

## Arctic Cultural Heritage At Risk (Arctic CHAR): Climate Change Impacts on the Inuvialuit Archaeological Record

Progress Report on the 2016 Field Season, Prepared by Max Friesen



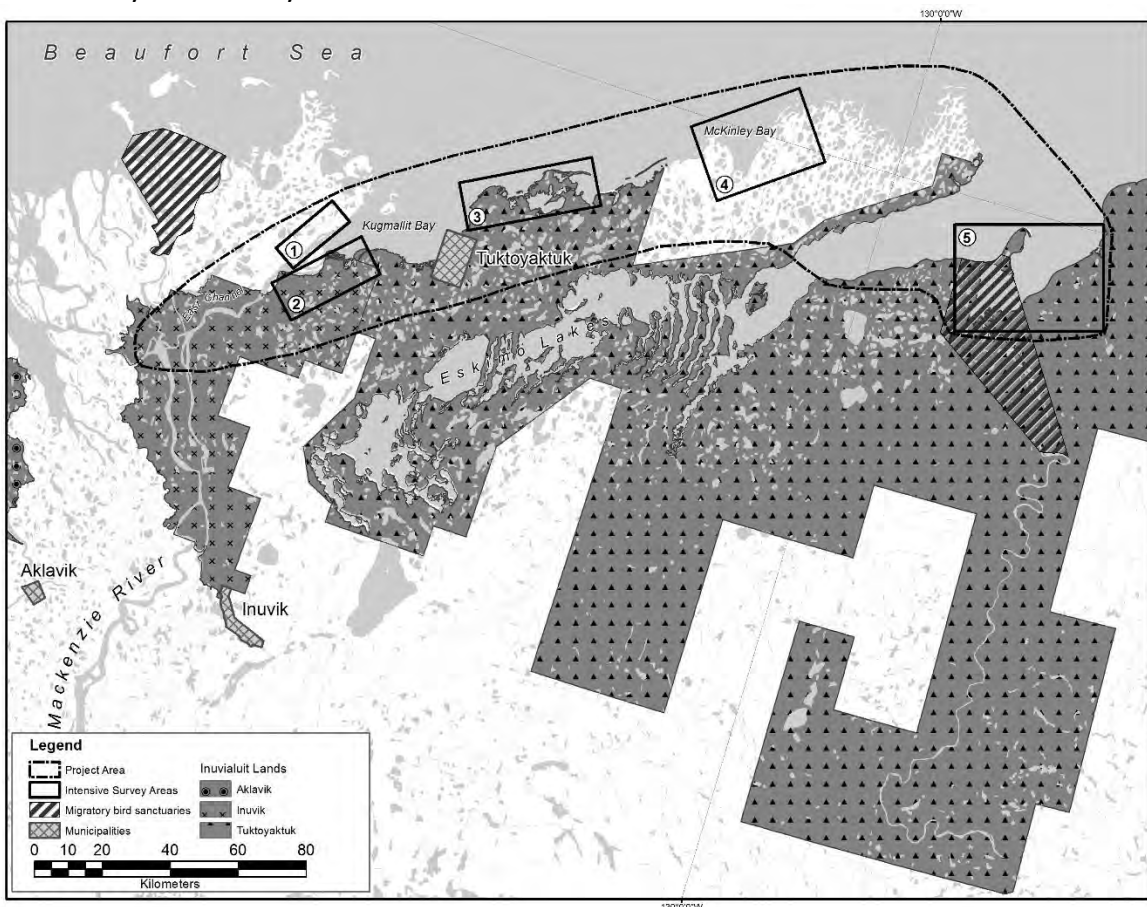
*2016 survey of the beach at Kuukpak, during low tide. All beluga whale bones, stones, and other objects have eroded from houses on the river bank.*

## Background

The Lower East Channel of the Mackenzie River, including eastern Richards Island and the north coast of the Tuktoyaktuk Peninsula, is home to many important Inuvialuit heritage sites – some date back as much as 700 years ago. This includes the major settlements of Kitigaaryuit (Kittigazuit), Kuukpak, and Nuvugaq (Atkinson Point), but also many other winter villages, smaller camps, and areas which saw specialized hunting and fishing.

