

THE MINERAL INDUSTRY OF MAINE

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Maine Geological Survey for collecting information on all nonfuel minerals.

In 1999, the preliminary estimated value¹ of nonfuel mineral production for Maine was \$101 million, according to the U.S. Geological Survey (USGS). This was a 10% increase from that of 1998,² and followed a 30.5% increase in 1998 from that of 1997. Maine's increase in value in 1999 mostly resulted from an increase in the value of construction sand and gravel, further supported by smaller yet significant increases in peat, crushed stone, and portland cement. (Listing of minerals is in descending order of change in value.) In 1998, the State's substantial rise in value was led by increases in portland cement, crushed stone, and construction sand and gravel. Relative to these changes, peat had a small yet significant decrease in value for the year (table 1).

Based upon USGS estimates of the quantities of peat produced in the United States, Maine increased in rank to share fourth place with another State in 1999, up from sixth in 1998. Additionally, the State was a significant producer of gemstones.

The Maine Geological Survey provided the following narrative information.³ Increases in aggregate and cement production were related to general construction increases; no major highway construction projects began in the State in 1999.

In the metals sector, Freewest Resources Canada, Inc., continued its grass roots gold exploration program along the United States-Canada border at its "Golden Ridge Property" (Freewest Resources Canada, Inc., Thunder Bay, Ontario, August 1998, Summary report on the Golden Ridge property of Freewest Resources Canada, Inc., York and Carleton Counties, New Brunswick, town of Amity, ME, NTS 21G/13, accessed August 1, 2000, at URL <http://www.freewest.com>). The property comprises 9,130 hectares (ha), consisting of 2,590 ha

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon 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 1999 USGS mineral production data published in this chapter are preliminary estimates as of May 2000, and are expected to change. For some mineral commodities, such as, 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 URL <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 URL <http://minerals.usgs.gov/minerals>; facsimile copies may be obtained from MINES FaxBack.

²Values, percentage calculations, and rankings for 1998 may vary from the Minerals Yearbook, Area Reports: Domestic 1998, Volume II, owing to the revision of preliminary 1998 to final 1998 data. Data for 1999 are preliminary and are expected to change; related rankings may also be subject to change.

³Robert G. Marvinnay, Director and State Geologist of the Maine Geological Survey, authored the text of the State's mineral industry information.

in the State of Maine and 6,540 ha in the Canadian Province of New Brunswick. While exploration work continued in 1999, the most prominent target defined to date is situated in the Poplar Mountain Volcanic Complex (PMVC) on the New Brunswick side of the border. The PMVC is an elliptical-shaped volcanic center, 4.5 kilometers (km) long and 1.5 km wide that consists of pyroclastic rocks, volcanic flows, and high-level intrusions of andesitic to dacitic composition, and is closely associated with a major terrane boundary marked by the crustal-scale, Woodstock Fault. Gold on Poplar Mountain is hosted by a brecciated, aphanitic andesite intrusion. Gold mineralization is of two distinct styles: the first comprising finely disseminated arsenopyrite and pyrite within intensely altered andesite and the second consisting of quartz-albite-cemented hydrothermal breccia developed within the intrusion and on its margins. Such mineralization is associated with a moderate strength induced polarization anomaly and 1.4-km-long gold-in-soil anomaly.

Trenching at the Poplar Mountain prospect has uncovered broad mineralized deformation zones in dacite porphyry containing quartz vein stockwork and quartz breccias within and on the margins of the Woodstock Fault. Channel sampling returned values up to 1.8 grams per metric ton (g/t) gold over a mineralized zone up to 60 meters wide. All of the mineralized zones show remarkable consistency in gold grade with assays ranging from 210 parts per billion to 5,530 parts per billion, reflecting the disseminated nature of mineralization.

For the balance of the grid surveyed to the north of Poplar Mountain in Maine, soil geochemistry results have been plotted. Several strong gold, arsenic, and antimony anomalies have been identified within the PMVC. The largest is 1.2 km long and contains gold-in-soil values of up to 875 parts per billion. Prospecting performed nearby in Maine has also located several large meter-size blocks of debris flow, pyroclastic rocks containing fine-grained massive sulfide clasts. The clasts assay up to 0.192% copper, 6.13% lead, 11.1% zinc, 108 g/t silver, and 1.1 g/t gold. A series of isolated, weak to moderate strength airborne electromagnetic anomalies situated nearby suggest a possible source area for the massive sulfides.

