30 m (north to south) by 117 meter (east to west) dune blowout. The site is thought to be the eroded remains of a single occupation.

TEL-00257		Single House	1	After 500 BP	Cultural Association	PSU-2013-016 consists of a concentration of eroding cemented sediments. The site area is approximately 6 meters in diameter. No other cultural material or artifacts were found in association with the cemented sediments site.
TEL-00258		Small Village	2	After 500 BP	Cultural Association	PSU-2013-017 is likely the remnants of a single house or small settlement. Materials recorded at the site include a house feature, a concentration cemented sediments, faunal remains, and other cultural artifacts. The site area is approximately 108 meters east to west and 22 meters north to south. Both the house and the tunnel have been negatively impacted due to erosion that caused the dune blowout but there is an intact occupation layer. Vertical posts mark the possible boundary of the house and the tunnel. On the surface in the possible tunnel area are large pieces of structural wood, mammoth ivory, worked bone, pottery fragments, and faunal remains all disturbed from their original position by dune erosion. A pottery sherd, vertical posts, and terrestrial mammal remains were noted on the ground surface at the probable junction of the house and tunnel. Ground slate and other lithic raw materials were noted on the dune

							surface in the house and tunnel areas. A concentration of eroding of cemented sediments and wood debris located 95 meters west of the first house feature are thought to be the remnants of a second occupation feature.
TEL-00260		Small Village	2	After 500 BP	Cultural Association		PSU-2013-019 is the remains of what was probably once a small settlement. The site consists of two highly eroded occupation features; all that remains of former occupation are two concentrations of cemented sediments. No cultural material or artifacts were found within the site area.
TEL-00263		Small Village	2	After 500 BP	Cultural Association		PSU-2013-023 consists of two small features of cemented sediments and associated wood debris that are likely the remains of occupation features.
TEL-00264		Small Village	3	After 500 BP	Cultural Association		PSU-2013-024 consists of three former occupation features that have been heavily eroded by wind and water. All that remains are cemented sediments, wood debris, and pottery sherds.

TEL-00265		Small Village	2	After 500 BP	Cultural Association		PSU-2013-025 consists of two occupation features with associated cache pits and cultural material. Feature 1 is a semi-subterranean occupation feature or cache pit located within a large blowout. The feature consists of wooden structural elements and fragments of grass matting. The grass matting was collected for further analysis. A drilled wooden artifact was also found in association with Feature 1. Cache Pit 1 is a small 1.5 meter by 1 meter depression situated in a well-vegetated area of the dune. A sample of the grass mat was collected for radiocarbon dating
TEL-00269		Small Village	4	After 500 BP	Occupation Dates		Site identified during field work in 2013 and 2015. Possible subdivision of TEL-00176.
TEL-00272		Small Village	2	After 500 BP	Occupation Dates		Site identified during field work in 2013 and 2015. Possible subdivision of TEL-00176.
TEL-00273		Small Village	3	After 500 BP	Cultural Association		Site identified during field work in 2013 and 2015. Possible subdivision of TEL-00176.
TEL-00278		Small Village	3	After 500 BP	Cultural Association		Site identified during field work in 2013 and 2015. Possible subdivision of TEL-00176.
TEL-00280		Small Village	3	After 500 BP	Occupation Dates		Site identified during field work in 2013 and 2015. Possible subdivision of TEL-00176.

XBM-00001	Kavet Creek Site	Large Village	28	After 500 BP	Cultural Association		Of a number of house pits of various ages on the gentle slopes at the mouth of Kavet Creek, Giddings excavated two in 1947. Although Giddings noted that some pits may be of the same age as those at Ahteut (XBM-003), those excavated appeared more closely related to those of the Ambler Island-Black River culture period. One of the houses was burned while a human body (with a jade blade among its ribs and missing its cranium) lay inside. A late AD 1700s age was indicated. USNPS investigators visited the site in 1996, mapping approximately 28+/- house features and 190+/- other surface depressions. [See also XBM-045, apparently features within this site.]
XBM-00002	Ahteut Continuation	Small Village	3	Before 500 BP	Occupation Dates	Cams-141640 830±35; Cams-141641 840±35	Described by Giddings as a "Continuation of Ahteut site (XBM-003) on right limit bank. Several pits similar in appearance to those excavated [at Ahteut]." "An undetermined number of house pits are located [here], some of them within alder thickets." In 1998, USNPS investigators located three house pits and a number of cache features at this location. The site was mapped.
XBM-00003	Ahteut Site	Large Village	29	Before 500 BP	Cultural Association		During the 1940s, Giddings excavated eight house pits (of the approximately 30 noted) in the

							southern portion of the site and four house pits (of the approximately 10 noted) in the northern portion. Dated at about AD 1250, the houses excavated were the earliest Giddings found on Kobuk River. In 1998, USNPS investigators mapped the site. The southern loci consists of a total of approximately 29 house features and numerous cache pits. The northern loci, separated by some 200m, consists of approximately seven house features and numerous cache pits.
XBM-00004	Kaligurickeark River	Village	Unknown	Unknown	N/A		Several house pits exposed in river banks. Surface collection. AOHA 2009
XBM-00006	Salmon River Village	Village	Unknown	Unknown	N/A		Large village site occupied within memory of living people. Reported to Giddings.
XBM-00007	Kallarichuk River	Small Village	4	Unknown	N/A		Right limit bank above Kallarichuk River. Four or more houses.
XBM-00008	Kidway's Camp	Village	Unknown	Before 500 BP	Cultural Association		Giddings noted house pits on both sides of the river near Kidway's Camp. Tests indicated that most were late period ruins. Collections from a steep bluff on the left bank indicated that the eroding bank had an Ahteut age (AD 1250) occupation.[See also XBM-048 for possible partial duplication.]

XBM-00009	Ekseavik	Large Village	20	Before 500 BP	Occupation Dates	P-16 780±150; P-29 720±200; P-31 820±220; Cams-141646 615±30; Cams-141647 735±20; Cams-141648 710±25; Cams-141649 815±30	Giddings described this site as being on a brush-covered knoll near a small lake off a small slough of Squirrel River, some 8 miles up from Kiana. During the 1940s, 11 of the estimated 20 houses were excavated. A date of AD 1400 was assigned. [See also XMB-064 and XBM-071.]
XBM-00010	Kugururok River	Village	Unknown	After 500 BP	Historic Material		Site of old Native settlement located by USGS party. Occupied between AD 1850-1900.
XBM-00012	Kangiguksuk	Single House	1	After 500 BP	Occupation Dates		Rectangular, semi-subterranean house with short entrance passage, cache and hearth outside house. Hall excavated approximately 1100 square feet (about 95% of the site) and recovered approximately 2000 artifacts. These included projectile points, arrowheads, adzes, spoons, a harpoon head, fishing gear, labrets, 1268 pounds of faunal remains, 359 pounds of spalls, and numerous wood fragments. A dendrochronological date of AD 1578 was obtained. Late prehistoric Eskimo; most closely resembling Intermediate Kotzebue site of Giddings.
XBM-00027	Kizuqtarvik	Village	Unknown	Historic Occupation	Historic Material		Fall concentration zone for families from upper Noatak regional group. Located by E.S. Burch (p.c. to Hall). [See also XBM-028, XBM-029, XBM-030.]

