



# Nature's Benefits

## Lake Tahoe Basin Management Unit

### 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)<sup>1</sup>
  - 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 years<sup>2</sup>, or
- Enough water for over 520,000 households for a year<sup>3</sup>

*How much is 69 billion gallons worth?*

- Estimated wholesale market value: over \$20 million<sup>4</sup>
- Cost to Los Angeles households: over \$2.29 billion<sup>5</sup>

**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 (CO<sub>2</sub>) from, the atmosphere, which helps reduce the impacts of a warming climate to human, plant and animal habitats.



#### SOURCES

<sup>1</sup>Brown 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>

<sup>2</sup>Per the National Health and Nutrition Examination Surveys, the average American consumes ~299 gallons/year of water, through both drink and food

<sup>3</sup> Assuming 362 gallons/day - <http://www.irwd.com/images/pdf/save-water/CaSingleFamilyWaterUseEfficiencyStudyJune2011.pdf>

<sup>4</sup>Using CA water market prices, appropriated by sector - [https://www.fs.fed.us/rm/value/docs/marginal\\_economic\\_value\\_streamflow\\_forests.pdf](https://www.fs.fed.us/rm/value/docs/marginal_economic_value_streamflow_forests.pdf)

<sup>5</sup>100 gallons/day + monthly water bill of ~\$100.14 - <http://www.circleofblue.org/waterpricing/>



# Nature's Benefits

Lake Tahoe Basin Management Unit (Continued)

- The LTBMU stores about 7.4 Million Metric Tons (MMT) of Carbon in its forest<sup>6</sup>

*That equates to:*

- Over 27.3 MMT of CO<sub>2</sub> equivalent, or
- Equivalent emissions of driving around the Earth almost 2.7 million time

**Local Economies:** The economy of California is fifth largest in the world, and California's National Forests contribute almost \$2 billion annually in wages and income to small businesses,<sup>7</sup> a critical component of the rural economy of the state.



*The Lake Tahoe Basin Management Unit supports:*

- About \$239.4 million annually in labor income for wage earners and local businesses<sup>8</sup>
  - Including food and lodging services, arts, entertainment and recreation, real estate, rental and leasing, and retail trade services.
- About 7,410 jobs annually<sup>9</sup>

**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 \$604 million to them<sup>10</sup>
- Visitors to the LTBMU spend about \$1.1 billion during their trips<sup>11</sup>
- Visitors to the LTBMU contribute more than \$225.2 million towards wages and income of local small businesses<sup>12</sup>

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)<sup>13</sup>
- 374 miles of trails
- 24,624 acres of wilderness<sup>14</sup>
- 15 developed campgrounds
- 4 developed picnic areas
- 9 developed beaches<sup>15</sup>

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.<sup>16</sup>
- 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.<sup>17</sup>

## SOURCES

<sup>6</sup>10 year average, 2004-13 - <https://www.fs.fed.us/climatechange/documents/PacificSouthwestRegionCarbonAssessment.pdf>

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

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

<sup>11</sup>R5 Calculations based on GTR-961 - White, 2017- [https://www.fs.fed.us/pnw/pubs/pnw\\_gtr961.pdf](https://www.fs.fed.us/pnw/pubs/pnw_gtr961.pdf)

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

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

<sup>14</sup>U.S. Forest Service. July 2016. Lake Tahoe Basin Management Unit Land Management Plan. [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd507523.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd507523.pdf)

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

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



# Nature's Benefits

Lake Tahoe Basin Management Unit (Continued)

- 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.<sup>18</sup>

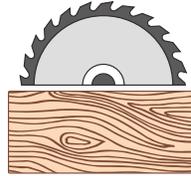
**Habitat:** Forest Habitats and Biodiversity are key to ecological function; a forest's daily function in turn allows all of Nature's Benefits, from water to recreation, to continue to be provided for humans to enjoy.



The LTBMU hosts a multitude of key habitats for animals.

- The LTBMU has 2 federally listed species: Lahontan cutthroat trout (threatened) and Sierra Nevada yellow-Legged frog (endangered)<sup>19</sup>.
- 361 meadows<sup>20</sup>

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



In Fiscal Year 2017, the LTBMU:

- Sold about 3,795 (MBF) of Timber,<sup>21</sup> and
- Cut approximately 1,052 MBF of Timber<sup>22</sup>

This cut timber is estimated to have:

- Produced about 470 MBF of lumber<sup>23</sup>
- In addition, the LTBMU:
  - Sold about 703 cords of firewood worth over \$14,000
  - Sold 3,670 Christmas trees, worth \$36,000

## SOURCES

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

<sup>19</sup>U.S. Fish and Wildlife Service. June 2018. Information for Planning and Consultation (IPaC) Environmental Conservation Online System (ECOS). <https://ecos.fws.gov/ipac>

<sup>20</sup>UC 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>

<sup>21</sup>2017 PTSAR Reports: <https://www.fs.fed.us/forestmanagement/products/ptsar/index.shtml>

<sup>22</sup>2017 Cut/Sold reports: <https://www.fs.fed.us/forestmanagement/products/cut-sold/index.shtml>

<sup>23</sup>R5 analysis based on cut-sold report and McIver et al., 2015 - [https://www.fs.fed.us/pnw/pubs/pnw\\_gtr908.pdf](https://www.fs.fed.us/pnw/pubs/pnw_gtr908.pdf)