

Wyoming State Geological Survey FY2018 Annual Report

Erin A. Campbell, Director and State Geologist, Wyoming State Geological Survey

Agency Contacts

Christina George, Outreach and Publications Manager, Wyoming State Geological Survey
(307) 766-2286 x231
christina.george@wyo.gov

Kathy Decker, Administration Manager, Wyoming State Geological Survey
(307) 766-2286 x239
kathy.decker@wyo.gov

Wyoming State Geological Survey
P.O. Box 1347
Laramie, WY 82073
www.wsgs.wyo.gov

Statutory References

W.S. 9-2-801 Definitions (amended by Chap. 170, Session Laws of Wyoming 1997)
W.S. 9-2-803 State Geologist, duties and powers
W.S. 9-2-804 Geological Survey, location and headquarters
W.S. 9-2-805 Geological Survey, duties and disposition of materials and specimens
W.S. 9-2-806 State Geologist as chief administrative officer; appointment of employees
W.S. 9-2-807 Geological Survey Board and operation
W.S. 9-2-808 Authority to cooperate and exchange information
W.S. 9-2-809 Use of University of Wyoming students
W.S. 9-2-810 Cooperation with the U.S. Geological Survey
W.S. 30-5-103 State Geologist participation on the Oil and Gas Commission
W.S. 33-41-107 State Geologist participation on the Board of Professional Geologists (as amended by Chap. 170, Session Laws of Wyoming)
W.S. 36-6-102 Submission, custody and confidentiality of subsurface log reports
W.S. 36-6-105 Inspection reports for State Lands

Clients Served

Local, state and federal government agencies, the Wyoming Legislature, industry, non-governmental organizations, the public, news media and education community.

Budget Information (FY2018)	
General Funds (Expenditures)	2,098,130
Federal Grant Funds	32,055
State Grant Funds	173,963
Other Funds*	12,653
	\$2,316,801
*Sales Reverted to State General Fund	

Basic Facts

The Wyoming State Geological Survey (WSGS) has 21 legislatively approved positions and operates with a biennium budget of \$4,576,848 (2018-2019), not including exception requests or adjustments. Funding sources for the WSGS includes general funds as well as state and federal grants. Research programs and divisions include the following:

- Energy and Mineral Resources
- Water Resources, Mapping, and Hazards
- Geographic Information Systems and Information Management
- Publications and Communications
- Administration
- Human Resources

Organizational Structure

The WSGS has 21 full-time benefited staff positions (see chart on last page for details). The WSGS has an Advisory Board consisting of the Governor, a University of Wyoming member appointed by the university president, the State Oil and Gas Supervisor, the State Geologist, and five appointed members.

In addition, the State Geologist serves as a commissioner on the Wyoming Oil and Gas Conservation Commission (W.S. 30-5-103), as a board member of the Wyoming Board of Professional Geologists (W.S. 33-41-107), as a commissioner for the Enhanced Oil Recovery Institute, and as a member of the Wyoming Consensus Revenue Estimating Group (CREG).

Mission

The mission of the WSGS is to promote the beneficial and environmentally sound use of Wyoming's vast geologic, mineral, and energy resources while helping to protect the public from geologic hazards. By providing accurate information and expanding knowledge through the application of geologic principles, the WSGS contributes to the economic growth of the state and improves the quality of life of Wyoming's residents.

The WSGS works to (1) study, examine, and understand the geology, mineral resources, and physical features of the state; (2) prepare, publish, and distribute (free or for sale) reports and maps of the state's geology, mineral resources, and physical features; and (3) provide information, advice, and services related to the geology, energy and mineral resources, hazards, and physical features of the state.

Wyoming Quality of Life Result

Wyoming natural resources are managed to maximize the economic, environmental, and social prosperity of current and future generations.

