

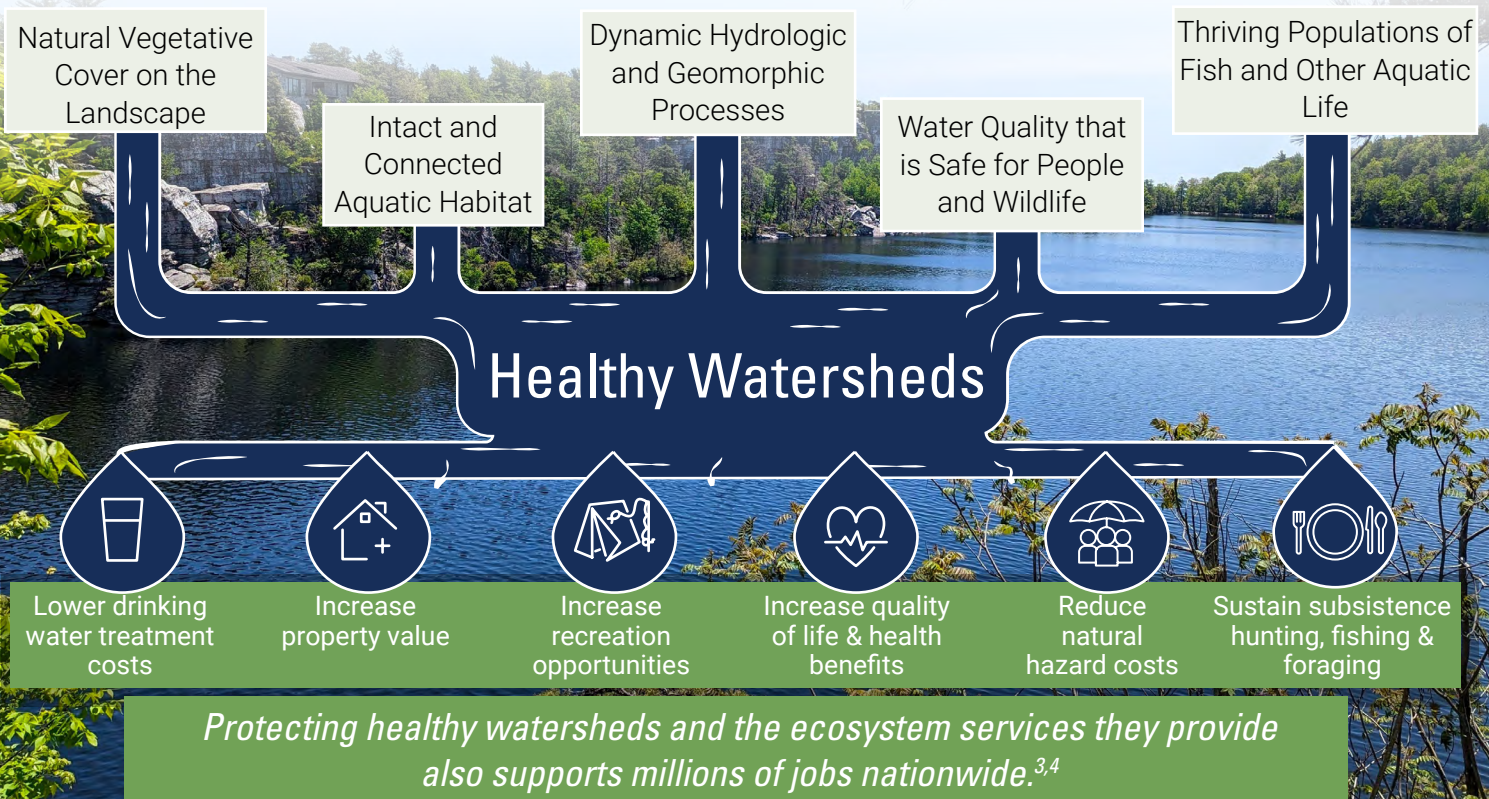
The Economic Benefits of Protecting Healthy Watersheds

