



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Kotlik, Alaska

Current as of March 7, 2008

Community Information

Kotlik (KAWT-lick), population 599, is on the east bank of Kotlik Slough, 35 miles northeast of Emmonak, along the northern margin of the Yukon River Delta. It is 165 miles northwest of Bethel and 460 miles from Anchorage. The community is incorporated as a 2nd class city in the unorganized borough. Kotlik is approximately 5 miles inland from the southern coast of Norton Sound, where the Kotlik and Little Kotlik merge. The riverbank and shoreline are used for a variety of community activities including boat access, snowmachine access, ATV access, boat storage, fishing, and hunting.

Description of Erosion Problem

Natural fluctuations in flows and water levels, flooding, ice jams, spring break up, and wave action from boat wakes and wind reportedly cause and contribute to bank erosion along the Kotlik River waterfront. The soil structure is weakened with the semi-annual thaw-freeze cycle and is eroded of ice abrasion, waves, and occasional high tides from Norton Sound. There has been an annual loss of about 3 feet per year of riverbank over the past 10 years with recent major erosion events in 2002, 2003 and 2005.

Potential Damages

The riverside right-of-way and several structures, including some homes only a few feet from the riverbank are threatened by erosion. The community has moved the riverside boardwalk inland 3 times over the past 6 years. The boardwalk walkway and is heavily used by pedestrians. Outbuildings and sheds, food storage areas, drying racks, smokehouses, the AC retail store, utility poles, and public buildings also are threatened by erosion. The retail store is 4 feet from the riverbank, a church is 5 feet from the riverbank, and utility poles are within a few feet of the riverbank. A Corps letter to the Kotlik mayor cited a 2003 Corps *Trip Report* listing additional buildings and items that “will eventually have to be moved back due to erosion”; including a school building, the city office, the Assembly of God Church, and an old Catholic Church. They were estimated by the Corps in 1986 to be within a 50 year potential erosion area. The *Kotlik Hazard Mitigation Plan*, completed in 2007 by URS, indicated that nearly 60 percent of the community was at risk from erosion, including critical facilities such as those listed above, the Municipal landfill, non-critical facilities, and residential structures. Annual scouring and erosion of the riverbank has created a significant problem, particularly on the east bank of the Kotlik River where the majority of the town is located.

In 1983-84 the city received a State legislative grant to install armorflex concrete matting as an erosion protection measure. Installation was completed in the fall of 1986. The matting has reportedly been less than successful over the years. The city has cut brush and trees, gathered logs, filled sand bags with silt, and restacked concrete blocks in an ongoing attempt to protect the

community. Concerned community members have placed old 55-gallon drums, abandoned snow machines, outboard motors, and scrap metal pieces on the banks. Community efforts to slow erosion have been unsuccessful. The Corps performed a preliminary reconnaissance study for storm damage reduction and surveyed nine river cross sections between 1991 and 2002. The village also reportedly hired Rodney P. Kinney and Associates (RPKA) to write the *Kotlik Bank Protection Feasibility Study* in 2003.

Photos and Diagrams

Photos of erosion provided by Kotlik are attached. Also, attached is a diagram depicting the linear extent of erosion in the community.

References

Alaska DOT/PF. 1983. *Trip Report: Erosion Control Task Force*. State of Alaska, Department of Transportation and Public Facilities.

Hunt, Della. 2008. *Village of Kotlik Letter with Community Erosion Survey, further explaining bank erosion problems*. Village of Kotlik tribal administrator.

NORTEC. 1983. *Kotlik Erosion Control Study*. Northern Technical Services prepared for Department of Transportation and Public Facilities.

R&M Consultants, Inc. 1986. *Kotlik: Alaska Coastal Erosion Study*. R&M Consultants, Inc. prepared for US Army, Corps of Engineers.

URS. 2007. *Hazard Mitigation Plan Kotlik, Alaska*. URS

USACE. 2008. *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 administered to Della Hunt, village of Kotlik tribal administrator, on March 5, 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: Bank erosion along the Kotlik shoreline, 2007.



