



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Koyukuk, Alaska

Current as of February 20, 2008

Community Information

Koyukuk (KOY-yuh-kuck), population 88, is on the Yukon River downstream of the confluence with the Koyukuk River, 30 miles west of Galena, and 290 miles west of Fairbanks. It is adjacent to the Koyukuk National Wildlife Refuge and the Innoko National Wildlife Refuge. The community is incorporated as a 2nd class city in the unorganized borough.

Description of Erosion Problem

Koyukuk has been affected by periodic stream bank erosion and flooding since the 1920's. The majority of erosion is during periods of high water in the Yukon River, most often in the late spring and early summer when several feet of bank material is lost. The erosion becomes worse when the banks are subjected to waves, particularly from the south and southwest where there are fairly long fetches across the Yukon River.

Approximately 1 mile of the riverbank adjacent to the community is eroding according to a 2007 Corps *Site Visit Report* referenced in a *Section 117 Project Fact Sheet Pre-Decisional Draft* report. The riverbanks are approximately 10-15 feet high and have a slope of 60 degrees or greater. The exposed banks are very fine silty-sand and sandy-silt. Ice lenses and frozen soils were not observed in the riverbank during the 2007 Corps site visit. The Corps reports the riverbank is eroding at a rate of about 5 feet a year and estimates it eroded 25 to 75 feet between 1984 and 1995, based upon aerial photographs and measurements. Ice jams have contributed to high water, severe flooding, and erosion of Koyukuk about once every 5-20 years with occurrences in 1937, 1963, 1964, 1971, 1989, 1990, and 2001. The 1963 flood was the largest recorded flood in the community.

Potential Damages

Structures and facilities immediately threatened by undercutting river bank erosion include 3 residences within 80 feet of the bank, the old cemetery site with 6 or more graves within 60 feet of the bank, the turnaround end of Spruce Street within 20 feet from the bank, telephone lines on old poles, drying racks, smokehouses, and the remaining boat launch areas along the river.

Residents state the "old village" has eroded away and that Front Avenue, now the southern-most road along the river, was once the "back" or north side of the town. High water and extensive erosion caused a family to remove belongings out a side window when the riverfront undercut their home before it was lost to the river. A community trail, several homes, and other buildings are some of the structures and facilities lost or relocated due to erosion. The Corps predicted erosion along the river would move downstream and eventually threaten the airstrip in their 2007

Site Visit Report. High water elevation signs have been set at 3 locations in the community to guide future construction and to document the elevation of the 1963 flood. The signs range from 8.3 to 8.6 feet above the ground surface.

Photos and Diagrams

Photos of flooding and erosion provided by Cindy Pilot, Koyukuk Traditional Council Administrator and the Division of Homeland Security and Emergency Management are attached. A diagram showing the linear extent of erosion is also attached.

References

USACE. 2007. *Section 117 Project Fact Sheet Pre-Decisional Draft.* Alaska District, U.S. Army Corps of Engineers.

USACE. 2008. *Alaska Community Erosion Survey, OMB approved number 07100001,* expires September 30, 2009 administered to Marilyn Roberts, Koyukuk city administrator on February 8; Darlene Pilot, Koyukuk traditional council administrative assistant on February 11; Cindy Pilot, Koyukuk tribal administrator on February 19 and 20, 2008.

Additional Information

This information paper, as well as those for other communities, can be accessed on the internet at 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



Photo 1: Koyukuk just before the runway was inundated, May 26, 2001 flood.



Photo 2: Ice jam flooding in Koyukuk, May 25, 2001.



Photo 3: Log home undercut by erosion, 2004.



Photo 4: 2-story log home undercut by erosion, 1994.



Date of Aerial Photo: 10 July 06

NOTE: The extent of erosion shown on this figure is based on interviews with the community. This data has not been field verified. This figure is only intended to show areas of erosion, not rates or severity of erosion



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--- Linear Extent of Erosion



Alaska Baseline Erosion
Koyukuk, Alaska