

THE MINERAL INDUSTRY OF NORTH CAROLINA

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

In 1999, the preliminary estimated value¹ of nonfuel mineral production for North Carolina was \$761 million, according to the U.S. Geological Survey (USGS). This was about a 1% increase from that of 1998² and followed a 1.1% increase from 1997 to 1998. The State increased to 18th from 19th in rank among the 50 States in total nonfuel mineral production value, of which North Carolina accounted for about 2% of the U.S. total.

In 1999, the increased value of crushed stone, and less so dimension stone, accounted for most of the State's rise in value. These gains were offset somewhat by decreases in phosphate rock, construction sand and gravel, and lithium minerals, in descending order of change (table 1). In 1998, increases in the values of crushed stone and phosphate rock significantly offset a substantial decrease in the value of lithium minerals and smaller decreases in construction and industrial sand and gravel and feldspar. Lithium mineral production ceased with the 1998 closure of FMC Corp., Lithium Division's, spodumene mine and lithium carbonate plant at Cherryville near Bessemer City, NC.

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 and crushed stone, 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.

Based upon 1999 USGS estimates of the quantities of minerals produced in the 50 States, North Carolina continued as the leading State in feldspar, mica, and pyrophyllite; second in common clays and second of 2 States that produced olivine; and seventh in industrial sand and gravel and peat. Whereas the State rose to 3d from 5th in the production of gemstones and to 9th from 13th in dimension stone, it decreased to 3d from 2d of four States that produce phosphate rock and to 8th from 7th in crushed stone. North Carolina mines exclusively have produced industrial minerals since the early 1970's, particularly since the 1971 closing of the Tungsten Queen Mine, an underground tungsten mine in Vance County. Metal production in the State, especially that of primary aluminum, resulted from the processing of recycled materials or raw materials received from other domestic and foreign sources. The North Carolina Geological Survey³ (NCGS) expanded the "Minerals Information" portion of its Internet site. The additions include (1) information about permitted active and inactive mines (including regional mine location maps, contacts, and other data); (2) geochemistry data and information (stream sediment and domestic well and stream water geochemical data for North Carolina from the National Uranium Resource Evaluation Program); (3) listings of historic North Carolina mineral commodity data and geologic information (located at the NCGS Raleigh (Archdale Building) and Asheville offices); (4) information about obtaining mining permits; (5) a list of reports (primarily on industrial minerals) by the North Carolina State University Minerals Research Laboratory, Asheville (URL <http://www.engr.ncsu.edu/mrl>); and (6) links to other sites of interest. There is a renewed focus by the NCGS on Geographic Information System (GIS) geologic map making, data base acquisition and preparation, and mineral-resource studies. In 1999, work began on data entry for the National Geologic Mapping Database. Additional information about NCGS activities can be found on the Internet at URL <http://www.geology.enr.state.nc.us>.

³Jeffrey Reid, Senior Geologist for Minerals and Geographic Information Systems, authored the text of mineral industry information submitted by the North Carolina Geological Survey.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN NORTH CAROLINA 1/ 2/

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	1997		1998		1999 p/	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays: Common	2,460	11,900	2,380	11,600	2,390	11,300
Feldspar metric tons	467,000	18,700	381,000	16,800	396,000	17,000
Gemstones	NA	368	NA	968	NA	969
Sand and gravel:						
Construction	11,100	61,200	10,900	58,000	9,960	53,900
Industrial	1,600	26,400	1,440	24,100	1,440	24,800
Stone:						
Crushed	64,300 r/	468,000 r/	69,700	480,000	71,400	505,000
Dimension metric tons	24,200	12,100	26,200	12,500	41,300	16,200
Combined values of clays (kaolin), lithium minerals (1997-98), mica (crude), olivine, peat, phosphate rock, talc and pyrophyllite	XX	143,000	XX	146,000	XX	132,000
Total	XX	742,000 r/	XX	750,000	XX	761,000

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

TABLE 2
NORTH CAROLINA: 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	11	6,810	\$48,400	\$7.10	11	6,310	\$41,700	\$6.60
Dolomite	1	302	2,010	6.66	1	279	1,870	6.69
Granite	71 r/	46,600 r/	335,000 r/	7.19 r/	76	52,800	365,000	6.91
Calcareous marl	--	--	--	--	1	W	W	4.37
Quartzite	2	W	W	7.41	2	W	W	7.93
Traprock	7	6,560	51,400	7.84	7	6,180	43,400	7.02
Slate	3	W	W	7.55	3	W	W	6.75
Volcanic cinder and scoria	1	W	W	7.58	1	W	W	6.62
Miscellaneous stone	1	W	W	8.40	2	W	W	6.62
Total or average	XX	64,300 r/	468,000 r/	7.27 r/	XX	69,700	480,000	6.89

