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Radiocarbon dates for the Nushagak Peninsula, southwestern Alaska

Compiled by

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Reported here for the first time are nine radiocarbon dates for the west side and southern end of Nushagak Peninsula (fig 1). These age determinations and composite sections were compiled from the unpublished field notes (1974) of Warren Coonrad (U.S. Geological Survey, Menlo Park, CA). Figure 2 represents data compiled from four localities along the west side of Nashagak Peninsula (Nashagak Bay C4 and C5 1:63,360-scale quadrangle with a general location of 58° 33' N. and 159° 11' W. Figure 3 represents data compiled from two localities on the southern end of Nashagak Peninsula (Nashagak Bay B-3 1:63,360-scale quadrangle with a general location of 58° 24' N. and 158° 58' W. Hoare and Coonrad (1978) mapped the deposits as undifferentiated glacial (unit Qg), ranging from late Pleistocene to early Holocene in age. A regional summary of late Pleistocene glaciation for the Bristol Bay region has been presented by Detterman (1986) and Hamilton (1994).

The following is a description of the two composite sections as compiled from the field notes (1974) of Warren Coonrad. Figure 2 represents a 10 m-thick composite section along the sea cliff, on the west side of Nushagak Peninsula, consisting of till, sand, silt, with interbedded lenses of organics. The basal unit consists of approximately 2 meters of firm blue-gray till which is overlain by a 10 cm-thick organic lens. The organic lens yielded a radiocarbon age of >39,000 yr. B.P. (W-3566). Overlying the organic lens is a unit of mixed interbedded gravel and clayey silt which contains local gravel channels and ranges in thickness from 15 to 200 cm. Directly above this unit of mixed interbedded gravel, is a 5 cm-thick organic zone which was dated at 12,310 ± 300 yr B.P. (W-3561) Above this organic zone is a 75 cm-thick unit of blue-gray silt. Resting on the silt is a 7 cm-thick unit of organics. This zone of organics was dated at 11,600 ± 300 yr B.P. (W-3549) A thin layer of sand and gray silt (approximately 24 cm thick) separates this organic zone from the next higher organic layer. Resting on the thin layer of sand and gray silt is a thin, 3 cm-thick, organic zone which was dated at 11,410 ± 300 yr B.P. (W-3556). Above this is a 35 cm-thick layer of gray silt with minor fine grained sand. On top of the gray silt is a 40 cm-thick layer of organic silt with the concentration of organic content increasing upward in the unit. A radiocarbon age of 10,780 ± 250 yr B.P. (W-3571) was obtained from the organics. A 80 cm-thick layer of firm peat with wood at the base lies on top of the organic silt layer. Wood from the base of the peat layer yielded an age of 9,250 ± 250 yr B.P. (W-3547). Two meters of mixed peat and silt lie on top of the peat layer. The upper part of the section consists of a 35 cm-thick unit of gray clayey silt covered with a 30 cm-thick tundra mat.

Figure 3 represents a 5 m-thick composite section along the sea cliff, on the south end of Nushagak Peninsula. The composite section consist of gray clayey-silty till to sand and loess interbedded with peat and organic silt lenses. Data from two localities make up this composite section. The basal unit consists of gray clayey-silty till with sparse cobbles and boulders which is exposed at the present beach level. A unit of clean fine grained sand 30 to 100 cm thick lies on top of the gray clayey till. Directly on top of the fine grained sand is a 10 cm-thick unit of peat which yielded a radiocarbon age of > 38,000 yr B.P. (W-3577). A 30 cm-thick unit of fine sand lies of top of the peat. The next unit consists of two interfingering units which are 1 to 2 m thick, a unit of sandy silt and a unit of organic silt. A split from the organic silt sample which was collected for pollen analysis, yielded a radiocarbon age of >36,000 yr B.P. (W-3579). Directly on top of these two interfingering units is a very thin 2 cm-thick layer of peaty silt. A sample collected from this unit yielded a radiocarbon age of 35,600 ± 1,500 yr. B.P. (W-3576). Above this thin layer of peat is a 1 to 2 m-thick unit of loess/silt, covered by 80 cm of surface peat.