At the close of 1997, NNM Resources, Inc., a wholly owned subsidiary of Black Hawk Mining Inc., submitted a permit application to open a gold and silver mine at the Bald Mountain deposit in T12 R8 of Aroostook County. The application was for surface mining of just the gossan cap, which overlies the 32-million-metric-ton base metal sulfide deposit. The application was reviewed by the Maine Land Use Regulation Commission and the Maine Department of Environmental Protection. Citing low metal prices, Black Hawk withdrew its application in mid-1999, stating its intent to pursue this project further when prices improved.

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

(Thousand metric tons and thousand dollars)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones	NA	230	NA	228	NA	229
Sand and gravel: Construction	6,280	28,400	7,640	33,400	8,920	39,800
Stone: Crushed	2,540	15,100	4,120	23,000	4,200	24,100
Combined values of cement, clays (common), peat, stone (dimension granite)	XX	26,500	XX	35,000	XX	36,700
Total	XX	70,200	XX	91,600	XX	101,000

p/ Preliminary. 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 no more than three significant digits; may not add to totals shown.

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

Kind	1997				1998			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	5	1,030	\$6,400	\$6.24	5	1,360	\$8,020	\$5.90
Granite	3	W	W	5.71	3	478	3,410	7.13
Quartzite	2	W	W	5.66	2	W	W	6.81
Slate	2	W	W	7.28	2	W	W	5.17
Traprock	2	W	W	5.51	2	W	W	3.96
Miscellaneous stone	5	W	W	4.08	6	836	4,420	5.29
Total or average	XX	2,540	15,100	5.93	XX	4,120	23,000	5.58

W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 3
 MAINE: CRUSHED STONE SOLD OR USED BY PRODUCERS
 IN 1998, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Riprap and jetty stone	40	\$286	\$7.15
Filter stone	104	508	4.88
Other coarse aggregate	34	222	6.53
Total or average	178	1,020	5.71
Coarse aggregate, graded:			
Concrete aggregate, coarse	164	951	5.80
Bituminous aggregate, coarse	613	3,880	6.33
Bituminous surface-treatment aggregate	(3/)	(3/)	9.59
Railroad ballast	(3/)	(3/)	6.43
Other graded coarse aggregate	207	2,170	10.49
Total or average	1,150	8,540	7.40
Fine aggregate (-3/8 inch):			
Stone sand, concrete	(3/)	(3/)	3.33
Stone sand, bituminous mix or seal	(3/)	(3/)	4.65
Screening, undesignated	(3/)	(3/)	4.76
Other fine aggregate	84	325	3.87
Total or average	397	1,740	4.39
Coarse and fine aggregates:			
Graded road base or subbase	(3/)	(3/)	4.55
Unpaved road surfacing	(3/)	(3/)	3.00
Crusher run or fill or waste	(3/)	(3/)	3.22
Other coarse and fine aggregates	(3/)	(3/)	4.84
Total or average	222	1,010	4.53
Agricultural limestone	W	W	14.73
Chemical and metallurgical:			
Cement manufacture	(3/)	(3/)	4.97
Lime manufacture	(3/)	(3/)	3.08
Total or average	600	2,970	4.95
Other miscellaneous uses: Other specified uses not listed	W	W	5.07
Unspecified: 4/			
Actual	591	2,940	4.97
Estimated	819	3,910	4.77
Total or average	1,410	6,850	4.85
Grand total or average	4,120	23,000	5.58

W Withheld to avoid disclosing company proprietary data; included in "Grand total."

1/ Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

2/ Includes granite, limestone, miscellaneous stone, quartzite, slate, and traprock.

3/ Withheld to avoid disclosing company proprietary data; included in "Total."

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

TABLE 4
 MAINE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
 BY MAJOR USE CATEGORY 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate	660	\$3,480	\$5.27
Concrete products (blocks, bricks, pipe, decorative, etc.)	93	726	7.81
Asphaltic concrete aggregates and other bituminous mixtures	1,020	6,470	6.34
Road base and coverings 3/	1,500	5,550	3.71
Fill	438	1,260	2.87
Snow and ice control	649	2,190	3.37
Filtration	19	124	6.53
Other miscellaneous uses	301	871	2.89
Unspecified: 4/			
Actual	516	2,320	4.50
Estimated	2,440	10,400	4.26
Total or average	7,640	33,400	4.37

1/ To avoid disclosing company proprietary data, no district tables were produced for 1998.

2/ Data are rounded to no more than three significant digits; may not add to totals shown.

3/ Includes road and other stabilization (lime).

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