XBM-00028	Killiktavik 2	Large Village	12	After 500 BP	Historic Material	A dozen or more slightly semi-subterranean, rectangular houses in willows below bluff. Caribou bones recovered. Probably post-AD 1800; late prehistoric Eskimo. [See also XBM-027, XBM-029, XBM-030.]
XBM-00030		Single House	1	After 500 BP	Cultural Association	Approximately one-half of an eroded semi-subterranean house; Hall excavated 32 square feet. A harpoon foreshaft, projectile points, arrow points, etc. were recovered. Estimated date of AD 1600; late prehistoric Eskimo: Kangigusuk and Intermediate Kotzebue. [See also XBM-027, XBM-028, XBM-029.]
XBM-00033	Aayukalik	Village	Unknown	Historic Occupation	Historic Material	Fall concentration zone for families from upper Noatak regional group (E.S. Burch p.c. to Hall).
XBM-00034	Sisigak	Village	Unknown	Historic Occupation	Historic Material	Fall concentration zone for families from upper Noatak regional group (E.S. Burch p.c. to Hall). [See also XBM-035.]
XBM-00035	Siesieaijak	Small Village	4	After 500 BP	Cultural Association	Four houses; two houses and midden extensively tested. Recovered cultural material includes projectile points, arrowheads, labrets, two metal "tags," caribou bone, etc. Estimated date of AD 1700; probable affinity to Ambler Island on Kobuk River. [See also XBM-034.]

XBM-00036		Small Village	2	Historic Occupation	Historic Material		Two semi-subterranean houses (still partially standing) and two hearths. The two winter houses are in the willows on the west side of the creek; the hearths are one moss-covered ground on the east side of the creek. The hearth areas were tested; material recovered includes .44 shells, beads, antler tools, small scrapers, and spalls. The houses may not be as old as the hearth areas: a Noatak informant told Hall that Oscar Henry's family lived at the mouth of Sapun (Sapoon) Creek in 1928. [See also XBM-037.]
XBM-00037	Sapun	Village	Unknown	Historic Occupation	Historic Material		Fall concentration zone for families from upper Noatak regional group (E.S. Burch p.c. to Hall). [See also XBM-036.]
XBM-00038	Aqlamagzuaq	Village	Unknown	Historic Occupation	Historic Material		Fall concentration zone for families from Upper Noatak regional group. Aklummayuak Creek sometimes served as a route to Upper Noatak River. Peterborough canoe, bobsled frames, and umaypak parts.
XBM-00039	Uliqsaun	Village	Unknown	Historic Occupation	Historic Material		Fall concentration zone for families from Upper Noatak regional group. Hall noted umaypak parts.
XBM-00040	Isarukturvik	Village	Unknown	Historic Occupation	Historic Material		Fall concentration zone for families from Upper Noatak regional group (E.S. Burch p.c. to Hall).

XBM-00041	Mitkotaylyuk	Single House	1	After 500 BP	Cultural Association	Portion of eroding rectangular house on willow-covered river bank. Hall excavated approximately 40 square feet. Cultural material included ground slate ulu blades, arrowheads, caribou bones, etc. Probable affinity with Ambler Island on Kobuk River.
XBM-00045		Small Village	2	Unknown	N/A	A 4' in diameter depression connected to a 7' x 5' depression by a 10' x 2' tunnel and two 5' depressions connected to a 7'x 5' depression located 45 links [9.05m] northeast of the first. These are situated about 100' above the river level overlooking a well-known caribou crossing. Information from Kenneth Ludy, BLM surveyor and sketch map by Donovan Harris to J.P. Cook, 1974. [These reported features appear to be within the Kavet Creek Site (XBM-001).]
XBM-00047	Igliqtiquigvigruaq	Village	Unknown	Unknown	N/A	In 1985, USNPS investigators noted over 40 features, including house pits and cache pits, along approximately 200m of point bar on the south side of Kobuk River. Artifacts noted eroding from the adjacent river bank includes pottery and worked bone and antler wedges, net sinkers, and projectile points. Possible test pits were noted in one of the house pits. In 1996, USNPS investigators mapped the site, recording approximately 28 houses

							(many of complex form) in addition to nearly 200 cache pits or other features. At the eastern end of the site, an eroding log feature yielded a near-bark dendrochronology date of A.D. 1908. [This is apparently a duplication of XBM-058, a site reported to, but not visited by, Giddings.]
XBM-00048		Small Village	2	Unknown	N/A		Two large depressions, associated cache pits, and a dump site were noted on a 15-20m terrace. The depressions, probably dwellings, measured 4m x 4m and 4m x 5m in size. The dump of tin cans was situated about 15m from the depressions. [See also XBM-008 for possible partial duplication.]
XBM-00064	Canyon Creek	Small Village	2	Unknown	N/A		Giddings excavated one of two obscure pits noted at the mouth of Canyon Creek, about 2 miles from Ekseavik (XBM-009). The house excavated appeared to be closely related to those at Ekseavik. Additionally, Giddings noted that several house pits were discovered along the banks of a former slough between Ekseavik and Squirrel River, which tests showed to be of a late period. [See also XBM-009 and XBM-071.]

XBM-00065		Small Village	3	Historic Occupation	Historic Material		Oswalt briefly notes excavating one of three fallen and partly buried Eskimo houses on a dead slough across from Archie's Landing, about 12 miles up Squirrel River. The excavated house measured 14' x 122.5' with a straight 2' x 8' tunnel, and resembled Giddings' Ambler Island house dated to the early 1700s. The tree-ring dates indicate that the structures were built circa AD 1879.
XBM-00067		Single House	1	Unknown	N/A		In 1989, a house pit-shaped depression was noted on the north edge of a forested terrace on the south side of Kobuk River. Roughly oval in outline, with a diffuse, discontinuous berm, the feature is about 30cm deep. This feature, and two others, was relocated by USNPS investigators in 1998. Subsurface of the features, thought to be thaw features, yielded negative results.
XBM-00071		Large Village	6	Unknown	N/A		This site consists of at least six house pits and over 25 cache pits on top of a 3m high cut bank just west of a low, 2-3m high sand ridge. The house pits near the river have entryways of variable length and orientation. The site was reported to Mason as having been tested by J.L. Giddings during the 1940s. [See also XBM-064 (possible duplication).]

