



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Chefnak, Alaska

Current as of January 10, 2008

Community Information

Chefnak (chuh-FORE-nuck; alt. Chefnok), population 460, is on the south bank of the Kinia River junction with the Keguk River in the Yukon-Kuskokwim Delta, 98 miles southwest of Bethel, and 490 miles southwest of Anchorage. The community is in the Clarence Rhode National Wildlife Refuge. Chefnak is incorporated as a 2nd class city in the unorganized borough. The shoreline and river banks are used for a variety of community activities such as boating, snowmachining, ATV access, boat storage, fishing, hunting, fish processing, beachcombing, cultural and social events, camping, and driftwood collection.

Description of Erosion Problem

Chefnak has both coastal erosion occurring along the shoreline of the Bering Sea and river erosion along the south bank of the Kinia River. Storm surges, wind-driven waves, high tides, and late forming coastal ice reportedly contribute to coastal erosion. Natural river flow, water level fluctuations, flooding, spring break up, melting permafrost, boat wakes, steep shoreline slopes, pedestrian traffic, and vehicle traffic, all reportedly contribute to river erosion. The shoreline in front of the community has been eroding at a rate of 2 to 6 feet per year and the erosion area is estimated at 200 linear feet along the Kinia River where the river banks are 4 to 10 feet high.

Piping water through the bank is another major cause of erosion. The water carries away finer materials and leaves mostly large volcanic boulders with a covering of tundra mat, according to a 2003 Corps *Trip Report*. Portions of the bank are lost when the mats break off and are destroyed while the naturally occurring boulders are often transported into deeper water by ice sheets during breakup. Ice jams in the river are rare.

Protective measures taken in recent years to reduce erosion damages in the community include placing fabric mats and constructing a jetty. The fabric proved to be effective until it lifted off during 2007. The bank has eroded approximately 2 feet since then. The jetty is still in place, in good condition, and effective, but the smaller sized gravel is beginning to wash away. The September 2003 trip report recommended reopening the Section 14 Stream Bank Protection Project to help control erosion in the area. The Corps *5-Year Development Plan* lists \$400,000 for a Chefnak investigation phase in 2008. The armoring around the barge landing is eroding away, possibly due to ice action. The community experiences 6 to 7 storms per year with the majority occurring in October.

Potential Damages

Threatened structures and facilities include residences, outbuildings, sheds, fuel tanks, food storage structures, the road, the boat launch, storage and repair structures, utility poles, power generators, sites of significant cultural and archeological value, schools, boardwalks, and pathways. Some structures and facilities are 50 feet or less from the active erosion area, while others are less than 100 feet away.

Photos and Diagrams

Attached are photos of erosion provided by a Corps site visit from August 2008. A diagram depicting the linear extent of erosion in the community is attached.

References

USACE. 2003. *Trip Report, Site Investigation at Chefnak.* Alaska District, U.S. Army Corps of Engineers.

USACE. 2005. *Chefnak Bank Erosion Protection Project Fact Sheet.* Alaska District, U.S. Army Corps of Engineers.

USACE. 2007. *Civil Works Program 5-Year Development Plan Fiscal Year 2008 – Fiscal Year 2012.* Alaska District, U.S. Army Corps of Engineers.

USACE. 2008. *Alaska Community Erosion Survey, OMB approved number 07100001, expires September 30, 2009 administered to Alexandra Anderson, Chefnak city clerk, and Placid John, city manager, on January 10, 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



RIMG0119

Chefornak

N 60° 09.557' W 164° 16.305'

Photo 1: Erosion through the road to the BIA structures.