Protecting Our Nation’s Healthy Watersheds Makes Economic Sense

Healthy watersheds are characterized by natural and well-managed working and developed lands that support resilient aquatic systems comprised of intact and connected aquatic habitat and good water quality conditions. **Healthy watersheds provide a variety of benefits, or ecosystem services, critical to our economic and social well-being.**

Ecosystem goods and services are the benefits that humans receive from nature. These benefits underpin almost every aspect of human well-being, including our food and water, security, health and economy. There are several common methods for estimating the economic value provided by ecosystem services, including **market price, stated preference, revealed preference** and **benefits transfer**.¹

Ecosystem service valuation can help quantify the many economic benefits provided by healthy watersheds, supporting communities in more fully accounting for the costs and benefits associated with potential actions that shape the places we live. In such valuation, the time horizon can have important implications, as environmental costs and benefits often accrue in the long-term.²



Visit the U.S. Environmental Protection Agency’s [Healthy Watersheds Program](#) to learn more!


Your Watershed at Work: Illustrative Economic Benefits of Healthy Watersheds

Note: Dollar amounts reported in this fact sheet were acquired from cited publications and have not been adjusted for inflation.




Clean Drinking Water and Reduced Infrastructure Costs


Healthy watersheds can significantly lower the cost of drinking water treatment by serving as natural filters to remove pollutants from water used for drinking water supply. Several studies have documented the relationship between treatment costs and the condition of source waters, demonstrating that increased treatment costs occur with elevated levels of contaminants such as turbidity, nitrate and organic carbon.⁵ For example:




Iowa: A study of the economic value of riparian buffers in the Raccoon River watershed found that installing buffers on agricultural lands could reduce nitrogen levels in Raccoon River, thereby decreasing annual drinking water treatment costs by approximately \$71,000. When factoring in other ecosystem services provided by riparian buffers, the net benefit to the watershed community was determined to be \$2.63 million annually.⁶



Maine: The Portland Water District has maintained a water filtration waiver for over 30 years due to the exceptional water quality of the Sebago Lake watershed, avoiding the need for a \$150 million filtration plant and ongoing operating costs.⁷ Portland's watershed protection efforts include funding forest conservation easements on private lands through partnerships with local organizations.⁸ Forest conservation activities in the watershed are estimated to provide a strong return on investment, yielding between \$4.80 to \$8.90 in water quality preservation and other ecosystem benefits per dollar invested.⁷



Maryland: The Maryland Coastal Bays Program, a National Estuary Program funded by the EPA, conducted a study to determine drinking water cost savings provided by forests within the Maryland Coastal Bays watershed. The study found the nearly 20,000 acres of forested lands decrease costs associated with drinking water production by \$134,000 per year for communities in Maryland, Delaware and Virginia that source drinking water from this watershed.⁹



New York: New York City has successfully preserved over 140,000 acres of forested land in the watershed that supplies its residents with drinking water. The city's \$100 million average annual investment in watershed protection has proven highly cost effective, as the natural filtration provided by these lands has saved customers an estimated \$8 billion to \$10 billion in costs to construct a filtration facility and \$365 million in associated annual operation and maintenance costs.¹⁰



Our nation relies on forested watersheds for high-quality drinking water. The U.S. Forest Service's [Forests to Faucets Assessment](#) identifies important watersheds for drinking water supply, as well as potential threats to these watersheds.



