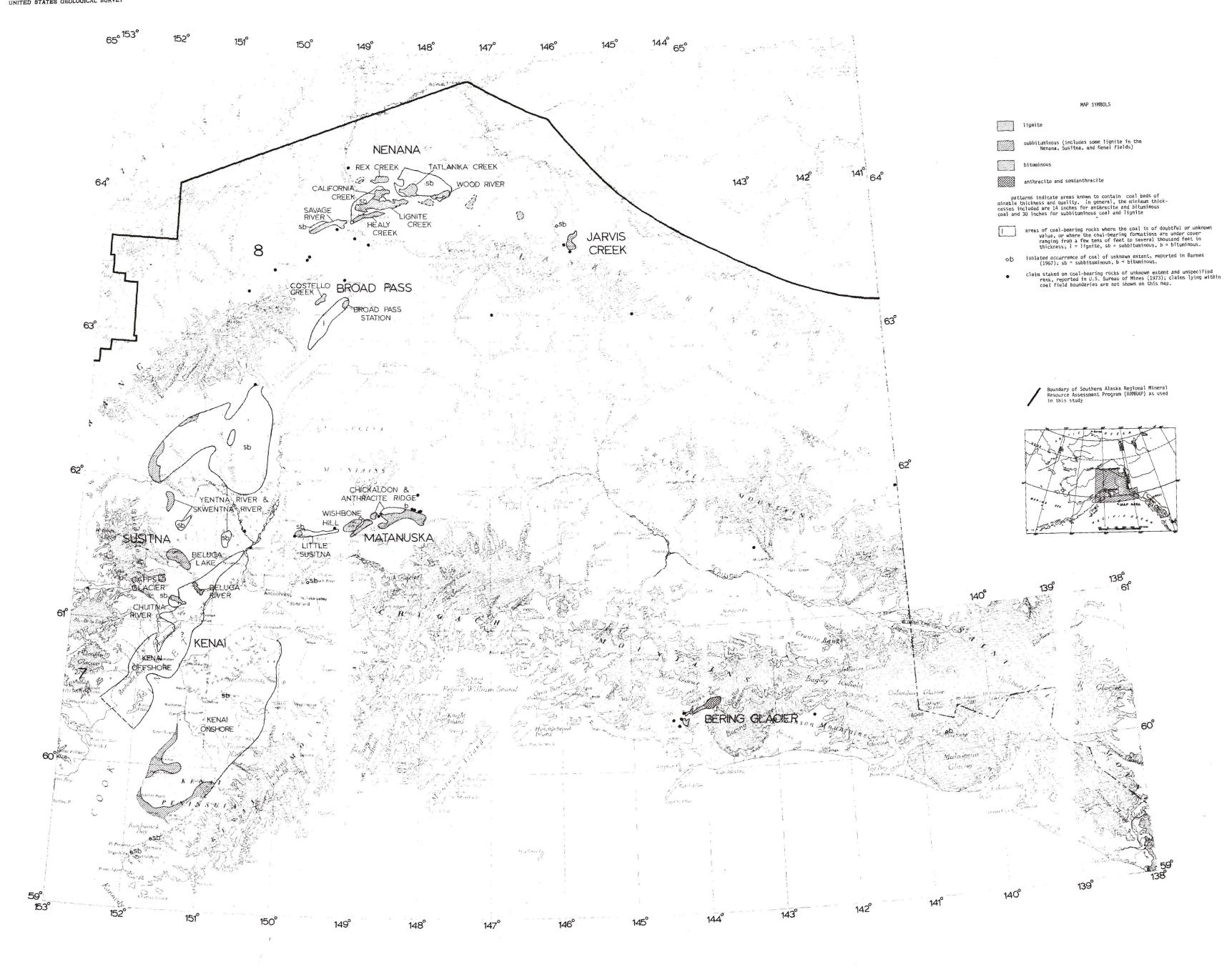
77-169-D



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

BY C.D. HOLLOWAY

EXPLANATORY NOTE

INTRODUCTION AND METHODOLOGY

This table provides brief summaries and objective descriptions of the known coal fields in the eastern part of southern Alaska. The table and accompanying map are part of the Regional Mineral Resource Assessment Program for southern Alaska. A companion publication (Molloway, 1977) describes the coal fields in the western 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 AND DISTRICT — Names used to designate coal fields are those which are most commonly used in the literature. This is also true for the most part of names used for districts, although in some cases a nume was used which does not have as wide a currency, for example, "Kenai Offshore". In these cases the term "district" is not appended.

