



**U.S. Army Corps
of Engineers**
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Ninilchik, Alaska

Current as of September 10, 2007

Community Information

Ninilchik (nuh-NIL-chick) population 784 is a 207.6-square-mile unincorporated community in the Kenai Peninsula Borough on the west coast of the Kenai Peninsula. It is 38 miles southwest of the City of Kenai and 188 road miles from Anchorage. The community extends between mileposts 119 and 144 of the Sterling Highway. A local business center has developed between Ninilchik River (Sterling Highway mile 135) and Deep Creek (mile 137.3; see attached map). Part of this business center is on an 80-foot-high bluff overlooking Cook Inlet. Deep Creek is a major fishing and recreation destination, and is crossed by ATV trails in the reaches above the Sterling Highway. The beach and bluff area is used for barge access, boat launching, fishing, fish processing, beachcombing, cultural and social events, driftwood collection, and the gathering of coal.

Description of Erosion Problem

Ninilchik is threatened by coastal erosion from Cook Inlet and stream erosion from Ninilchik River and Deep Creek. A 1974 Corps feasibility study characterized the erosion problem as follows: "The entire west shore of the Kenai Peninsula is under erosive attack by the sea. As a result of the 1964 earthquake, shores of Cook Inlet were generally lowered. This subsidence reached as much as 10 feet, but generally ranged from 3 to 6 feet. Shore areas formerly stabilized are now inundated by high tides. This erosive attack, plus the nature of the glacial till soils in beach bluffs, contributes source material to littoral drift." Erosion and siltation have created problems at the Ninilchik Harbor and elsewhere. According to Corps design reports for Ninilchik Harbor and Alaska Department of Transportation and Public Facilities (DOT&PF) Task Force on Erosion Control (1984), heavy littoral movement and waves overtopping the beach have produced erosion problems by removing material and by transporting beach material into the harbor basin.

The Ninilchik Tribal Council states that high tides, storm surges, high winds, and traffic on the beach and bank cause erosion. The Council estimates that the annual coastal erosion rate in the Ninilchik River-Deep Creek area is 7 to 10 feet and indicates that erosion events tend to be episodic. Over the past 20 years, the community has experienced 3 or 4 major erosion events. In 1992 and 2000, 25 feet of the bluff along Cook Inlet were lost during storm events and in 2002, 50 feet were lost (Oskolkoff, 2007 interview).

It should be noted that Ninilchik River and Deep Creek are separate drainages. Thusly, they have different morphologies and erosion mechanics.

The current engineered erosion controls. Presently there was rip rap placed to control erosion however; for the general public, who may use and cite this document as planning information, should be aware that the Kenai River Center will not issue permits for rip rap because it replaces riparian habitat.

Deep Creek erodes from near the mouth of the stream to approximately 12 miles inland. The Niniilchik Tribal Council attributes the stream erosion to flooding, ice jams, and vehicle traffic crossing the river. A 100-plus-year storm in 2002 also resulted in significant erosion along Deep Creek.

Potential Damages

Structures threatened by coastal or river erosion include houses, outbuildings and sheds, water tanks and lines, the community cemetery, roads, boat launching and storage, cultural and archeological sites, and buildings used by the public. No specific measurements of distances to the bluff or rivers edge, or numbers of structures were provided for the Community Erosion Survey. Homes, shops and garages, cabins, and bridges have been damaged by erosion in the community. The attached map indicates the areas threatened by continuing erosion. The costs associated with past erosion damage were not identified.

Various types of shore protection measures have been tested in the community. In May-September, 1967, metal-barrel beach protection was constructed, but was cited as inadequate in a Corps 1974 feasibility report. During the period from 1968-1984, the Niniilchik River was diverted and spruce logs, filter cloth revetment, and timber groins were installed as erosion protection.

Following more recent erosion events, the Corps of Engineers and the DOT&PF have installed riprap (\$700,000), gabions (\$500,000) and sandbags (\$200,000). Those measures have slowed erosion, but the Tribal Council reported that loss of uplands is continuing and erosion of the access road remains a problem.

Photos and Diagrams

Photos of erosion provided by community are attached. An attached diagram also depicts the linear extent of erosion in the community.

References

Alaska Community Erosion Survey, OMB approved number 07100001, expires September 30, 2009 completed by Bruce Oskolkoff, Environmental Director, Niniilchik Traditional Council, August 15, 2007.
Niniilchik and Vicinity, Alaska, Feasibility Study: Small Boat Harbor and Beach Erosion Improvements. October 15, 1974.
Niniilchik, Alaska, Navigation Improvements Study. January 1984.
Task Force on Erosion Control, State of Alaska, Department of Transportation and Public Facilities. January 3, 1984.

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: Deep Creek Bridge Washout Oct. 24-28, 2002



Photo 2: Deep Creek Bridge, Sterling Highway Washout Oct. 2002



Photo 3: Ninilchik Village Bridge Damage Oct.24-28, 2002



Photo 4: Ninilchik Village Oct. 2002



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■■■■ Linear Extent of Erosion
Part 1



Alaska Baseline Erosion
Ninilchik, Alaska



Date of Aerial Photo: 25 May 90

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
Part 2



Alaska Baseline Erosion
Deep Creek, Alaska