Across the United States: Based on a review of studies published throughout the United States, researchers found that a 1% increase in forestland in the source watershed could provide savings of up to \$63,293 annually due to reduced drinking water treatment costs at a facility. The analysis included data from drinking water facilities in the Midwest, Oregon, Texas, Oklahoma and the Great Lakes region.⁵



Supporting Communities Through Reduced Natural Hazard Costs

Healthy watersheds can protect communities from expensive damage, clean-up costs and decreased economic activity caused by natural hazard events such as floods and wildfires. For example, the wetlands, floodplains and other riparian and coastal ecosystems found in healthy watersheds serve as essential natural infrastructure for flood control. Studies describing the costs of natural hazards and economic benefits of the mitigation services provided by healthy watersheds include:



Arizona: In 2010, the Shultz Fire burned over 15,000 forested acres near the city of Flagstaff, resulting in evacuation from hundreds of homes and creating landscape conditions that promoted severe flooding below the burn area after the fire was contained. Costs of the fire and floods have been estimated to total between \$133 million to \$147 million due to structural damage, cleanup costs, increased flood insurance premiums, loss of property values and other impacts.¹¹ In response, Flagstaff voters approved a \$10 million bond to fund the Flagstaff Watershed Protection Project – a partnership between the state, city and Coconino National Forest to perform forest management activities to reduce the risk and associated costs of future high-severity wildfires and post-fire flooding.¹²



Florida: Frequently the endpoint of watersheds, healthy coastal ecosystems provide significant flood protection services to properties along coastlines and further inland along bays, estuaries and tidal rivers by reducing damages from storm surges and extreme water levels. The Tampa Bay watershed has nearly 9,000 estuary-adjacent properties that are at high risk of flooding. The mangroves, salt marshes, oyster bars and seagrasses of Tampa Bay's estuary provide annualized flood protection benefits of approximately \$31 million per year by preventing property damages from 100-year floods.¹³





Missouri: The Meramec Greenway near St. Louis includes 28,000 acres of protected lands along the Meramec River. These lands, consisting of state and local parks, private conservation lands and buyouts of frequently flooded properties, help prevent downstream flooding through reduced runoff rates and water storage in soils. The greenway has been reported to provide approximately \$31 million in benefits annually due to avoided flood damages and enhanced value of nearby properties – representing nearly twice the appraised value of the land if it had been converted to residential land use.¹⁴



Vermont: The town of Middlebury is bisected by Otter Creek, the longest river in the state. Before reaching the town, Otter Creek flows through a large wetland and floodplain area that reduces downstream flooding impacts by storing and slowly releasing water during heavy rainfall events. These wetlands and floodplains are estimated to reduce the cost of flood damage to homes and businesses in Middlebury by an average of 54% to 78% per flood event. For just a single large flood event – Tropical Storm Irene in 2011 – the flood protection services of the wetland and floodplain complex were valued at up to \$1.8 million due to avoided damage costs.¹⁵



Subsistence Hunting, Fishing & Foraging

Healthy watersheds reliably provide clean water and intact habitats that sustain fish, game and wild plants vital to subsistence harvests supporting or supplementing many Americans’ livelihoods across the country. Waterbodies are woven into language, stories and customary practices, connecting individuals and communities with the natural environment. For example:



Alaska & Across the United States: In addition to providing nearly half of the surface water supply in the US,¹⁶ forested watersheds are also a key source of plant and animal-based foods. Each year, Americans harvest more than 255,000 metric tons of forest foods and medicines, valued at more than \$648 million, from public lands across the United States. Forest foods are critical to rural communities, and of high cultural value to Indigenous Peoples across the nation. For example, Southeast Alaska’s rural communities harvest an estimated 2,055 metric tons (\$20.5 to \$41.1 million value) of wild food from public forests each year; three-quarters of this annual harvest is from freshwater, nearshore and marine habitats.¹⁷



A successful wild rice harvest. Photo courtesy of Thomas Howes, Fond du Lac Resource Management Division.



