



*Water Issues in Wisconsin* is a series of publications designed to focus attention on the economic value of the state's water resources. It is primarily intended for Extension educators and resource professionals involved in dealing with water issues throughout the state. Other titles in this series include:

*The Economic Value of Water: An Introduction* (G3698-1)

*How Does the Market Value Water Resources?* (G3698-2)

*Developing Estimates of Water Value: Stated Preference Models* (G3698-4)

*Developing Estimates of Water Value: Revealed Preference Techniques* (G3698-5)

You can order these publications from your Wisconsin county Extension office or from Extension Publications, Rm. 170, 630 W. Mifflin St., Madison, WI 53706 (608-262-3346).

## Water as a Public Good: Property Rights

The state holds the waters of Wisconsin in trust for its residents. In a sense, water belongs to both everyone and no one at the same time. *How Does the Market Value Resources?* (G3698-2) we discussed how the free market can assign economic values to most goods—but not to water. Here, we discuss the role of property rights in the way water is valued in Wisconsin.

First, we need to review the property rights associated with water.<sup>1</sup> As noted above, the Wisconsin Constitution provides that the state hold all navigable waters in trust for the public. This concept is spelled out in the **public trust doctrine**. The public trust doctrine was originally established to protect the right of commercial navigation on state waters, but has now been expanded to protect fishing, hunting and swimming rights as well as the right to use navigable waterways even when the water is frozen. The public trust doctrine also protects the rights of citizens to enjoy scenic beauty along these navigable waterways. The doctrine is important in many ways, but most importantly, because it defines the state's property rights over natural and navigable waterways.

The **doctrine of riparian rights** also affects the way water is used in Wisconsin. This doctrine governs private landowners' use of natural waterways. It states that owners of land adjacent to natural streams or

lakes (riparian landowners) have an equal right with other riparian owners to the reasonable use of the water. These rights include:

- The right to direct or consume water for domestic, agricultural or industrial purposes
- The right of access to water for boating, swimming and recreation, including the exclusive use of shoreland to the water's edge
- The right of trapping and the "fruits" of the streambed
- The right to construct piers and similar structures (with permits)
- The right to additions of shoreland from natural processes (also known as accretions)

These rights are protected under law though they are subject to two limitations: (1) reasonable use; and (2) the public trust doctrine. The reasonable use limitation was enacted to prevent individuals from taking their share of water to the detriment of others. The Wisconsin Department of Natural Resources determines reasonable use on a case-by-case basis and often depends upon the impact water use has on other riparian landowners and the public in general. The public trust doctrine and other federal, state and local laws and regulations also restrict riparian landowners' use of water and their shoreland property.

Another very important aspect of property rights concerns **groundwater**. Originally, landowners had the

<sup>1</sup> Our intent is not to replicate the vast amount of material produced by others. Interested readers are referred to *Champions of the Public Trust: A History of Water Use in Wisconsin* produced by the Wisconsin Department of Natural Resources and the Bureau of Water Regulation and Zoning for a nice historical overview and list of references.

right to draw groundwater without limit. In fact, they could legally draw it to the detriment of their neighbors' supply—even when their intentions were malicious.

In 1974, however, the law was changed so that property owners were allowed to draw as much groundwater as they required so long as it did not cause unreasonable harm to another. Political decisions determined that the costs of unlimited access outweighed the benefits, and water regulations were changed as a result.

### Water as a "good"

If we attempt to place an economic value on water, we must think of it in terms of being a "good."

Property rights affect whether any resource can be considered a good because property rights deal with the ownership of goods. In Wisconsin, the public trust doctrine states that raw water resources are owned by society as a whole. Thus, in most cases no single owner can exclude another person from using public waters.

When we consider a natural resource as a "good," we must also determine whether people will be competing for its use. We sometimes refer to this as the level of "rivalness" exhibited by a good. The Latin root of this term, *rivalis*, literally means "one using the same stream as another."

A "rival" good is one in which the supply of the good is decreased or diminished in quality with every additional user. For example, research shows that people have a higher regard for more solitary experiences with water resources; therefore, we can assume that every additional water craft user on a lake is likely to diminish the lake's value for someone else.

