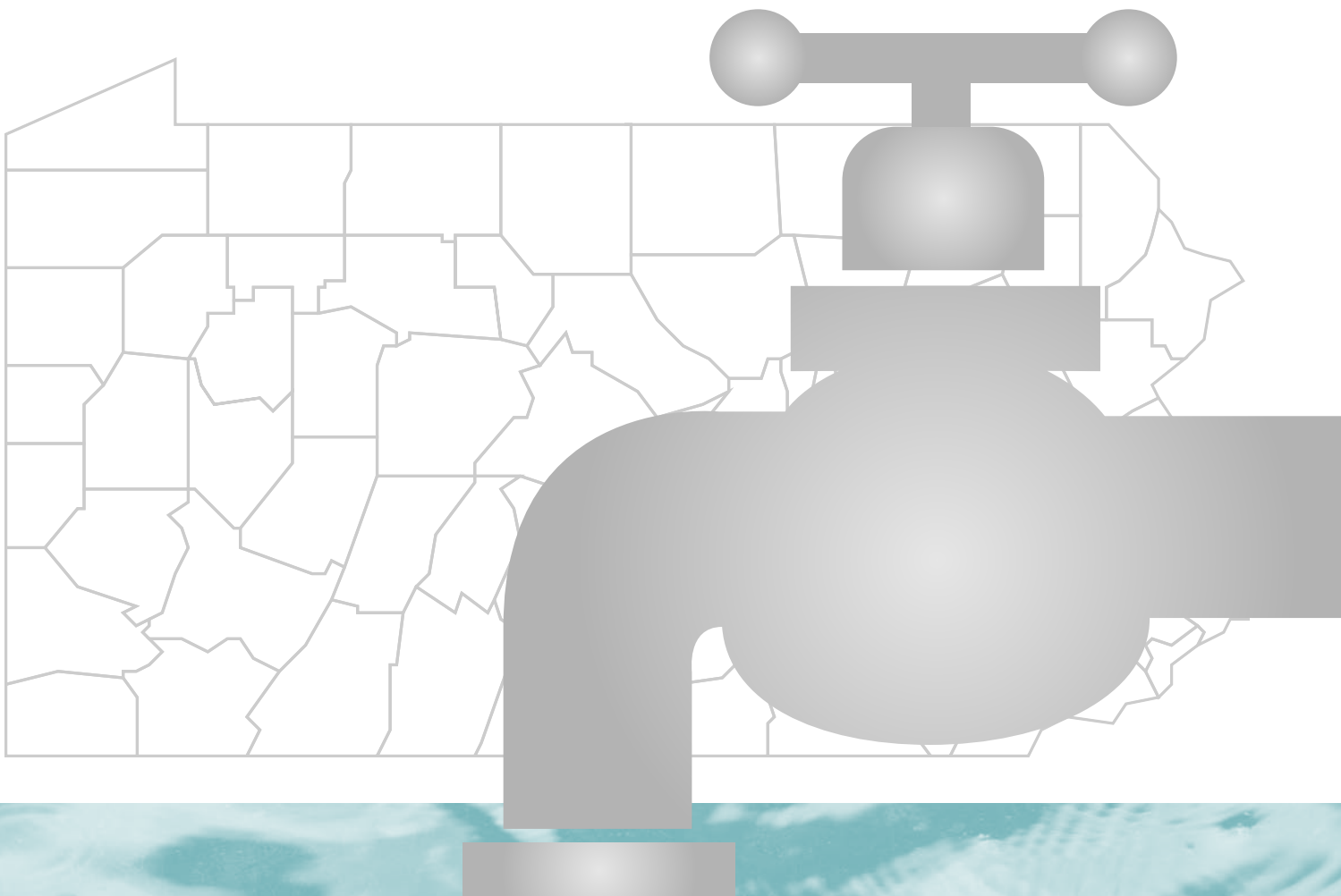


ACCESS *and* ALLOCATION of

---

# water

IN PENNSYLVANIA



PENNSTATE



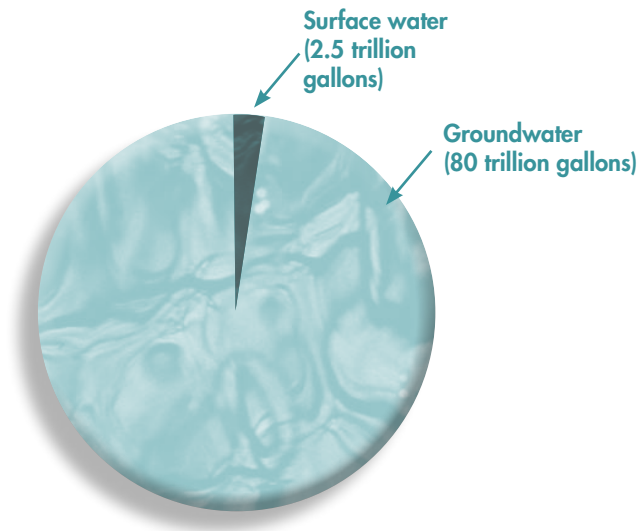
COLLEGE OF AGRICULTURAL SCIENCES • AGRICULTURAL RESEARCH AND COOPERATIVE EXTENSION

## INTRODUCTION

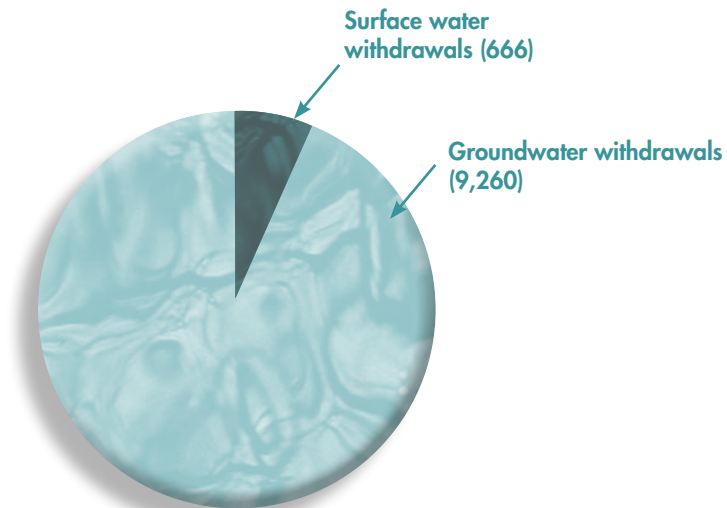
Pennsylvania's surface water resources include 83,184 miles of streams and rivers, more than 4,000 lakes, reservoirs, and ponds, and 120 miles of coastal waters, overall involving nearly 2.5 trillion gallons of water. Below the surface, thirty times more water (80 trillion gallons) is stored in groundwater aquifers after it percolates through the ground in layers of soil, sand, and rock. In an average year, more than 40 inches of precipitation fall to replenish our water supplies.

