

- A person needs 4 to 5 gallons of water per day to survive.^[1, 2] The average American individual uses 100 to 176 gallons of water at home each day.^[3, 4] The average African family uses about 5 gallons of water each day.^[4]
- Less than 1% of the world's fresh water (or about 0.007% of all water on earth) is readily accessible for direct human use.^[5]
- 88 percent of all diseases are caused by unsafe drinking water, inadequate sanitation and poor hygiene.^[6]

WHY IS GROUND WATER IMPORTANT?

Ground water is water that is found underground in the cracks and spaces in soil, sand and rock. It is stored in –and moves slowly through–layers of soil, sand and rocks called aquifers. These materials are permeable because they have large connected spaces that allow water to flow through.^[7] Wells, a drinking source for many, tap into these aquifers, so the water quality and quantity is important for survival.

Ground water supplies are recharged by rainfall, melting snow, soil moisture, permafrost, and surface water (lakes, rivers, etc.) naturally. In some areas of the world, people face serious water shortages because ground water is used faster than it is naturally replenished. In other areas, ground water is polluted by human activities. In areas where material above the aquifer is permeable, pollutants can readily sink into ground water supplies. Movement of water and dispersion within the aquifer spreads the pollutant over a wider area, which can then intersect with ground water wells or find its way back to surface water, making the water supplies unsafe. Ground water can be polluted by landfills, septic tanks, leaky underground gas tanks, hazardous waste sites, the widespread use of road salts, and from overuse of fertilizers and pesticides.^[7, 8]

ADDITIONAL INFORMATION

For more information on this project , please visit our **Storm Water Awareness** page online at: <http://web.bsu.edu/ceres/stormwater/stormwaterweb.pdf>

U.S Green Building Council

<http://www.usgbc.org/>

Center for Energy Research/Education/ Service (CERES)

<http://www.bsu.edu/ceres/>

Council On The Environment (COTE)

<http://www.bsu.edu/cote/>

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BALL STATE
UNIVERSITY.

STORMWATER REDEFINED

PROMOTING STORMWATER
QUALITY AND AWARENESS IN THE
CAMPUS COMMUNITY



UPPER WHITE RIVER WATERSHED [9]

Uses: Drinking Flood Retention Wetlands
Irrigation Wildlife Habitat Recreation

Stressors and Pollutants:
Bacteria Exotic Species Turbidity
Flooding Heavy Metals Pesticides
Nitrogen Noxious Weeds
Odor Mown Open Spaces
Pathogens Land Use/Development
Phosphorus High Temperatures
Sediment Toxic Substances

Examples of Contaminants:
Cropland Buried Tanks
Dams Septic Tank System
Streambanks



Upper White Watershed: Its location in Indiana and some of the cities located within it.

PRAIRIE CREEK RESERVOIR

The Army Corp of Engineers constructed the Prairie Creek Reservoir in 1960 to provide a water source for Muncie and the surrounding area.

Uses: Drinking Swimming Boating
Playground Wildlife Preserve ATV Trails
Fishing Horseback Riding
Campground Hiking/Biking Trails

Stressors and Pollutants:
Bacteria Heavy Boating/ATV Traffic
Soil Erosion Runoff from Nearby Farmland
Drainage Toxins from Recreation Vehicles
Out-dated Sewage Systems

Future Plans to Improve Water Quality:
Enhancing Wetlands by Perry Elementary School
Replacing Current Vegetation with Species to Filter Polluted Water
Installing Grass Waterways to Replace Ditches
Adding Buffer Zones between Farms and Reservoir

STORM WATER ON CAMPUS

1 **Cardinal Creek** runs north/south between Studebaker and Noyer residence halls. It flows beneath the Neely Avenue. It floods and is boggy during high rainy season; dry and empty other times. Its source is a natural spring north of Park Hall. After running north from Neely Avenue, the creek runs below grade at Irving Gymnasium and Wornthorn Arena, resurfacing to the west at the Duck Pond.

2 The **Duck Pond** gathers all excess water runoff from campus. The litter and sediment from most of the campus' parking lots (marked in yellow) flow into the pond. Here, they settle to the bottom, reducing the quality of aquatic life and building up harmful deposits (such as lead) that can filter further downstream.

3 **York Prairie Creek** runs off campus to the northwest from the Duck Pond. This creek meets with the White River, then the Ohio River, then the Mississippi River and eventually out to Gulf of Mexico. Therefore, even the smallest of careless actions can have larger consequences in communities downstream.

The range of area we affect is large. Our behaviors and precautions determine quality of water for those living downstream from Anderson, Indiana to New Orleans, Louisiana.

4 Storm Drain Medallions

Look for these medallions on Ball State-owned storm drains during campus tours or walking to class. They warn of the immediate consequence of pollution, littering, and irresponsible environmental behavior. Help keep these storm drains clean in order to positively affect our local water supply (the White River) and thereby our health.



CAMPUS WATER MAP



WAYS TO GET INVOLVED

Friends of the White River
<http://www.friendsofwhiteriver.org/index.html>

White River Watershed Project
<http://www.whiteriverwatershedproject.org/index.html>

Students for a Sustainable Campus (SSC)
Contact through e-mail at sustainable@bsu.edu
<http://sustainable.iweb.bsu.edu>

Emerging Green Builders (EGB)
<http://cms.bsui.edu/CampusLife/StudentOrganizations/DepartmentandProfessionalOrganizations/EmergingGreenBuilders.aspx>
or contact [Bob Koester](#) for more contact information.