However, these sites are now threatened by climate change, which is causing erosion of the coasts where Inuvialuit built their largest villages. For example, the site of Nuvugaq, which once held at least 17 large houses, is now completely destroyed by erosion. Warmer temperatures are also causing the permafrost to thaw, so delicate artifacts that have been frozen for centuries are now rotting and being destroyed.

The project “Arctic Cultural Heritage At Risk” (Arctic CHAR) is a collaboration between the University of Toronto and the Inuvialuit Cultural Resource Centre. The project is designed to reveal which heritage sites are most at risk, and then to excavate selected sites in order to save their contents before they are destroyed.



Map: The Arctic Char Project Area. The dotted line shows the overall project area, and the five numbered rectangles show areas of intensive survey (area 5 was added in 2015 at the request of the Tuktoyaktuk HTC). Most work in 2016 occurred at the site of Kuukpak in Area 1, on Richards Island.

## ***Results of the 2016 Field Season***

The 2016 field season saw intensive excavations at Kuukpak, on Richards Island. Kuukpak is an extremely important Inuvialuit heritage site – it was the central village of the Kuukpangmiut, a large and powerful regional group who lived across Kugmallit Bay from Kitigaaryuit. Kuukpak is probably the largest site in the entire Inuvialuit region. It stretches for almost a kilometer along the bank of the Mackenzie River, and currently has the remains of at least 23 houses. However, much of the site has suffered serious erosion, and it probably once held over 40 very large houses. As described in *Nuna Aliannaittuq – Beautiful Land: Learning About Traditional Place Names from Tuktoyaktuk Elders* (ICRC 2011, page 24), not much is known about Kuukpak because it was abandoned during the 1800s. However, we do know that its inhabitants moved across Kugmallit Bay to join the Kitigaaryungmiut in the late 1800s.

In 2016, a team of ten people worked at Kuukpak for six weeks. During that time, we recorded erosion damage, test excavated one house, and finished the excavation of the very large house that we started excavating in 2014. The results of the excavations were spectacular. The large 3-alcove “cruciform” igluryuaq (winter house) turned out to be much more complicated than we expected. Beneath each of the three sleeping benches, we found at least one additional bench, and in one case two additional benches. This means that the house was re-built several times, and occupied for an extremely long time – probably for many decades and maybe more than a century. The bench areas contained many very finely made artifacts, including combs, needles, ulus, daggers, arrowheads, harpoon heads, and many others. At Kuukpak, we also excavated the upper level of a second house (also started in 2014), but did not have time to finish it. This house is extremely important, because we found glass trade beads in it indicating that it was occupied in the 1800s. This time period is not well understood in the region, so this house will add an important chapter to the area’s history linking the distant past with the modern world. However, during two periods of high water we could see the bluff eroding in front of this house – less than one meter from its front edge!

Also in 2016, we performed one day of helicopter survey, visiting sites on the Tuktoyaktuk Peninsula to assess the rate of erosion.

## ***Next Steps***

The artifacts and animal bones from Kuukpak are currently being studied at the University of Toronto. They are on loan from the Prince of Wales Northern Heritage Centre in Yellowknife, where they will be stored once study is complete.

For 2017, we have changed our plans because of the erosion we saw this past summer. The second house (the one that dates to the 1800s) is in severe danger of erosion. It is possible that it will be destroyed within only 1-2 years. Since it is a unique house – maybe the *only* remaining house dating to this period - it is very important that we save some information from it before it is gone forever. Therefore, in 2017 we plan to return to Kuukpak to excavate it carefully.

***In the following pages, different aspects of the 2016 fieldwork will be described and illustrated.***

### ***Kuukpak Site: Introduction***

The ancient village of Kuukpak is located on the east coast of Richards Island. Most of the houses at the site are located on slopes leading down to the Mackenzie River, and many of these slopes are eroding rapidly. At low tide, great numbers of animal bones and artifacts can be seen on the beach below the houses. Important excavations have been conducted here in the past by Dr. Chuck Arnold, former Director of the Prince of Wales Northern Heritage Centre. However, additional archaeology is important to fill in gaps in our knowledge, and also to rescue parts of the site that are at risk of being destroyed.



