

- Explanation**
- 330 Soundings in feet. Underlined numerals are from NOAA chart. Small numerals are from 1978 USGS preliminary survey.
  - Rocks awash, dangerous to navigation
  - Sunken rocks, dangerous to navigation
  - Outwash or delta above high tide
  - Shoal area, undifferentiated mud, sand, gravel, or rock below high tide
  - Triangulation station
  - Anchorage

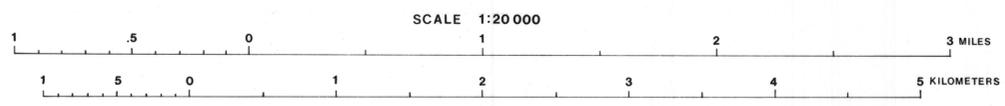
**Changes in Water Depth over Terminal Moraine Bar**

South of the terminal moraine all soundings which are underlined were transferred from U.S. Coast and Geodetic Survey (now National Oceanographic and Atmospheric Administration-NOAA) hydrographic survey H-4760, dated 1927. Changes in water depth over the moraine bar have increased with time since first examined in 1909 by Grant and Higgins (1913, p. 62), who observed: "The front of the glacier deploys in a semicircular form on a gravel flat, which is mainly above sea level. At the center of the front, however, the glacier reaches tidewater and in places presents a steep wall about 200 ft [60 m] high. From this wall blocks of ice fall into the water, which is so shallow the larger icebergs do not float away" (Map C, sheet 4). Whitney (1932, p. 389) describes the moraine shoal as follows: "From the mouth to within a mile of the glacier front the depths along the center line decreases from 127 fathoms to 100 fathoms [760 ft to 600 ft, 230 m to 180 m]. From the latter location to the terminal moraine the depths shoal rapidly to a visible beach at low water along the base of the glacier" (Map D, sheet 4).

The 1927 U.S. Coast and Geodetic Survey survey sheet shows depths of 9 ft (3 m) at two points in the moraine crest (underlined soundings, this sheet). At a point near where the depth was 15 ft (4.6 m) in 1927, 30 ft (9 m) was measured in 1977. Erosion of the moraine on both sides of the channel had widened the opening about 0.15 mi (0.24 km) between 1927 and 1930. The 1964 Alaska earthquake caused a submergence of 7 ft (2 m) on the shore at the eastern end of the moraine bar (Plafker, 1969, plate 1). This submergence and erosion had further widened the opening 0.45 mi (0.72 km) by 1977 (dated shorelines, this sheet). It appears that tidal currents and iceberg scouring during McCarty Glacier's retreat has caused deepening of the channel over the moraine from awash at low tide in 1909 to a maximum of about 30 ft (9 m) in 1977. This may at least in part account for the remarkably level crest of the moraine bar (sheet 4, profiles D-D', E-E', and F-F'). Shorelines, shown at approximate present mean high water, were obtained (1) from U.S. Coast and Geodetic Survey (NOAA) hydrographic survey H-4760 (south of the terminal moraine); (2) U.S. Geological Survey 1:63,360 topographic sheets; and (3) 1977 air photographs taken of areas of low relief where the Alaska earthquake produced notable changes. In these latter areas, mean high water was interpreted by the limits of trees killed by submergence. None of these shorelines were field checked, and in areas of low relief there may be considerable error in shoreline interpretation.

**PRELIMINARY BATHYMETRY OF MC CARTY FIORD AND NEOGLACIAL CHANGES OF MC CARTY GLACIER, ALASKA**

Base enlarged from Seldovia C-1 and C-2 1:63,360 quadrangles. Shorelines were adjusted from 1977 and 1978 air photography to show present approximate mean high water, and reflect changes in the coastline due to the 1964 Alaskan earthquake. Glaciers are sketched and contoured to show approximate 1978 conditions. Compiled at U.S. Geological Survey, Project Office - Glaciology, Tacoma, Wash.



CONTOUR INTERVAL 100 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
DEPTH CURVES AND SOUNDINGS IN FEET-DATUM IS MEAN LOWER LOW WATER  
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER  
THE MEAN RANGE OF TIDE IS APPROXIMATELY 8 FEET

By  
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1980

MAP NOT FOR USE IN NAVIGATION