Radiocarbon dates for the Nushagak Peninsula
(from the unpublished field notes of Warren Coonrad, U.S. Geological Survey, 1974)

Laboratory number (1)	Field number	Material	Age (yr. B.P.)		Location		Quadrangle 1:63,360-scale
W-3547	74 ACd 39 BB	Wood	9,250	± 250	58° 32.7'	159° 11.1'	(2)
W-3556	74 ACd 40 A	Organic sediment	11,410	± 300	58° 33'	159° 10.9'	(2)
W-3549	74 ACd 40 B	Organic sediment	11,600	± 300	58° 33'	159° 10.9'	(2)
W-3561	74 ACd 40 C	Organic sediment	12,310	± 300	58° 33'	159° 10.9'	(2)
W-3566	74 ACd 41 A	Peat	>39,000		58° 33.3'	159° 10.5'	(2)
W-3571	74 ACd 42 A	Wood	10,780	± 250	58° 33.3'	159° 10.5'	(2)
W-3576	74 ACd 43 B	Peat	35,600	± 1,500	58° 24'	158° 58'	(3)
W-3577	74 ACd 44 A	Peat	>38,000		58° 24'	158° 58'	(3)
W-3579	74 ACd 44 B	Peat	>36,000		58° 24'	158° 58'	(3)

(1) Radiocarbon age determinations were run by Meyer Rubin, U.S. Geological Survey, Reston, VA.
(2) Nushagak Bay C4-5 — latitude/longitude were plotted by Galloway (1995) from the 1974 field notes of Coonrad (a general location of 58° 33' 159° 11' was given on the radiocarbon age determination request form (dated August, 1974).
(3) Nushagak Bay B-3 — latitude/longitude were obtained from the radiocarbon age determination request form (dated August, 1974).

Additional radiocarbon ages and a discussion of Late Pleistocene glaciation for the Bristol Bay region can be found in Detterman (1986). The radiocarbon ages presented here may be related to the last major episode of glacier expansion on the Alaska Peninsula knows as the Brooks Lake advances.

Directly east of localities 1 and 2, Hopkins collected a series of samples for radiocarbon analysis from the Kvichak Peninsula (fig. 1, locality 3). A listing of these age determinations and comments are presented below.

Approximately 145 km to the west (Hagemister Island quadrangle), Porter published a series of radiocarbon ages for peat samples collected from bogs exposed along the sea cliffs near Flat Cape. Radiocarbon ages on two basal peats provided limiting ages for a proposed glacial sequence presented by Porter (1967). These minimum ages are 8,910 ± 110 (UW-56) for the outermost Unaluk Drift, and > 45,000 (UW-57) for the Chagvan Drift.

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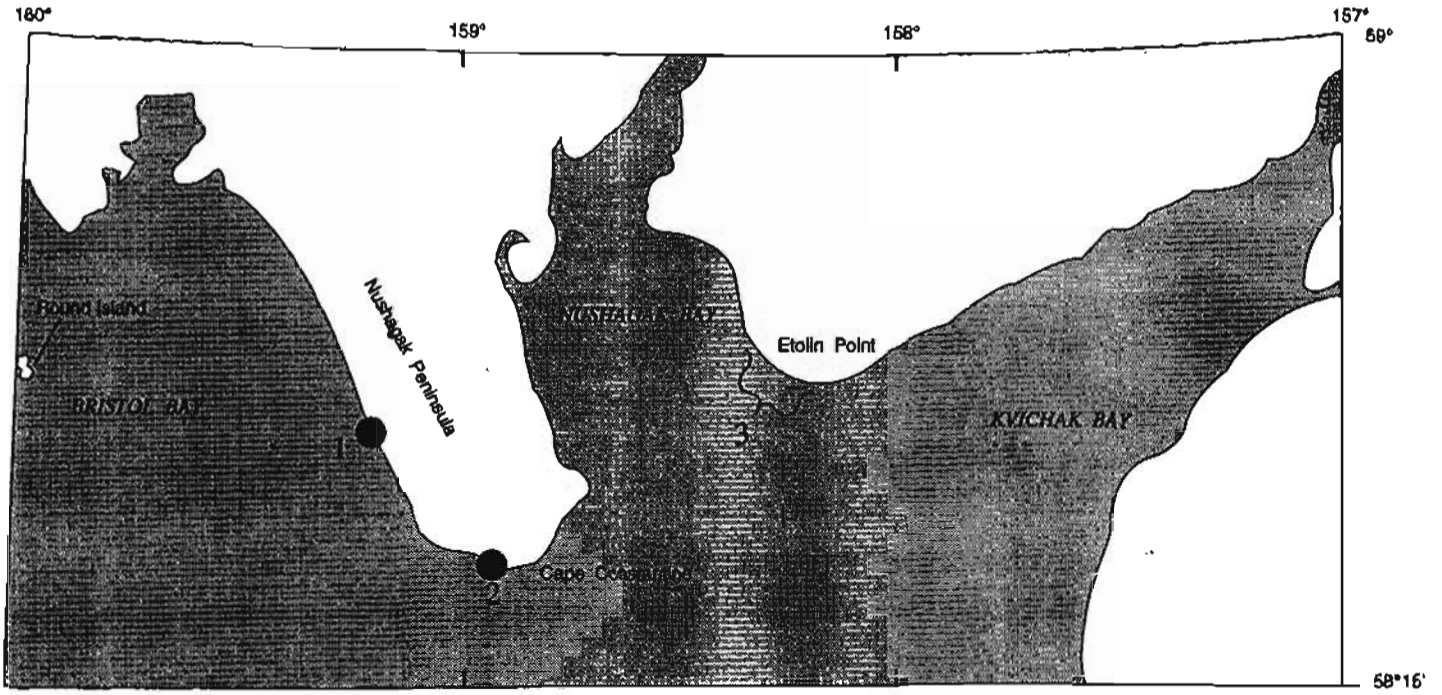