*Air photo of Kuukpak. The main site extends along most of the coastline seen on the right of this photo. At bottom right and centre right can be seen open erosion faces with house timbers sliding down the slopes. Below these houses, the beach is covered in stones and bones eroded from the ancient site.*

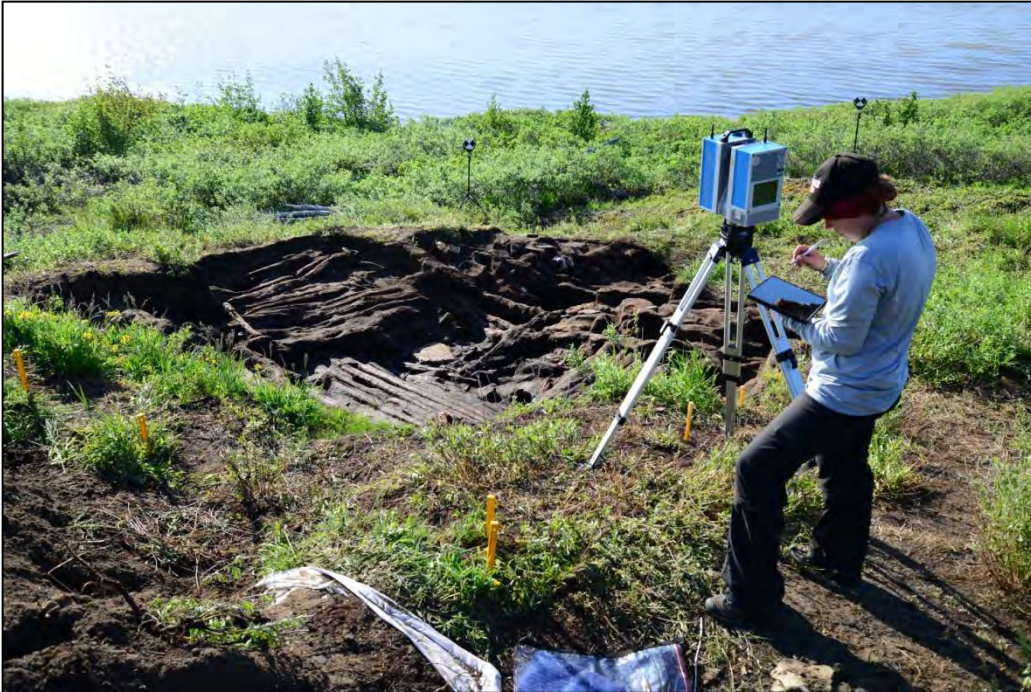
### ***Kuukpak Site Excavation: Cruciform House***

The most important result of the 2016 fieldwork was the completion of our work on a large cruciform house at Kuukpak. Cruciform houses are a unique expression of Inuvialuit culture, as shown in the reconstructed houses in modern Tuktoyaktuk. Cruciform houses were among the largest house types ever built across the early North American Arctic. They have a complex design with three alcoves attached to a central floor area. Each alcove held a raised bench which would have housed a separate family. They were concentrated on the Mackenzie River East Channel, but were also built at other Inuvialuit settlements to the east and west.

Previous archaeological projects in the region have excavated parts of these cruciform houses, and in particular Chuck Arnold's excavations at Kuukpak in the 1980s revealed many details of their construction. However, our excavation of a complete house in 2014 was the first time that an entire house could be seen, mapped, and photographed. In 2016 we returned to this house, to finish the excavation under its floor and also of its entrance tunnel.



