



Nature's Benefits from Your National Forests

The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

The Agency's 154 national forests and 20 grasslands engage in quality land management that offers multi-use opportunities to meet the diverse needs of people. Forest ecosystems are human, plant, and animal life-support systems that provide a suite of goods and services vital to human health and

livelihood—essentially Nature's Benefits, also called Ecosystem Services. Benefits from healthy forest ecosystems include: water supply, filtration and regulation (flood control); habitat for native wildlife and plants; carbon sequestration; jobs, commerce, and value to local economies; recreational opportunities and open space for communities; increased physical and psychological wellness; cultural heritage; wood and other non-timber forest products; energy; clean air; and pollination.

Do You Know Which Nature's Benefits Come from the Lake Tahoe Basin Management Unit?

Water: In drought-prone California, the quantity, quality, and timely provision of our water is dependent on the health of our national forests. The forests supply, filter, and regulate water from upper watersheds and meadows, providing clean water throughout the year to communities, homes, and wildland habitats. Water also helps support jobs and industries that are water-dependent.

- About 213,000 acre-feet of water per year come from the Lake Tahoe Basin Management Unit (LTBMU)¹

- Or about 69 billion gallons per year

That equates to:

- Over 100,000 million Olympic-size swimming pools
- Enough drinking water for California's population for more than 5 years², or
- Enough water for over 520,000 households for a year³

How much is 69 billion gallons worth?

- Estimated wholesale market value: over \$20 million⁴
- Cost to Los Angeles households: over \$2.29 billion⁵

SOURCES

¹Brown et al., 2016- Mean annual renewable water supply of the Contiguous United States. <https://www.fs.fed.us/rmrs/documents-and-media/really-mean-annual-renewable-water-supply-contiguous-united-states>.

²Per the National Health and Nutrition Examination Surveys, the average American consumes ~299 gallons/year of water, through both drink and food ³ Assuming 362 gallons/day - <http://www.irwd.com/images/pdf/save-water/CaSingleFamilyWaterUseEfficiencyStudyJune2011.pdf>

⁴Using CA water market prices, appropriated by sector - https://www.fs.fed.us/rm/value/docs/marginal_economic_value_streamflow_forests.pdf

⁵100 gallons/day + monthly water bill of ~\$100.14 - <http://www.circleofblue.org/waterpricing/>



Carbon: The National Forests of California play an important role in parts of the climate cycle; acting as carbon storage and sequestration units. Forests retain carbon from being emitted to, and absorb carbon dioxide (CO₂) from, the atmosphere, which helps reduce the impacts of a warming climate to human, plant and animal habitats.



- The LTBMU National Forest stores about 12.36 Million Metric Tons (MMT) of Carbon in its forests, and ⁶
- Sequesters on average 0.00 MMTC annually.

Local Economies: The economy of California is fifth largest in the world, and California's National Forests contribute almost \$2.6 billion annually in wages and income to small businesses,⁷ a critical component of the rural economy of the state.



The Lake Tahoe Basin Management Unit supports:

- About \$445.7 million annually in labor income for wage earners and local businesses⁸
 - Including food and lodging services, arts, entertainment and recreation, real estate, rental and leasing, and retail trade services.
- About 12,800 jobs annually⁹

Recreation: The LTBMU provides a place for people to find open space, experience wildlife, recreate, relax, and otherwise remove themselves from the stressors of everyday life and urban sprawl.



Many methods exist to calculate the benefits from recreation and the value of those benefits to visitors and local economies. The following provide some estimations of those values:

- Over 7.7 million people visit the LTBMU to recreate annually, which represents an economic value of over \$603 million to them¹⁰
- Visitors to the LTBMU spend about \$1 billion during their trips¹¹
- Visitors to the LTBMU contribute more than \$420.3 million towards wages and income of local businesses¹²

The LTBMU landscape includes diverse recreation opportunities such as water recreation (fishing, swimming, and rafting) as well as camping, picnicking, and green open space for activities that support human wellness and cultural traditions.