Contribution to Wyoming Quality of Life

The WSGS strives to provide decision makers with the best science possible to ensure that responsible resource development occurs to benefit Wyoming residents, promote economic prosperity and protect state resources. In addition to ensuring that Wyoming has the geologic and geohydrologic information necessary to solve existing problems and anticipate future challenges, the WSGS collaborates closely with other state and federal agencies, various organizations, and stakeholders to solve multidisciplinary problems. The WSGS also supplies the geologic knowledge necessary for the beneficial and responsible development of Wyoming's unconventional energy resources.

While working to increase public awareness, the WSGS endeavors to provide Wyoming residents with the most accurate, up-to-date information on geologic hazards, natural resource and energy issues, water issues, and other geology-related topics so they can make informed decisions about issues that affect them. The WSGS aims to reduce risks associated with geologic hazards such as landslides, volcanism, earthquakes, avalanches, and floods, and also works in collaboration with the Yellowstone Volcano Observatory.

Report Narrative – FY2018 Projects Completed

(Reporting Period: July 1, 2017 – June 30, 2018; all reports are available on the agency’s website.)

Curt Gowdy State Park Geology Pamphlet

The WSGS published a pamphlet about the geology of Curt Gowdy State Park (July 2018). The pamphlet is the first in a series that will focus on geology of Wyoming’s various state parks, thus enhancing park visitors’ experience.

Groundwater Salinity in the Powder River Basin

The WSGS published a report (May 2018) that examines the salinity of groundwaters that occur at depths of 7,000 feet or less in the Powder River Basin where significant oil and gas activity has taken place in recent years. The need for industrial-use water will become increasingly important as oil drilling continues in the Powder River Basin. The report is the first step toward locating subsurface water that is not suitable for human consumption, livestock, or agriculture.

Rare Mammal Fossil Discovered in Wyoming

The WSGS facilitated the preparation (April 2018) of a fossilized tapiromorph discovered near Kemmerer, Wyoming, that may be the first of its kind and is the largest mammal found to date in the Green River Formation. The fossil was prepared for scientific purposes, and is now housed at the WSGS and available for scientific research and display at museums.

Evaluation of Selected Wyoming Silica Sand Deposits as Potential Sources of Proppant

The WSGS published a report (December 2017) on the potential of selected silica sand deposits in Wyoming for use as hydraulic fracturing proppant. The report evaluates selected silica-rich sand deposits found in bedrock, dune, and alluvial fan exposures located near Wyoming’s major transportation corridors as potential proppant material. The results of the study show the selected sands have potential for use in shallow hydraulic fracturing applications, but investigators didn’t find high-quality sands at greater depths, as is the case in most unconventional reservoirs.

Upper Cretaceous Stratigraphic Correlation Chart of Wyoming

The WSGS published a Correlation of the Upper Cretaceous Strata of Wyoming (October 2017) that correlates Upper Cretaceous strata at 25 generalized locations throughout Wyoming to Western Interior biostratigraphy and the most recent chronostratigraphic data. The comprehensive overview of statewide stratigraphy focuses on strata deposited between 100 million and 63 million years ago and covers all Wyoming basins. This chart is useful in assessing hydrocarbon potential of correlative unconventional strata throughout the state.

New Geologic Maps

The WSGS, under its StateMap program, published five new preliminary geologic maps (September 2017 and April 2018) that are focused on the geology and related energy resources and geologic hazards in Wyoming.

- 1:24,000 scale Preliminary Surficial Map of the Muddy Gap Area, Open File 17-4, Carbon and Fremont counties
- 1:24,000 scale Preliminary Bedrock Geologic Map of the Fort Steele Quadrangle, Open File 17-5, Carbon County
- 1:24,000 scale Preliminary Bedrock Geologic Map of the Bridger Pass Quadrangle, Open File 17-6, Carbon County
- 1:24,000 scale Preliminary Geologic Map of the Gas Hills Quadrangle, Open File 18-4, Fremont and Natrona counties
- 1:24,000 scale Preliminary Geologic Map of the Albany Quadrangle, Open File 18-1, Albany County

See next page for WSGS Organizational Chart.

Wyoming State Geological Survey Organizational Chart