XBM-00131	Maiyumerak Creek Village	Large Village	9	Continuou s Occupatio n	Occupation Dates	Beta-223358 280±40; Beta-223359 170±50; Beta-228015 280±40; Beta-228016 520±40; Beta-76675 780±100; Cams-141693 325±40; Beta-223360 360±40; Beta-223361 130±40; Beta-223362 470±50; Beta-223363 620±40; Beta-223364 360±40; Beta-223365 270±40; Beta-223366 260±40; Beta-223367 270±40; Beta-223368 380±40; Beta-223369 310±40	At least nine apparent house features and several cache pits are situated on a 2m high terrace above Maiyumerak Creek, in two loci separated by an old channel. The site, including several of the features, is being actively eroded and substantial midden deposits, including antler, bone, charcoal, and fire cracked rock were noted. The largest features at the site, a 6.6m in diameter, 1.3m deep features (H5) may represent a karigi. Two of the house features have tunnel entrances while two others have jointed tunnel entrances. C14 samples recovered from the erosion face at H8, where a piece of blue mussel shell was also noted. Several small shovel tests placed in an area about 75m to the west (Locus 3) revealed midden and yielded chert flakes, bone, charcoal, and a pottery sherd. In 2006 site was enlarged to the confluence as debris is visible in the cut bank all the way to the creek mouth.
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XBM-00144	Ruth B. Sandvik Allotment Site	Village	Unknown	Unknown	N/A	<p>In 1996, during a brief rest stop, USNPS investigators noted two house pits on the terrace in front of a modern frame cabin on an allotment. One of the house pits appeared to be of late prehistoric age (rectangular structure with a long entrance tunnel off the long wall), while the other may be of historic age (larger rectangular structure with a long entrance tunnel). USNPS investigators revisited and mapped the site in 1998. A total of 12 house pits and numerous cache pits were noted along a 450m stretch of eroding bank. Several of the features are eroding and cultural material is evident along portions of the erosion face. AOHA 2009.</p>
XBM-00145	Oolyak's Camp	Small Village	3	Unknown	N/A	<p>USNPS investigators noted the remains of a 4.6m x 4m log cabin, two rectangular depression features without tunnel entrances (4.8m x 3.6m and 5.6m x 2.9m in size), a 4.4m x 3.4m rectangular depression feature with a 1.9m long tunnel entrance, three cache pits, a number of posts, and historic debris. Possibly the camp of Oolyak (Stonewall Jackson), a key informant of J. Louis Giddings during the early 1940s (rather than XBM-046, as reported previously).</p>

XBM-00147		Single House	1	Unknown	N/A		USNPS investigators noted the remains of a 4.1m x 2.85m house pit with a 3.2m long entrance tunnel and four large cache pits (two rectangular and two circular). The house pit is located less than 6m from the edge of the eroding bank. A metal detector scan yielded evidence of metal. A 1m x .5m test within the house pit yielded a coffee can in the fill of a shallow (later) pit and a small birch bark basket from the house interior.
XBM-00148		Large Village	10	Unknown	N/A		USNPS investigators and mapped about 10 house pits and 27+ additional depression features within a 200m x 80m area, on 5 of a series of small ridges/knobs and swales projecting to the S from the end of a major ridge overlooking the right bank of Kobuk River. Most of the houses are on or near the tops of the knobs. The semi-subterranean houses vary from almost round to sub-rectangular and trapezoidal, but are all from 3-5m wide and less than .5m deep. Several show suggestions of structural wood under obscuring vegetation and in one (H6), many logs, split logs, and hewn planks survive, although in an entirely collapsed state. A metal detector scan of this house was entirely negative. Surface indications in several houses suggest the presence

							of side benches and central fire pits. Other features at the site include a variety of round and rectilinear pits from 1m diameter to 2m sq. Tests conducted in 1998 revealed a late prehistoric cultural inventory with no Euroamerican trade goods. The house floors were frozen and contained a rich assemblage of faunal material.
XBM-00149	Ranger Reported Site	Single House	1	Unknown	N/A		Originally reported by a USNPS Park ranger in 1995, this site was mapped by USNPS investigators in 1998. The site consists of a single house pit and two cache pits adjacent to the confluence of a small drainage with Kobuk River and four cache pits on a small hill behind the site.
XBM-00155		Large Village	6 or 7	Unknown	N/A		Six to seven houses and numerous cache feature in two loci. Mapped by NPS in 1998.
XBM-00156		Small Village	3	Unknown	N/A		Three house pits and numerous cache pits were noted in three loci. Mapped by NPS in 1998.
XBM-00157		Single House	1	Unknown	N/A		In 1998, USNPS investigators located and mapped a single house pit and seven cache features situated

							on a hilltop/terrace about 15-20m above the river.
XBM-00158		Small Village	3	Unknown	N/A		USNPS investigators located and mapped three or four house pits and 10 cache features situated on a high, dry ridge about 150m back from the river beach. [This may be, or be a part of, the site identified by Giddings as Ahteut Continuation (XBM-002).]
XBM-00159	Grace Outwater Allotement Site	Large Village	6	Unknown	N/A		USNPS investigators located and mapped this site in 1998. In addition to an allotment cabin, the site consists of six house pits, three bermed wall tent features, and the ruins of a log cabin. As well as an apparent Inupiat site, the site appears to be the remains of the 1898 gold rush period "Jessy Lou Camp."
XBM-00177		Village	Unknown	Unknown	N/A		Reported to John Cook as a large area with pits and mounds. USGS map with a hand written note that "pits and mounds found in this area." Not field verified by archaeologists but a fallen log cache is noted on the western end of US Survey No. 5151, Lot 2 (1973).
XHP-00004	Feniak Lake	Large Village	14	Unknown	N/A		Hall located, but did not test, a total of seven rectangular semi-subterranean houses with entrance passages, a small, apparently circular, stone-lined karigi, and midden deposits. Moving north

							along the east shore of the lake they were encountered in the order of two houses, then five houses and the karigi.
XHP-00010		Single House	1	Outside Study Period	Occupation Dates		Hall located and excavated a rectangular, semi-subterranean house with an entrance passage and an interior hearth located on a small knoll near a creek about 3/4 mile up the east shore of the lake from the outlet stream. Two cache pits were also noted. Approximately 1500 artifacts were recovered, including adze heads, side and end blades, incised pebbles, worked antler, discoidals, ground slate, waste flakes, bone, and birch bark. The house apparently represents a Norton-Ipiutak occupation.
XHP-00011	Anisaiaq	Large Village	6	Unknown	N/A		Irving (p.c. to Hall) located six readily visible semi-subterranean houses and over 12 cache pits amongst the willows and cottonwood at the base of the bluff. Pottery and spalls were recovered. Hall visited the site in 1970. Burch (p.c. to Hall) noted this as a fall concentration zone for families from the Upper Noatak regional group.