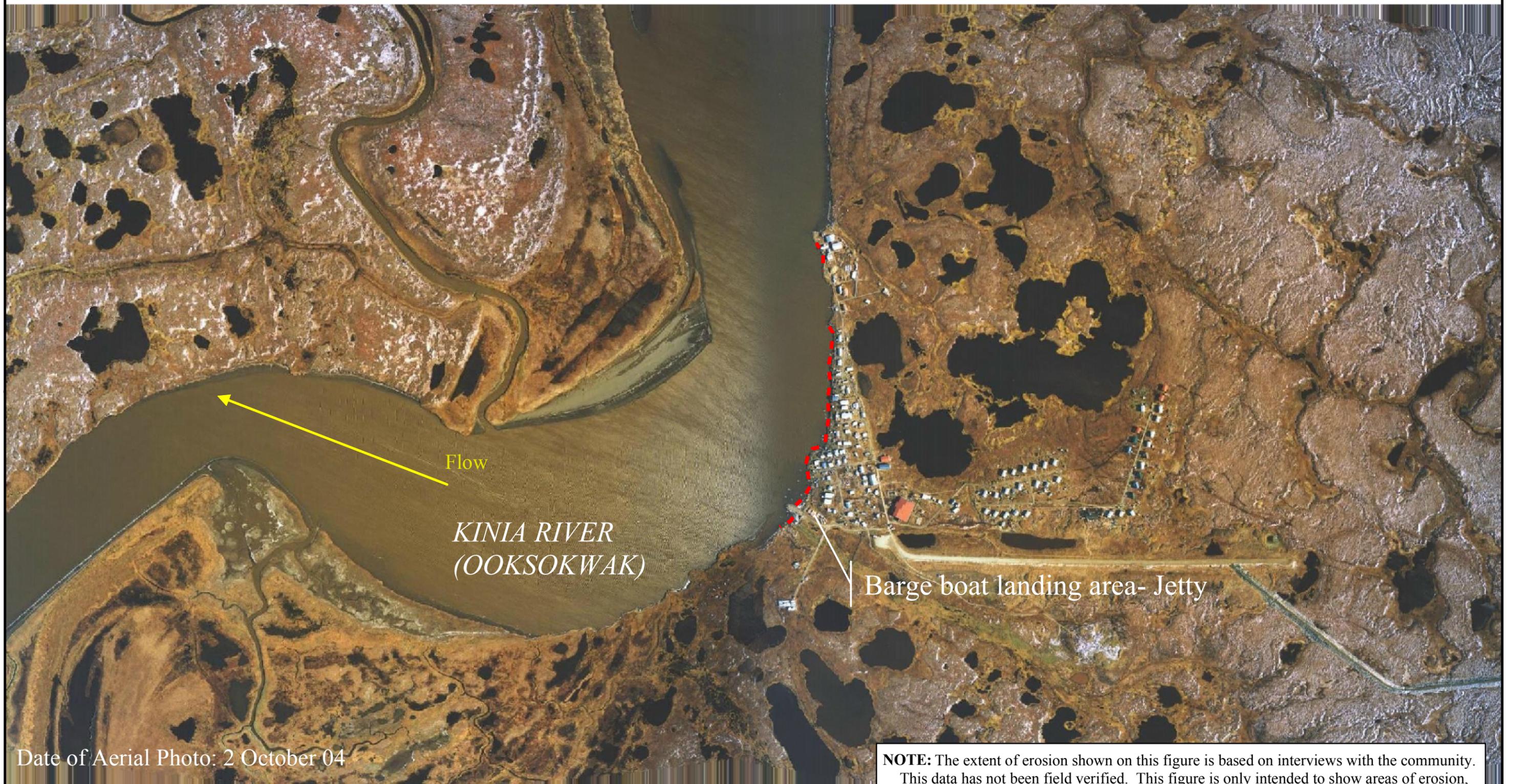


N 60° 09.549' W 164° 16.391'

Chefornak

RIMG0134

Photo 21: A small sinkhole near the top of the bank.



*KINIA RIVER
(OOKSOKWAK)*

Flow

Barge boat landing area- Jetty

Date of Aerial Photo: 2 October 04

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
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