While water may appear plentiful, a variety of user groups place demands on our water resources. The total withdrawal of ground- and surface water in Pennsylvania approaches 10 billion gallons per day. In 2000, the state's largest users were thermoelectric power generators (70 percent), industrial and mining operations (13.6 percent), domestic and commercial customers (16 percent), and agricultural users (0.4 percent)

### Volume of water in Pennsylvania



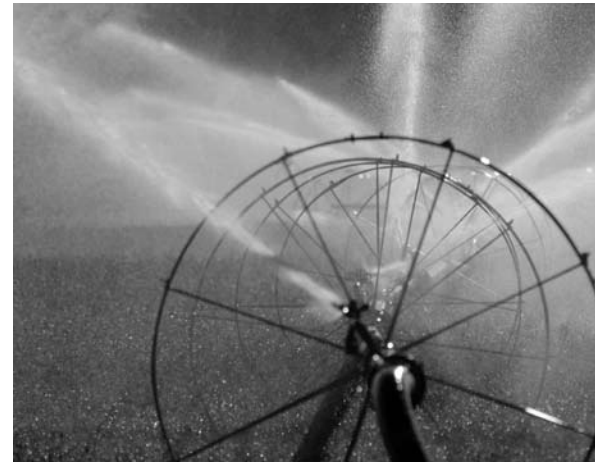
### Total water withdrawals in Pennsylvania in billion gallons per day (2000)



Some water uses, such as navigation, recreation, and hydroelectric power generation, do not involve withdrawing water from its source. These are known as instream uses. Off-stream or consumptive uses remove water from a ground- or surface water source and do not directly return it. Water used for irrigation and livestock is included in the consumptive use category. The 2000 report of consumptive use of water in Pennsylvania indicates that irrigation and livestock consumed nearly 58 million gallons per day (gpd), constituting more than 10 percent of consumptive water uses in the state. Consequently, although agriculture represents only a small portion of total usage, it accounts for a significant share of consumptive uses.

Groundwater is an essential source of water for many users in Pennsylvania, especially for farmers and rural residents, the majority of whom depend on private wells for their domestic water supply. More than one

million private wells exist, and about 20,000 new wells are drilled each year in Pennsylvania. Prior to improved regulatory standards for protection of surface water sources, pathogens such as *Giardia* and *Cryptosporidium* found in surface water supplies caused some public water suppliers in rural areas to look to groundwater as a safer source. In addition, the migration of people and industry from urban centers to rural areas has increased the demand on groundwater supplies. Between 2000 and 2005, Pennsylvania's cities lost 3.3 percent of their population while the second-tier townships grew by 5.9 percent, a factor in the changing demands for water in areas that have existing infrastructure to provide it and increasing demands on smaller, rural systems or for new well sources.



Each of the state's water users depends on access to a certain amount of water at any time. Periodic droughts are inevitable, but if potential problems are recognized and planned for, the impact of drought on humans, businesses, and the state's economy can be reduced. Prioritizing needs, conserving water when possible, and clearly defining user rights before drought strikes will alleviate conflicts between competing users in times of scarcity.





Extended drought from 1999 through 2002, coupled with development, especially in the state's southeast and south-central counties, have raised critical questions about (1) how water is allocated, (2) priority uses in times of scarcity, and (3) which level of government is best suited to regulate water use. Predictions that climate change will influence annual precipitation in Pennsylvania add another variable to the questions about water availability in the future. The passage of the Water Resources Planning Act of 2002 (also referred to as Act 220) brought with it expectations that the Commonwealth would benefit from improved strategies for drought preparedness. Development of a new State Water Plan by 2008 is slated to include inventories of ground- and surface water quantities, assessments and projections of existing and future withdrawal demands, identification of critical water planning areas, guidance on water conservation during drought, and overall strategies for the allocation of the state's water.

This publication provides an overview of water rights for citizens, farmers, rural business owners, and elected and appointed officials. It introduces the legal background, terms, and issues about water rights. The discussion is introductory and does not provide legal advice regarding water rights conflicts, nor is it a substitute for advice from a qualified lawyer.

Owing to the developments highlighted above, particularly the geographic movement of the population into more rural areas, it is understandable that water rights will increasingly be the subject of debate. Informed citizens are more likely to know their rights and to contribute effectively to the dialog and decision making about state and local policies regarding access and allocation of water resources.

An overview of laws governing Pennsylvania's system of ground- and surface water allocation is presented. A history of water rights is offered, with the important players identified and their missions and authorities explained. Issues likely to be discussed and debated in the near future are identified. These issues include:

- How will new industry and residential development affect the present system of water allocation?
- Which level of government is best suited for deciding how water rights are allocated?
- How well defined are users' rights?

- Who has the rights to water when demand becomes greater than the available supply?
- When does an individual's right to use a water source yield to the community's rights?
- What are a community's responsibilities to people who may be forced to give up their water rights for the community's benefit?
- Who benefits from the system of water rights?
- How will water planning affect the current system?

## BASIS OF WATER LAW IN PENNSYLVANIA

Definitions of water resources evolve over time and recent policy actions like the Water Resources Planning Act of 2002 may influence how the Commonwealth's water resources will be understood in the future. However, by convention, the state's water resources are currently understood as the following:

- *Surface water* lies in a natural, defined channel with a bed and banks and includes streams, rivers, ponds, and lakes. Underground streams that flow in defined channels also are treated as surface water for the purpose of allocation.

- *Groundwater* lies below the surface of the ground and is part of the water table or is percolating down to that level.
- *Diffuse surface water*, which does not move in a defined channel and does not filter down to the water table, comes from various sources including rain, melting snow, seepage from springs, and flood waters. Diffuse surface water is distinguished here because it has been treated separately under Pennsylvania's water rights system.

