DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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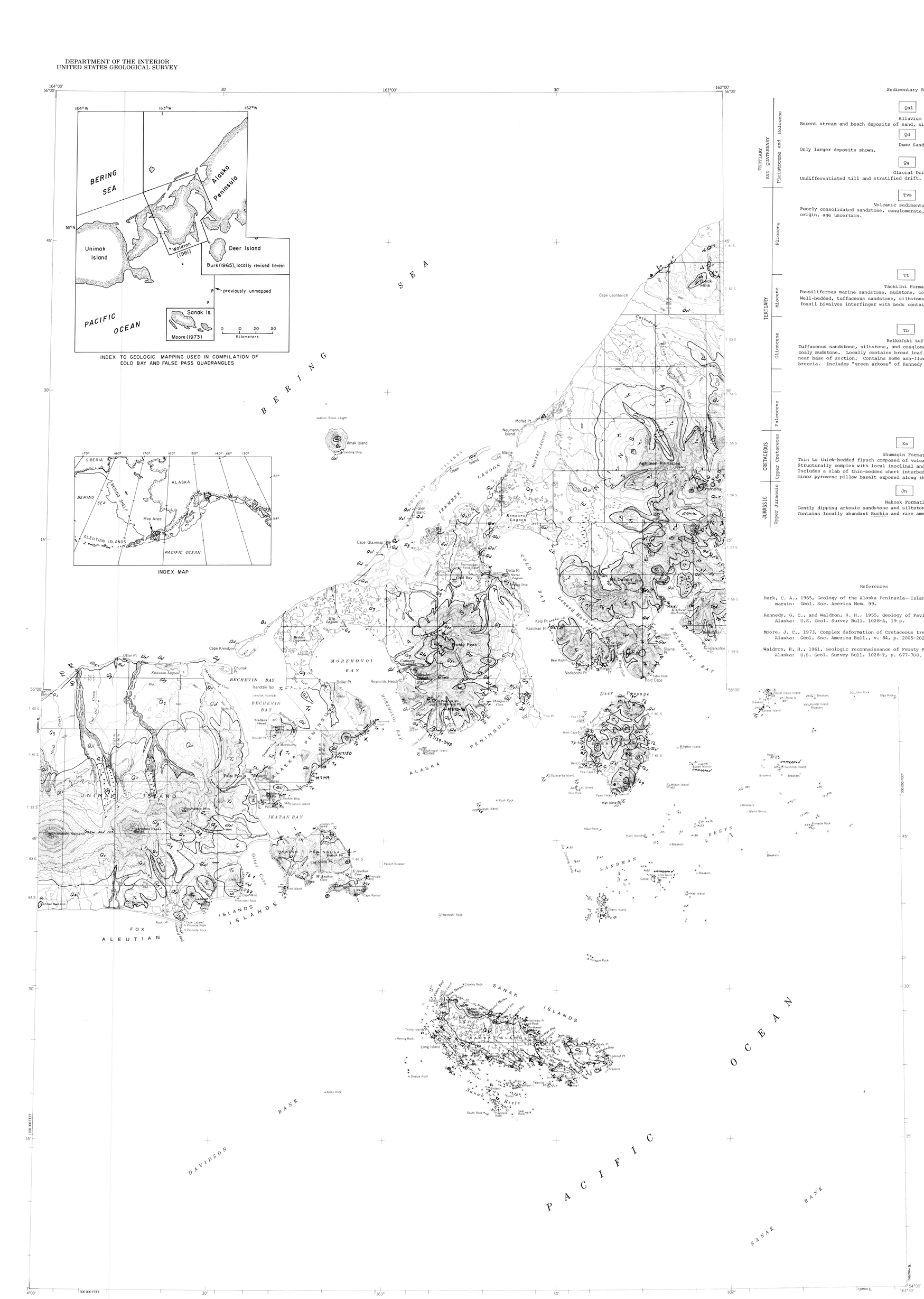
INDEX TO GEOLOGIC MAPPING USED IN COMPILATION OF COLD BAY AND FALSE PASS QUADRANGLES

INDEX MAP



Base from U.S. Geological Survey topographic quadrangles Cold Bay and False Pass, 1:250,000 scale.

APPROXIMATE MEAN DECLINATION, 1963

Scale 1:250,000

LOCATION INDEX

Geology mapped in 1947 by
H.H. Waldron, 1958-1961 by
C.A. Burk, 1969 and 1970 by
J.C. Moore, and 1977 by H. McLean,
C.L. Engelhardt, and D.G. Howell.

RECONNAISSANCE GEOLOGIC MAP OF THE COLD BAY AND FALSE PASS QUADRANGLES, ALASKA

By

Hugh McLean, C.L.Engelhardt and D.G.Howell

1978

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.

