

Report of Investigation 2021-3 Brevig Mission

EROSION EXPOSURE ASSESSMENT—BREVIG MISSION

Richard M. Buzard, Mark M. Turner, Katie Y. Miller, Donald C. Antrobus, and Jacquelyn R. Overbeck



Brevig Mission, Alaska, in 2015. Photo: ShoreZone, shorezone.org.



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Richard M. Buzard¹, Mark M. Turner¹, Katie Y. Miller¹, Donald C. Antrobus², and Jacquelyn R. Overbeck¹

BREVIG MISSION EROSION EXPOSURE ASSESSMENT

This is a summary of results from an erosion forecast near infrastructure at Brevig Mission, Alaska. We conduct a shoreline change analysis, forecast 60 years of erosion, and estimate the replacement cost of infrastructure in the forecast area. Buzard and others (2021) describe the method and guidance for interpreting tables and maps.

Source data for this summary include the following:

- Delineated vegetation lines and change assessment by Buzard and others (2021) following the methods of Overbeck and others (2020).
- Infrastructure AutoCAD outlines and metadata from Division of Community & Regional Affairs (DCRA, 2004) Community Profile Map series.
- Added infrastructure such as roads, water and sanitation facilities, and outbuildings, delineated if visible in the most up-to-date high resolution (≤ 0.66 ft [20 cm] ground sample distance) aerial orthoimagery (Overbeck and others, 2016).

Brevig Mission is located at Port Clarence on the Seward Peninsula, south of Bering Strait. The beach fronting the community undergoes beach erosion due to storm surge flooding, but recovers to the pre-storm state and there is no long-term trend



of erosion (U.S. Army Corps of Engineers, 2007). Many structures are built on the vegetated dunes above the beach and the DCRA (2004) community profile map indicates all structures are outside the 100-year floodplain. Measurements from historical and modern aerial imagery indicate that the shoreline is stable (Overbeck and others, 2020). The erosion forecast method by Buzard and others (2021) is not suitable for Brevig Mission. Erosion monitoring through the collection of repeat beach elevation surveys can help identify whether and when infrastructure are exposed to erosion.

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¹ Alaska Division of Geological & Geophysical Surveys, 3354 College Rd., Fairbanks, Alaska 99709-3707

² Alaska Native Tribal Health Consortium, 4000 Ambassador Drive, Anchorage, Alaska 99508

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