Figure 1. Location of (1) composite section shown in fig. 2; (2) composite section shown in fig. 3; and radiocarbon age determinations as discussed by D. M. Hopkins in Reeburgh and Young (1976).

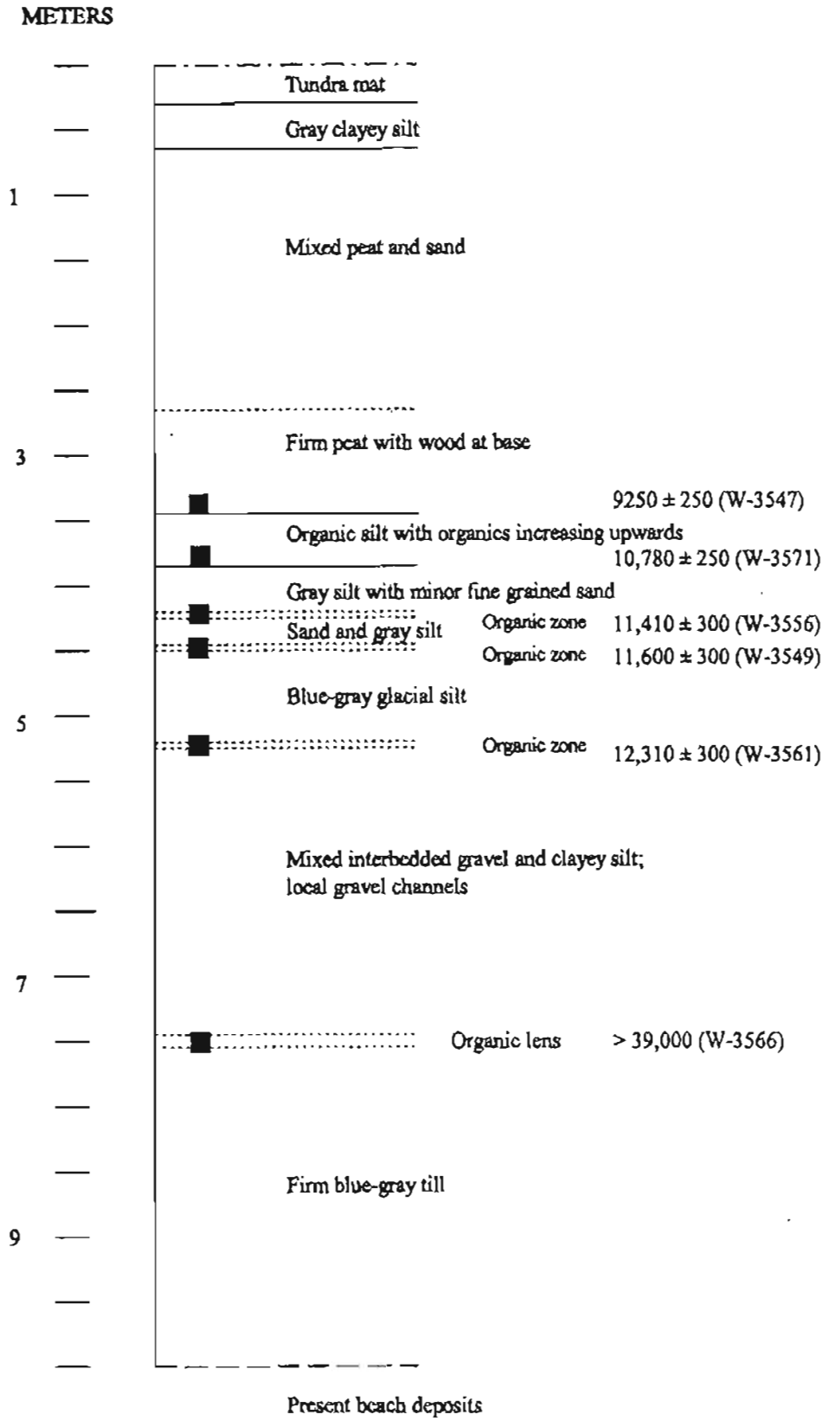

Figure 2. Composite section - West side of Nushagak Peninsula

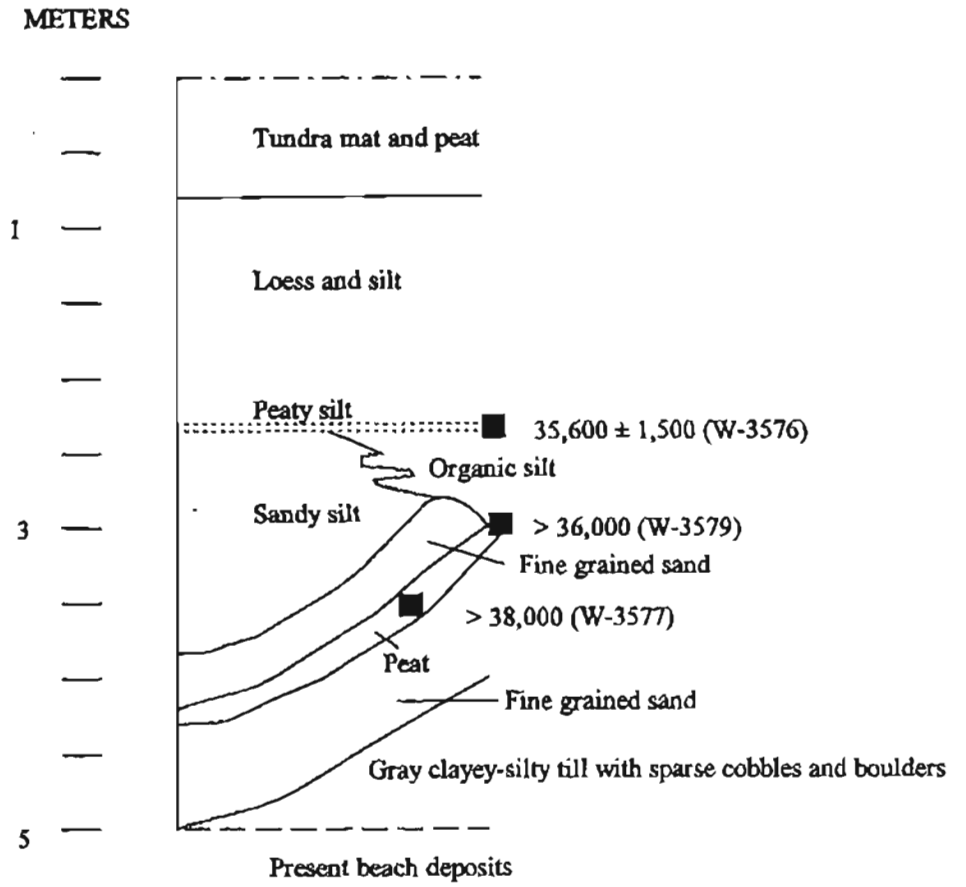

Figure 3. Composite section - South end of Nushagak Peninsula

Kvichak Peninsula Series (Reeburgh and Young, 1976)
(See figure 1, location 3)

Laboratory number	Material	Age (yr B.P.)	Location		Comments
AU-79	Detrial peat	12,420 ± 400	58° 14.7'	157° 48'	Begining of dune formation on Kvichak Peninsula
AU-80	Detrial peat	>31,000	58° 41.3'	157° 13.5'	Minimum age for glaciomarine dimicton
AU-81	Humified peat	7,600 ± 100	58° 38.6'	157° 17.5'	Minimum age for end of loess deposition
