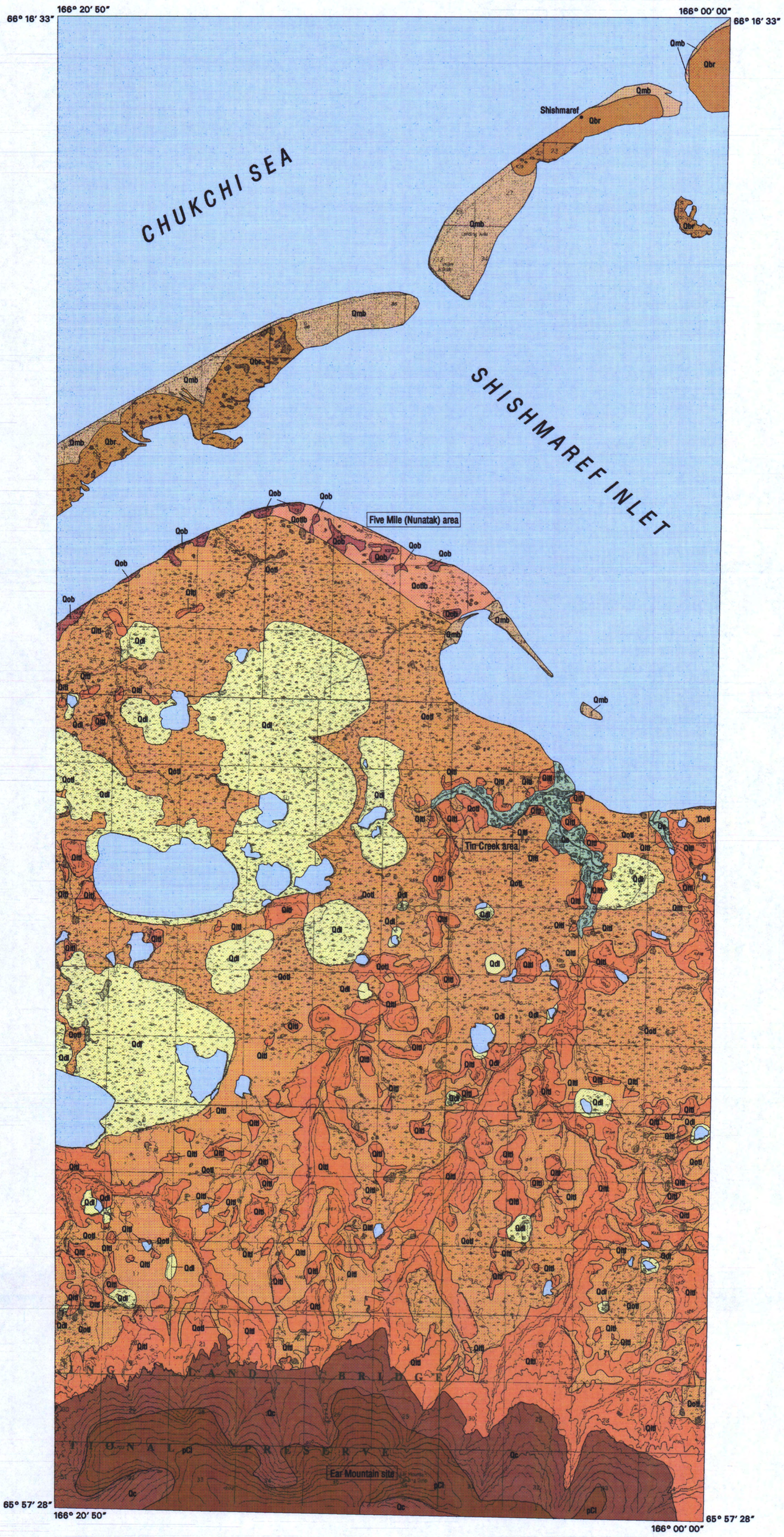
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

REPORT OF INVESTIGATIONS 96-7
Mason, 1996, Sheet 1

Explanatory booklet accompanies map



Base modified from U.S. Geological Survey Shishmaref A-3 and B-3, and Teller D-3 Quadrangles, 1950. Universal Transverse Mercator projection, 1927.

Geology by Owen K. Mason (1996). Cartography by S. M. Weems with assistance from D. S. Pinney.