GEDLOGIC AGE OF COAL-BEARING ROCKS -- All known coal fields in the eastern part of southern Alaska are found in rocks of Tertiary age.

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 throughout much of the area of eastern southern Alaska's coal fields are mantled by a cover of younger rocks or surficial deposits 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: O-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

Formation and factors for conversion to the metric system.

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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. Proximal analyses are not available for some coal basins, and rank may be based on subjective interpretations.

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.

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COAL FIELD AND DISTRICT	GEOLDGIC AGE OF COAL-BEARING ROCKS	AREA UNDER- LAIN BY COAL-BEARING ROCKS #12 1/	OVERBURDEN feet 1/	at I	ATED ORIGINATIONS OF ST	WAL RESOURCE HOST tons 3	Z Z	rank	COMMENTS REFERENCES
MENANA COAL FIELD			0)				100	subbttuminous	Paul baseing Obers committee the Guideante Researce 1027 - D35 033
Rex Creek Ofstrict Tatlanika Creek	diig. and Mio, Miocene	29	0-1,000	->	9.5	77.1 76.4	123	subbituminous	Chal-bearing group comprises the Grubstake, Barnes, 1987, p. 8)2-8)3, Lignita Creek, Suntrana, Sanctuary, and Marky Treek Consulton, Sanctuary, and provided the Birch Creek, Tobelanita, and Marketin, 1973, 199, p. D. 1973, 1914, 1914, p. 1914, p. 20-9-1914, p. 20-9-19
District Wood River	do	276	1,000-2,000	15	12 15	76.4	76.4 268	do	age: the coal-bearing tedimentary rocks 28
District		1	2,000-2,000 2,000-3,000		18	====	15 16		form a series of synclinal Dasins in a discontinuous belt from 1 to 30 miles wide and about 150 miles long; the properties were originally developed in 1988 as a
Savage River District		55	0-1,000	******		12	15		consequence of construction of the Alaska railroad: wirtually all production has
Lignite Creek District	do)	0-1,000 1,000-2,000 2,000-3,000	282.7	1,482.7	1,557.8 351 327	3,317.4 793 327	dp	come from Healy and Lightte Creeks, the
Healy Creek District	do	218			94,5	141.2	529.7		Coder organizations permy arganization of the code of
10/36/102		1	0-1,000 1,000-2,000 2,000-3,000	294 274	69 245	128.4 110.8	471,4 355.8		
California Creek District)	0-1,000 1,000-2,000	6	231.6	379.9 132	619.5 139	de	Emma, McAdam, Bonanza, and Lower Marguerite Creeks, which are tributary to California Creek; figures for Mood River do not in- clude the eastern part of the basin, be- tween Mood River amon by Creek.
									twen Wood River and Dry Craek.
Total			9-1,000	597.7	1,949.9	2,516.5			
			1,000-2,000 2,000-3,000	274	533 263	687.8 437.8			
Total Nenena							7,259.7		
JARVIS CREEK COAL	Mincene	16	0-2,000		5.9	71.5	77.4	subbituminous	Coal-bearing rocks are a sequence of inter- bedded lenses of poorly compatidated gand- stone, sittsiane, Claystone, and conglow- Sone, sitesiane, Claystone, and conglow-
FIELD			(most coal is in 0-1,000 foot inter-						bedden, eltestum, sluytone, and complom- erate: call occurs in 36 thm, leatibulm, 1607, pl. 156, Barnes, erate: call occurs in 36 thm, leatibulm, 1607, pl. 1, discontinuous beds, most of which are less than 7.5 feet thick; coal field is a shaffow
			val)	ĺ					than 2.5 feet thick; coal field is a shellow owal basin transfer porthorn-west; minor reserves of stripping coal; coal-bearing pocks are correlated with those on Healy
			-						rocks are correlated with those on Healy Creek
Takal			0-2,000	No. No.	5.9	71.5			
Total Jarvis Creek			u-2,000		3.9	71.3	77.4		
BROAD PASS COAL FIELD									
Broad Pess Station	Miccene	1,5	U-1,000		.3	63.3	63.6	lignite	Coal forms 5-10 foot thick beds in simple structures; coal-bearing rocks are 71th-ologically similar to those on Costell pl. 1
									ologically shmilar to those on Costello pl. I and Healy Creeks; total area underlain by these prote is probably much larder than
					1				given, as indicated by coal outcrops farther south on the Chalitma River
Contact of		2	0 / 24				. 3	subhi ha	Onal is found in Tenses and discontinuous Butledge, 1940, p. 3, 4; beds with a maximum thickness of 9 feet; Barnes, 1967, b. 817, B24,
Costella Creek	do	7	0-1,000		.3		.3	subbituminous	heds with a maximum thickness of 9 feet; host rocks are poorly consolidated, by only slightly compressed, with gentle dips; total reported production, 1940-1954, of 6/,000 short troos resources estimated in
									total reported production, 1940-1954, of 64,000 short tons; resources estimated in 1943 as, 33 million tons, most of which
