

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 1997, Maine rose to 44th from 45th in the Nation in total nonfuel mineral production value,¹ according to the U.S. Geological Survey (USGS). The estimated value for 1997 was \$88.2 million, nearly a 29% increase from that of 1996. This followed a 1.5% increase from 1995 to 1996. The State accounted for somewhat less than 0.5% of the U.S. total nonfuel mineral production value. Maine's increase in value in 1997 mostly resulted from a \$16.3 million increase in the value of construction sand and gravel together with smaller increases in crushed stone and portland cement (*table 1*). There was also a small increase in peat production; all other values remained virtually the same. In 1996, the mineral commodities mostly responsible for the State's increase were portland cement and construction sand and gravel. The following narrative information was provided by the Maine Geological Survey² (MGS). The most significant new development in the Maine mineral industry was the submission of a formal application by NNM Resources, Inc., a wholly owned subsidiary of Black Hawk Mining Inc., to open a gold and silver mine at NNM's Bald Mountain deposit in the T12 R8 section of Aroostook County. The application, submitted jointly to the Maine Land Use Regulation Commission (LURC) and the Maine Department of Environmental Protection (MDEP) in December 1997, is to mine the gossan cap, estimated at 1.1 million metric tons of 4.5 grams per ton gold and 101 grams per ton silver. The gossan cap overlies the main ore body estimated to contain 32 million tons of massive sulfide (zinc, copper, gold, and silver). The application calls for the metals to be extracted on-site by a vat leaching process. Some baseline information and baseline

monitoring plans for the site were developed in the 1980's and early 1990's by Boliden Resources, Inc., the previous leaseholder. New baseline monitoring data, related mainly to groundwater, were collected in 1996-97 and submitted by NNM Resources with the current application. The Bald Mountain Project represents the first mining application to the State under revised mining rules adopted in 1991. Before a mine can be opened, several stages in the process must be achieved, including technical reviews by LURC and MDEP staff, with input from a variety of groups including the Maine Department of Inland Fisheries and Wildlife, the MGS, and the general public. The proposed mine site, about 24 kilometers west of Ashland, is in an unorganized township; therefore it falls under the jurisdiction of LURC.

At the Alder Pond copper-zinc-lead deposit in Somerset County, northwestern Maine, Prospectors Alliance Corporation of Toronto in joint venture with International Larder Minerals, Inc., completed their 1996-97 drilling program of 33 vertical drill holes, which focused on the main zone of the deposit. Drilling results from Prospectors Alliance reported reserves for the main zone of 508,000 tons averaging 2.2% copper, 0.5% lead, 9.0% zinc, and 103 grams per ton silver. No new drilling was reported in the south zone of the deposit, previously estimated by BHP Minerals to host 907,000 tons of ore.

Geologists from the USGS continued their study of field exposures and drill cores from the Bald Mountain deposit of northern Maine to determine the origin of the deposit. USGS Open-File Report OF 97-746 describes the mineral paragenesis in seven stages of mineralization, related mainly to Ordovician sea floor volcanism and subsurface hydrothermal activity. Preliminary results of related aspects were presented in abstracts at the 1998 Northeastern Section meeting of the Geological Society of America.

Interest in Maine minerals among both amateur and professional collectors remained strong in 1997. Activity in several areas of southern and southwestern Maine produced fine specimens of wodgingite, molybdenite, spodumene, heterosite, and foot-long andalusite crystals. An economically significant strike occurred in the Berry Quarry of East Poland, which yielded a rich pocket of green gem tourmalines. A new crushed-rock quarry in West Baldwin exposed a sphalerite-triphyllite-columbite-beryl pegmatite. This type of pegmatite is unusual for the area south of the Sebago pluton, which contains many common pegmatites with muscovite, garnet, and schorl.

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 1997 USGS mineral production data published in this chapter are estimates as of January 1998. 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. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset, and request Document # 1000 for a telephone listing of all mineral commodity specialists, or call USGS information at (703) 648-4000 for the specialist's name and number. This telephone listing may also be retrieved over the Internet at <http://minerals.er.usgs.gov/minerals/contacts/comdir.html>. All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved by way of MINES FaxBack or over the Internet at <http://minerals.er.usgs.gov/minerals/>.

²Henry Berry, Physical Geologist, authored the text of minerals industry information submitted by the Maine Geological Survey.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1995		1996		1997 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones	NA	305	NA	223	NA	227
Peat	15	845	18	960	15	1,000
Sand and gravel, construction	6,420	26,900	6,440	27,500	10,000	43,800
Stone, crushed	3,110	16,100	2,760	14,800	3,100	17,200
Combined value of cement, clays (common), and stone (dimension granite)	XX	23,500	XX	25,000	XX	26,000
Total	XX	67,600	XX	68,600	XX	88,200

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 three significant digits; may not add to totals shown.

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

Kind	1995				1996			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone	6	1,590	\$7,910	\$4.96	6	1,410	\$7,410	\$5.25
Calcareous marl	1	W	W	11.43	--	--	--	--
Granite	4 r/	W	W	5.22 r/	3	W	W	5.04
Quartzite	1	W	W	5.65	1	W	W	5.79
Slate	2	W	W	6.61	2	W	W	7.11
Traprock	2	W	W	5.52	2	W	W	5.77
Miscellaneous stone	2 r/	W	W	3.88 r/	1	W	W	3.98
Total	XX	3,110	16,100	5.17	XX	2,760	14,800	5.38

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

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

TABLE 3
MAINE: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1996, BY USE 1/ 2/

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch), other coarse aggregate 3/	93	\$511	\$5.49
Coarse aggregate, graded; concrete aggregate, coarse	146	1,110	7.58
Coarse and fine aggregate:			
Graded road base or subbase	214	966	4.51
Other coarse and fine aggregates 4/	377	2,170	5.76
Agricultural limestone	8	123	15.38
Other specified uses not listed 5/	661	2,460	3.72
Unspecified: 6/			
Actual	164	1,340	8.15
Estimated	1,100	6,170	5.63
Total	2,760	14,800	5.38

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

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

3/ Includes filter stone and riprap and jetty stone.

4/ Includes bituminous aggregate (coarse), railroad ballast, and screening (undesigned).

5/ Includes cement and lime manufacture.

6/ Includes production reported without a breakdown by end use and with estimates for nonrespondents.

TABLE 4
MAINE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1996,
BY MAJOR USE CATEGORY 1/

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	560	\$2,510	\$4.48
Concrete products (blocks, bricks, pipe, decorative, etc.)	(2/)	1	6.91
Asphaltic concrete aggregates and other bituminous mixtures	558	5,020	9.00
Road base and coverings 3/	1,430	5,550	3.87
Fill	609	1,440	2.37
Snow and ice control	774	2,180	2.82
Other miscellaneous uses	233	654	2.81
Unspecified: 4/			
Actual	168	751	4.47
Estimated	2,110	9,400	4.46
Total or average	6,440	27,500	4.27

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

2/ Less than 1/2 unit.

3/ Includes road and other stabilization (cement).

4/ Includes production reported without a breakdown by end use and with estimates for nonrespondents.