

Southern Appalachian River Conservation

A look at economic impacts in and around the Little Tennessee River Basin



Rivers. Many of us think of them as places to fish, paddle a canoe, or take a dip in a swimming hole. Seldom do we consider the economic role rivers play in our communities – serving as economic drivers and providing us services we may not even be aware of. Yet, rivers have value and play a role in local economies - a role that can be measured in dollars and cents.

Rivers as economic drivers

One of the easiest and most fundamental ways to look at the economic impact of rivers is to look at the industries that are river-dependent and the economic boost they provide to a local economy.

Fishing

A clean, healthy river should support a thriving fish community, which should provide fishing opportunities. An angler must spend money to go fishing – most fundamental is the fishing license, a fishing rod, and bait or lures. The money from the fishing license goes to the state to fund the stocking and stewardship of rivers. Money for equipment goes to the shop owner, who may or may not be local, with sales tax going to the local government. Of course, from there is a ripple effect as money goes to the equipment manufacturers, the parts suppliers, the people who provided the raw materials, etc. In addition to equipment purchases, anglers also often spend money on local restaurants, hotels, guides, and gas stations. With the right business infrastructure, much of this money can stay in the community.



- A study done for the N.C. Wildlife Resources Commission by Responsive Management and Southwick Associates, found that for 2008, trout anglers fishing in North Carolina spent \$145 million on licenses, equipment, and trip expenditures. Indirect impacts brought the total economic impact up to \$174 million.
- The 2011 National Survey of Hunting, Fishing, and Wildlife-Related Recreation, conducted by the U.S. Census Bureau, concluded that 2011 saw \$1,523,131,000 in fishing-related expenditures in North Carolina, including equipment, and trip-related expenses.

Paddling

The Southern Appalachians are a paddling epicenter for the United States. Spending on paddling impacts the local community as much as spending on fishing. Money goes to local guides, local equipment stores, as well as local support services like restaurants, gas stations, and hotels.

- A Study in the Water Resources Bulletin of the Ameri-



Left: Anglers on the Tuckasee River, credit: Peoples/USFWS. Right: Rafters on the Cheoah River, credit: Joy Franklin.

can Water Resources Association looked at the state-wide economic impacts of rafting on five rivers across the nation, including the Nantahala in Western North Carolina, and the Chattooga on the Georgia/South Carolina state line. In 1993, outfitted river use on the Nantahala meant \$8 million to personal income in North Carolina and was responsible for 334 jobs. For the Chattooga, the income impact was \$1.3 million in Georgia and \$1.1 million in South Carolina, while it created 48 jobs in each state. During that time period, it's estimated the Chattooga saw 28,000 non-resident outfitter users, while the Nantahala saw 152,000.

Additionally, much of the money that funds these types of projects is grant money. If it isn't going into your community, to improve your streams, it's going to someone else's community.

- Between 2005 and 2015, the U.S. Fish and Wildlife Service spent \$540,000 to improve stream health in the Little Tennessee River basin – money drawn to the basin by the presence of rare plants and animals like the Appalachian elktoe mussel.
- In recent years, local organization Land Trust for the Little Tennessee has brought in more than \$1,000,000 to improve area streams through restoring damaged and degraded streams, and cleaning up pollution.

Clearly, there is opportunity to develop and maximize recreational spending in communities with high-quality river resources. However, to fully do this requires the establishment of businesses that provide services to visitors, and marketing to draw those visitors to the area. Seeing the full economic impact of direct spending as a result of conserved rivers requires the desire and will within the community and among partners to both conserve streams and also develop the business infrastructure to draw people to the area to spend money.

Stream-improvement

While recreational spending provides the opportunity for long-term, sustainable economic boost, the mere act of improving streams can bring money into a community. Stream restoration projects that reduce erosion, remove barriers to fish movement, and otherwise improve stream health involve multiple stages, each with expenditures. These projects begin with spending on study and design. This work is typically done by engineers and environmental consultants. The next phase is implementation, which often involves the use of heavy machinery to move earth, remove decrepit structures, and install new infrastructure like culverts. All of these steps involve contracting with professionals to accomplish them, and if those professionals are in the community, the money spent on improving streams flows into the community.



Biologists measuring a stream barrier. Credit: Peeples/USFWS

and degraded streams, and cleaning up pollution.

- Other organizations are also spending to improve water quality in the Little Tennessee River basin, including the Natural Resources Conservation Service, Soil and Water Conservation Districts, Eastern Brook Trout Joint Venture, and Southern Aquatic Resource Partnership.

Value of the services provided by clean, healthy streams

While the simplest way to look at rivers in economic terms is the money people generate from them, an important dimension is the value of the service's provided by clean, healthy streams - services the river is providing at no cost, including:

Clean drinking water

The most basic use of streams by humans is for drinking water. The healthier the stream, the cleaner the water, the less money that needs to be spent treating it for household consumption. Stream degradation is reflected in higher treatment costs. In a 2010 study (Valuing Drinking Water Provision as an Ecosystem Service in the Neuse River Basin. Elsin, Yoanna Kraus, Randall A. Kramer, W. Aaron Jenkins. Journal of Water Resources Planning and Management, July/August 2010, pp 474-482.) researchers studied the value of improving the clarity of water in the Neuse River basin and its connection to the cost of treating the water for drinking. Using a variety of methods,

they concluded that a simple 5% decrease in the cloudiness of the water resulted in a treatment savings between \$400,000 and \$2.7 million across the basin's 19 public water intakes. A 30% decrease in cloudiness resulted in savings of up to \$16.5 million across the basin.

Flow regulation

Healthy streams have natural flows, which are steadier year-round and fed by rain storms and a constant supply of groundwater. In a healthy watershed, upland rainfall is able to soak into the ground, recharging ground water. This helps minimize drought impacts, which is especially important to those who pull water from a stream, such as farmers or drinking water utilities. When an impervious surface, like a parking lot, covers the soil, extra steps must be taken to ensure rain falling on that surface can soak into the ground, recharging ground water.

Flood control

A healthy stream system has a watershed that allows water to soak into the ground, where it can be stored and released over time. It also provides a floodplain that can hold flood waters. All of this serves to decrease the severity of downstream flooding, which has an obvious economic benefit.

Though placing a value on these services is more challenging than placing a value on a paddling or fishing industry, that doesn't diminish their importance. These are services people place a value on, and in many cases, if the river no longer provided a service, there would be costs that would likely be shared by a number of river users.

Intangible values

While rivers serve as economic drivers by being the center of particular industries and provide free services to us that we would otherwise have to pay for, they also have value to us simply by existing. While the economic impact of this value may be very hard to manage, it can often contribute greatly to quality of life in a community.

Recreation and scenery

Many people place a value on the ability to visit, enjoy, or merely look at a clean, healthy stream. Activities like swimming and tubing have minimal direct economic impact, but the participants may place great value on them.

Fish and wildlife habitat

Aside from the direct economic impact of money spent fishing, the mere existence of diverse, native fish populations is meaningful to many people. Even if they will never eat, reel in, or even see much of the life in a stream, its presence can hold value.

Cultural and religious values

Healthy streams can often have a deeper value for communities as they represent a connection to the landscape and to history. They can even carry religious significance, especially for baptisms.

Conclusion

In the end, without doing site-specific research, we can't say how much conserving a particular river benefits a specific community. However, there is ample evidence that rivers can play a tremendous economic role – the two key drivers needed are a healthy river and people willing to use that healthy river as the basis for economic development.



Top: Students reenact a traditional Cherokee fish harvest on the Tuckasegee River. Below: Rafters along the Nantahala River. Credit: Peoples/USFWS

