DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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EXPLANATORY NOTE

INTRODUCTION AND METHODOLOGY

This table provides brief summaries and objective descriptions of the known coal fields in the western part of southern Alaska. The table and accompanying map are part of the Regional Mineral Resource Assessment Program for southern Alaska. A companion publication (Holloway, 1977) describes the coal fields in the eastern part of southern Alaska. Together, they represent the results of a literature search by the author, utilizing publications from federal, state, and other sources. By far the most comprehensive of these is the summary by Barnes (1967) of the coal resources of Alaska.

A deliberate attempt was made to avoid interpretative or subjective statements in the compilation of the table. In many instances, however, discrepancies exist between the various reports. In these cases, the most recent or best-documented figures, or those which appeared to have been derived according to a methodology commensurate with U.S. Geological Survey guidelines were chosen. Averitt (1961) and Barnes (1967) discuss these guidelines in detail.

EXPLANATION OF TABLE HEADINGS

COAL FIELD -- Names used to designate coal fields are those which are most commonly used in the literature. Where an alternate name is given, it is enclosed in parentheses.

GEOLOGIC AGE OF COAL-BEARING ROCKS -- The more economically important coal deposits in the western part of southern Alaska are bituminous and subbituminous coals in rocks of Cretaceous age. Minor lignite deposits, of lesser economic importance, are found in Tertiary-age rocks.

AREA UNDERLAIN BY COAL-BEARING ROCKS -- Detailed explanations of the criteria used in U.S. Geological Survey resource estimates to calculate the areal extent of coal beds are given by Averitt (1961). Briefly, the areal extent of coal-bearing rocks is inferred from information from outcrops, mines, prospects, and drill holes.

OVERBURDEN -- Coal-bearing rocks in western southern Alaska may be mantled by a cover of younger rocks or surficial sediments ranging from a few tens of feet to several thousand feet in thickness. It is standard practice in coal resource estimates of the U.S. Geological Survey to report the resource data in the following three catagories, according to the thickness of overburden in feet: 0-1,000; 1,000-2,000; 2,000-3,000. It was decided not to convert these intervals to their metric equivalents. The footnote at the end of the table gives further information and factors for conversion to the metric system.

ESTIMATED ORIGINAL RESOURCES -- "Original resources" refers to coal in the ground prior to the beginning of mining operations; this figure is essentially a constant and provides a base figure from which resources remaining at any given time can be calculated. Under this heading, resources for each coal field have been classified according to the relative abundance of information and the reliability of data concerning the amount of coal within each of the overburden catagories. U.S. Geological Survey usage defines these subheadings as follows: "measured resources" are those for which tonnage is computed from dimensions revealed at closely spaced points of observation and measurement, such as outcrops, trenches, mine workings, and drill holes; "indicated resources" are those for which tonnage is computed partly from specific measurements and partly from projection based on geologic evidence; "inferred resources" are based on broad knowledge of the geologic character of the bed or region, with only a few measurements of bed thickness.

RANK -- The standard classification of coals by rank in the series from lignite to anthracite is that established by the American Society for Testing and Materials (1965), and is based upon limits of fixed carbon, volatile matter, and calorific value. These in turn are related to the degree of metamorphism, or progressive alteration, of the deposit.

COMMENTS -- Additional information, including geologic setting, number and thickness of coal beds, and production.

REFERENCES -- Cites sources of information for the table and map. A list of references cited in the table and used in the compilation of the map is given below.