	* 6			{				{	1943 s. 35 million tons, most of which have since been removed or lost by under- ground and strip mining; however, total area under lain by coal-bearing rocks is probably much larger tran indicated
						1		}	much larger than indicated
Total			U-1,000		.5	63. 3			
Total Broad Pass			Q-1,000		1		63.9	}	
~~~~~						<del> </del>			
SUSITNA COAL FIELD		,					f		¥
Yentna River	Miocene	approx. 1,865	0-1,000		55.9		55.9	subbituminous and lignite	Coal-bearing rocks may underlie as much as 7,400 mi2 now overlain by unconsoli- ateg diachal and alluval deposits; 5, 6: Magoon, Abkison, and
Skwentna River	**********	}	0-1,000		123		123	do	Doline and Chaites wiven facing probably Fabort, 1976, Sheet 7
Beluga River Capps Glacter	Late Paleocen to early Miocene	7	0-1,000		550		550	do	contain most of the potentially valuable containing the potentially valuable cost ineposities; cost is contained in heds of the West Foreland and Tymont formations; beds are raintively files or pently folded,
Chuitna River	Early and middle Miccene	51 60	0-1,000 0-1,000		1,560		1,860	do	ercapt locally along a few major faults; because of extensive cover, the total posmetral resources of the field may be much preser; blow shown here: Magings
Beluga Lake	MIDCERE	50	9-1,400		240.1		200.1		much greater than Shown here; maxinum thickness to Quaternary overburden it about 300 feet, glyang a favorable ratio of coa? thickness to overburden
							1	1	
Total Total Susitna			0-1,000		2,699		2,699		
					-				
MATAMUSKA COAL FIELD	Oligocene	33	0-1,000	hypothet	lcal resou lion short	rces of		subbitumingus	Boorly exposed coal, generally in thin and impure best; these generally dip gently to the acoutement, but locally are moderately folled and faulted; several abandoned prospects; commercial operations, with 1976, p. 25
Little Susitna District	*********			14.6 mil	lion short {	tons			folded and faulted; several abandoned p. 611, pl. 1; banders, prospects; commercial operations, with minor production, carried on intermite-
									(olided and Faulted); severed absolutes (1, 101, 101, 103, 100) in the control of
						}			of surface; resource estimate based on drill cores from limited area in western part of district
Wishbone Hill District, Incl. Moose Creek	Paleocene	75	0-2,000 (coal beds are largely	6,6	51.7	\$3,1	112.0	bituminous	Rocks in the coal-bearing Chick-Zoor formation range from coarse sandstone and p. 18: Barnes and Payre, 1856, conglowerate to claystone; desfrant p. 18: Barnes, 1967, p. 811, 825 structural feature is the WishBone Hill
			the upper 1,400 feet)						structural feature is the Wishbone Hill syncline, which is cut into segments by several major transverse failts, with
									Structural resource is the assumer of the symbol of the sy
							1		are not notably persistant, tending to thin or intergrade within relatively short dis- tances, continuous production from 1918
									are not motably persissant, tenning to trin the control of the con
									man had a state of the state of
Chickaloon District	Paleocene	12	0-2,000		.7	24.3	25	bituminous	Coal occurs in the Chickaloon formation in Barnes, 1967, p. Bll, 826, a large number of lenticular bods ranging pl. 1
							}		From a few inches to 14 feet in thickness; structure is synclinal, with locally super- imoused belts of tight folding and crum-
								}	ling; further complicated by faulting and intrusion of differ and sills; coal is difficult and symptote control to the coal of
					Ì	1		}	complex structure and lateral discontinuity of the coal beds; history of exploration and development dating from the april 1900's
					}	1			Cos) occurs in the bricks lost formet lost in Barnes, 1967, p. 811, 826, the Cemmen of Intection beat signs; pl. 1 from a few faches to lifeter in Dickiness; structure is symplicial, with locally super-timoused belts of tight folding and crampolities of the symplectic symplectic structures in a few faces and silist coal is difficult and expensive to when, due to complex structure and letteral disconting complex structure and letteral disconting and development dating from the early 1900's, but very little production; resource estimates are for only the relatively works.
	k				1	į			
Anthracite Ridge District	Paleocene	28	0-1,000	hypothe of .75 tons	tical reso million sh	urces ort		anthracite and semi-anthracite in north, bi-	e along northern border; coal-bearing rocks p. S, 23; Warfield, 1967,