*The Kuukpak house fully excavated at the end of 2014. The main floor is in the middle of the photo, the rear bench is to the left, and the two side benches are in the foreground and background. The entrance tunnel can be seen to the right. One unique feature of the house was the very large flat stone located on the floor at the entrance (it can be seen as a white area in the middle of the photo).*



*In 2016, the house was re-opened, in order to dig under the floor. Here, the upper dirt has been removed, and the house is being laser-scanned to store detailed information before the floor is removed.*



*Once the floors were exposed, each log that formed the floor or bench was measured, and then a small piece of wood was removed so that the type of driftwood could be identified.*



*After weeks of digging in the slow-thawing permafrost, the entrance tunnel was exposed. In this photo, the edge of the house's main floor is at the right, and the deep entrance tunnel is at the centre and left.*



*The house was much more complicated than we expected. When we excavated under the benches and floors, we found earlier levels. In the photo above, the two team members are digging at the level of the upper floor, and at the bottom of the photo can be seen a lower, earlier floor.*



*This photo shows the same lower floor as in the photo above. At the bottom centre is a wide, curved notch in the first floor log. This is the katak, which is the entranceway from the tunnel into the main room of the house.*





*In order to understand the foods that ancient people fished and hunted while at Kuukpak, we also excavated one square in front of the house, where the remains of meals would have been discarded. In this photo the main house excavation can be seen in the background, and in the foreground is the square in front of the house which contained thousands of animal bones – mainly fish and beluga whale, but also caribou, moose, seal, bird, fox, and other species.*

## *Artifacts from Kuukpak*



*Sunlight shines through a knife blade made out of nephrite, a clear green stone similar to jade. This blade was found on the beach, where it had eroded out of a house.*



*Two ulu blades are seen where a woman of the house had placed them next to one of the side benches.*



*A beautifully decorated comb found inside the house.*

### ***Delicate organic artifacts***

Because the house was very deep, many artifacts had been frozen into permafrost from the time the house was occupied – therefore they were perfectly preserved. Two examples are shown below.



*Rose Scott, the NWT's chief conservator from the Prince of Wales Northern Heritage Centre, carefully lifts a wooden hunting bow found under the rear bench.*



*A piece of fish net made of whale baleen found at the bottom of the entrance tunnel. All of the delicate organic artifacts are currently in Ottawa at the Canadian Conservation Institute, where they are receiving specialized treatment.*

### ***Kuukpak - Test excavation of a second house***

In addition to the large cruciform house, we also excavated the upper levels of a second house, which we had started in 2014. This house is the only one at Kuukpak that dates to the 1800s, based on several glass trade beads found on the floor. In 2016, we fully exposed the fallen roof, but did not have time to reach the floor or benches. This house is under severe threat of being destroyed, and is only about 1 meter behind an actively-eroding bank (see next page).



*The second house, dating to the 1800s, with the fallen roof fully exposed. The blue tarp at bottom protects the entrance tunnel.*

### ***Erosion at Kuukpak***

In addition to excavating the two houses, we also recorded the locations of many eroding houses. Twice during 2016, water levels were extremely high, and we could see the water actively cutting into the bank. This problem was most severe on the bluff where the house from the 1800s is situated (see previous page). Below are two views of that bluff, at high water and low water.



*The bluff with the 1800s house during an extremely high water event. Arrow indicates where the front of the house is, behind vegetation.*



*The exact same view of the same bluff, at low water.*

### ***Continued Survey work on the Tuktoyaktuk Peninsula***

The team also performed a short survey on the Tuktoyaktuk Peninsula, returning to several sites that are known to be at high risk of erosion. In particular, at the site of McKinley Bay we measured how much erosion had occurred over the past year. This was a particularly devastating year at the site. One house has broken loose from the bluff and slumped down onto the beach.