Louisiana: A 2022 ethnographic study of Terrebonne and Lafourche Parishes in coastal Louisiana documents how deeply dependent coastal communities are on healthy aquatic ecosystems for food security, economic well-being and quality of life. Researchers recorded over 2,500 instances of hunting, harvesting and sharing – including fish, shrimp, crabs, oysters and wild game – as routine parts of household food supply and community life. The study found that lower-income families are disproportionately reliant on wild-harvested seafood and would be least able to replace it if watershed health declined.¹⁸

Alaska: Wild food harvests provide a major part of the food supply of rural Alaska, with fish representing more than half of Alaska's subsistence harvest by weight. Rural residents harvest an estimated 34 million pounds of wild foods annually (276 pounds per person), which equates to \$170 to \$340 million annually at a \$5 to \$10 per pound replacement value.¹⁹ Research on 46 rural Alaskan communities shows that access to diverse wild foods—salmon, halibut, deer, shellfish and plants—across habitats dramatically stabilizes harvest over time, with communities harvesting broadly across ecosystems far more resilient to species declines.²⁰



*Bristol Bay sockeye salmon, Alaska.
Photo courtesy of Thomas Quinn,
University of Washington.*

Nearshore Fisheries, Hawaii: Nearshore zones are typically defined where water depths are 65 feet or less. These zones are an important resource for Hawaiian communities. A 2017 study estimated that the total annual value of nearshore fisheries in Hawaii is \$10.3 to \$16.4 million, of which the majority (\$7.2 to \$12.9 million) is non-commercial catch for household consumption or community sharing. Through local stakeholder interviews, the study's authors also evaluated the role of nearshore fisheries in supporting fundamental cultural values including subsistence, activity, traditional knowledge and social cohesion.²¹



Recreation and Tourism Opportunities

High-quality waterways and watersheds provide valuable recreational opportunities to residents and visitors and support billions of dollars spent annually on outdoor recreation and tourism in the United States. Protecting these areas from water quality issues can help ensure that they remain popular destinations and continue to generate economic activity. For example:

New England: A study of water quality and coastal recreation trips in New England reported that residents are willing to pay over two times more in travel costs to visit beaches with no closure history due to water quality issues compared to beaches with past closures (\$50 per day versus \$23 per day, respectively). Willingness to pay was also found to be correlated to water clarity and pathogen counts at beach destinations. The study estimates that a 5% increase in water clarity in Cape Cod, Massachusetts, results in an increase of \$43 million in total future benefits.²²





Ohio: Toxins from algal blooms can impose significant human health risks and cost burdens on local communities. Harmful algal blooms in Lake Erie were estimated to cost three coastal counties an average of \$142 million per year due to negative impacts on drinking water treatment, recreation and tourism and property values.²³ Such costs can be avoided or reduced by protecting existing forests and other natural lands with low nutrient loading, maintaining riparian buffers that filter agricultural and urban runoff and preserving wetlands that cycle and retain nutrients.