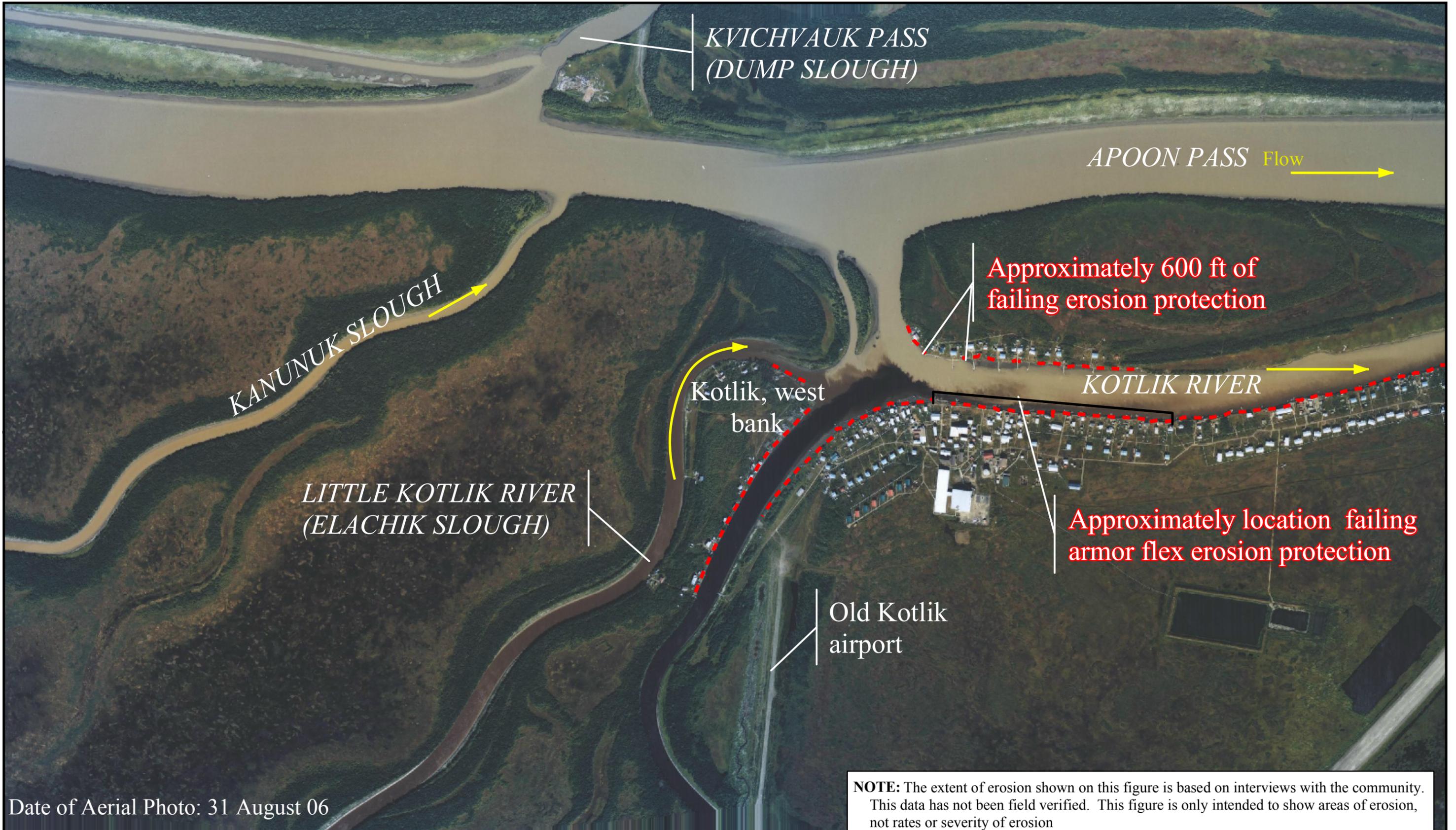
Photo 2: Home close to the eroding shore, 2007.



Photo 3: Boardwalks, which are the streets of Kotlik, are threatened and have been repeatedly moved back, 2007.

