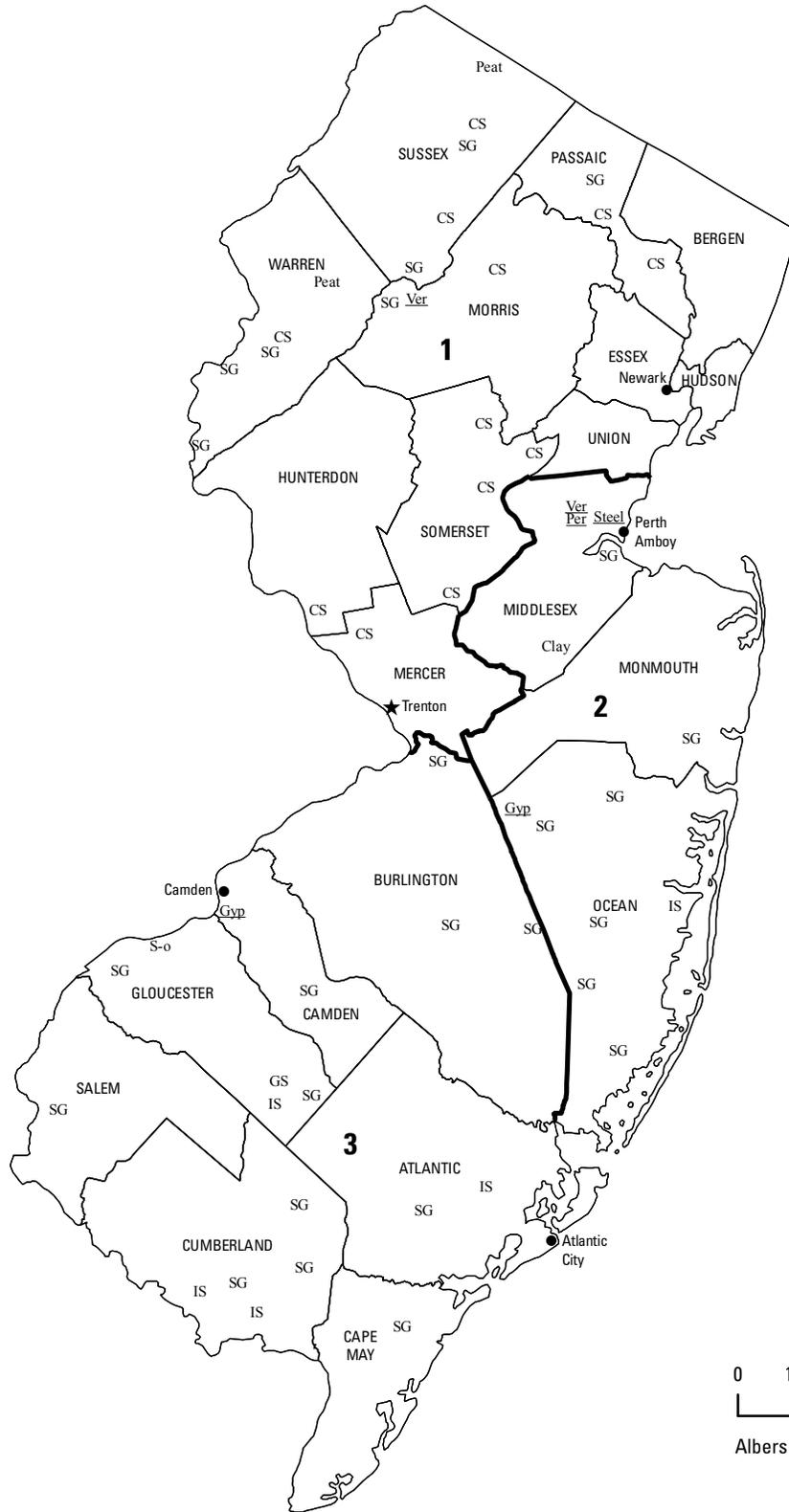




2008 Minerals Yearbook

NEW JERSEY

NEW JERSEY

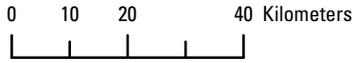


LEGEND

- County boundary
- ★ Capital
- City
- 1**— Crushed stone/sand and gravel district boundary

**MINERAL SYMBOLS
(Principal producing areas)**

- CS Crushed stone
- GS Greensand
- Gyp Gypsum plant
- IS Industrial sand
- Peat Peat
- Per Perlite plant
- S-o Sulfur (oil)
- SG Construction sand and gravel
- Steel Steel plant
- Ver Vermiculite plant



Albers equal area projection

Source: New Jersey Geological Survey/U.S. Geological Survey (2008).