Sedimentary Rocks

TERTIARY AND QUATERNARY — Pleistocene and Holocene

Qal — Alluvium
Recent stream and beach deposits of sand, silt, clay, and gravel.

Qd — Dune Sand
Only larger deposits shown.

Qg — Glacial Drift
Undifferentiated till and stratified drift.

Tvs — Volcanic sedimentary rocks
Poorly consolidated sandstone, conglomerate, and reworked tuff. Mostly of fluvial origin, age uncertain.

TERTIARY — Pliocene

TERTIARY — Miocene

Tt — Tachilni Formation
Fossiliferous marine sandstone, mudstone, conglomerate, and some black shale. Well-bedded, tuffaceous sandstone, siltstone, and conglomerate. Strata containing fossil bivalves interfinger with beds containing abundant carbonaceous debris.

TERTIARY — Oligocene

Tb — Belkofski tuff
Tuffaceous sandstone, siltstone, and conglomerate with interbedded black carbonaceous coaly mudstone. Locally contains broad leaf and fir needle fossils. Rare bivalves near base of section. Contains some ash-flow tuff, andesitic sills, dikes, and breccia. Includes "green arkose" of Kennedy and Waldron (1955).

TERTIARY — Paleocene

CRETACEOUS — Upper Cretaceous

Ks — Shumagin Formation
Thin to thick-bedded flysch composed of volcaniclastic sandstone and mudstone. Structurally complex with local isoclinal and chevron folds, and broken formation. Includes a slab of thin-bedded chert interbedded with mudstone and graywacke, and minor pyroxene pillow basalt exposed along the NE shore of Long Island.

JURASSIC — Upper Jurassic

Jn — Naknek Formation
Gently dipping arkosic sandstone and siltstone derived from a granitic source. Contains locally abundant Buchia and rare ammonites and gastropods.

Igneous Rocks

Qfps / Qfp — Frosty Peak volcanics
Light-gray porphyritic basalt flows and interbedded pyroclastic deposits. Qfps, volcanic rocks of the summit cone.

Qv / Qi — Volcanic rocks
Qv, Volcanic flows, breccia and pyroclastic deposits flanking Quaternary strato volcanoes. Qi, volcanic intrusive centers.

QTmv — Morzhovoi volcanics
Porphyritic olivine basalt flows and interbedded pyroclastic deposits, and some volcanic sedimentary rocks.

Tv / Ti — Undifferentiated volcanic rocks
Flows of andesite and basalt interbedded with pyroclastic deposits, agglomerate and breccia. Age uncertain, may include some rocks of early Quaternary age. Ti, volcanic intrusive centers.

Tqd — Quartz diorite
Stocks of pyroxene and biotite bearing quartz diorite. Locally intrudes the Belkofski tuff. Age uncertain

Tgd — Sanak pluton
Granodiorite, Intrudes Shumagin Formation on Sanak Island. Potassium-argon age date 59.9 ± 1.8 m.y., (Moore, 1973).

—?—?—?— Contact
Querried where approximately located or inferred

Crest of anticline
Dashed where approximately located

Trough of syncline
Dashed where approximately located

5 — Strike and dip of beds
Symbol broken where attitude is estimated

30 — Strike and dip of overturned beds
Symbol is broken where attitude is estimated

Irregular strike and dip

Horizontal or nearly horizontal beds

M7150 — Fossil locality of larger invertebrates

References

Burk, C. A., 1965, Geology of the Alaska Peninsula--Island arc and continental margin: Geol. Soc. America Mem. 99.

Kennedy, G. C., and Waldron, H. H., 1955, Geology of Pavlof volcano and vicinity, Alaska: U.S. Geol. Survey Bull. 1028-A, 19 p.

Moore, J. C., 1973, Complex deformation of Cretaceous trench deposits, southwestern Alaska: Geol. Soc. America Bull., v. 84, p. 2005-2020.

Waldron, H. H., 1961, Geologic reconnaissance of Frosty Peak volcano and vicinity, Alaska: U.S. Geol. Survey Bull. 1028-T, p. 677-708.