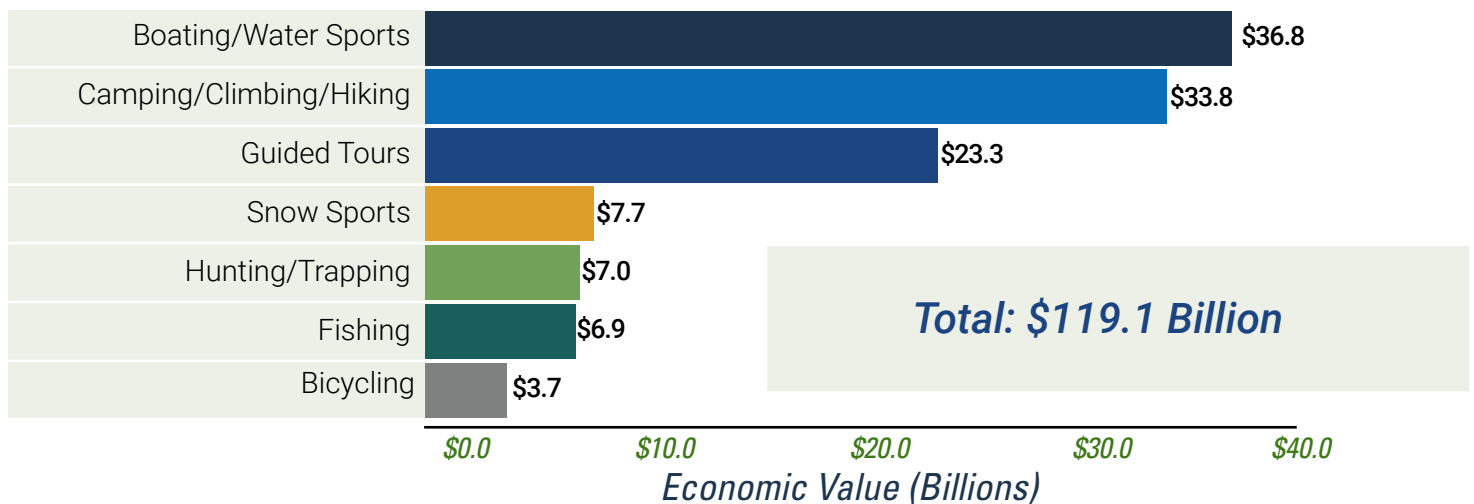


North Carolina: Lands protected for wildlife conservation support watershed health and provide significant recreation value. North Carolina’s network of Wildlife Management Areas host approximately 2 million visitors per year and these visits are estimated to add approximately \$140 million to the state economy.²⁴ The value of the Wildlife Management Areas is further evidenced by visitor surveys, which found that people would be willing to donate to support continued protection of the areas, with average donation amounts ranging from \$68 to \$200 per person, depending on the user group.²⁵



Across the United States: Aquatic recreation opportunities such as fishing and watersports are important drivers of economic activity. Since 2018, the U.S. Bureau of Economic Analysis has published annual statistics on the value of goods and services produced for outdoor recreation in the nation, referred to as the “outdoor recreation economy.” Data for 2023 show that the value of fishing is \$6.9 billion, and boating and other water activities are valued at \$36.8 billion.³ The sportfishing industry alone generates over 1.1 million jobs nationwide.²⁶

Economic Value of Selected Outdoor Recreation Activities ³





Quality of Life and Health Benefits

Healthy watersheds provide a range of ecosystem services that improve public health and quality of life. For example, people experience physical and mental health benefits from living near and visiting natural areas and parks. These health benefits have the potential to provide significant savings in health care costs. Examples demonstrating the benefits of a healthy environment on human health include:



Pennsylvania: A 2022 study found that most adult survey participants who visited freshwater blue spaces in 40 small towns in central and northeast Pennsylvania identified relaxation and stress relief as the most important benefit. Participants viewed nearby freshwater blue spaces as an important source of recreation (76%), making their town a more desirable place to live (73%), being important to them (63%) and as an important social gathering space (52%).²⁷

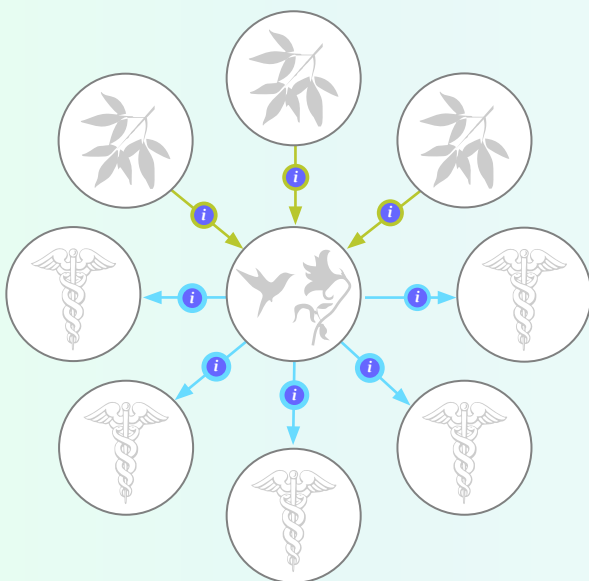


California: The City of San Jose’s parks and trails provide an array of community benefits, including a total annual stormwater retention value of \$6.43 million in avoided treatment costs. In addition to protecting local water quality, the city’s parks, trails and community centers yield annual medical cost savings of \$28.3 million by providing spaces for city residents to engage in physical activity at a level sufficient to generate measurable health benefits.²⁸



