



U.S. Army Corps  
of Engineers  
Alaska District

## **ALASKA BASELINE EROSION ASSESSMENT**

### **Erosion Information Paper - Deering, Alaska**

Current as of November 15, 2007

#### **Community Information**

Deering (DEAR-eeng), population 138, is on Kotzebue Sound at the mouth of the Inmachuk River, 57 miles southwest of Kotzebue. Deering is on a flat sand and gravel spit approximately 300-feet wide and ½-mile long. The community is incorporated as a 2nd class city in the Northwest Arctic Borough. The beachfront/shoreline is used for a number of community activities, including pulling boats out of the water and boat launching, processing catch, beachcombing, and cultural/social events.

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

According to the erosion survey, the community experiences coastal erosion and river erosion along the tidally-influenced Inmachuk River. Factors causing or contributing to the erosion include high tides, storm surges, wind and waves, and melting permafrost (permafrost melt is not substantiated). It is estimated that approximately 3,000 feet of beachfront/shoreline is affected by erosion. One erosion area is along the road that passes by the airport. Another erosion area is along the road beyond the airport. The city reports that typically some form of erosion event occurs each year. In 2001, the shoreline reportedly eroded 61 feet (survey unclear if distance was lateral or inland), and during a 2006 event the shoreline reportedly eroded 50 feet (survey unclear as to direction of erosion). The community estimates the rate of ongoing erosion at about 3 feet per year, with the shoreline height in the eroding areas at approximately 11 feet. In the *2005 Continuing Authorities Project Fact Sheet*, the Corps estimated the long-term erosion rate at approximately 1 foot per year.

Storm surges and wind-driven waves cause significant coastal flooding at least once every 40 to 60 years. A major flood in 1973 caused extensive damage to many homes and a number of residents were temporarily evacuated to a mining camp 22 miles upriver. The city also reports winter flooding behind the city. The dates of the winter floods and the extent of damages were not reported.

#### **Potential Damages**

The community survey indicates that private and community structures and facilities threatened by erosion include residences, water tanks/lines, roads, utility poles, sewer lines, the sewage lagoon, sites of cultural or archeological value, schools, clinics, and churches. Some of the structures are reported to be within 50 feet of erosion. A number of erosion protection measures have been installed in recent years. The Alaska Department of Environmental Conservation Village Safe Water (VSW) installed riprap along the shoreline at the west end of the community to protect the sewage lagoon. The Corps has an on-going project along about 500 feet of

shoreline adjacent to the VSW project. This project is designed to protect valued archaeological sites, a road, and a power line that run along the shoreline between the community center and the wastewater treatment building and sewage lagoon.

In 1997, the Corps constructed a Section 14 Emergency Bank Protection project to protect the main community water supply line and road to the airport. The project consisted of 2 riprap sections along the Ipnatchiaq River. According to a March 1998 letter to the city of Deering, the federal funding for the project was \$500,000. The Alaska Department of Transportation and Public Facilities provided an additional \$217,000. The Corps inspection and maintenance plan for the project estimated a 2 to 3 percent loss of riprap per year, with annual maintenance costs of \$5,000. Subsequent Corps inspection reports were reviewed for the 2001 - 2005 period. The 2001 inspection reported the erosion protection project to be in excellent condition. The 2003 inspection reported some erosion downstream of the lower end of the project and that some of the project rocks had split. The 2004 inspection reported some problem areas in need of monitoring and an increase in split and dislocated project rocks in a 200-foot section of the project. These problems were reiterated in the 2005 inspection report, which recommended continued monitoring.

## Photos and Diagrams

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

## References

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

**U. of A. 1976.** *Deering.* Prepared by the University of Alaska

**USACE. 1994.** *Emergency Bank Protection Draft Detailed Project Report and Environmental Assessment: Deering, Alaska.* Alaska District, U.S. Army Corps of Engineers.

**USACE. 1998.** *Hydraulics / Hydrology Section letter to Deering mayor.* Alaska District, U.S. Army Corps of Engineers.

**USACE. 2001-05.** *Corps of Engineers Hydraulics / Hydrology Section inspection reports for 2001, 2003, 2004, and 2005.* Alaska District, U.S. Army Corps of Engineers.

**USACE. 2005.** *Continuing Authorities Project Fact Sheet Deering Shoreline Protection, March 25, 2005* Corps of Engineers project transfer agreement and maintenance plan for the city of Deering, Alaska District, U.S. Army Corps of Engineers.

**USACE. 2007.** *Alaska Community Erosion Survey, OMB approved number 07100001, expires September 30, 2009* completed by Beverly Moto, city of Deering on November 2, 2007.

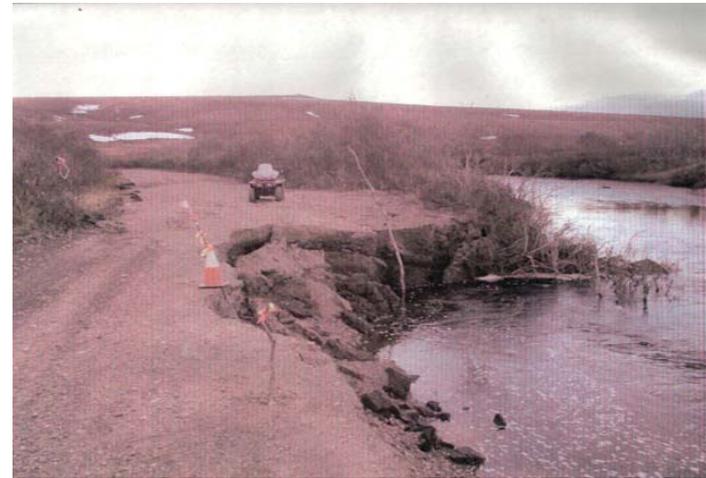
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## Additional Information

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: Erosion of road at the airport caused by Inmachuk River, No photo date available.**



**Photo 2: Erosion on road past airport, No photo date available.**



**Photo 3: Winter flooding behind city, No photo date available.**



Date of Aerial Photo: 9 October 98

**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

	<p>Alaska District Corps of Engineers Civil Works Branch</p>	<p>--- Linear Extent of Erosion</p>			<p>Alaska Baseline Erosion Deering, Alaska</p>
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