28. PHYSIOGRAPHY

28.1 Introduction

This chapter discusses the physiography of the Cook Inlet drainages study area (Figure 1-4 in Chapter 1), including topography, landforms, stream drainage patterns, and coastal features. This study was based on reviews of published information and interpretation of oblique aerial photographs taken during reconnaissance and mapping exercises.

The Cook Inlet study area is located in the southern part of the Alaska Range physiographic division, as defined by Detterman and Reed (1973), in a subordinate mountain range called the Chigmit Mountains. The study area is defined by the drainage boundaries of Iliamna and Iniskin bays, two fjords with a common mouth on the west side of Cook Inlet (Figure 1-4 in Chapter 1).

28.2 Results and Discussion

The Cook Inlet study area is characterized by rugged mountains, glacially carved valleys, and fjord inlets created by glacial-valley scour to depths below present sea level. The mountains rise abruptly along the coast and form a climatic barrier between the coast and the interior. The glacially carved valley on the peninsula between Iliamna and Iniskin bays (the two main fjords in the study area) is called Y Valley. Shoreline terrain along the sides of the fjords is generally steep and rocky. In contrast, broad tidal mud flats are located at the heads of the fjords as a result of sediment deposition from tributary watercourses. The largest watercourses in the study area are the Iniskin River, which flows into the head of Iniskin Bay; Cottonwood Creek, which flows into the head of Cottonwood Bay, an arm of Iliamna Bay; and the unnamed stream that drains the Y Valley. Williams Creek flows parallel to the existing road from the pass between the Bristol Bay and Cook Inlet drainages east to Iliamna Bay at Williamsport. Mountains east of Iliamna Bay rise to 2,735 feet above sea level, and mountains adjacent to the Y Valley rise to 2,805 feet above sea level (Detterman and Reed, 1973). Numerous small glaciers and alpine lakes occupying glacial cirque basins are present in the Iliamna Bay and Iniskin Bay drainages. Rocky headlands, located to the west and east of the Y Valley mouth, are called North Head and Knoll Head, respectively.

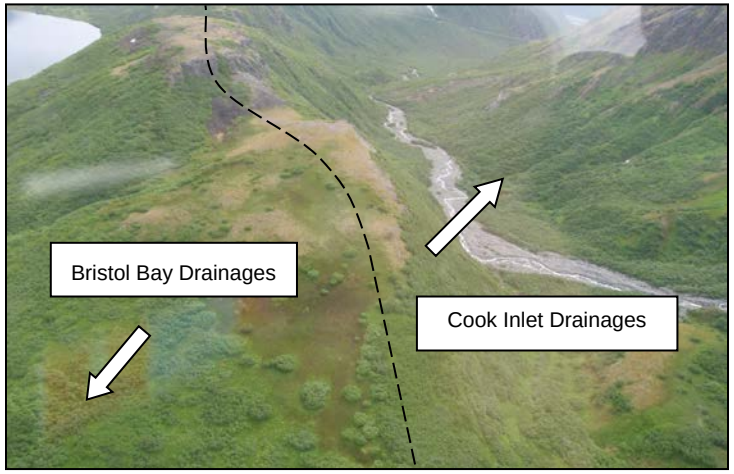
A preliminary evaluation of the physiography of the Iniskin Bay channel offshore of Knoll Head indicates that the bay floor drops off at approximately a 10 percent grade from the western shoreline to a maximum depth of 80 feet near mid-channel, and then gradually slopes up to the eastern shoreline from mid-channel (Golder, 2005). The water depth in the vicinity of Williamsport is very shallow, and vessels having a draft of 5 feet or greater are likely to be beached between high tides (Golder, 1995).

28.3 References

Detterman, R.L., and B.L. Reed. 1973. Surficial Geology of the Iliamna Quadrangle, Alaska. U.S. Department of the Interior. Geological Survey Bulletin # 1368-A.

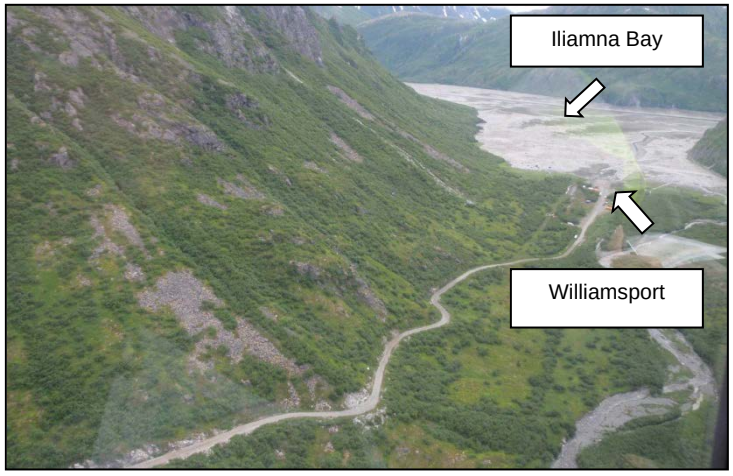
Golder Associates Inc. (Golder). 2005. Bathymetric and Geophysical Survey—Iniskin Bay, Alaska. Ref. No. 053-5727. August.

Golder Associates Inc. (Golder). 1995. Dredge Slopes in Iliamna Bay near Williamsport, Alaska. August.

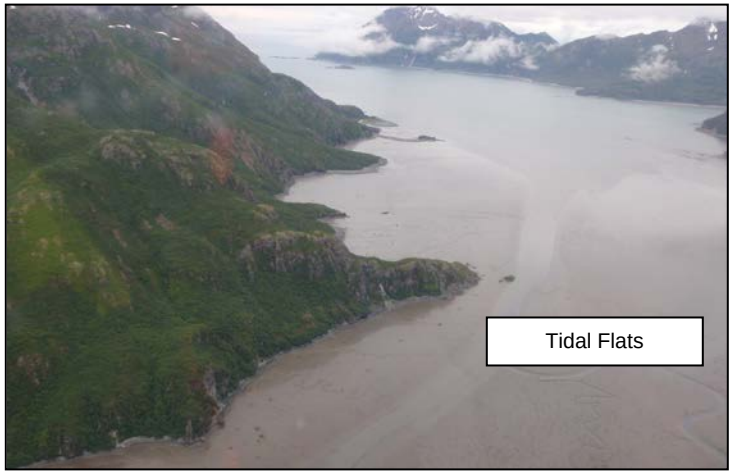


The boundary between the Bristol Bay/Cook Inlet drainages near Summit Lake (Bristol Bay drainages) and the headwaters of Williams Creek (Cook Inlet drainages), July 2008.

View to the northeast toward the head of Iliamna Bay, July 2008.



View to the east along the existing Pile Bay to Williamsport Road and Williams Creek to Williamsport and Iliamna Bay, July 2008.



View to the southeast along the eastern coast of Iliamna Bay, July 2008.