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1950

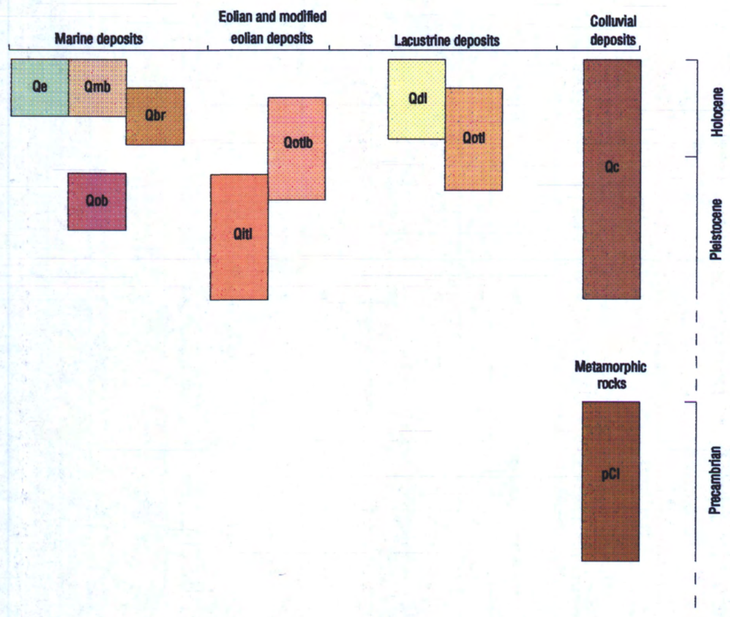
SCALE 1:63 360

1 1/2 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

UNCONSOLIDATED DEPOSITS

MARINE DEPOSITS

Qmb Qbr — MODERN BEACH DEPOSITS (Qmb) AND OLDER BEACH-RIDGE AND DUNE DEPOSITS (Qbr)– Fine to medium sand, thinly bedded. Distinct organic beds in upper eolian facies that overlies older marine beach-ridge and overwash deposits (Qbr). Occupies barrier islands; not subdivided by age. Beach deposits at least several meters thick, possibly up to 20 m. Dunes up to 8 m high.

Qe — ESTUARINE DEPOSITS– Fine silt to clay with considerable fine to medium sand. Thinly bedded to massive. Represents marine reworking of eroded bluff and alluvial sediments. Forms emergent sand bars and river mouths adjacent to bluffs and within lagoons. Less than 2 m above mean sea level.

Qob — LATE-PLEISTOCENE BEACH AND DUNE DEPOSITS– Medium to fine sand, locally cross-bedded, with occasional organic beds. Represents dune deposits atop beach deposits from last interglacial stand of high sea level. Forms prominent high bluffs for several km along Shishmaref Inlet. Eolian sand about 15 m thick overlies several meters of beach deposits below sea level. Thaw lakes form in upper part.

EOLIAN AND MODIFIED EOLIAN DEPOSITS

Qitl — INORGANIC THAW-LAKE SEDIMENTS AND WINDBLOWN SILT– Fine silt to clay, massive to thinly bedded. Organic concentration varies with genesis of deposit. Lacustrine deposits developed in former eolian deposits (loess or dune). Forms higher bluffs adjacent to small creeks; represents uneroded portion of older surface (> 15,000 yrs B.P.). Several tens of meters to 100 m thick.

Qotlb — ORGANIC-RICH THAW-LAKE DEPOSITS OVERLYING LATE-PLEISTOCENE DUNE DEPOSITS (Qob)– Fine silt to clay, thinly bedded, with at least 20 percent organics. Deposited from suspension in lakes, subject to reworking at bottom. Organic beds alternate with inorganic sediments. Extends across the surface of most of Qob; forms distinct basins due to thermokarst expansion of lakes. Several meters thick.

LACUSTRINE DEPOSITS

Qdl — DEPOSITS OF RECENTLY DRAINED THAW LAKES– Fine silt to clay, thinly bedded with at least 20 percent organics. Deposited from suspension within lakes; subject to reworking at bottom. Organic beds alternate with inorganic sediments. Occupies some lowland areas; recently drained lakes are inset into older thaw-lake sediments. Thickness several meters; underlain by greater thickness of older thaw lake deposits (Qotl).

Qotl — ORGANIC-RICH THAW-LAKE DEPOSITS– Fine silt to clay with some sand likely; thinly bedded with at least 20 percent organics. Deposited from suspension within lakes and subject to reworking at bottom. Organic beds alternate with inorganic sediments. Extends over most of the lowland areas, but not adjacent to large creeks. Several tens of meters thick.

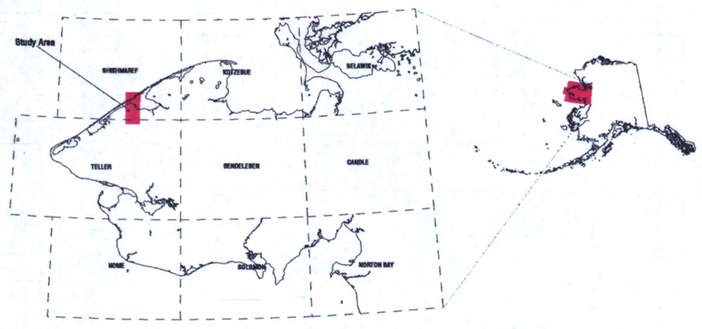
COLLUVIAL DEPOSITS

Qc — COLLUVIUM– Silt and very fine to fine sand. Generally crudely bedded and reworked. Several meters thick atop bedrock on lower slopes of Ear Mountain. Adjacent to narrow drainages and intermittent channels.

BEDROCK

pCl — LIMESTONE– Surface is rubbly with silty loam intermixed. Thinly bedded limestone and rhythmically interbedded dolomitic limestone. Locally intruded by dikes of rhyolite, rhyolitic porphyry, granite or diabase. Forms middle and upper slopes of Ear Mountain at elevations of 300 to 600 m ASL. Slopes vary from level to 75 percent. Thickness assumed to be several hundred meters.

See table 2 in accompanying text for engineering characteristics of these geologic units.



Location Index

GEOLOGIC MAP OF PORTIONS OF THE SHISHMAREF A-3, B-3, AND TELLER D-3 QUADRANGLES, ALASKA

by

Owen K. Mason

1996

Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System

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This DGGS Report of Investigations is a final report of scientific research. It has received technical review and may be cited as an agency publication.