



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Mekoryuk, Alaska

Current as of January, 2008

Community Information

Mekoryuk (ma-KOR-ee-yuck), population 217, is in the eastern Bering Sea on the north shore of Nunivak Island. It is 149 miles west of Bethel, and 553 miles west of Anchorage. Mekoryuk is situated within the Yukon Delta National Wildlife Refuge. The community is a 2nd class city in the unorganized borough. The beach is used for barge access, boat storage, fishing, and beachcombing.

Description of Erosion Problem

Mekoryuk is built on a raised dunal and upland area about 30 feet above the waters of Shoal Bay. Portions of the beach front erode during large storms. A 1,350-foot-long section of the northern half eroded 3 feet inland during a storm in November of 1974. Storm surges, storm waves, late freeze up, higher than normal high tides, pedestrian traffic, and vehicle traffic reportedly contribute to erosion at 1 to 2 feet per year. Residents report that erosion extended inland about 500 feet during 1963-1983. The Corps estimated that erosion advanced more than 100 feet between 1974 and 1983.

Beaches are predominantly fine-grained sand and silt overlying volcanic rock. Currents tend to transport the fine-grained material from both the west and east into Shoal Bay. Sections of the beach receive large sand deposits as similar volumes are removed from other sections. The result is a gradual filling of the bay and an eroding shoreline, according to the Corps 1983 *Mekoryuk Navigation Improvements Final Detailed Project Report and Environmental Assessment*.

A single rubble mound breakwater was constructed by the Corps in 1986 under authority of the *Rivers and Harbors Act*, 14 July 1960 (Section 107, Public Law 86-645), at a total cost of approximately \$1.3 million. The breakwater extends seaward from the bluff for 140 feet before turning southward and running parallel to the beach for 350 feet. The breakwater and protected inter-tidal zone was inspected by the Corps in 2004 and found to be in good condition. The community commented that the breakwater may have exacerbated the erosion problem instead of providing protection.

Potential Damages

Structures and community facilities threatened by erosion along the coastline include residences, outbuildings, sheds, the cemetery, food storage structures, drying racks, smokehouses, a boat launch, repair structures, and sites of significant cultural and archeological value. Most structures are less than 100 feet from the eroding beach line.

In addition to erosion protection from the breakwater, the Corps is reported to have provided sandbags at a cost of \$1,000. The sandbags have been destroyed by erosion and there have been no reported repair or maintenance costs.

Photos and Diagrams

Photos of the erosion provided by the Native Village of Mekoryuk are attached. A diagram depicting the linear extent of erosion in the community is also attached.

References

Dames&Moore. 1975. *Final Report Open-End Planning Contract Mekoryuk, Nunivak Island, Alaska*, prepared for the Alaska District, U.S. Army Corps of Engineers.

USACE. 1983. *Mekoryuk Navigation Improvements Final Detailed Project Report and Environmental Assessment*. Alaska District, U.S. Army Corps of Engineers.

USACE. 1992. *Technical Services Trip Report*. Alaska District Corps of Engineers.

USACE. 2006. Project Maps and Index Sheets for Rivers & Harbors:

http://www.poa.usace.army.mil/co/CoOrg/p_i_book/p&ione_2006.html#Mek

USACE. 2007. *Alaska Community Erosion Survey*, OMB approved number 07100001, expires September 30, 2009 submitted by Hultman I. Kiokun, Native Village of Mekoryuk executive director via fax to the Corps of Engineers on August 28, 2007.

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: Proximity of Mekoryuk home to eroding shoreline, August 2007.



Photo 2: Mekoryuk shoreline erosion, August 2007.



Photo 3: Sandbags for erosion protection front a small portion of Mekoryuk, August 2007.