XHP-00013	Uivaqsaat	Village	Unknown	Unknown	N/A	Burch (p.c. to Hall) noted a fall concentration zone for families from the Upper Noatak regional groups south of Desperation Lake, where Fry (Uivaksak) Creek joins another westward flowing stream before becoming the Anisak River. D.C. Foote (1965: Map 24) apparently noted winter houses just west of Desperation Lake in the Anisak River drainage, possibly the same locality.
XHP-00016		Small Village	2	Unknown	N/A	Irving (p.c. to Hall) reported locating two shallow rectangular houses on the storm beach near the late prehistoric/historic village (XHP-017) on the south shore of Desperation Lake. The house features were different from those in the village.
XHP-00017		Large Village	24	Unknown	N/A	Irving located about two dozen large rectangular houses of a winter village site on the south shore of Desperation Lake. Two house pits and midden, up to 2.5' thick, were tested. Pottery of recent appearance and ground jade and slate were noted throughout the midden, leading to speculation that the village was founded in the late prehistoric period. Saw-cut bones were also noted. Around the village a great number of tent rings were noted, but no associated artifacts other than caribou bones. Of special

							note was an oval karigi, some 35' in its longest interior dimension, marked by wall boulders up to 5' in diameter, some of which bear petroglyphs.
XHP-00022	Tupichalik Creek	Village	Unknown	Unknown	N/A		D.C. Foote (1965:Map 24) apparently locates winter houses in the upper reaches of Tupichalik Creek, which drains into Desperation Lake.
XHP-00024	Nanirailik	Village	Unknown	Unknown	N/A		Burch (p.c. to Hall) noted this locality as a fall concentration zone for families from the Upper Noatak regional group.
XHP-00026	Makpik	Large Village	7	Unknown	N/A		Seven or more semi-subterranean houses and numerous cache pits were located at this site. T.D. Hamilton (p.c. to Hall) reported that the site was stratified, but Hall found no evidence to support this contention. Spalls were noted but apparently not retained. Burch (p.c. to Hall) noted this locality as a fall concentration zone for families from the Upper Naotak regional group.
XHP-00028	Nazvarzug	Village	Unknown	Unknown	N/A		Burch (p.c. to Hall) noted this as a fall concentration zone for families from the Upper Noatak regional group. This locality is represented

							by a number of recorded sites (XPH-004, XPH-008, XPH-009, XPH-010, XPH-029, and XPH-399).
XHP-00029		Small Village	2	Unknown	N/A		Hall located two semi-subterranean houses on a willow-cloaked hillside about 400 yards east of the southeast corner of Feniak Lake. The house are similar to, but more compact than, others at the lake. A midden deposit was noted south of the houses. A small test yielded caribou bone.
XHP-00031		Village	Unknown	Historic Occupation	Occupation Dates		S.B. McLenegan (1887) apparently noted houses on the north bank of Noatak River, just upstream from the mouth of Makpik Creek (location not exact).
XHP-00033	Okak Bend	Village	Unknown	Unknown	N/A		Irving (p.c. to Hall) reported a summer camp of 8-10 willow tent frames, bow pieces, and wooden dish fragments on the south side of the river, at Okak Bend. Irving suggested that the stream had been dammed for a weir. Burch (p.c. to Hall) noted Okak Bend as a fall concentration zone for families from the Upper Noatak regional group. Apparently D.C. Foote (1965:Map 24) also noted winter houses at this location.[See also XHP-034.]
XHP-00034		Village	Unknown	Unknown	N/A		S.B. McLenegan (1887) apparently noted houses on the north side of Okak Bend.

XHP-00035		Small Village	5	Unknown	N/A	P.S. Smith (1913:45) apparently noted several abandoned huts and boat frames and covers on the willow-covered stream bank. Hall investigated the site in 1962, noting one rectangular semi-subterranean house and four hearths, and excavated one house completely and one house partially. Three other summer houses were not disturbed. Thirty artifacts and caribou bones were recovered and a collection of pottery was made from the riverbank.
XHP-00036	Kiingyak Lake	Single House	1	Unknown	N/A	Hall originally located 14 cache pits and caribou bone on a beach ridge at the north end of the lake. Davis, et al., later investigated the area, noting 14 cache pits, a possible house pit, a scatter of modern garbage, and Hall's test pits. A test of the 5m x 2m possible house pit failed to produce evidence of cultural activity. A second area, about 49m to the southeast, consisted of a 10cm thick bone layer exposed in the eroded 1m high bluff. A late prehistoric antler projectile point was recovered from below the bluff layer. Behind this bluff, on a small knoll, an apparent tent ring and hearth were noted.

XHP-00583	Hick's Site	Single House	1	Outside Study Period	Cultural Association	<p>The structure is sub-rectangular in form; its southern and western walls are generally linear and well-defined, and its northern and eastern ones less clear but apparently somewhat curved. The structure was disturbed at some point after abandonment, and several rocks from its northern wall were removed, probably to construct a cairn of unknown cultural affiliation and age, located ca. 40 m to the east at the edge of the outwash delta. Cobbles that once formed part of the northern half of the axial feature have been piled in the center of the structure, perhaps by the occupants at the time of abandonment as has been observed in mid-passage Dorset structures dated to around 800 years ago in the Canadian Arctic. Interior dimensions are ca. 3 m x 3.5m. The structure does not appear to have been deliberately dug into the surface, but its floor is slightly lower than the terrain on the northern side, probably because small rocks were cleared from the floor and tossed in that direction during construction.</p>
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Appendix B: House Size Data

AHRS Site Number	Site Name	Temporal Period	Feature Number	Main Room Area (sq m)	House Type	Reference	Available Measurements
BEN-00185		Before 500 BP	1	10.50000000000	Single Room	BIA; Powers 1982	Data presented
KTZ-00008		Before 500 BP	1	12.00000000000	Single Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	2	36.79000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	3	13.00000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	4	18.00000000000	Single Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	5	32.50000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	6	3.14000000000	Single Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	7	19.00000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	8	13.75000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	9	44.58000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	10	21.00000000000	Single Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	11	6.00000000000	Single Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	12	20.00000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	13	16.50000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	14	7.00000000000	Single	Powers 1982	Data table

		BP			Room		
KTZ-00008		Before 500 BP	15	16.14000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	16	30.02000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	17	25.00000000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	18	7.18750000000	Multi-Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	19	10.07000000000	Single Room	Powers 1982	Data table
KTZ-00008		Before 500 BP	20	10.50000000000	Multi-Room	Powers 1982	Data table
KTZ-00023		Before 500 BP	N/A	96.00000000000	Single Room	Larson 1950	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 1	18.21000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 2	14.86000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 3	13.47000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 4	14.86000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 5	13.24000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 6	13.94000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 7	13.94000000000	Single Room	VanStone 1955	Data presented
KTZ-00031	Old Kotzebue	Before 500 BP	House 8	20.07000000000	Single Room	VanStone 1955	Data presented
KTZ-00068		Before 500 BP	Feature 1	12.30000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00087		Before 500	Feature 1	15.54000000000	Single	Schaaf 1988	Data presented