- 400 lakes and ponds
- 63 tributaries feed into Lake Tahoe (600 miles of rivers and streams)¹³
- 374 miles of trails
- 24,624 acres of wilderness ¹⁴
- 15 developed campgrounds
- 4 developed picnic areas

SOURCES

⁶<https://bofdata.fire.ca.gov/projects-and-programs/ab-1504/>

^{7, 8, 9}Job and Income Contributions for 2014-At A Glance-Region, <https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml>

¹⁰NVUM, R5 Calculations based on GTR-957 - Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

¹¹R5 Calculations based on GTR-961 - White, 2017- https://www.fs.fed.us/pnw/pubs/pnw_gtr961.pdf

¹²<https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml>

¹³U.S. Forest Service. June 2018. Lake Tahoe Basin Management Unit Geographic Information System (GIS) Waterbodies Layer

¹⁴U.S. Forest Service. July 2016. Lake Tahoe Basin Management Unit Land Management Plan. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd507523.pdf



Nature's Benefits

Lake Tahoe Basin Management Unit (Continued)

- 9 developed beaches ¹⁵

People visit their National Forests to engage in specific activities that provide value to them from their experiences as shown below:

- Over 3.1 million people visit the LTBMU annually to engage in snow sports as their main activity, which represents an economic value of over \$266 million to those visitors. ¹⁶
- Over 1.6 million people visit LTBMU annually to view wildlife and natural features as their main activity, which represents an economic value of over \$106 million in value to those visitors. ¹⁷
- Over 1 million people visit LTBMU annually to hike and walk as their main activity, which represents an economic value of over \$90 million in value to those visitors. ¹⁸

Habitat: Forest Habitats and Biodiversity are key to ecological function; a forest's daily function in turn allows all of Nature's Benefits, from water to recreation, to continue to be provided for humans to enjoy.

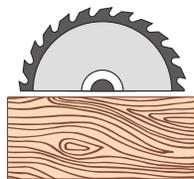


The LTBMU hosts a multitude of key habitats for animals.

- 3 federally listed species can be found in the LTBMU that include: Lahontan cutthroat trout, Sierra Nevada yellow-legged frog, Whitebark pine ¹⁹.

- 361 meadows ²⁰

Timber & Wood Products: Wood harvested from California's National Forests support forest health, jobs, and provide products for everyday use.



On average for Fiscal Years 2017, 2018 & 2019, the LTBMU:

- Sold about 8,202 (MBF) of Timber, ²¹ and
- Cut approximately 3,222 MBF of Timber, annually ²²

This cut timber is estimated to have:

- Produced about 1,305 MBF of lumber ²³
- In addition, the LTBMU:
 - Sold about 1,602 cords of firewood worth over \$13,500
 - Sold 2,400 Christmas trees, worth \$24,000

DID YOU KNOW?

- The Lake Tahoe Basin Management Unit surrounds Lake Tahoe, one of the largest, deepest and clearest lakes in the world. This international treasure receives more visitors annually than Glacier and Yellowstone National Parks combined!

SOURCES

¹⁵U.S. Forest Service. June 2018. Infra Database. <https://www.fs.fed.us/nrm/index.shtml>

¹⁶R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

^{17, 18}R5 Calculations based on GTR-957 – Rosenburger et al., 2017 - <https://www.fs.usda.gov/treesearch/pubs/54602>

¹⁹U.S. Fish and Wildlife Service. June 2018. Information for Planning and Consultation (IPaC) Environmental Conservation Online System (ECOS). <https://ecos.fws.gov/ipac> ²⁰UC Davis, Center for Watershed Sciences & USDA Forest Service, Pacific Southwest Region, 2017. Sierra Nevada Multi-Source Meadow Polygons Compilation (v 2.0), Vallejo, CA, Regional Office: USDA Forest Service. 2017. <http://meadows.ucdavis.edu>

²¹PTSAR Reports: <https://www.fs.fed.us/forestmanagement/products/ptsar/index.shtml>

²²Cut/Sold reports: <https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml>

²³R5 analysis based on cut-sold report and McIver et al., 2015 - https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf