



U.S. Army Corps  
of Engineers  
Alaska District

## **ALASKA BASELINE EROSION ASSESSMENT**

### **Erosion Information Paper – Nunapitchuk, Alaska**

Current as of August 23, 2007

#### **Community Information**

Nunapitchuk (noo-nah-PIT-chuck) a.k.a. Akolmiut, population 547, is on the Johnson River, approximately 27 miles northwest of Bethel, in the Yukon-Kuskokwim Delta. The community is in 3 separate areas; 2 on the inside bend of the river and a 3rd on the other side of the river. Nunapitchuk is a 2nd class city within the unorganized borough. Boat ramps, snow machines, ATVs, barge access, boat storage, fishing, hunting, processing catch, cultural, and social events use the banks and beach areas of the Johnson River.

#### **Description of Erosion Problem**

Nunapitchuk's erosion problems are caused primarily by natural riverine processes and community uses of the Johnson River. Spring breakup, melting permafrost, boat wakes, ATV and pedestrian traffic on the banks and beach are causes and contributing factors to erosion. Erosion extends about 6,000 linear feet along the length of the community. The eroding riverbank is about 3 feet high. The Johnson River is about 6 feet deep and moves slowly through this area. Based on the information provided in the community erosion survey, the current rate of the erosion is estimated at 1 foot per year. The *Task Force on Erosion Control* report by Alaska Department of Transportation and Public Facilities states that during a 1983 site investigation and review of information, there were about 700 feet of riverbank actively eroding. Flooding can contribute to the erosion, but not significantly because the floodplain is broad near the community and large increases in flood flow typically have resulted in small increases in flood height. The 1972 record flood in Nunapitchuk was caused by an ice jam on the Kuskokwim River, into which the Johnson River flows. Other floods occurred in 1946 and 1992.

#### **Potential Damages**

The community has attempted to control erosion with rip rap and 2x12 timbers. The protective measures were constructed by Knik Construction at a cost of \$900,000. The community reports that the measures have not been effective due to subsidence caused by permafrost melting. Erosion caused damage to the generator building, which was repaired at a cost of \$250,000 and one home was relocated by a resident, at a cost of \$4,000.

The community survey states the erosion in Nunapitchuk threatens homes, outbuildings, sheds, fuel tanks, the cemetery, drying racks, smoke houses, food storage facilities, utility poles and lines, power generators, the old Bureau of Indian Affairs school, clinic and church, and the airport runway. Many of these structures and facilities are less than 100 feet from the riverbank, however no measurements were provided. The Department of Environmental Conservation (DEC) village safe water engineer reported that none of the sanitation facilities are at risk.

## Photos and Diagrams

Photos are courtesy of the Lower Kuskokwim School District website for Nunapitchuk; no photos have been provided by the community. The attached diagram depicts the erosion area, although the location of the protection measures that have been installed was not available.

## References

**Alaska DOT/PF. 1984.** *Task Force on Erosion Control Final Report.*

**LKSD. 2007.** *Lower Kuskokwim School District website: Nunapitchuk* <http://www.lksd.org/Nunapitchuk/>

**USACE. 1993.** *Trip Report: High Water Elevation Identification.* Alaska District, U.S. Army Corps of Engineers.

**USACE. 2007.** *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 provided via facsimile by Eli Wassillie, Nunapitchuk tribal administrator, other contacts to complete the survey were Roberta Nick, City of Nunapitchuk administrator, and Lynn Marino, DEC village safe water engineer, on September 11 and October 24, 2007.

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## Additional Information

This information paper, as well as those for other communities, can be accessed on the internet at [www.alaskaerosion.com](http://www.alaskaerosion.com). For more information please contact the Corps of Engineers project manager at (907) 753-5694 or email [Alaska.Erosion.POA@usace.army.mil](mailto:Alaska.Erosion.POA@usace.army.mil)



**Photo 1: Looking down the river bank, Winter 2002.**



**Photo 2: Nunapitchuk from the air, Summer 2004.**



Date of Aerial Photo: 14 June 96



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--- Linear Extent of Erosion



Alaska Baseline Erosion  
Nunapitchuk, Alaska