COAL FIELD	GEOLOGIC AGE OF COAL-BEARING ROCKS	AREA UNDERLAIN BY COAL-BEARING ROCKS mi² 1/	OVERBURDEN feet 1/	ESTIMATED ORIGINAL RESOURCES millions of short tons 1/ MEASURED	INDICATED	INFERRED	TOTAL	RANK	COMMENTS	REFERENCES
CHIGNIK COAL FIELD	Late Cretaceous and Tertiary	70	0-1,000	Insufficient data to form resource estimate			---------	bituminous and subbituminous (minor lignite)	Bituminous and subbituminous coal is associated with the Cretaceous Chignik formation and is confined largely to a northeast-trending belt of gently folded and somewhat faulted rocks on the southeast flank of the main anticlinal fold of the Aleutian Range; beds are traceable for only short distances; no production other than minor amount for local use; minor lignite in Tertiary rocks	Atwood, 1911, p. 109; Barnes, 1967, p. 812-813, 829, pl. 1
HERENDEEN BAY COAL FIELD	Late Cretaceous and Tertiary	50	0-1,000	-----	-----	10	10	bituminous and subbituminous (minor lignite)	Bituminous and subbituminous coal in beds of the Cretaceous Chignik Formation is exposed on the south limb of a syncline broken by several small faults; Gates derived hypothetical resource estimates of 5 to 10 million short tons by extending the coal to the north limb of the syncline; coal is in beds ranging from a few inches to 5 feet thick, however, most are less than 2 feet thick and little is known of the extent or continuity of individual beds; very minor development work and production in late 19th and early 20th centuries; lignite is found in Tertiary sedimentary rocks; indications are that these beds are of little or no economic value	Atwood, 1911, p. 97; Gates, 1944, p. 2-3; Barnes, 1967, pl. 1
	Total			-----	-----	10				
	Total Herendeen Bay						10			
UNGA ISLAND COAL FIELD (COAL HARBOR COAL FIELD)	Eocene	36	0-1,000	Insufficient data to form resource estimate				lignite	Reliability of information is generally poor; beds are in uniformly shallow-dipping Eocene sedimentary rocks; most seams are too thin to be of commercial value; one mine placed on a shipping basis in about 1911, but no large production resulted	Atwood, 1911, p. 118, 119; Barnes, 1967, p. 829, pl. 1
Grand total of coal resources for western part of southern Alaska							10			

1/ Coal tonnages customarily have been reported for depth intervals in increments of 1,000 feet. Because these intervals have been considered significant in coal estimates of both the U.S. Geological Survey and the mining industry, and because direct conversion to the metric system would result in an improper increase in the number of significant digits, depth measurements (and, for the sake of conformity, figures for tonnage and areal extent) have been left in standard units. For conversion to the metric system, the following factors may be applied:

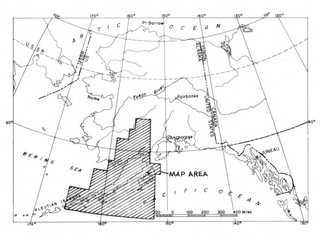
metric tonnes = .90718474 x standard tons
meter = 3.281 x foot

bituminous coal -- areas known to contain coal beds of minable thickness and quality. In general, the minimum thickness included is 14 inches for bituminous coal.

1 areas of lignite-bearing rocks where coal is of doubtful or unknown value, or where the coal-bearing formations are under a cover of younger rocks or surficial sediments.

• claim staked on coal-bearing rocks of unknown extent and unspecified rank, reported in U.S. Bureau of Mines (1973); claims lying within coal field boundaries are not shown on this map.

Boundary of Southern Alaska Regional Mineral Resource Assessment Program (RAMRAP) as used in this study



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American Society for Testing and Materials, 1965, Specifications for classification of coals by rank (tentative), ASTM designation D388-64T, in, pt. 19, Gaseous fuels; coal and coke: 1965 Book of ASTM Standards, p. 73-78.

Atwood, W. W., 1911, Geology and mineral resources of the Alaska Peninsula: U.S. Geol. Survey Bull. 467, 137 p.

Averitt, Paul, 1961, Coal reserves of the United States -- A progress report, January 1, 1960: U.S. Geol. Survey Bull. 1136, 116 p.

Barnes, F. F., 1967, Coal resources of Alaska: U.S. Geol. Survey Bull. 1242-B, 36 p.

Gates, G. O., 1944, Part of the Herendeen Bay coal field: U.S. Geol. Survey Open-file Rept.

Holloway, C. D., 1977, Map showing coal fields and distribution of coal-bearing rocks in the eastern part of southern Alaska: U.S. Geol. Survey Open-file Map OF 77-169-D, 1 sheet, scale 1:1,000,000.

U.S. Bureau of Mines, 1973, Alaska 1:250,000 scale quadrangle map overlays showing mineral deposit locations, principal minerals, and number and type of claims: U.S. Bur. Mines Open-file Rept. 20-73.

CHIGNIK

HERENDEEN BAY

UNGA ISLAND

SCALE 1:1 000 000

25 0 25 50 75 100 MILES
25 0 25 50 75 100 KILOMETERS

MAP SHOWING COAL FIELDS AND DISTRIBUTION OF COAL-BEARING ROCKS IN THE WESTERN PART OF SOUTHERN ALASKA

BY C. D. HOLLOWAY

1977

Base map from the National Atlas of the United States of America, U.S. Geological Survey, 1970

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.