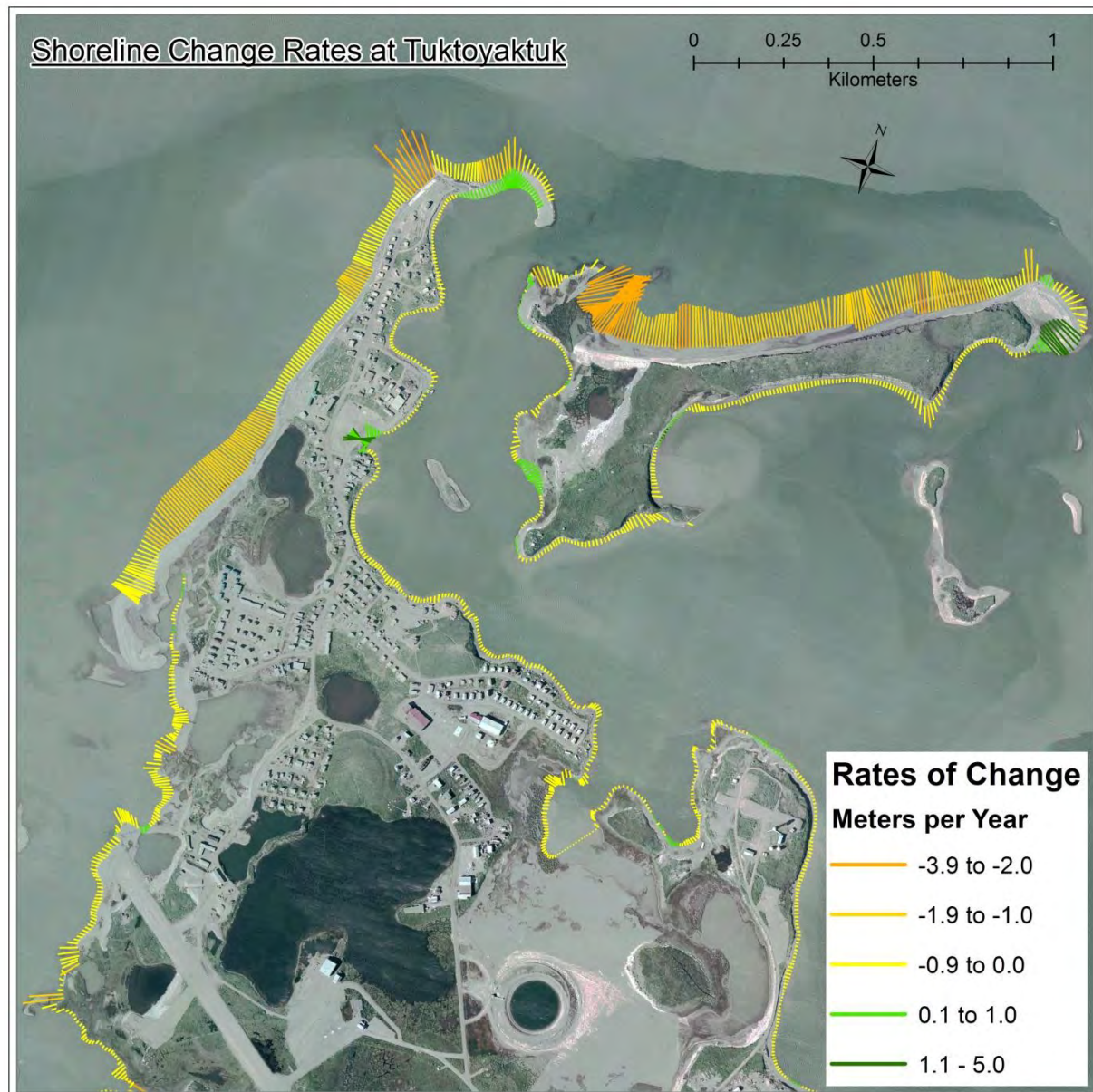


*Eroding house at McKinley Bay. In 2013, this house was still intact and located several meters back from the edge of the bluff. In 2016, it has slumped down onto the beach, and will probably be carried away during high water events this coming spring. At left of photo is the complete floor of the house.*

## Modelling shoreline erosion of archaeological sites

Contributed by project member Mike O'Rourke

A computer model of shoreline change has been developed for the Kugmallit Bay region of the Arctic CHAR study area. Rates of coastal change have been calculated from a series of air photos from 1950, 1972 and 2004, highlighting archaeologically sensitive areas which have been most heavily impacted by erosion. Shoreline change rates for Tuktoyaktuk are shown in the map below, demonstrating the higher rates of erosion on the exposed outer coastal regions of Kugmallit Bay.



*Historical extent of shoreline change around Tuktoyaktuk. The coloured lines represent calculated rates of shoreline change between 1950 and 2004, which include erosion rates as high as 4 meters per year in some areas. (2004 imagery: Mackenzie Valley Air Photo Project - Government of Canada with permission from Indian and Northern Affairs Canada, © 2005). Map prepared by Mike O'Rourke.*

***For More Information...***

For more information, or to provide feedback on this project, please contact Max Friesen:

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