Pennsylvania's system of water law is based on court rulings dating back to the 1800s. This system of rule making, called common law, is decided on a case-by-case basis, as opposed to statutory law, under which a legislature enacts specific regulations. In the common law system, lawyers and judges research the facts and decisions of similar cases in higher courts

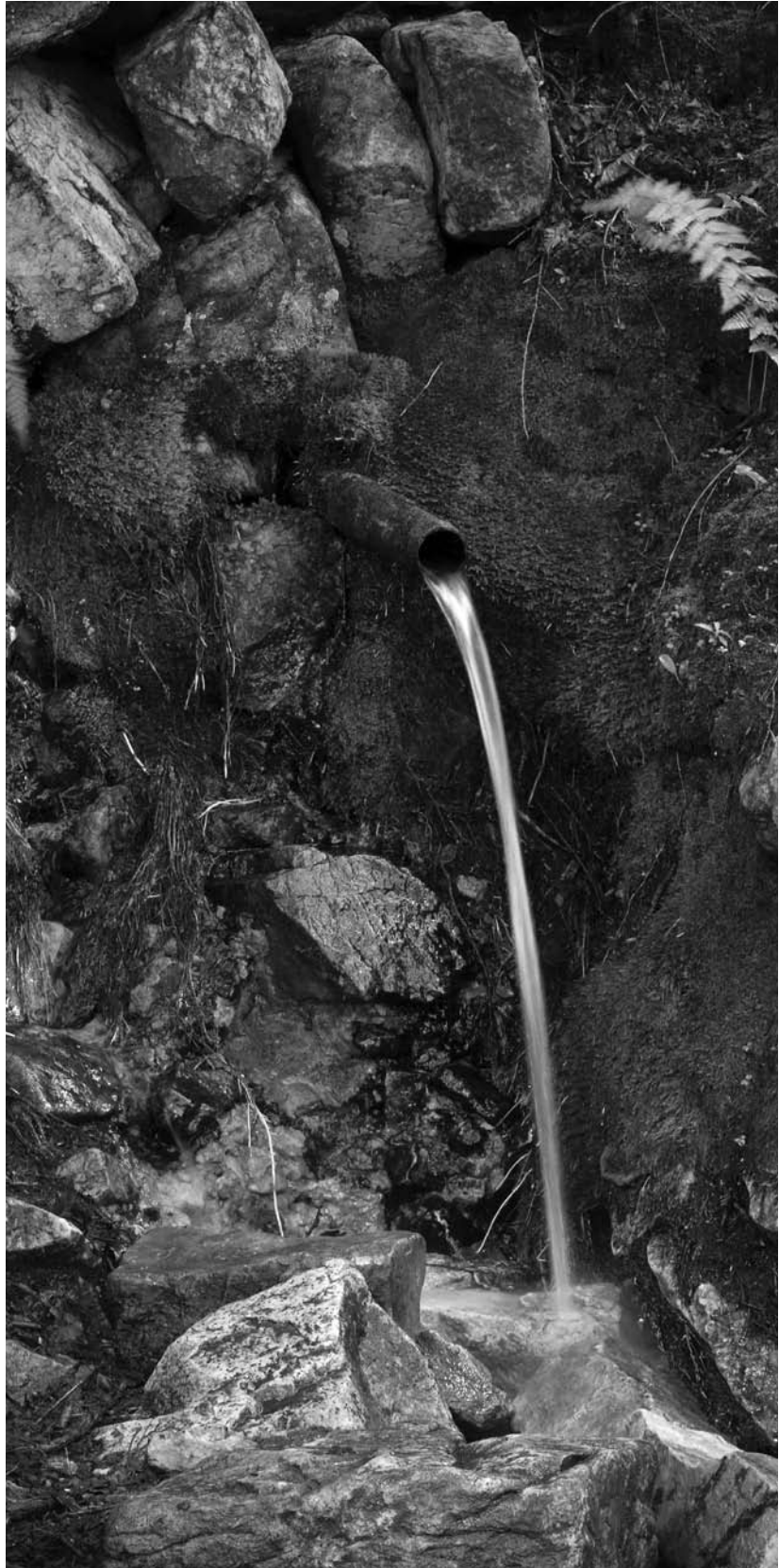
to determine what precedent exists to help them decide the most effective argument and logical ruling. Some people believe that common law causes uncertainty in the allocation of water rights since future litigation could set new precedent. Others, however, believe this uncertainty is not problematic since preceding cases provide a fairly clear indication of how a water rights dispute is likely to be resolved.

It is important to understand that Pennsylvania's current water law does not recognize that ground- and surface water are intricately connected, making it difficult to effectively manage the total water resource. However, the Water Resources Planning Act of 2002 recognizes these connections and explicitly defines ground- and surface water in ways that may contradict the conventional understandings that have determined water rights in Pennsylvania. According to the act:

- *Surface water* lies in a defined channel with a bed and banks and includes perennial or intermittent streams, rivers, ponds, wetlands, and lakes. The definition of surface water is significantly expanded from previous understandings to include diffuse surface water, which is defined above. In addition, the term *surface water* now applies to both natural and artificial bodies of water.



- *Groundwater* lies beneath the surface of the ground within a zone of saturation. Groundwater, whether or not it is flowing, found in known or defined channels or percolating through underground geologic formations, is designated as such regardless of whether it is the result of natural or artificial recharge. The term includes water contained in aquifers, artesian, and nonartesian basins, underground water courses, and other bodies of water below the surface of the earth.



## PENNSYLVANIA'S GROUND- AND SURFACE WATER ALLOCATION POLICIES

The 1923 Limited Water Power and Water Supply Law and the 1939 Water Rights Act were designed to provide for review and regulation of surface water withdrawals by public water companies, municipalities, and power companies.

The Water Well Drillers License Act of 1956 requires well drillers to record and file information on well location, rock types, well design, and yield data for each well drilled. While the collection of such information is important, there is no enforcement to administer this act and many drilled wells go unreported each year. Pennsylvania, like only a few other states, does not have regulations that impose standards for well construction and does not require certification of well drillers.