Tertiary Megainvertebrate Collections

U.S.G.S. Cenozoic Locality Number	Rock Unit Symbol	Identifiable Forms	Probable Age	Approximate map Position
M7139	Tt	Bivalves: CHLAMYS (SWIFTOPECTEN) LEOHERTLEINI MacNeil - common CYCLOCARDIA sp. - common GLYCYMERIS sp. - common abundant TELLINA sp. - uncommon SPISULA POLYNYMA VOYI (Gabb) - common PAPYRIDEA sp. - uncommon MACOMA sp. - uncommon PANDORA sp. - rare Gastropods: POLINICES (EUSPIRA) PALLIDUS (Broderip & Sowerby) NEPTUNEA (NEPTUNEA) LYRATA ALTISPIRA Gabb - uncommon ? CANCELLARIA sp. - rare NATICA (CRYPTONATICA) CLAUSA Broderip & Sowerby - common	Late Miocene or Pliocene	Cape Tachilni, type section of Tachilni Formation
M7140	Tt	Gastropods: NATICA (CRYPTONATICA) CLAUSA Broderip & Sowerby - uncommon NEPTUNEA (NEPTUNEA) LYRATA (Gmelin) subspecies Bivalves: ? GLYCYMERIS sp. - fragments, common CLINOCARDIUM sp. - common MACOMA of. M. NASUTA (Conrad) - abundant ? ACILA sp. - fragments, uncommon	Pliocene	Cape Tachilni, type section of Tachilni Formation
M7141	Tt	Bivalves: MYA (? ARENOMYA) of. M, (?A.) ELEGANS (Eichwald) - 1 specimen OHLAMYS (SWIFTOPECTEN) sp. - 2 fragments	Miocene or younger	Cape Tachilni, type section of Tachilni Formation
M7142	Tt	Bivalves: CRENOMYTILUS COALINGENSIS (Arnold) - abundant MYA (MYA) TRUNCATA Linnaeus -	Late Miocene or Pliocene	Cape Tachilni, Type section of Tachilni Formation
M7142	Tt	Bivalves: CRENOMYTILUS COALINGENSIS (Arnold) - abundant MYA (MYA) TRUNCATA Linnaeus - common MACOMA of M. NASUTA (Conrad) - common PAPYRIDEA sp. - common GLYCYMERIS sp. - uncommon	Late Miocene or Pliocene	Cape Tachilni, Type section of Tachilni Formation
M7143	Tt	Bivalve: MYA (MYA) TRUNCATA Linnaeus - prolific Gastropods: NEPTUNEA (NEPTUNEA) LYRATA ALTISPIRA Gabb - common NATICA (CRYPTONATICA) CLAUSA Broderip & Sowerby - common ? CANCELLARIA sp. - uncommon	Late Miocene or Pliocene	South of Frosty Peak in valley north of Sandy Cove
M7144	Tt	Bivalves: PECTEN sp. - abundant fragments in outcrop CLINOCARDIUM sp. - 1 fragment	insufficient data	South of Frosty Peak in valley north of Sandy Cove
M7145	Tt	Bivalve: MACOMA sp.	insufficient data	South of Frosty Peak in valley north of Sandy Cove
M7146	Tt	Bivalves: SPISULA POLYNYMA VOYI (Gabb) - abundant YOLDIA (CNESTERIUM) sp. - uncommon MYA (MYA) TRUNCATA Linnaeus - common CLINOCARDIUM sp. - common GLYCYMERIS sp. - common SILIQUA sp. - common CHLAMYS (SWIFTOPECTEN) LEOHERTLEINI Mac Neil - common PAPYRIDEA sp. - uncommon THRACIA sp. - uncommon MYA (? ARENOMYA) ELEGANS (Eichwald) - uncommon MUSCULUS sp. - common MACOMA of. M. NASUTA (Conrad) - uncommon Gastropods: NEPTUNEA (NEPTUNEA) LYRATA ALTISPIRA Gabb - common NATICA (CRYPTONATICA) CLAUSA Broderip & Sowerby - common ? PLICIFUSUS sp. - uncommon MARGARITES sp. - 1 specimen GENOPOTA sp. - 1 specimen BUCCINUM sp. - uncommon	Late Miocene or Pliocene	South of Frosty Peak in valley north of Sandy Cove
M7149	Tt	Bivalves: MYA (? ARENOMYA) ELEGANS (Eichwald) - abundant CLINOCARDIUM sp. - prolific FORTIPECTEN MOLLERENSIS MacNeil - abundant	Late Miocene or early Pliocene	Seacliff exposure between False Pass and Morzhovoi Bay
M7150	Tt	Bivalves: SILIQUA sp. - common CLINOCARDIUM sp. - prolific YOLDIA (CNESTERIUM) sp. - common MACOMA of. M. BROTA Dall SPISULA sp. - common MACOMA of. M. LIPARA Dall - abundant ? THRACIA sp. MYA (MYA) TRUNCATA Linnaeus Gastropods: NATICA (CRYPTONATICA) CLAUSA Broderip & Sowerby - common BUCCINUM sp. - common COLUS sp. NEPTUNEA (NEPTUNEA) LYRATA ALTISPIRA Gabb ? CANCELLARIA sp.	Late Miocene or Pliocene	Seacliff exposure 3.3 km southwest of Kenmore Head
M7151	Tb	Bivalves: ? ANADARA sp. - abundant ? MACOMA sp. - common MYA sp. - 1 specimen, juvenile Crustacean: fragment of crab claw	Oligocene	Seacliffs along northwest shore of Belkofski Bay