THE MINERAL INDUSTRY OF NEW JERSEY

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

In 2008, New Jersey's nonfuel raw mineral production¹ was valued at \$345 million, based upon annual U.S. Geological Survey (USGS) data. This was a \$2.3 million, or more than 1%, increase from the State's total nonfuel mineral value in 2007, which then had decreased by \$61 million, or 15%, from that of 2006. The State continued to be 37th in rank among the 50 States in total nonfuel mineral production. Because production data for greensand marl and peat were withheld (company proprietary data), the State's actual annual total values are significantly higher than those listed in table 1.

In 2008, construction sand and gravel, followed by crushed stone, were New Jersey's leading nonfuel minerals by value, these two commodities accounting for nearly 91% of the State's total nonfuel mineral production value. An increase in the production value of construction sand and gravel of \$14 million, or 9.5%, led the State's increase in total value for the year, despite a 10% decrease in the quantity produced. Decreases also took place in crushed stone and industrial sand and gravel. An 11% decrease in crushed stone production led to a \$7 million, or 4.3%, decrease in the mineral commodity's value, and a 7% decrease in industrial sand and gravel production resulted in a \$1.3 million, or 4.2%, decrease in its value. The production value and the quantity of peat also decreased (withheld—company proprietary data), while the production value of greensand (withheld—company proprietary data) and natural gemstone remained unchanged.

In 2008, New Jersey continued to be the only State to produce greensand marl. The State increased in rank to 9th from 11th in the production of industrial sand and gravel, while it decreased in rank to 8th from 7th in peat production. The State's aggregate operations produced significant quantities of construction sand and gravel and crushed stone as compared with those of other producing States.

The following narrative information was provided by the New Jersey Geological Survey² (NJGS).

Mine Employment

The New Jersey Department of Labor and Work Development had a slight fluctuation of employment in the natural resources

¹The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the 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 2008 USGS mineral production data published in this chapter are those available as of June 2010. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

²Helen Rancan, an Acting Bureau Chief and Supervising Environmental Engineer with the New Jersey Geological Survey, authored the text of the State mineral industry information provided by that State agency.

and mining workforce. In 2008, there were a total of 1,700 employees in this field. The nonmetallic mineral mining and quarrying sector ended the year with 1,421 employees, having reached a high of 1,523 employees in July. This sector included those engaged in developing mine sites or in mining and quarrying nonmetallic minerals (except fuels). Also included in these figures were employees at certain well and brine operations, and at preparation plants primarily engaged in beneficiating (crushing, grinding, washing, and concentrating) nonmetallic minerals (New Jersey Department of Labor and Workforce Development, 2008).

Mine Development Activities

In 2008, the New Jersey Department of Labor and Workforce Development, Office of Mine Safety & Compliance recorded 134 Mine Registration Certificates for surface mining operations. The number of certificates decreased from 176 in 2007. These certificates are required for all aggregate stone quarry, borrow pit, sand and gravel, and underground mine operations, as well as for portable crushers. Certificates corresponding to sites that represent only crushing facilities without active mining of material were not considered in the total. Of the total mine certificates issued, 90 represented pits, 29 represented quarries, and 1 represented a subsurface operation. The discrepancy between total certificates (134) and total "per type" of operation (120) and 1 offshore dredging operation may reflect an absence of answers to some of the questions. These active mining sites consisted of 90 for sand and gravel, 29 for rock or crushed stone, 28 for fill dirt, 18 for industrial sand, and 2 for only sand. Several of these sites recovered multiple types of product. The rock or crushed stone mining sites included 12 with granite source material, 10 with basalt, 3 with diabase, 1 with basalt and granite, 1 with granite and limestone, 1 with limestone, and 1 with shale. In 2008, there were no companies that produced clay.

Some municipalities researched the regional impact of several quarries as they shut down operations. The owners of the Millington Quarry opened discussions with Bernards Township, Somerset County, about developing 77 hectares (ha) after site mining is completed. Limecrest Quarry in Sparta Township, Sussex County, which currently produces gneissic rocks, also consists of a pit currently flooded with water where marble was formerly recovered. Sparta Township investigated the potential of using the flooded pit as part of a pump-storage hydroelectric generating plant. A feasibility study of constructing an underground reservoir, approximately 610 meters below grade to complete the other half of the water pump-storage cycle, will be conducted. The Dock Watch Quarry was purchased by Bridgewater Township in Somerset County under the Green Acres land preservation program whose mission is to preserve and enhance New Jersey's natural environment and its historic,

scenic, and recreational resources for public enjoyment (New Jersey Department of Environmental Protection, 2011). The sole subsurface mining facility, owned by Mt. Hope Hydro Inc., remained in standby mode as the company worked on the development plans for pumped storage electrical generation at the former iron mine in Morris County. A number of small quarries closed that were of short-term duration on construction sites around the State. These sites remained open during site construction and were closed upon completion of the development of the site.