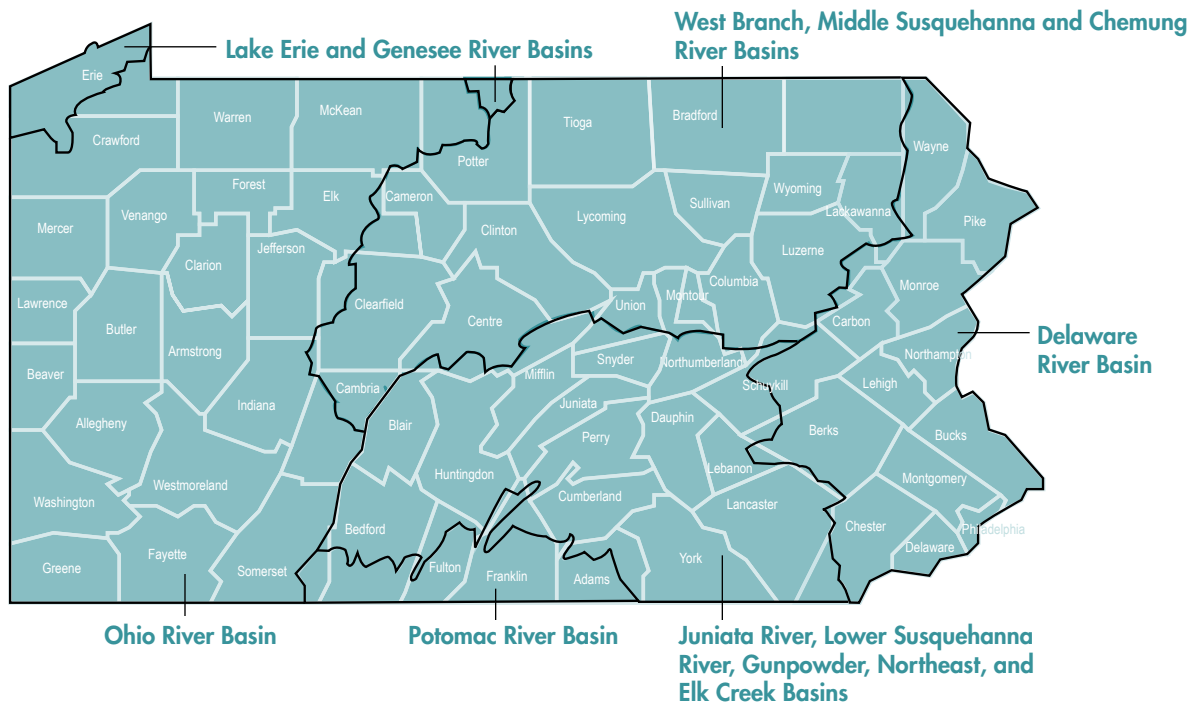
The Dam Safety and Encroachments Act of 1978, an updated version of the 1913 Water Obstructions Act, grants Pennsylvania's Department of Environmental Protection (DEP) authority to regulate the construction, operation, and maintenance of dams and other water obstructions. This law has enabled DEP to establish minimum flow guidelines for dammed waterways.

The Water Resources Planning Act of 2002 provides guidelines for future water resource planning that will influence the future allocation of ground- and surface water resources. Whether the act will affect future common-law interpretations, however, is unknown and will likely be determined through the court system. The act establishes a statewide water withdrawal and use registration and reporting program that requires public water supply agencies, hydropower facilities, and individuals who withdraw or use more than 10,000 gallons of water per day over any thirty-day period to register their withdrawal and use. Users of less than 10,000 gallons per day are also encouraged to register voluntarily so that DEP can inventory current withdrawals and uses. Typical households in Pennsylvania use approximately 200 to 300 gallons per day of water and are not expected to register their use.

The Water Resources Planning Act of 2002 also mandates the development of a new State Water Plan by 2008. Pennsylvania's previous state water plan (1976) had not been updated in more than twenty-five years and did not address critical water needs. The act requires that the new (2008) plan be updated every five years.

The importance of planning for water resources within watershed boundaries is also a hallmark of the act, making clear that political subdivisions (i.e., townships, boroughs, cities, counties) do not have the power to allocate water resources or regulate water withdrawals. However, the act preserves the powers of local government to regulate land use under the Pennsylvania Municipalities Planning Act and other laws. Because land uses impact the quality and quantity of water resources, this could result in conflicts between the agencies responsible for water allocation and the municipalities responsible for regulating land uses that affect demands placed on water resources. The Water Resources Planning Act of 2002 allows the municipalities to have access to the water use and supply information that will be generated through the planning process so that informed land-use decisions that are based on sound and current data can be made. The new State Water Plan will have six "Regional Water Resource Planning Areas" that geographically correspond with the major watershed divides of Pennsylvania—Delaware River, Great Lakes, Lower Susquehanna River, Ohio River, Potomac River, and Upper/Middle Susquehanna River.

## Regional Water Resource Planning Areas



Other important components of the Water Resources Planning Act of 2002 include the identification of priority water resource planning issues for each of the regional watersheds, including the identification of critical water planning areas. A critical water planning area is defined by the act as any significant hydrologic unit (watershed) where existing or future demands exceed or threaten to exceed the safe yield of available water resources. In this context, “safe yield” is defined as the amount of water that can be withdrawn from a water resource over a period of time without impairing the long-term utility of a water resource. Safe yield for a particular water source is based on the predictable rate of natural and artificial

replenishment of the water source over a reasonable period of time.

Unlike Pennsylvania’s existing system of water law, the Water Resources Planning Act of 2002 recognizes and accounts for the links between ground- and surface water. It further recognizes that there are different reasonable and beneficial uses of Pennsylvania’s waters, including agriculture, public water supply, and energy production; and instream uses, such as navigation, recreation, and fish and wildlife habitat. Consequently, the future State Water Plan will require that all of these legitimate uses be evaluated, considered, accommodated, and balanced.

## SURFACE WATER RIGHTS IN PENNSYLVANIA

Under the common-law system of water rights, surface water is subject to the riparian rights doctrine. This states that landowners with property adjacent to or divided by a natural body of water with defined banks have the right to use these waters. Riparian doctrine does not confer the right to divert or consume a certain amount of water, nor does it grant ownership of a specific quantity of water to the riparian landowner. All such property owners have equal rights to use this water. According to the original intent of this doctrine, all riparian owners have the right to see the water unchanged in quantity

and quality when it reaches their property.

The requirement that the water remain in its natural state may hamper development of riparian land. Riparian doctrine in its strictest form implies that every riparian owner has the right to undiminished flow and unchanged quality. To lessen impediments to development, Pennsylvania has adopted the doctrine of “reasonable use.” The policy allows some reduction in a watercourse’s flow, as long as other users are not “unreasonably” harmed. The definition of reasonable use depends on the size of the stream, the type of use, the amount of withdrawal, and the circumstances of other riparian users. Unreasonable uses include selling or wasting water and diversion to nonriparian lands. For planning

purposes, the Water Resources Planning Act of 2002 broadens the definition of reasonable use as “reasonable and beneficial use” and includes both withdrawal and nonwithdrawal uses, stating that efficient utilization should be ensured, in respect to the quantity of water and the techniques used. However, the common-law definition for reasonable use prevails unless the court system determines otherwise in the future.

Domestic use (including drinking, bathing, cooking, laundry, livestock watering, and other uses necessary for life and health) is given priority with no regard for the amount of water left in the stream or lake after these uses are satisfied. The next priority is the public’s right to navigate, followed by all nondomestic water uses. Upstream nondomestic uses,





including irrigation, manufacturing, and power production, can be slowed if there is insufficient water to meet downstream domestic or navigational needs. This priority ranking has been developed over the years based on the decisions of numerous court cases.

A problem with riparian rights doctrine is that although water rights are carried with property ownership, there is no guarantee that the right to use the water will remain unhindered by future riparian users.

Nondomestic uses of surface water, such as irrigation, municipal supply, mining, and industry, are considered “extraordinary” and are allowable only to the extent that they “neither materially nor perceptibly” diminish stream flow and are “reasonable” with respect to the rights of other users. Generally, water taken under riparian

rule may not be removed from the property adjacent to the waterway or diverted to another watershed, even if such removal would not adversely affect any other user. There are two main ways to circumvent this provision: prescription and eminent domain.