A "non-rival" good is one to which everyone has unlimited access without diminishing the enjoyment of others. A sunset is an example of a non-rival good. Everyone can enjoy the beauty of a sunset without affecting in any way the enjoyment of another.

Certain products, known as "private" goods, rely on exclusion within a competitive environment. This means that anyone who is unwilling or unable to pay for the product is excluded from getting it. For example, bottled water is considered a private good. The value placed on this type of good is typically a function of the costs involved in processing, delivery and marketing—not the cost of the water itself. Items we purchase in the marketplace, such as waterfront property, are also examples of private goods.

The term "club" goods can sometimes apply to water resources, but relates more to the packaging of an experience rather than a consumable good. An example of a club good might refer to the value an individual places on an exclusive fishing guide who can provide a certain type of experience.

Finally, there are some values that relate primarily to the idea of "goods" that are typically referred to as purely "public goods"—those from which no one can be excluded and for which users do not compete. For example, the value placed on the fact that clean bodies of water merely exist is a purely public good. This concept is covered in *The Economic Value of Water: An Introduction* (G3698-1).



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Homes that line Wisconsin's lakes and rivers do not have exclusive rights to the bodies of water they adjoin. In Wisconsin, the public trust doctrine was originally established to ensure the rights of the navigating public. It has since been expanded to include protection of the public's right to fish, hunt, swim and enjoy winter navigation.

Most of our uses of water can be characterized as “common property resource” (see the box below).

**Common property resources** exist somewhere in-between purely public goods and private goods. At one extreme are public goods which are non-excludable and non-rival. On the opposite end are private goods, which are excludable and rival.

A public water access illustrates the qualities of a common property resource. Because the water body is open to the public, no one can be excluded from using it. Eventually, however, as more and more people use the water, congestion becomes a problem. And as water resources become more and more congested, conflicts among water users will increase. Water may tend to be over-exploited because people do not have to pay for its use. Consequently, each person’s enjoyment of the resource is reduced.

The fact that water is available for use by everyone can cause a problem. If everyone has the legal right to use water, how do we decide who is allowed to use it and who is not? This is the question that needs to be addressed through public policy.

Water’s non-excludable nature makes it nearly impossible for market forces (purchase and sale) to operate due to the presence of what are commonly



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Most water-based recreation uses view the water itself as a “common property resource.” This means that no one can be excluded from using it but the more the resource is used, the less value it holds for other users. One problem associated with common property resources is that of “free riders.” These are people who are unwilling to pay for the use of a resource if other people also have free access.

referred to as “free-riders.” Free riders create a situation where no one is willing to pay for the use of water if other people also have free access to it. As we have seen in the case of private goods, the market determines who gets to use a resource and who does not by granting use to the highest bidder. But in the case of

*If everyone has the legal right to use water, how do we decide who is allowed to use it and who is not?*

<b>Common property resources</b>		
	<b>Exclusive</b>	<b>Non-exclusive</b>
<b>Rival</b>	<b>private goods</b> (direct use values)	<b>common property resources</b> (water-based recreation)
<b>Non-rival</b>	<b>club goods</b> (an individual’s fishing guide)	<b>public goods</b> (existence values, sunsets)

Common property resources are characterized as being non-exclusive and non-rival. This means that people are not excluded from using the resource by a gatekeeper (such as an owner or merchant). Most recreational uses of water in Wisconsin are non-exclusive and non-rival. “Rival” (derived from the Latin *rivalis* meaning “one using the same stream as another”) means that people are competing to use the resource. If we add another user, it diminishes the value for others already using the resource.



water, this only works when a market allows free trade to take place. Without trading, the market is not able to place a value on uses that do not produce a saleable good. Thus we have to rely on a combination of market valuation techniques as well as non-market valuation measures of water use to determine which are the most valuable to society.

The non-market valuation of water approach has been used for many years to determine the value of alternative uses of water resources. The final two publications in this series, *Developing Estimates of Water Value: Stated Preference Models* (G3698-4) and *Developing Estimates of Water Value: Revealed Preference Techniques* (G3698-5) examine how non-market valuation can be combined with market valuation to determine which uses are most beneficial and consequently, how to allocate water among different users.



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A sunset is an example of a purely “public good.” This means that everyone can enjoy a sunset without diminishing the enjoyment of other people or decreasing the “supply” of sunsets.



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