AU-82	Sedge peat	12,760 ± 300	" "	" "	Possible correlation with detrial peat buried by dune sand (see AU-79)
AU-83	Humified peat	>33,000	" "	" "	Minimum age for dimicton
AU-84	Humified peat	>33,000	" "	" "	Minimum age for dimicton
AU-86	Fibrous peat	6,330 ± 150	58° 38.6'	157° 17.5'	Possibly correlative with AU-81
AU-87	" "	>29,000	" "	" "	Minimum age
AU-88	Peaty silt	>30,000	58° 38.5'	158° 13'	Minimum age for dimicton
AU-89	Peat	>30,000	58° 37.2'	157° 13.5'	Minimum age for dimicton

Chagvan Bay area (Porter 1967)

Laboratory number	Material	Age (yr B.P.)	Location		Comments
UW-56	Basal peat	8,910 ± 110	58° 53'	161° 47'	Minimum age for outermost Unaluk Drift
I-426*	Basal peat	11,500 ± 250	58° 53'	161° 47'	
UW-71	Basal peat	12,110 ± 130	58° 52'	161° 46'	
UW-70	Basal peat	12,840 ± 170	58° 52'	161° 46'	
UW-57	Basal peat	>45,000	58° 53'	161° 46'	Minimum age for Chagvan Drift

*listed as I-462 in Trautman and Willis, 1966.