Prescriptive water rights are gained when a specific water withdrawal that adversely affects the rights of others occurs continuously, notoriously, visibly, and openly for twenty-one years without a legal complaint. After this period of time, the rights cannot be taken away, even if negative consequences result for other riparian rights holders. The amount of the withdrawal obtained under prescriptive water rights cannot later be increased. The concept of prescriptive rights declares that lawsuits cannot be brought to recover interests in land after it has been in the open and

adverse use and possession of another person for twenty-one years.

Prescription can result in the right for a nonriparian owner to use the water, or it can allow a legitimate riparian owner to use more water than would otherwise be possible given the rights of other owners. For example, a Pennsylvania Supreme Court decision (*Messinger’s Appeal* 109 Pa. 285, 4 A. 162 [1885]) involved a farmer who, in 1842, dammed a stream and dug ditches for irrigation purposes. His diversion caused no harm to a mill downstream for most of the time he irrigated his land. However, by 1877, drought diminished the stream’s flow and the mill owner sued the farmer on the grounds that the mill was not receiving enough water to operate. The farmer claimed a prescriptive right to continue using the water since use had been “adverse, open, visible, notorious, and continuous” for more than twenty-one years. It was undisputed that the farmer had irrigated his land in the same way since 1842. The mill owner took action only after the lack of water impacted operations at the mill. The 1885 ruling stated that the length of time the farmer irrigated his land was so great (more than thirty-five years) that the farmer gained a right by prescription to continue diverting water for irrigation. The mill owner, while not initially harmed by the diversion, could have anticipated the problem but took no action until the mill operation was affected.

Eminent domain rights to water use are acquired when municipalities or other public service agencies legally procure water from a private source for the public good. Acquisition requires a permit from the DEP.

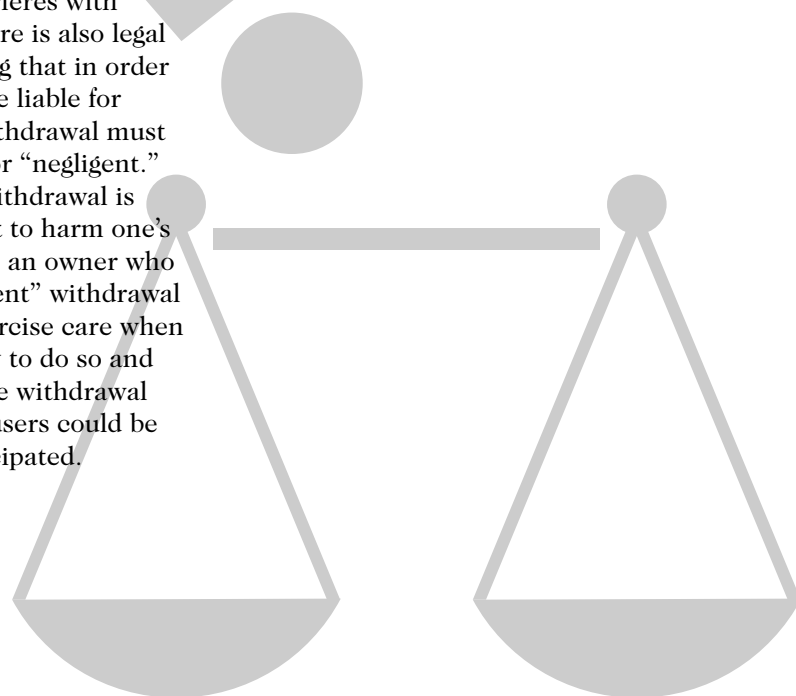
Many legal decisions in the Commonwealth have emphasized the amount of the withdrawal in comparison to the total flow of the waterway. For example, a court would be more likely to consider a large withdrawal from the downstream reaches of a river where flow is often greatest to be reasonable as opposed to a large withdrawal from smaller upstream sections. In this way the riparian rule has favored establishment of water-consuming industries on the downstream sections of the state's major rivers compared with smaller, upstream segments.

## GROUNDWATER RIGHTS WITHIN PENNSYLVANIA'S COMMON-LAW SYSTEM

Pennsylvania's groundwater law is based on the so-called "American Rule." Under this rule landowners may withdraw percolating groundwater from beneath their property for any "natural and ordinary" use without regard for neighboring users. Natural and ordinary uses encompass virtually any water use, as long as the use occurs on the landowner's property. Uses occurring off site are "unreasonable" and "unlawful." This rule was established at the beginning of the Industrial Revolution to promote economic growth and development, the predominant social goal at that time.

There is some confusion within the court decisions about liability in relation to groundwater withdrawals under the American Rule. Some courts have found the offending user liable for damages when the withdrawal interferes with other users. There is also legal precedent stating that in order for the user to be liable for damages, the withdrawal must be "malicious" or "negligent." A "malicious" withdrawal is done with intent to harm one's neighbors, while an owner who makes a "negligent" withdrawal has failed to exercise care when there was a duty to do so and the impact of the withdrawal on other water users could be reasonably anticipated.

The American Rule is not designed to deal with conflict between competing users or with drought conditions. Its provisions usually mean that those with the deepest wells and most powerful pumps get the most water. Landowners are thereby given the incentive to drill ever-deeper wells and use ever-more powerful pumps, as long as the water use qualifies as natural and ordinary.