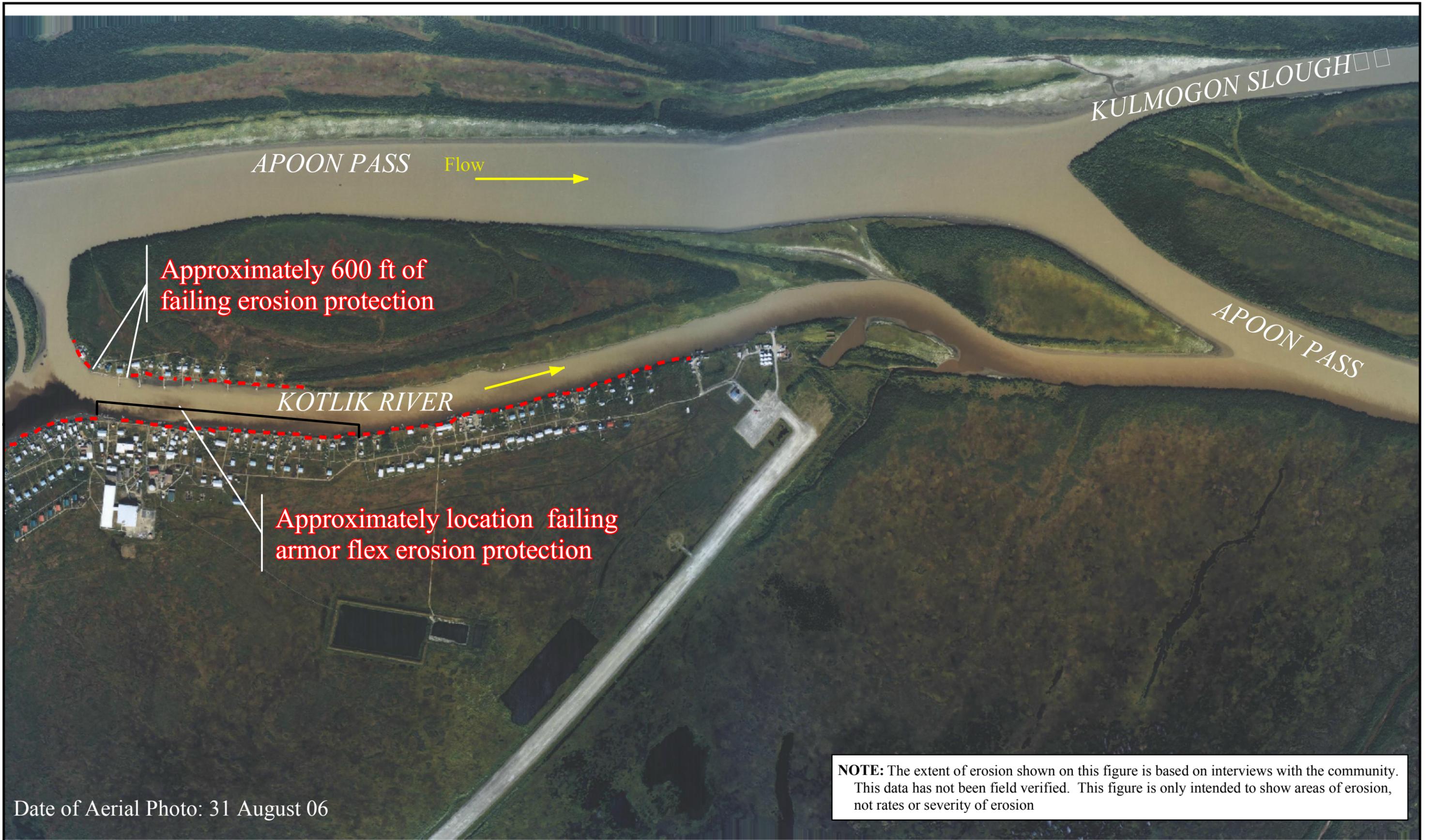


Photo 4: Concrete blocks, remnants of failed erosion protection litter the shoreline, 2007.



Date of Aerial Photo: 31 August 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



Date of Aerial Photo: 31 August 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



Alaska District
Corps of Engineers
Civil Works Branch

--- Linear Extent of Erosion
Part 2



Alaska Baseline Erosion
Kotlik, Alaska