		BP			Room		
KTZ-00087		Before 500 BP	Feature 2a	26.6000000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 2a	18.1300000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 3	18.5000000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 4	31.3200000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 5	17.1700000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 13	14.3500000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 14	10.8000000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 15	9.3000000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 16	11.7000000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 17a	8.5050000000	Single Room	Schaaf 1988	Data presented
KTZ-00087		Before 500 BP	Feature 17b	9.6725000000	Single Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 1b	11.3750000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 4a	18.0600000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 5	15.6000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 6	11.5500000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 7	15.2100000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 11	15.0500000000	Multi-Room	Schaaf 1988	Data presented

		BP					
KTZ-00130		Before 500 BP	Feature 12	10.920000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 15	10.350000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 16	17.600000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 17	12.180000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 18	10.300000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 19	8.250000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 20	21.070000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 21	12.765000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 22	8.750000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 23	24.150000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 24	28.800000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 1a	10.230000000000	Single Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 3	22.550000000000	Single Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 4b	24.180000000000	Single Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 8	8.960000000000	Single Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 9	11.400000000000	Single Room	Schaaf 1988	Data presented
KTZ-00130		Before 500 BP	Feature 10	14.440000000000	Single Room	Schaaf 1988	Data presented

		BP			Room		
KTZ-00130		Before 500 BP	Feature 13	14.70000000000	Single Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 4	24.08000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 6	12.25000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 9	18.75000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 10	13.20000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 11	31.02000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 12	28.60000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00131		Before 500 BP	Feature 7	7.56000000000	Single Room	Schaaf 1988	Data presented
KTZ-00299		Before 500 BP	AU 34	17.57500000000	Single Room	Bowers 2009	Data and map measured
KTZ-00300		Before 500 BP	House 1	18.65000000000	Multi-Room	Bowers 2009	Data and map measured
KTZ-00301		Before 500 BP	House 2	11.84000000000	Single Room	Bowers 2009	Data presented
NOA-00158		Before 500 BP	N/A	47.25000000000	Single Room	McClenahan and Gibson 1990II	Data and map measured
NOA-00274		Before 500 BP	6	22.42000000000	Multi-Room	McClenahan and Gibson 1990II	Data and map measured
NOA-00274		Before 500 BP	10	32.45000000000	Multi-Room	McClenahan and Gibson 1990II	Data and map measured
NOA-00274		Before 500 BP	13	26.21000000000	Single Room	McClenahan and Gibson 1990II	Data and map measured
NOA-00383		Before 500 BP	4A	6.92286929658	Single Room	CAKR Project	GIS measurements
NOA-00383		Before 500 BP	6A	9.10146901234	Single Room	CAKR Project	GIS measurements

		BP			Room		
NOA-00383		Before 500 BP	1A	9.78832854229	Single Room	CAKR Project	GIS measurements
NOA-00383		Before 500 BP	5A	13.70862706360	Single Room	CAKR Project	GIS measurements
NOA-00383		Before 500 BP	3A	14.19956757160	Single Room	CAKR Project	GIS measurements
NOA-00383		Before 500 BP	Unknown	77.85282400000	Single Room	CAKR Project	GIS measurements
NOA-00383		Before 500 BP	Unknown	118.19804300000	Single Room	CAKR Project	GIS measurements
NOA-00468		Before 500 BP	2	33.91073441210	Single Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	1A	8.97990795452	Single Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	1	26.69562000390	Multi-Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	3	41.11413500000	Single Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	1	112.53314400000	Multi-Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	3	66.69711800000	Multi-Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	1	87.21116400000	Multi-Room	CAKR Project	GIS measurements
NOA-00473		Before 500 BP	2	95.91951400000	Single Room	CAKR Project	GIS measurements
NOA-00509		Before 500 BP	1A	37.31861544000	Single Room	CAKR Project	GIS measurements
NOA-00509		Before 500 BP	2A	116.8753553180	Single Room	CAKR Project	GIS measurements
NOA-00531		Before 500 BP	1	38.05476854300	Single Room	CAKR Project	GIS measurements
NOA-00531		Before 500	2	49.85900849670	Single	CAKR Project	GIS measurements

		BP			Room		
NOA-00534		Before 500 BP	Unknown	9.31076900000	Single Room	CAKR Project	GIS measurements
NOA-00534		Before 500 BP	Unknown	39.98657900000	Single Room	CAKR Project	GIS measurements
NOA-00534		Before 500 BP	Unknown	72.28651700000	Single Room	CAKR Project	GIS measurements
NOA-00555		Before 500 BP	1B	45.80259389280	Single Room	CAKR Project	GIS measurements
NOA-00556		Before 500 BP	1B	13.47628743770	Single Room	CAKR Project	GIS measurements
NOA-00556		Before 500 BP	1B	18.57947589540	Single Room	CAKR Project	GIS measurements
NOA-00556		Before 500 BP	Unknown	14.84406000000	Single Room	CAKR Project	GIS measurements
NOA-00578		Before 500 BP	Unknown	170.98832700000	Multi-Room	CAKR Project	GIS measurements
NOA-00578		Before 500 BP	Unknown	92.75229000000	Single Room	CAKR Project	GIS measurements
NOA-00578		Before 500 BP	Unknown	186.62732300000	Single Room	CAKR Project	GIS measurements
NOA-00578		Before 500 BP	Unknown	41.06903100000	Single Room	CAKR Project	GIS measurements
NOA-00578		Before 500 BP	Unknown	32.42737200000	Single Room	CAKR Project	GIS measurements
TEL-00093		Before 500 BP	3	48.45000000000	Single Room	Schaaf 1988	Data presented
TEL-00093		Before 500 BP	5	49.50000000000	Single Room	Schaaf 1988	Data presented
XBM-00003	Ahteut	Before 500 BP	House 3S	8.88000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House 14S	14.04000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House	5.40000000000	Multi-Room	Unpublished NPS data	GIS measurements

		BP	15S				
XBM-00003	Ahteut	Before 500 BP	House a	20.12500000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House c	16.25000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House d	12.21000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House e	11.76000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House f	9.00000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House g	6.90000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House h	12.03500000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House i	12.06000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House j	15.12500000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House k	12.64000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House l	9.60000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House a	4.00000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House b	13.80000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House c	14.40000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House 7S	8.12000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House 8S	14.26000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House 9S	9.66000000000	Single Room	Unpublished NPS data	GIS measurements