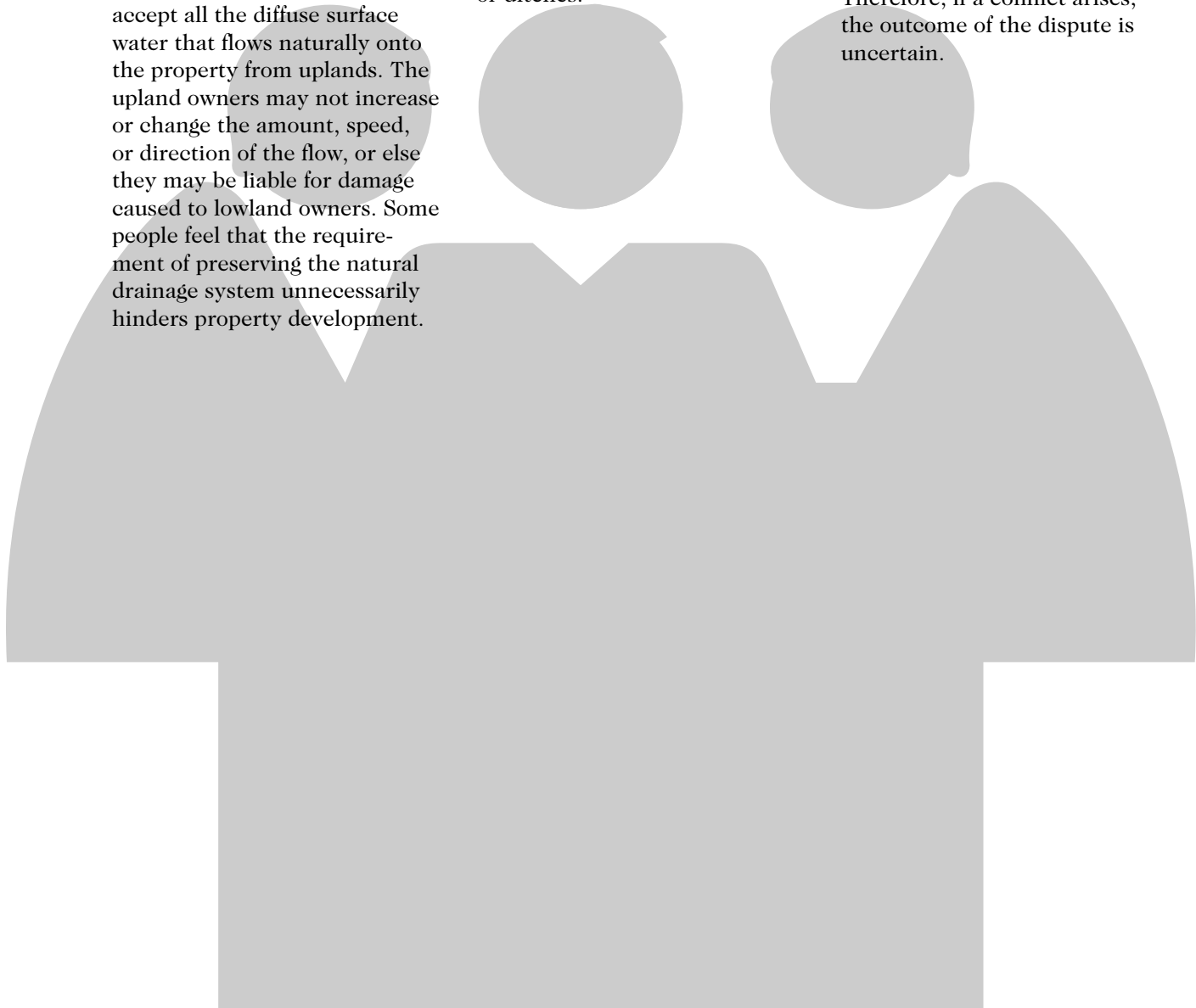
## DIFFUSE SURFACE WATER RIGHTS WITHIN PENNSYLVANIA'S COMMON-LAW SYSTEM

Diffuse surface water does not flow in a defined channel, such as flood water, melting snow, or stormwater runoff. Pennsylvania landowners may collect and use diffuse surface water for their own purposes. Many people, however, would rather move the water off of their property as soon as possible. The “natural flow doctrine” applies to drainage. Strict interpretations of this doctrine state that the owner of lowland must accept all the diffuse surface water that flows naturally onto the property from uplands. The upland owners may not increase or change the amount, speed, or direction of the flow, or else they may be liable for damage caused to lowland owners. Some people feel that the requirement of preserving the natural drainage system unnecessarily hinders property development.

This sentiment has led to the application of a different rule, the “common enemy” rule, in the drainage of urban areas. (See the Glossary, page 17, for a description of the term *common enemy*.) Diffuse surface waters are treated as a common enemy. All landowners have equal rights to improve their property and change the natural flow of these waters as necessary, even if this harms their neighbors, as long as the landowners’ actions are reasonable. However, the upland owners cannot be negligent or fail to take due care in making improvements, nor may they deliver the water to lower lands by means of artificial channels or ditches.

## ARTIFICIAL OR DEVELOPED WATERS

Surface water in a constructed reservoir is treated separately by Pennsylvania’s present system of water laws. Adjacent landowners do not gain riparian rights to developed water because they generally do not own the land underneath the water. The municipality or utility that constructed the dam or reservoir usually owns the land beneath the lake and therefore has exclusive rights to the waters. Little precedent exists to determine downstream users’ rights to stored waters. Therefore, if a conflict arises, the outcome of the dispute is uncertain.



## LAWS GOVERNING INTERSTATE WATERS

The Delaware and Susquehanna River basins cover the eastern two-thirds of the state. The western third is mainly in the Ohio River basin and, to a lesser extent, the Great Lakes watershed. In the 1960s and 1970s, the federal government created two interstate river basin commissions to manage water interests in the more densely populated Delaware and Susquehanna River watersheds. The Delaware River Basin Commission (DRBC) arose out of a long-standing interstate legal debate over rights to water within the Delaware River watershed and out of basin withdrawals (e.g., to New York City). The decisions of two court cases in 1931 and 1954 proved too inflexible to accommodate changing industrial needs, so the interstate compact was established. The initial term of the compact is 100 years.

The DRBC currently requires only groundwater withdrawals that average or exceed 10,000 gpd to register their wells with the appropriate state agency, which in Pennsylvania's case is the DEP. The requirement initially targeted southeastern Pennsylvania, where recent droughts and expanding development were increasingly threatening supplies. However, the registration requirement has since been expanded to the entire region regulated by the DRBC. New users may be required to limit withdrawals if their use interferes with that of established users or to provide



replacement water supplies when interference is unavoidable.

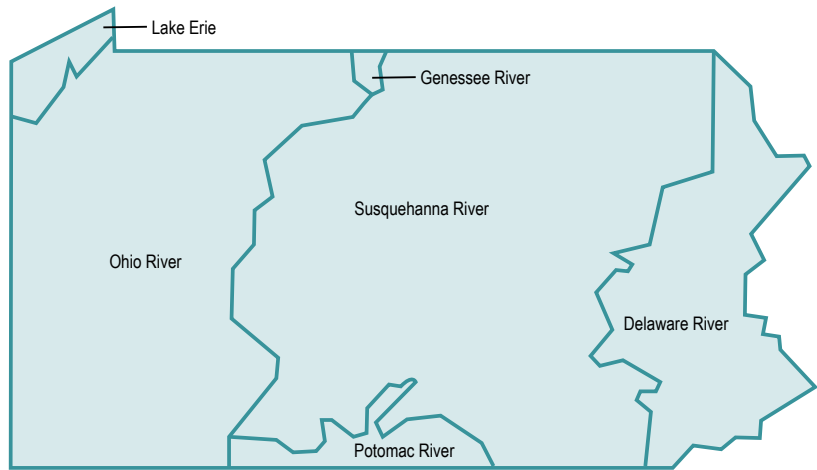
The DRBC has also been involved in settling disputes within Pennsylvania, something it was not specifically designed to do but had the authority to facilitate. The DRBC became involved because Pennsyl-

vania has no easy mechanism for resolving water disputes. Some people feel that this jurisdictional anomaly is a prime example of why Pennsylvania's state government needs to discuss questions of water use and to consider alternatives.