Government Programs and Activities

In 2008, the New Jersey Department of Transportation (NJDOT) implemented a Mineral Approval Procedure (MAP) through the Bureau of Materials to establish procedures to approve sources of coarse, densely graded, and fine aggregates for addition to the NJDOT Bureau of Material's Qualified Products List (QPL). In reference to "New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction," sections 901.01 through 901.10 were approved in 2007. The MAP—number 101—is available to the public on the State's Web site at <http://www.state.nj.us/transportation/eng/materials/pdf/map-101-aggregates.pdf>.

The NJGS released several semiannual informational publications about the State's mineral history in their newsletter "Unearthing New Jersey" during 2008. These publications included the articles of "Fluorescent Minerals," "Iron in the New Jersey Highlands," and "New Jersey's Abandoned Mines: A Subsidence Mitigation Plan." The article "Fluorescent Minerals" characterizes the fluorescent minerals found within New Jersey, particularly at the Franklin and Sterling Hill Mines in Sussex County (Müller, 2008b, p. 8). The article "Iron in the New Jersey Highlands" discusses the wealth of historical iron mining as a driving force in the State's economy. Owing to past iron mining, the State has many known and unknown mines and prospect pits that are subject to suburban development (Müller, 2008a, p. 1–2). "New Jersey's Abandoned Mines: A Subsidence Mitigation Plan" article discusses the impact of over 570 abandoned mines in the northern part of the State and the potential hazard of collapse (Muessing and others, 2008, p. 2–4).

In 2008, NJGS published the article "History of the Pompton Pink Granite—New Jersey's Prized Building Stone," which described the history of the Pompton pink granite, which has been mined since 1800s and used as a building stone because of its extraordinary color and coarse grain size (Volkert, 2007). This stone forms the St. Paul's Episcopal Church in Paterson, Passaic County, and the south entrance landing to the Smithsonian National Museum of Natural History in Washington, D.C. The NJGS completed a digital copy of the 1944 Bulletin "Copper Mines and Mining in New Jersey," available on the State's Web site for free download. In 2008, there were over 5,000 downloads of this publication. The 1944 Bulletin is available to the public on the Web site at <http://www.state.nj.us/dep/njgs/enviroed/oldpubs/bulletin57.pdf>.

The Geological Association of New Jersey published online a 2008 calendar highlighting the Franklin and Sterling Hill Mines (Harper, 2008). "The Aspects of New Jersey Geology—2008,

Franklin and Sterling Mines," is available to the public on the Web site at http://www.ganj.org/2008/GANJ_Calendar_08.pdf.

Tilcon's Mount Hope Quarry has been the site of several outreach events, such as open houses and facility tours during the year. Local residents and students were able to view and learn about mining operations and the history of the 227-ha quarry.

Environmental Issues

The NJGS applied for a Federal Emergency Management Agency (FEMA) grant to compile historic information; to accurately locate and characterize all New Jersey's historic mines, pits, and quarries; and to prioritize the subsidence hazard risk for all mine features and guide subsidence mitigation (Müller, 2008a, p. 4).

Investigations continued at the Ringwood Mines site, a U.S. Environmental Protection Agency Superfund site, which is located in a historic mining district of Borough of Ringwood, Passaic County, and covers an area of about 200 ha. The Ringwood site included abandoned mines (underground and pits), inactive landfills, and open waste dumps (U.S. Environmental Protection Agency, 2011). The abandoned mines were incorporated in part of a housing development of the Ramapo Native American Community. Local collapse of a home into underground mine workings initially caused an investigation concerning the subsidence potential into subterranean abandoned mine workings. The microgravity study and the drilling data collected in 2007 generated a final report that assesses the safety of the remaining homes in the development. Further work was suggested by the report, including a Phase 2 microgravity and associated drilling studies in 2009.

The New Jersey Department of Environmental Protection (NJDEP) has warned citizens to avoid entering any abandoned mines after the unexplained deaths of thousands of hibernating bats in New York and Vermont. The wildlife officials will begin to survey the bats for White-nose syndrome, a debilitating disease that commonly leads to death for bats. The most obvious symptom is a white fungus that forms around the nose of the bats. Studies observed that bats with the syndrome decreased their fat reserves months before they would normally emerge from hibernation, and they died as a result (Department of Environmental Protection, 2008). Most of the tens of thousands of bats known to hibernate in the State do so in abandoned mines.

