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Where We Are

PRINCIPAL AQUIFERS

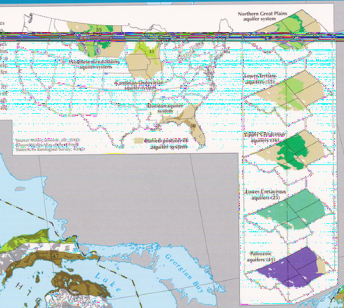
Aquifers, Aquifer Systems, and Aquifer Extents

An aquifer is a geologic formation, a group of formations, or a part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs. Aquifers are often overlying one another and may be separated by semi-impermeable layers. The aquifers shown on this map are those that are known to be the most productive or most widely used. Locations where there is a regional hydraulic continuity within the system. The second aquifer system consists of aquifers that are not connected but share common geologic and hydrologic characteristics, and can be considered as one hydrosystem.

In this map, a principal aquifer is defined as a regionally extensive aquifer or aquifer system that has the potential for use or storage of potable water. The map-scale of principal aquifer extents shows the maximum regional aquifer for the given area.

The aquifer names shown on this map are regional names, and may not be shown on the main map because the full extents are buried in places by other geologic units. The overlying aquifer extents or system as well as a number of aquifers or aquifer systems are shown on the inset map in the upper left. Wisconsin and adjacent States, the buried portion of the Mississippi River Valley alluvial aquifer which extends southward and covers extensive areas of southeast Missouri and Illinois. The Cambrian-Ordovician aquifer system is buried by much younger regional aquifers as well as by unlisted glacial and stream valley deposits. The Tertiary aquifers of the Northern Great Plains aquifer system (centered in Montana, Wyoming and North Dakota) obscure the full extent of the Cretaceous aquifers. The Ogallala aquifer of the High Plains aquifer and surficial glacial and stream-valley deposits in the Great Lakes Basin obscure other aquifers. Other examples of aquifers that are not shown on the main map because they are obscured by other aquifers or surficial deposits are the Floridan aquifer system in the southeastern United States, which underlies significantly larger areas than the main map. The extent of the Floridan aquifer system is shown on the inset map. The Biscayne aquifer is shown on the main map, but is not shown on the inset map because it is a subset of the Floridan aquifer system, and the Biscayne aquifer.

The aquifers shown on this map are grouped according to the general rock type because there is a direct relationship between permeability and type of aquifer material. The predominant rock types are differentiated by color; however, additional rock types are shown in the predominant rock type for the aquifer system. Aquifers of the Northern Great Plains aquifer system, for example, are composed of many different geologic units, ranging from Quaternary-age alluvial and glacial deposits to Cretaceous-age sandstone and shale. Examples of aquifers that are the dominant aquifer of the Northern Great Plains aquifer system are shale and sandstone units of the Cretaceous-age Fox Hills and Hell Creek Formations. In some places, lower productive aquifers may be buried by those above. Local aquifers, such as those along minor rivers or in glacial aquifers, aquifer or aquifer systems may be smaller than those shown on the map, or may not shown because the map-scale production is dominated by sand and gravel.



CANADA

MEXICO

PACIFIC OCEAN

ATLANTIC OCEAN

GULF OF MEXICO

Gulf of California

Lake Superior

Lake Michigan

Lake Huron

Lake Erie

Lake Ontario

Great Salt Lake

Lake Okeechobee

Chesapeake Bay

Gulf of Alaska

Bering Sea

Arctic Ocean

Pacific Ocean

Atlantic Ocean

Caribbean Sea

Gulf of Mexico

Tropic of Cancer

Principal Islands of HAWAII
SCALE 1:1,000,000
Albers equal area projection, standard parallels 8°N and 18°N, central meridian 157°W

ALASKA
SCALE 1:15,000,000
Albers equal area projection, standard parallels 55°N and 65°N, central meridian 154°W

Puerto Rico and the Virgin Islands
SCALE 1:1,000,000
Albers equal area projection, standard parallels 18°N and 19°N, central meridian 66°30'W

SCALE 1:5,000,000
0 100 200 300 400 MILES
0 100 200 300 400 500 600 KILOMETERS
Albers equal area projection, standard parallels 29°30'N and 43°30'N, central meridian 96°W

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Sandstone aquifers

23 Upper Tertiary aquifers
24 Denver Basin aquifer system
25 Lower Tertiary aquifers
26 Dakota aquifer
27 Central Midwest aquifer
28 Ark-Tex aquifer
29 Cretaceous Basins aquifers
30 New York sandstone aquifer
31 Potomac aquifer
32 Mahomet aquifer
33 Cambrian-Ordovician aquifer system
34 Jordan aquifer
35 Lower Paleozoic aquifers
36 Upper Paleozoic aquifers
37 Upper Paleozoic aquifers

Sandstone and carbonate-rock aquifers

38 Knox-Gordon aquifer system
39 Valley and Ridge aquifers, carbonate-rock aquifers in portions
40 Mississippian aquifers
41 Paleozoic aquifers

Carbonate-rock aquifers

42 Eastern Kentucky carbonate-rock aquifer
43 Floridan aquifer system
44 Central Texas aquifer system
45 Biscayne aquifer
46 Ozark-Springfield aquifer
47 Silurian-Devonian aquifers
48 Ordovician aquifers
49 Upper Colorado aquifer
50 Hueco Bolson aquifer
51 Edwards aquifer
52 New York and New England carbonate-rock aquifers
53 Piedmont and Blue Ridge carbonate-rock aquifers
54 Castle Hayne aquifer
55 North Coast limestone aquifer system (Puerto Rico)
56 Kingshill aquifer (Virgin Islands)

Igneous and metamorphic-rock aquifers

57 Southern Nevada volcanic-rock aquifers
58 Pacific Northwest basaltic-rock aquifers
59 Snake River Plain basaltic-rock aquifers
60 Columbia Plateau basaltic-rock aquifers
61 Hawaiian volcanic-rock aquifers—locally overlain by sedimentary deposits
62 Piedmont and Blue Ridge crystalline-rock aquifers

Other

Areas not in principal permeable aquifers with local significant aquifers

Unconsolidated and semiconsolidated sand and gravel aquifers

Sand and gravel aquifers south of the limit of Quaternary continental glaciation and alluvial aquifers in other areas that are mostly composed of sand and gravel, or are semiconsolidated sand or poorly sorted gravel

1 Basin and Range basin-fill aquifers
2 Rio Grande aquifer system
3 California Coastal Basins aquifers
4 Pacific Northwest basin-fill aquifers
5 Columbia Plateau basin-fill aquifers
6 Snake River Plain basin-fill aquifers
7 Alluvial aquifer system
8 Willamette Lowlands basin-fill aquifers
9 Northern Rocky Mountains Intermontane Basins aquifer system
10 Central Valley aquifer system
11 High Plains aquifer
12 Pecos River Basin alluvial aquifer
13 Mississippi River Valley alluvial aquifer
14 Seymour aquifer
15 Surficial aquifer system
16 Unconsolidated-deposit aquifers (Alaska)
17 South Coast aquifer (Puerto Rico)

Coastal Plain aquifer systems in semiconsolidated sand

18 Coastal lowlands aquifer system
19 Texas coastal uplands aquifer system
20 Mississippi embayment aquifer system
21 Southeastern Coastal Plain aquifer system
22 Northern Atlantic Coastal Plain aquifer system

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