The Susquehanna River Basin Commission (SRBC) has required all persons who withdraw or divert more than an average of 10,000 gpd to register the withdrawal since 1995. This practice changed in 2004 when SRBC entered into a Memorandum of Understanding with the DEP to allow the Water Resources Planning Act of 2002 registration to satisfy SRBC registration requirements. The SRBC has also historically regulated large withdrawals from ground- or surface water (greater than 100,000 gpd for any consecutive thirty-day period) and large consumptive water uses (greater than 20,000 gpd for any consecutive thirty-day period). In December 2006, the Susquehanna River Basin Commission significantly expanded its purview over water withdrawals of all volumes by amending its regulations for the review and approval of water resources projects. Under the revised rules, all registrations must be renewed every five years unless the withdrawal is discontinued sooner. These changes are also consistent with the provisions of the Water Resources Act of 2002.

Proposed consumptive water use projects sourced from ground- or surface water will require prior review and approval by the SRBC of the source even if the withdrawal averages less than 100,000 gpd. Consumptive use projects are required to mitigate for their use and the SRBC provides a list of mitigation options that include measures such as payments, water reductions, or release of stored waters.

### Pennsylvania's Major River Basin Divides



In addition to water withdrawal projects involving 100,000 gpd or more from a surface- or groundwater source, proposed water withdrawal projects using a combination of sources totaling 100,000 gpd or more for any consecutive thirty-day period will also require prior approval by the SRBC. Additional requirements that limit withdrawals, impose conditions on them, mitigate their impacts, or require the project sponsor to undertake other measures to meet its present or foreseeable future water needs from ground- or surface water sources can also be imposed.

Projects that propose to divert water into or out of the Susquehanna River basin involving an average of 20,000 gpd of water in any consecutive thirty-day period will require SRBC review and approval. All diversions whether they are water into or water out of the basin must meet SRBC requirements.

Under the revised regulations, there are withdrawal projects that typically would not require prior review or approval but may be subjected to the review process if so determined by the SRBC executive director. These projects include those that affect interstate water quality; are within a member state that has the potential to affect waters within another member state; have a significant effect on the SRBC's comprehensive plan; or could have adverse, adverse cumulative, or interstate effects on water resources of the basin.

Withdrawal projects that are subject to SRBC review and approval and have been in place since 1995 are also subject to water conservation requirements for public water supply, industrial, or irrigation use.

Great Lakes' waters fall under the jurisdiction of the Great Lakes Commission, governed by a six-member group respon-

sible for rendering decisions on applications to use, obstruct, or divert these boundary waters. The commission is made up of representatives of the contiguous U.S. states and Canadian provinces. The Great Lakes Commission is tracking withdrawals by state and Canadian territory and has a Great Lakes Water Resources Compact under development.

## ALTERNATIVE WATER RIGHTS SYSTEMS

Other systems for determining water rights are used in different parts of the country, dependent upon the circumstances of the availability of water there. The doctrine of prior appropriation is commonly used to allocate water rights in the arid and semiarid western United States. The doctrine allows storage of water when it is plentiful and diversion from places with adequate supplies to places where it is needed. Seniority of appropriation is central to this doctrine. In other words, “first in time, first in right.” The landowner whose claim to water dates back the furthest is the last to lose water rights during droughts and conflicts.

Aspects of appropriative rights doctrine and riparian rights doctrine are incorporated under hybrid or dual water rights systems, with the riparian right usually having priority. Dual or hybrid system states incorporate a measure of reasonableness to give some protection to junior users.

Correlative rights doctrine holds that the rights of all landowners in a watershed are equal, complementary, and related. Users may not extract more than their defined share, nor should their use result in injury to other users. This doctrine is similar to riparian doctrine, except that in times of drought, correlative rights doctrine allocates water on the basis of relative need according to a prioritization of uses. Use on nonoverlying lands is highly restricted. This system’s chief downfall is that a “fair” and equal division of rights may not necessarily lead to the most economically efficient use of the available water. This system requires more intensive judicial involvement in settling conflicts than does the American Rule system since litigation is seldom brought until the resource is already overextended.

A regulatory system of groundwater allocation requires new users to obtain a permit for withdrawal from the state administrative agency. Preexisting uses, domestic water needs, and wells that withdraw less than an amount set by statute are usually not regulated. A proposed use must be beneficial, as indicated in the enabling legislation.

Most permit systems allow virtually any use, including off-land uses. Some systems rank uses as a guideline in times of water shortage. Provisions can be made to allow new, high-priority uses in the watershed, provided that the new user compensates injured permit holders or replaces their water supply. This type of system may exist on a statewide basis or only in critical areas where groundwater is scarce.



## LOOKING TO THE FUTURE

Pennsylvania's current system of water allocation works fairly well except during shortages or where demand exceeds the available supply. This is why the Water Resources Planning Act of 2002 has established a means for identifying the critical water planning areas—whereby the current and future demands on water are met in accordance with a safe yield that protects that resource. In Pennsylvania, as in other Mid-Atlantic and Northeastern states where water has always been perceived as

plentiful, the increasing development, subsequent demands, and changing weather patterns will cause water shortages on a more frequent basis. For this reason, the Water Resources Planning Act of 2002 addresses the management of water resources during drought in attempt to help provide measures for reducing and avoiding the most severe and numerous conflicts that arise around water availability.

The way our water resources are managed depends on whether water is viewed as property to which all are entitled in certain amounts or as a resource that

must be protected for future generations. With respect to property rights, and as citizens of the Commonwealth, we need to keep in mind the overarching rights to natural resources as identified in the Pennsylvania constitution, Article 1, Section 27:

*The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic, and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.*

The “Commonwealth principle” can guide how we address the difficult and challenging issues related to Pennsylvania's current water allocation system, its shortcomings, and the need for critical thinking by citizens as alternative water rights systems may be considered in the future.



## GLOSSARY

**American Rule**—states that a landowner may withdraw percolating waters beneath his or her land for “natural and ordinary” use on that land regardless of the consequences for neighbors. Virtually all economic enterprises are included under the category of “natural and ordinary” use.

**Aquifer**—a geologic formation that contains saturated permeable material and yields significant quantities of water for wells or springs.

**Common enemy rule**—grants all landowners equal rights to improve their property and change the natural flow of diffuse surface waters as necessary, even if this harms their neighbors, as long as the landowners’ actions are reasonable and not negligent and the water is not delivered by means of artificial channels or ditches.