				1	}	1	1	tuminous in south	unuer by igneous discs and stills and the coels of higher grade than elsewhere in the Matanuska coal field; the hypothetical
					-				uninge given is for a KU acre area on the morthwest border of the basin; in general, outcrops are of such imall extent and beds
				}					of the Chickaloon Formation have been far- trued by Specual Kites and spills and the coals of Higher grade than elsewhere in the coals of Higher grade than elsewhere in cal- tempage silves is for a 20 acres area on the northwest border of the basins in general, outcrops are of such small-settent and beds are so frequilar that accurate reserve estimates could not be made, but could be as high as several mailtion tonts for the district as a whole
									THE STATE OF THE S
Patal (excl, hypoth	netical)		0-2,600	6.6	52.4	78			
Total Metanuska (excl. hypoth	metical)						137		
								ļ	
KEMAI COAL FIELD Kenai Onshore	Late Mines-	3,300	000, 1-0		310.7			) towns	The anathers must of the
(primarily the Homer District)	Late Miocene and Pliocene	5,000	-1,000		318.2		318.2	lignite to subbituminous	The northern part of the coal fishle, in the Barnes and Cook, 1959, kens distriction, her a several-humand-foot p. 2/2; Barnes, 1967, thick cover of surficial material, but coal-p. B12-B13, 827-826, pl. 1; bearing-rocks are indicated in wel) core; Magoon, Adition, and Eghert,
				}					bearing rocks are indicated in me) cores; Magoom, Adkison, and Egbert, in the Homer district to the south, coal- bearing rocks of the Sterling and Seluya
				}					bearing rocks are indicated in aep) corps; "Agooom, Addison, and Egbert, 1976, sheet   and 2   about   about
									in , usunctinuous peos; total production does not exceed a few thousand tons; re- source estimates include only the area with-
								1	in. S miles of the coast in the femer dis- trict; much larger reserves are undoubtedly pretent farther inland, but surface data are insufficient for reliable extreates
								-	me wenticions the coupple astimates
Kehai Offshore	Oligocene(?) to middle Miscene	1,244	0-2,000	"speculat of 100.0 tons	ive" resou 100 million	rces short		unknown (see text)	Bata is from exploratory and production McGee and D'Connor, 1975, we'll drilled for hydrocarbons, described p. 2, fig. 2-6, pl. 1 without reference to econemics of coal re-
	Junealle			LUITS					without reference to economics of coal ve- covery; district laps onshore, encompassing all or part of Barnes' (1967) "Deach SW of Tyunek" and the "Belupa River" and "Unuitma
							}	1	Tyonek" and the "Boliupa River" and "Chairna River" districts in the Sustitus coal 'Fledt' coal in these areas is lighte to sub- bluminous; rank of offshore coal is unknown,
					72				bituminous; rank of offshore coal is unknown, but aperage rank may be higher due to in- creesed temperatures and pressures;
					10				and average rank may be higher due to In- creaced temperatures and pressures; coliferous rocks are in the Kemaj Broup, with col in lenticular bads pharallel to the firmer direction of the Basic axis
									control areas on the book that
Total (excl. specu)			0-1,000		216.2	1	í	otte	RUSHICAKA FORMATION; coal seams are 1967; Sanders, 1976b, chartery from by lack of continuity in all P. 54-58
IGHAL Var-1 / "	(5)							cite, and anthracite	numnicate Formation; coel seems are 1967; Sanders, 1976b, characterize by lack of continuity in all off-actions; area is extremely complex structure; by, with a highly compressed seems of storting), chernol. like folial, some faults; continuity and interface of storting characteristic properties of storting characteristic properties of storting and storting sto
									into an interfaction of beginning failts; coal outcrops are intimately associated with "Exterior manufaction of all associated with
									"structuren", mostly faults and Yold ANAS. and are greatly devoletized due to low- grade regional meteorophism; resources ere calculated from coal/waste ratefors for the
									calculated from coal/waste rations for the Kushtaka formation

Brand total of chal resources for eastern part of southern Alaska Additional hypochetical or speculative resources

in aggition, four small areas of coal-bearing rocks on Windy, Mystic, Dry, Delca creeks in the Momana coal field are shown on the map, exclosed by the fines. These areas are whom in manifest the state of the manifest of the state of the st

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This map is preliminary and has a been reviewed for conformity wit U.S. Geological Survey standards and nomenclature.