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TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN NEW JERSEY^{1,2}

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2006		2007		2008	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	W	W	65	W	--	--
Gemstones, natural	NA	1	NA	1	NA	1
Sand and gravel:						
Construction	20,900	192,000	15,600 ^r	145,000	14,100	159,000
Industrial	1,520	40,600	1,090 ^r	33,200 ^r	1,010	31,800
Stone, crushed	24,100	169,000	20,000	162,000	17,900	155,000
Combined values of greensand marl, peat and values indicated by symbol W	XX	3,390	XX	3,220	XX	(3)
Total	XX	404,000	XX	343,000 ^r	XX	345,000

^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined values" data.

XX Not applicable. -- Zero.

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

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

³Excluded to avoid disclosing company proprietary data.

TABLE 2
NEW JERSEY: CRUSHED STONE SOLD OR USED, BY TYPE¹

Type	2007			2008		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Granite	6	6,380	\$52,400	6	5,860	\$51,700
Traprock	14	13,600	109,000	14	12,000	103,000
Miscellaneous stone	2 ^r	25 ^r	204 ^r	1	62	538
Total	XX	20,000	162,000	XX	17,900	155,000

^rRevised. XX Not applicable.

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

TABLE 3
NEW JERSEY: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	326	4,640
Filter stone	W	W
Other coarse aggregate	236	2,370
Coarse aggregate, graded:		
Concrete aggregate, coarse	789	7,670
Bituminous aggregate, coarse	W	W
Railroad ballast	W	W
Fine aggregate (-¾ inch):		
Stone sand, concrete	W	W
Screening, undesignated	840	7,310
Other fine aggregate	540	4,750
Coarse and fine aggregates:		
Graded road base or subbase	764	7,050
Unpaved road surfacing	W	W
Crusher run or fill or waste	W	W
Other coarse and fine aggregates	2,900	22,400
Unspecified: ²		
Reported	7,590	65,700
Estimated	2,200	19,000
Total	17,900	155,000

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

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

²Reported and estimated production without a breakdown by end use.

TABLE 4
NEW JERSEY: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2008, BY USE AND DISTRICT^{1,2}

(Thousand metric tons and thousand dollars)

Use	District 1	
	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch) ³	W	W
Coarse aggregate, graded ⁴	W	W
Fine aggregate (-¾ inch) ⁵	W	W
Coarse and fine aggregate ⁶	W	W
Unspecified: ⁷		
Reported	7,590	65,700
Estimated	2,200	19,000
Total	17,900	155,000

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

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

²No production for Districts 2 and 3.

³Includes filter stone, riprap and jetty stone, and other coarse aggregate.

⁴Includes bituminous aggregate (coarse), concrete aggregate (coarse), and railroad ballast.

⁵Includes screening (undesignated), stone sand (concrete), and other fine aggregate.

⁶Includes crusher run or fill or waste, graded road base or subbase, unpaved road surfacing, and other coarse and fine aggregates.

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

TABLE 5
NEW JERSEY: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008,
BY MAJOR USE CATEGORY¹

Use	Quantity	Value (thousands)	Unit value
	(thousand metric tons)		
Concrete aggregate (including concrete sand)	4,260	\$43,900	\$10.31
Plaster and gunite sands	425	5,400	12.71
Concrete products (blocks, bricks, pipe, decorative, etc.)	294	3,150	10.72
Asphaltic concrete aggregates and other bituminous mixtures	1,610	26,400	16.43
Road base and coverings	565	9,920	17.56
Fill	785	4,820	6.15
Snow and ice control	56	706	12.61
Other miscellaneous uses ²	294	3,590	12.21
Unspecified: ³			
Reported	1,260	10,200	8.05
Estimated	4,500	51,000	11.16
Total or average	14,100	159,000	11.27

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

²Includes filtration and golf course.

³Reported and estimated production without a breakdown by end use.

TABLE 6
NEW JERSEY: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2008, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	802	10,900	1,530	17,500	1,920	15,400
Concrete products (blocks, bricks, pipe, decorative, etc.) ²	495	6,720	W	W	W	W
Asphaltic concrete aggregates and road base materials	230	3,670	1,270	26,300	670	6,400
Fill	303	2,940	458	1,740	24	138
Other miscellaneous uses ³	215	2,510	67	501	292	3,120
Unspecified: ⁴						
Reported	--	--	590	3,400	673	6,770
Estimated	1,370	13,700	1,770	20,700	1,390	16,300
Total	3,420	40,400	5,690	70,100	4,970	48,100

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

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

²Includes plaster and gunite sands.

³Includes filtration, golf course, and snow and ice control.

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