		BP			Room		
XBM-00003	Ahteut	Before 500 BP	House 13S	17.220000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00003	Ahteut	Before 500 BP	House b	27.280000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00009	Ekseavik	Before 500 BP	House 1	24.42715970000	Single Room	Giddings, JL 1952	Data presented
XBM-00009	Ekseavik	Before 500 BP	House 2	22.69955330000	Single Room	Giddings, JL 1952	Data presented
XBM-00009	Ekseavik	Before 500 BP	House 3	21.39981070000	Single Room	Giddings, JL 1952	Data presented
XBM-00009	Ekseavik	Before 500 BP	House 4	21.39891070000	Single Room	Giddings, JL 1952	Data and map measured
XBM-00009	Ekseavik	Before 500 BP	House 5	24.14293580000	Single Room	Giddings, JL 1952	Data and map measured
XBM-00009	Ekseavik	Before 500 BP	House 6	25.47518400000	Single Room	Giddings, JL 1952	Data and map measured
XBM-00009	Ekseavik	Before 500 BP	House 7	18.50745600000	Single Room	Giddings, JL 1952	Data presented
XBM-00009	Ekseavik	Before 500 BP	House 8	25.68549600000	Single Room	Giddings, JL 1952	Data presented
XBM-00009	Ekseavik	Before 500 BP	House 11	39.01927680000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 1	81.840000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 2	20.880000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 3	17.840000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 4	13.010000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 5	12.630000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 6	14.860000000000	Single Room	Giddings, JL 1952	Data presented

		BP			Room		
AMR-00002	Ambler Island	After 500 BP	House 7	16.350000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 8	14.310000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 9	15.610000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 10	18.950000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 11	13.010000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 12	16.720000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 13	20.070000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 14	11.710000000000	Single Room	Giddings, JL 1952	Data presented
AMR-00002	Ambler Island	After 500 BP	House 15	19.420000000000	Single Room	Giddings, JL 1952	Data presented
BEN-00029		After 500 BP	House 1	18.000000000000	Single Room	Schaaf 1988	Data presented
BEN-00029		After 500 BP	House 2	11.250000000000	Single Room	Schaaf 1988	Data presented
BEN-00033	Cloud Lake Village	After 500 BP	Feature 6	241.250000000000	Single Room	Adams 1977	Data presented
BEN-00033	Cloud Lake Village	After 500 BP	Feature 7	27.500000000000	Single Room	Adams 1977	Data presented
BEN-00033	Cloud Lake Village	After 500 BP	Feature 8	36.000000000000	Single Room	Adams 1977	Data presented
BEN-00053		After 500 BP	Feature 1	12.540000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 2	27.880000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 3	16.320000000000	Single	Schaaf 1988	Data presented

		BP			Room		
BEN-00053		After 500 BP	Feature 4	14.40000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 6	11.56000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 7	64.60000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 9	26.40000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 13	27.84000000000	Single Room	Schaaf 1988	Data presented
BEN-00053		After 500 BP	Feature 14	17.16000000000	Single Room	Schaaf 1988	Data presented
CAN-00004	Iqalugruaq	After 500 BP	B	15.12000000000	Single Room	BIA Report (F22908)	Data presented
CAN-00004	Iqalugruaq	After 500 BP	D	10.88000000000	Single Room	BIA Report (F22908)	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 1 Locality A	26.24000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 2 Locality A	25.37000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 3 Locality A	21.84000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 5 Locality C	26.64000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 6 Locality C	10.08000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 9 Locality C	4.56000000000	Multi-Room	Schaaf 1988	Data presented

KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 10 Locality C	7.04000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 13 Locality C	14.10000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 14 Locality C	26.17500000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 1 Locality C	18.50000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 3 Locality C	9.60000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 4 Locality C	38.28000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 7 Locality C	33.77500000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 11 Locality C	17.28000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 1 Locality B	17.00000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 3 Locality B	14.44000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 7 Locality B	9.45000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 8 Locality B	13.17500000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 10 Locality B	13.97200000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 12 Locality B	11.55000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 13 Locality B	10.56000000000	Multi-Room	Schaaf 1988	Data presented

KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 2 Locality B	30.82000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 11 Locality B	5.13000000000	Single Room	Schaaf 1988	Data presented
KTZ-00009	Kividluk, Kividlo	After 500 BP	Feature 2 Locality D	28.48000000000	Single Room	Schaaf 1988	Data presented
KTZ-00030	Intermediate Kotzebue	After 500 BP	House 1	12.64000000000	Single Room	Giddings 1952	Data presented
KTZ-00030	Intermediate Kotzebue	After 500 BP	House 3	9.20000000000	Single Room	Giddings 1952	Data presented
KTZ-00030	Intermediate Kotzebue	After 500 BP	House 7	49.05000000000	Single Room	Giddings 1952	Data presented
KTZ-00030	Intermediate Kotzebue	After 500 BP	House 8	8.36000000000	Single Room	Giddings 1952	Data presented
KTZ-00030	Intermediate Kotzebue	After 500 BP	House 12	15.33000000000	Single Room	Giddings 1952	Data presented
KTZ-00054		After 500 BP	Feature 2	7.04000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00054		After 500 BP	Feature 1	5.27000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 1	4.41000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 2	8.75000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 3	5.04000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 4	9.43000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 5	9.75000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 6	4.48000000000	Single Room	Schaaf 1988	Data presented

KTZ-00055		After 500 BP	Feature 7	3.99000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 8	7.36000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 9	5.52000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 10	6.00000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 11	3.42000000000	Single Room	Schaaf 1988	Data presented
KTZ-00055		After 500 BP	Feature 12	7.56000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 2	14.00000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 1	8.41000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 3	4.75000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 4	5.44000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 5	5.27000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 6	5.44000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 7	4.20000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 8	6.51000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 10	4.16000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 11	4.32000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 12	8.40000000000	Single Room	Schaaf 1988	Data presented

KTZ-00056		After 500 BP	Feature 13	7.20000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 14	9.02000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 15	4.42000000000	Single Room	Schaaf 1988	Data presented
KTZ-00056		After 500 BP	Feature 16	5.40000000000	Single Room	Schaaf 1988	Data presented
KTZ-00060		After 500 BP	Feature 1	26.64000000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 2	9.36000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 6	14.40000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 1	8.50500000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 3	11.10000000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 4	14.21000000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 5a	10.56000000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 5b	8.74000000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 7	10.44000000000	Single Room	Schaaf 1988	Data presented
KTZ-00088		After 500 BP	Feature 8	14.35000000000	Single Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 1	18.52500000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 2	27.84000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 3	13.60000000000	Multi-Room	Schaaf 1988	Data presented

KTZ-00090		After 500 BP	Feature 4	16.660000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 6	30.380000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 8	26.100000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 9	21.855000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 5	21.240000000000	Single Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 7	40.710000000000	Single Room	Schaaf 1988	Data presented
KTZ-00090		After 500 BP	Feature 11	27.295000000000	Single Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 1	21.600000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 2	15.480000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 4	14.000000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 5	17.550000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 6	17.500000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 9	17.720000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 10	6.600000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 3	12.250000000000	Single Room	Schaaf 1988	Data presented
KTZ-00101		After 500 BP	Feature 7	15.640000000000	Single Room	Schaaf 1988	Data presented
KTZ-00148		After 500 BP	Feature 3	19.350000000000	Multi-Room	Schaaf 1988	Data presented