North Carolina: According to a 2023 study, residents in the Upper Neuse River Watershed are willing to pay roughly \$127 per household and \$54 million per year in aggregate for improvements in water quality and ecological endpoints in local streams. The percentage of stream miles with high human health risk had the largest willingness to pay, with residents willing to pay more than double to eliminate the highest tier of health risk compared to moderate risk.²⁹

The EPA’s **EnviroAtlas Eco-Health Relationship Browser** illustrates scientific evidence for linkages between human health and ecosystem services, including those provided by healthy watersheds (e.g., forest and wetland cover), based on hundreds of peer-reviewed publications from across the United States and world.³⁰



Ecosystems
e.g., forests,
wetlands, drylands



Health Outcomes
e.g., reduced asthma,
cancer, gastrointestinal
illness



Ecosystem Services
e.g., water quality, recreation
and physical activity



Linkage Description
including references



Increased Property Values

Clean and healthy waters boost property values along waterfronts and on nearby lands. Properties in the vicinity of high-quality waters are attractive to homeowners and businesses alike. Protecting watersheds can build community prosperity by helping to grow real estate values over time and by maintaining local tax revenues that support key municipal infrastructure investments and services for residents. Example studies and reports documenting the relationship between water quality and property values include:

Florida: Harmful algal blooms have had devastating effects on water quality along the coasts of Florida, with economic impacts extending to the housing market. A study of property sales within 5 miles of the coastline of southwest Florida found that sales prices declined by nearly 5% on average during red tide blooms, equating to a loss in value of approximately \$12,000 for a typical home in the area. Further declines of up to 14% were reported for blooms that persisted for six months.³¹



North Carolina: A 2025 study used property sales to estimate the value of riverfront land and forested riparian buffers along the New and Watauga rivers. Based on the analysis of 18,782 property sales, 30% of the value of riverfront properties was attributed to the presence of river frontage. Additionally, the sales price of a riverfront property was found to increase when the property contained a forested riparian buffer, and prices were maximized at 40% tree cover within the buffer.³²



Ohio: Sales prices of homes surrounding Hoover Reservoir near Columbus were found to increase during periods of improved water quality in the reservoir.³³ For homes within 0.3 miles of the shoreline, sales prices increased by an average of 8% for every 1-foot increase in water clarity. Across the entire watershed, this equated to a total gain in housing value of \$5.7 million dollars per 1-foot increase in water clarity.



Oregon: Tidal wetland habitats provide a variety of ecosystem services related to water quality, flood mitigation, salmon habitat, carbon storage and other community benefits. The Southern Flow Corridor restoration project near the Tillamook Bay was initiated to mitigate future risks following a 2006 storm event that caused significant flood damage. The project restored 443 acres of tidal wetland habitat and conserved existing wetland areas. A study found that housing prices in residential areas within 0.75 miles of the corridor increased by 10% after completion of the project in 2017, representing an average benefit of \$19,000 per home.³⁴



Across the United States: In a study of 113 lakes across 32 states, lakes with better water quality were found to have higher residential sales prices. Researchers reported property values increased by an average of \$12,104 per home with every 1-foot increase in water clarity.³⁵ These findings demonstrate that watershed protection can be an important investment for enhancing home values in waterfront communities.



Intact riparian buffers along waterfront properties protect water quality



Photo Credit: Judy Preston

Endnotes

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