

THE MINERAL INDUSTRY OF ALASKA

In 1998, the preliminary estimated value¹ of nonfuel mineral production for Alaska was \$911 million, according to the U.S. Geological Survey (USGS). This was about a 7% decrease from that of 1997,² following a 60% increase from 1996 to 1997. The State decreased in rank in 1998 from 15th to 16th among the 50 States in total nonfuel mineral production value, of which Alaska accounted for more than 2% of the U.S. total.

Overall, metallic minerals accounted for more than 91% of the State's total nonfuel mineral production value in 1998. A large majority of this was from zinc, lead, and silver production at the Red Dog Mine in northwestern Alaska and gold from the Fort Knox Mine near Fairbanks in east central Alaska. (Listings of mineral commodities are in descending order of value, magnitude of change in value, or quantity produced.) In 1998, the estimated values for most of the State's commodities showed decreases except for silver, which had a small increase, and construction sand and gravel and gemstones, which remained the same. The largest portion of the decline resulted from a \$34 million drop in the value of gold and a nearly \$30 million drop in zinc. In 1997, increases in the production and values of zinc, gold, silver, and construction sand and gravel (in descending order of increase) accounted for most of the State's substantial rise in value (table 1). Smaller yet significant increases also occurred in lead and crushed stone.

Based on USGS estimates of the quantities produced in the 50 States during 1998, Alaska remained first² in zinc, second in lead and silver, and rose to third from fourth in the production of gold.³ Production of peat was not reported to the USGS, in part,

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending on the minerals or mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 1998 USGS mineral production data published in this chapter are preliminary estimates as of February 1999 and are expected to change. For some commodities (for example, construction sand and gravel, crushed stone, and portland cement), estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. A telephone listing for the specialists may be retrieved over the Internet at <http://minerals.usgs.gov/minerals/contacts/comdir.html>; by using MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset (request Document #1000 for a telephone listing of all mineral commodity specialists); or by calling USGS information at (703) 648-4000 for the specialist's name and number. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

²Values, percentage calculations, and rankings for 1997 may vary from the *Minerals Yearbook, Area Reports: Domestic 1997, Volume II*, owing to the revision of preliminary 1997 to final 1997 data. Data for 1998 are preliminary and expected to change, while related rankings may also be subject to change.

³Gold figures in table 1, as reported to the USGS, possibly understate actual production and value. The canvassing of gold placer mineral production was discontinued by the U.S. Bureau of Mines (the Federal agency formerly responsible for U.S. nonfuel mineral production data collection) in 1994. Gold production and value data in table 1 are previous 1996 and 1997 and preliminary 1998 numbers that are estimated by the USGS in cooperation with the Alaska Department of Natural Resources' Division of Geological and Geophysical Surveys (DGGs). More recent estimates based on data collected by the DGGs (Szumigala and Swainbank, 1999) indicate estimated production in 1996 to have been 5,030 kilograms at an estimated \$62.6 million; in 1997, 18,400 kilograms at an estimated \$207 million; and in 1998, 18,300 kilograms at an estimated

because of reporting difficulties associated with the seasonal, intermittent nature of the mineral commodity's mining in the State. The Alaska Department of Natural Resources Division of Geological and Geophysical Surveys (DGGs) estimated peat production to be about 29,100 cubic meters for an estimated value of about \$190,000. Additionally, DGGs reported production of jade and soapstone of about 1.8 metric tons at an estimated value of \$25,000 (Szumigala and Swainbank, 1999).

The DGGs provided the following narrative information; the data are based on DGGs surveys and estimates (Szumigala and Swainbank, 1999). Highlights for 1998 were increased production of lead, zinc, and silver from the Red Dog Mine near Kotzebue. Red Dog continues to be the world's largest producer of zinc. Greens Creek Mine near Juneau remained one of the largest producers of silver in the United States and continues to produce significant lead, zinc, copper, and gold. Fort Knox Mine near Fairbanks was Alaska's largest gold producer, and there was continued gold production from Nixon Fork Mine, Illinois Creek Mine, and several dozen placer mines distributed throughout Alaska. Sealaska Corp. began production of high-grade calcium carbonate, suitable for high-quality paper coating and paint, from Calder Mine on Prince of Wales Island.

Development expenditures dropped sharply from \$167 million in 1997 to \$55 million in 1998. Red Dog Mine completed its Production Rate Increase project in September. Fort Knox Mine added a semiautogenous grinding crusher and a number of in-pit projects. Greens Creek Mine continued development work to access its Southwest Orebody. Development work was completed at Calder Mine and the mine was brought into operation in August. Ongoing development work continued at numerous placer mines.

Exploration expenditures in Alaska during 1998 were \$56 million, down only 2% from 1997 levels, despite historically low metal prices and massive reduction in worldwide exploration budgets. Sixty-four percent of expenditures were spent in the eastern interior region of Alaska, sparked by continued exciting results from the Pogo property, continued exploration programs in the Fairbanks mining district, and renewed interest in the polymetallic mineral belt on the north flank of the Alaska Range. Significant resource calculations announced for several properties in the eastern interior region include 162,000 kilograms of gold at the Pogo property, 50,000 kilograms of gold at the Golden Summit property, and 2.8 million metric tons of 4.4% zinc, 1.9% lead, 0.2% copper, 93.6 grams per ton of silver, and 0.55 grams per ton gold calculated for the DC North horizon on the Dry Creek property. Gold exploration was also strong in southwestern Alaska, with an announced resource of 358,000 kilograms of gold at the Donlin Creek property and a resource of 31,000 kilograms at the Shotgun property.