KTZ-00148		After 500 BP	Feature 4	26.40000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00148		After 500 BP	Feature 10	24.20000000000	Multi-Room	Schaaf 1988	Data presented
KTZ-00148		After 500 BP	Feature 1	27.00000000000	Single Room	Schaaf 1988	Data presented
KTZ-00148		After 500 BP	Feature 9	23.00000000000	Single Room	Schaaf 1988	Data presented
KTZ-00148		After 500 BP	Feature 11	131.04000000000 0	Single Room	Schaaf 1988	Data presented
KTZ-00171		After 500 BP	3	9.45248765800	Single Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	1	14.16579864000	Single Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	2	20.96926316000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	7	11.66212230000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	6	17.24431918000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	5	10.52851791000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	9	14.74659501000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	11	20.12622107000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	13	12.74086604000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00171		After 500 BP	15	14.39506670000	Multi-Room	Darwent et al. 2012	Data presented
KTZ-00298		After 500 BP	2	16.07000000000	Single Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	4	17.00000000000	Multi-Room	BIA F-22301	Data presented

KTZ-00298		After 500 BP	6	9.50000000000	Single Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	11	11.16000000000	Single Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	17	21.04000000000	Multi-Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	20	26.95000000000	Single Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	31	11.53000000000	Single Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	53	50.46000000000	Multi-Room	BIA F-22301	Data presented
KTZ-00298		After 500 BP	54A/B	24.80000000000	Multi-Room	BIA F-22301	Data presented
NOA-00003	Aniyak	After 500 BP	Unknown	30.78992300000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	20.99588100000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	29.12839800000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	15.59010900000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	15.06170200000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	22.89644400000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	18.91865300000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	32.31866500000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	17.73475500000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	14.37435800000	Single Room	CAKR Project	GIS measurements

NOA-00003	Aniyak	After 500 BP	Unknown	8.50591700000	Single Room	CAKR Project	GIS measurements
NOA-00003	Aniyak	After 500 BP	Unknown	23.63868900000	Single Room	CAKR Project	GIS measurements
NOA-00140	Anigaaq C	After 500 BP	1	12.00000000000	Single Room	BIA F21237 C	Data presented
NOA-00140	Anigaaq C	After 500 BP	2	9.00000000000	Single Room	BIA F21237 C	Data presented
NOA-00140	Anigaaq C	After 500 BP	3	14.00000000000	Single Room	BIA F21237 C	Data presented
NOA-00140	Anigaaq C	After 500 BP	4	30.00000000000	Single Room	BIA F21237 C	Data presented
NOA-00140	Anigaaq C	After 500 BP	5	8.10000000000	Single Room	BIA F21237 C	Data presented
NOA-00140	Anigaaq C	After 500 BP	6	17.60000000000	Single Room	BIA F21237 C	Data presented
NOA-00140	Anigaaq C	After 500 BP	7	38.50000000000	Single Room	BIA F21237 C	Data presented
NOA-00161		After 500 BP	3	12.24000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00161		After 500 BP	4	26.76200000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00162		After 500 BP	1	34.65000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00163		After 500 BP	10	26.25000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00164		After 500 BP	3	25.44000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00164		After 500 BP	6	33.30000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00188		After 500 BP	1	12.96000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00217	Agiaguat	After 500 BP	6	40.40000000000	Single Room	McClenahan and Gibson 1990II	Data presented

NOA-00217	Agiaguat	After 500 BP	10	57.450000000000	Single Room	McClenahan and Gibson 1990II	Data presented
NOA-00284	Aitiligauraq	After 500 BP	House 1	10.830000000000	Single Room	Giddings 1952	Data presented
NOA-00284	Aitiligauraq	After 500 BP	House 2	18.000000000000	Single Room	Giddings 1952	Data presented
NOA-00301	Igrugaivik Creek Camp	After 500 BP	1	21.700000000000	Single Room	Grover, M. 2001	Data presented
NOA-00301	Igrugaivik Creek Camp	After 500 BP	2	9.146400000000	Single Room	Grover, M. 2001	Data presented
NOA-00474		After 500 BP	1B	11.61247192890	Single Room	CAKR Project	GIS measurements
PSU-2013-06 (Nuluk)		After 500 BP	1	2.907220000000	Single Room	Nuluk Project	GIS measurements
SHF-00043		After 500 BP	Feature 1	17.500000000000	Multi-Room	Schaaf 1988	Data presented
SHF-00043		After 500 BP	Feature 2	16.400000000000	Multi-Room	Schaaf 1988	Data presented
SHU-00009	Shungnak	After 500 BP	n/a	13.680000000000	Single Room	Giddings 1952	Data presented
SLK-00044		After 500 BP	8	12.000000000000	Single Room	BIA FF17627B	Data presented
SLK-00102	Dobuk	After 500 BP	1	12.250000000000	Single Room	AHRS	Data presented
SOL-00068	Okpiktulik	After 500 BP	A	90.600000000000	Single Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	B	34.360000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	F	48.870000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	L	35.605000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	M	58.960000000000	Multi-Room	BIA F-21889	Data presented

SOL-00068	Okpiktulik	After 500 BP	Q	52.415000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	S	55.800000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	Z	19.080000000000	Single Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	CC	94.170000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	GG	54.220000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	HH	133.230000000000	Single Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	II	68.730000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	SS	88.330000000000	Multi-Room	BIA F-21889	Data presented
SOL-00068	Okpiktulik	After 500 BP	XX	48.280000000000	Single Room	BIA F-21889	Data presented
TEL-00007		After 500 BP	1	15.000000000000	Single Room	Powers 1982	Data presented
TEL-00007		After 500 BP	2	61.500000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	3	45.700000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	4	67.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	5	68.150000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	6	16.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	7	45.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	8	23.000000000000	Multi-Room	Powers 1982	Data presented

TEL-00007		After 500 BP	9	38.500000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	10	25.000000000000	Single Room	Powers 1982	Data presented
TEL-00007		After 500 BP	11	42.750000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	12	40.500000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	13	35.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	15	68.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	16	27.500000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	17	36.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	18	20.000000000000	Single Room	Powers 1982	Data presented
TEL-00007		After 500 BP	19	9.000000000000	Single Room	Powers 1982	Data presented
TEL-00007		After 500 BP	20	79.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	21	25.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	22	48.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	23	56.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	24	84.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	25	82.000000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	26	36.500000000000	Multi-Room	Powers 1982	Data presented