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

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

TABLE 3
NORTH CAROLINA: 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):			
Macadam	W	W	\$6.47
Riprap and jetty stone	542	\$5,930	10.94
Filter stone	169	1,740	10.31
Other coarse aggregate	114	660	5.79
Coarse aggregate, graded:			
Concrete aggregate, coarse	1,870	17,600	9.43
Bituminous aggregate, coarse	1,670	15,400	9.19
Bituminous surface-treatment aggregate	851	7,860	9.24
Railroad ballast	1,390	7,240	5.21
Other graded coarse aggregate	2,610	23,300	8.96
Fine aggregate (-3/8 inch):			
Stone sand, concrete	223	1,610	7.22
Stone sand, bituminous mix or seal	735	5,240	7.14
Screening, undesignated	1,130	7,520	6.67
Other fine aggregate	336	1,930	5.75
Coarse and fine aggregates:			
Graded road base or subbase	5,820	38,300	6.58
Unpaved road surfacing	562	3,520	6.26
Terrazzo and exposed aggregate	(3/)	(3/)	(3/)
Crusher run or fill or waste	613	3,760	6.14
Other coarse and fine aggregates	2,900	15,400	5.31
Other construction materials	(3/)	(3/)	6.79
Agricultural limestone	5	25	5.00
Other miscellaneous uses: Lightweight aggregate (slate)	(3/)	(3/)	7.18
Unspecified: 4/			
Actual	45,700	306,000	6.70
Estimated	1,890	12,800	6.78
Total or average	69,700	480,000	6.89

W Withheld to avoid disclosing company proprietary data; included with "Other".

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

2/ Includes calcareous marl, dolomite, granite, limestone, miscellaneous stone, quartzite, slate, traprock, and volcanic cinder and scoria.

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

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

TABLE 4
NORTH CAROLINA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1998,
BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:						
Coarse aggregate (+1 1/2 inch) 2/	263	1,990	W	W	W	W
Coarse aggregate, graded 3/	2,370	16,900	W	W	W	W
Fine aggregate (-3/8 inch) 4/	739	5,210	W	W	W	W
Coarse and fine aggregate 5/	2,950	17,000	W	W	W	W
Other construction materials	--	--	13,600	100,000	2,210	19,900
Agricultural 6/	5	25	--	--	--	--
Unspecified: 7/						
Actual	4,520	31,900	21,000	140,000	20,200 8/	135,000 8/
Estimated	873	5,900	--	--	1,020	6,930
Total	11,700	78,900	34,600	240,000	23,400	162,000

W Withheld to avoid disclosing company proprietary data, included with "Other construction materials." -- Zero.

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

2/ Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

3/ Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

4/ Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.

5/ Includes crusher run (select material or fill), graded road base or subbase, lightweight aggregate (slate), terrazzo and exposed aggregate, unpaved road surfacing, and other coarse and fine aggregates.

6/ Includes agricultural limestone.

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

8/ Includes production from unspecified districts to avoid disclosing company proprietary data.

TABLE 5
NORTH CAROLINA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
BY MAJOR USE CATEGORY 1/

Use	Quantity	Value	Unit
	(thousand metric tons)	(thousands)	value
Concrete aggregate	3,530	\$16,100	\$4.56
Plaster and gunite sands	24	158	6.58
Concrete products (blocks, bricks, pipe, decorative, etc.)	335	1,530	4.57
Asphaltic concrete aggregates and other bituminous mixtures	715	2,690	3.76
Road base and coverings 2/	917	5,400	5.89
Fill	1,080	3,250	3.02
Snow and ice control	8	38	4.75
Other miscellaneous uses 3/	1,460	15,900	10.89
Unspecified: 4/			
Actual	2,470	11,400	4.62
Estimated	397	1,500	3.79
Total or average	10,900	58,000	5.31

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

2/ Includes road and other stabilization (lime).

3/ Includes filtration and railroad ballast.

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

TABLE 6
 NORTH CAROLINA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1998,
 BY USE AND DISTRICT 1/

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate 2/	271	1,780	1,020	4,790	2,260	9,690
Concrete products (blocks, bricks, pipe, decorative, etc.)	--	--	122	447	213	1,080
Asphaltic concrete aggregate and road base materials 3/	684	4,620	768	2,680	530	2,110
Fill	96	652	254	665	725	1,930
Other miscellaneous uses 4/	130	868	634	12,900	354	864
Unspecified: 5/						
Actual	--	--	1,030	4,840	1,450	6,600
Estimated	22	49	126	520	249	934
Total	1,200	7,970	3,950	26,800	5,780	23,200

-- Zero.

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

2/ Includes plaster and gunitite sands.

3/ Includes fill and road and other stabilization (cement).

4/ Includes filtration, railroad ballast, and snow and ice control.

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