In Government actions, DGGs contracted for airborne geophysical surveys conducted in the Fortymile and Livengood

value of \$173 million. The USGS final 1997 and 1998 total gold production and value data for Alaska, also done in collaboration with the DGGs, will be reflected in the upcoming USGS *Mineral Industry Surveys - Gold, 1998 Annual Review*.

mining districts and released results for airborne geophysical surveys flown in the Ruby, Talkeetna Mountain, Wrangell, and Wiseman areas. DGGs conducted mineral-related field programs in the Petersville and Chulitna areas previously surveyed by airborne geophysics. Greens Creek Mine won first place for underground mines in the Sentinels of Safety Award, and the Fort Knox Mine was second runner up for openpit mines in the same contest. The 1998 Reclamation Award for Excellent Mine Reclamation from the Alaska Department of Natural Resources was awarded to an individual for his work on

reclaiming Thistle Creek in the Bonnifield district near Healy. A long-awaited land exchange between Kennecott Minerals Co. and the U.S. Government was completed during 1998 for 3,000 hectares adjacent to Greens Creek Mine.

Reference Cited

Szumigala, D.J. and Swainbank, R.C., 1999, Alaska's Mineral Industry 1998, A Summary: Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, Information Circular 45, 14 p.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN ALASKA 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1996		1997		1998 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones	NA	11	NA	11	NA	11
Gold 3/ 4/ kilograms	5,020	61,000	18,400 r/	196,000 r/	17,000	162,000
Sand and gravel: Construction	9,380	35,900	12,500	57,400	12,500	57,400
Stone: Crushed 5/	2,600	16,500	3,340	23,500	3,200	22,400
Combined values of copper, lead, silver, stone (crushed dolomite and limestone), zinc	XX	500,000 r/	XX	703,000	XX	670,000
Total	XX	613,000 r/	XX	980,000 r/	XX	911,000

p/ Preliminary. r/ Revised. NA Not available. XX Not applicable.

1/ Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Recoverable content of ores, etc.

4/ Data collected by the State.

5/ Excludes certain stones; kind and value included with "Combined values" data.

TABLE 2
ALASKA: CRUSHED STONE SOLD OR USED, BY KIND 1/ 2/

	1996				1997			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone-dolomite	1	(3/)	(3/)	(3/)	1	(3/)	(3/)	(3/)
Granite	1	(3/)	(3/)	(3/)	--	--	--	--
Traprock	6	888	\$3,300	\$3.72	5	663	\$2,170	\$3.27
Slate	1	7	48	6.86	1	(3/)	(3/)	(3/)
Sandstone	--	--	--	--	1	(3/)	(3/)	(3/)
Miscellaneous stone	6	1,710	13,200	7.72	5	2,670	21,400	8.00
Total	XX	2,600	16,500	6.35	XX	3,340	23,500	7.06

XX Not applicable.

1/ Data derived in part from the Alaska Division of Geological and Geophysical Surveys information.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Excluded from State total to avoid disclosing company proprietary data.

TABLE 3
ALASKA: CRUSHED STONE SOLD OR USED BY PRODUCERS
IN 1997, BY USE 1/ 2/ 3/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregates (+1 inch):			
Riprap and jetty stone	2	\$27	\$13.50
Filter stone	27	191	7.07
Coarse aggregate, graded:			
Concrete aggregate, coarse	57	233	4.09
Bituminous aggregate, coarse	1	1	1.00
Fine aggregate (-3/8 inch): Screening, undesignated			
	3	46	15.33
Coarse and fine aggregates:			
Graded road base or subbase	29	153	5.28
Unpaved road surfacing	11	75	6.82
Crusher run or fill or waste	11	111	10.09
Other construction materials	15	33	2.20
Other specified uses not listed	3	12	4.00
Unspecified: 4/			
Actual	2,590	20,800	8.02
Estimated	585	1,890	3.23
Total	3,340	23,500	7.06

1/ Data derived in part from the Alaska Division of Geological and Geophysical Surveys information.

2/ Includes traprock, and miscellaneous stone; excludes limestone-dolomite, sandstone, and slate from State total to avoid disclosing company proprietary data.

3/ Data are rounded to three significant digits, except unit value; may not add to totals shown.

4/ Reported and estimated production without a breakdown by end use.

TABLE 4
ALASKA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1997,
BY MAJOR USE CATEGORY 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand) 3/	1,340	\$4,570	\$3.42
Asphaltic concrete aggregates and other bituminous mixtures	266	2,360	8.86
Road base and coverings	344	3,000	8.73
Fill	777	3,890	5.01
Snow and ice control	44	425	9.66
Railroad ballast	41	315	7.68
Unspecified: Actual 4/	9,670	42,800	4.43
Total or average	12,500	57,400	4.60

1/ To avoid disclosing company proprietary data, no region tables were produced for 1997.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ Includes plaster and gunite sands and concrete products.

4/ Reported and estimated production without a breakdown by end use.