TEL-00007		After 500 BP	27	66.750000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	28	46.500000000000	Multi-Room	Powers 1982	Data presented
TEL-00007		After 500 BP	29	42.250000000000	Single Room	Powers 1982	Data presented
TEL-00060		After 500 BP	1	38.250000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	2	57.760000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	3	11.880000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	4	19.630000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	5	31.800000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	6	59.170000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	7	28.000000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	8	105.790000000000 0	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	9	67.280000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	10	43.000000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	12	53.500000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	13	37.840000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	14	45.200000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	15	38.000000000000	Multi-Room	BIA F-21978A	Data presented

TEL-00060		After 500 BP	17	26.180000000000	Single Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	18	54.590000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00060		After 500 BP	19	43.700000000000	Multi-Room	BIA F-21978A	Data presented
TEL-00086		After 500 BP	Feature 7a	24.500000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00086		After 500 BP	Feature 8	7.360000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00086		After 500 BP	Feature 12	19.500000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00086		After 500 BP	Feature 14	17.550000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00086		After 500 BP	Feature 3	22.000000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00086		After 500 BP	Feature 4	8.190000000000	Single Room	Schaaf 1988	Data presented
TEL-00087		After 500 BP	Feature 2-5	16.800000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00087		After 500 BP	Feature 7,9,10	16.100000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00096		After 500 BP	Feature 1	13.500000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00096		After 500 BP	Feature 10	12.000000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00096		After 500 BP	Feature 5a	15.200000000000	Single Room	Schaaf 1988	Data presented
TEL-00096		After 500 BP	Feature 5b	10.080000000000	Single Room	Schaaf 1988	Data presented
TEL-00099		After 500 BP	Feature 3	7.000000000000	Multi-Room	Schaaf 1988	Data presented
TEL-00099		After 500 BP	Feature 5	10.890000000000	Multi-Room	Schaaf 1988	Data presented

TEL-00099		After 500 BP	Feature 6	17.280000000000	Single Room	Schaaf 1988	Data presented
TEL-00099		After 500 BP	Feature 1-14	11.780000000000	Single Room	Schaaf 1988	Data presented
TEL-00232		After 500 BP	1A	8.443230000000	Single Room	Nuluk Project	GIS measurements
TEL-00232		After 500 BP	2A	7.395440000000	Single Room	Nuluk Project	GIS measurements
TEL-00232		After 500 BP	3A	13.899400000000	Single Room	Nuluk Project	GIS measurements
TEL-00232		After 500 BP	4A	8.122710000000	Single Room	Nuluk Project	GIS measurements
TEL-00233		After 500 BP	1A	111.222000000000	Single Room	Nuluk Project	GIS measurements
TEL-00233		After 500 BP	2A	45.636800000000	Single Room	Nuluk Project	GIS measurements
TEL-00249		After 500 BP	1A	14.425400000000	Single Room	Nuluk Project	GIS measurements
TEL-00249		After 500 BP	2A	11.099000000000	Single Room	Nuluk Project	GIS measurements
TEL-00249		After 500 BP	3A	10.549300000000	Single Room	Nuluk Project	GIS measurements
TEL-00249		After 500 BP	4A	0.674600000000	Single Room	Nuluk Project	GIS measurements
TEL-00250		After 500 BP	1A	5.311870000000	Single Room	Nuluk Project	GIS measurements
TEL-00251		After 500 BP	1A	1.463890000000	Single Room	Nuluk Project	GIS measurements
TEL-00252		After 500 BP	1A	3.133910000000	Single Room	Nuluk Project	GIS measurements
TEL-00256		After 500 BP		13.773200000000	Single Room	Nuluk Project	GIS measurements
TEL-00257		After 500 BP		3.020800000000	Single Room	Nuluk Project	GIS measurements

TEL-00258		After 500 BP		3.29509000000	Single Room	Nuluk Project	GIS measurements
TEL-00260		After 500 BP	1A	6.85063000000	Single Room	Nuluk Project	GIS measurements
TEL-00260		After 500 BP	2A	3.44095000000	Single Room	Nuluk Project	GIS measurements
TEL-00263		After 500 BP	1A	5.57867000000	Single Room	Nuluk Project	GIS measurements
TEL-00263		After 500 BP	2A	4.96776000000	Single Room	Nuluk Project	GIS measurements
TEL-00264		After 500 BP	1A	14.46940000000	Single Room	Nuluk Project	GIS measurements
TEL-00264		After 500 BP	2A	2.31564000000	Single Room	Nuluk Project	GIS measurements
TEL-00264		After 500 BP	3A	2.05634000000	Single Room	Nuluk Project	GIS measurements
TEL-00269		After 500 BP	1	9.89934000000	Single Room	Port Clarence Project	GIS measurements
TEL-00269		After 500 BP	2	27.49700000000	Single Room	Port Clarence Project	GIS measurements
TEL-00269		After 500 BP	3	17.55140000000	Single Room	Port Clarence Project	GIS measurements
TEL-00269		After 500 BP	4	26.43860000000	Single Room	Port Clarence Project	GIS measurements
TEL-00272		After 500 BP	3	13.34460000000	Single Room	Port Clarence Project	GIS measurements
TEL-00272		After 500 BP	1	12.11100000000	Single Room	Port Clarence Project	GIS measurements
TEL-00273		After 500 BP	5	32.65190000000	Single Room	Port Clarence Project	GIS measurements
TEL-00273		After 500 BP	8	16.99770000000	Single Room	Port Clarence Project	GIS measurements
TEL-00272		After 500 BP	10	46.59770000000	Single Room	Port Clarence Project	GIS measurements

TEL-00278		After 500 BP	1	27.11730000000	Single Room	Port Clarence Project	GIS measurements
TEL-00278		After 500 BP	2	20.37500000000	Single Room	Port Clarence Project	GIS measurements
TEL-00278		After 500 BP	6	10.77090000000	Single Room	Port Clarence Project	GIS measurements
TEL-00278		After 500 BP	1	27.15880000000	Single Room	Port Clarence Project	GIS measurements
TEL-00278		After 500 BP	2	20.43860000000	Single Room	Port Clarence Project	GIS measurements
TEL-00278		After 500 BP	3	15.69160000000	Single Room	Port Clarence Project	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House f	17.32000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House g	21.88000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House p	24.94000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House r	28.67000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House u	35.06000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House v	15.04000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House z	4.94000000000	Multi-Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House a	13.15000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House b	10.01000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House c	9.76000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House d	10.51000000000	Single Room	Unpublished NPS data	GIS measurements

XBM-00001	Kavet Creek	After 500 BP	House e	17.280000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House h	29.270000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House i	26.690000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House j	15.720000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House k	7.290000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House l	7.770000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House m	17.720000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House n	9.650000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House o	14.710000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House q	15.820000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House s	11.360000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House t	16.510000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House x	10.550000000000	Single Room	Unpublished NPS data	GIS measurements
XBM-00001	Kavet Creek	After 500 BP	House y	23.070000000000	Single Room	Unpublished NPS data	GIS measurements