**Common law**—a system whereby the decisions of individual lawsuits are used to define rights that may be refined and adjusted as new litigation deems necessary.

**Consumptive use**—water withdrawn and removed from the immediate supply of origin through evaporation, incorporation into products or crops, consumption by people, or other means.

**Critical water planning area**—any significant hydrologic unit (watershed) where existing or future demands exceed or threaten to exceed the safe yield of available water resources.

**Developed waters**—a dammed or diverted river or reservoir.

**Diffuse surface water**—does not move in a defined channel and does not filter down to the water table. It comes from various sources, including rain, melting snow, seepage from springs, and flood waters.

**Eminent domain**—a legal principle that allows municipalities and other public service agencies to acquire surface water rights for the public good.

**Instream use**—water that is used but not withdrawn from a ground- or surface water supply. Possible uses include recreation, fish propagation, hydroelectric power generation, and navigation.

**Natural and ordinary use**—with regard to percolating groundwater, encompasses virtually any water use, as long as use occurs on the landowner’s property. The transfer of water off land for use elsewhere is not allowed under this provision.

**Natural flow doctrine**—applied to drainage in rural areas, this doctrine states that the owner of low land must accept all the diffuse surface water that flows naturally over the property from upper lands, provided that the upper landowner does not increase or change the amount, speed, or direction of the flow.

**Offstream use**—water withdrawn or diverted from a ground- or surface water source for uses such as public supply, livestock, irrigation, and industry.

**Percolating groundwater**—normally flows very slowly through soil pore spaces, undefined pathways between soil grains. This water is either in the water table or is filtering down to the water table.

**Prescriptive water rights**—obtained if an adverse use is practiced peaceably, continuously, notoriously, visibly, and openly for twenty-one years with no legal challenge.

**Reasonable use**—a modification of riparian doctrine stating that some reduction in the watercourse’s flow is acceptable, as long as other users are not “unreasonably” harmed.

**Riparian**—relating to the bank of a stream or lake.

**Riparian doctrine**—grants landowners with property adjacent to or crossed by a water body the right to make reasonable use of these waters. The doctrine grants all such property owners equal rights to use this water.

**Safe yield**—the amount of water that can be withdrawn from a water resource over a period of time without impairing the long-term utility of a water resource.

**Statutory law**—as opposed to common law, this is written law enacted by a legislature that all citizens represented by the legislature legally must follow.

**Water project**—includes work, service, activity, or facility that will conserve, utilize, control, develop, or manage water resources.

**Water Resources Planning Act of 2002 (Act 220)**—authorizes an update of Pennsylvania’s state water plan, including the documentation of large water users (over 10,000 gallons per day).

**Well yield**—the rate at which a well provides water, usually in gallons per minute.

**Withdrawals**—the removal of water, through pumping or diversion, from ground- or surface water sources.

## REFERENCES

“Committing to Prosperity: Moving Forward on the Agenda to Renew Pennsylvania.” 2007. Washington, D.C.: Metropolitan Policy Program, The Brookings Institution. [http://www3.brookings.edu/metro/pubs/committingtoprosperity\\_ES.pdf](http://www3.brookings.edu/metro/pubs/committingtoprosperity_ES.pdf).

Fleeger, G. M. 1999. *The Geology of Pennsylvania’s Groundwater*. 3rd ed. Pennsylvania Geological Survey, 4th ser., Educational Series 3.

Hutson, S. S., N. L. Barber, J. F. Kenny, K. S. Linsey, D. S. Lumia, and M. A. Maupin. 2004. *Estimated Use of Water in the United States in 2000*. U.S. Geological Survey Circular 1268. Washington, D.C.: Government Printing Office.

Jarrett, A. R., and S. S. Roudsari. 2007. *Animal and Irrigation Water Use in Pennsylvania in 2002, 2010, 2020, and 2030*. Harrisburg: Pennsylvania Department of Environmental Protection, Bureau of Watershed Management.

Ludlow, R. A., and W. A. Gast. 2000. *Estimated Water Withdrawals and Use in Pennsylvania, 1995*. Reston, Va., and Harrisburg, Pa.: United States Geological Survey and the Pennsylvania Department of Environmental Protection, Office of Water Quality Management.

Marquitz, P. 2003. *Basic Use and Monitoring of Water Resources in Pennsylvania*. Carlisle, Pa.: Agricultural Law Resource and Reference Center.

Solley, W. B., R. R. Pierce, and H. A. Perlman. 1993. *Estimated Use of Water in the United States in 1990*. U.S. Geological Survey Circular 1081. Washington, D.C.: Government Printing Office.

Water Resources Planning Act of 2002 (Act 220) House Bill 2301, Printer’s number 4697, amending 27 Pa.C.S.A. sections 3101 et seq.

Weston, R. T., and J. R. Bureat. 1990. “Legal aspects of Pennsylvania water management.” In *Water Resources in Pennsylvania: Availability, Quality, and Management*, ed. S. K. Majumdar, E. W. Miller, and R. R. Parizek. The Pennsylvania Academy of Science.

Weston, R. T., and M. W. Gang. 1976. *State Water Plan—Pennsylvania. Groundwater Law in Pennsylvania: Water Laws and Institutional Arrangements. Background Report No. 2*. Harrisburg, Pa.: Office of Resource Management.

## FURTHER READING

Newton, D. 1984. *Legal Aspects of Groundwater Management*. Ithaca: Northeast Center for Rural Development, Cornell University.

Pennsylvania State Water Plan: <http://www.depweb.state.pa.us/> (keyword: “water resources”).



Prepared by Charles Abdalla, associate professor of agricultural and environmental economics; Joy Drohan, project assistant and writer; John Becker, professor of agricultural economics and law; Kristen Saacke Blunk, extension associate in nutrient and water policy.

The authors would also like to thank the following peer reviewers: Bryan Swistock, Penn State School of Forest Resources; Phyllis Marquitz, Agricultural Law Resource and Reference Center; Lori Mohr, DEP State Water Planning Office; Dennis Low, U.S. Geologic Survey; Mike Brownell, Susquehanna River Basin Commission; Pam Bush, Delaware River Basin Commission.

Visit Penn State's College of Agricultural Sciences on the Web: [www.cas.psu.edu](http://www.cas.psu.edu)

---

Penn State College of Agricultural Sciences research, extension, and resident education programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

---

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information telephone 814-865-6713.

---

This publication is available in alternative media on request.

---

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901; Tel 814-865-4700/V, 814-863-1150/TTY.

---

Produced by Ag Communications and Marketing

---

© The Pennsylvania State University 2008

CODE # UA445      6M12/07mpc4851