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**Economic Impact of Nature Tourism: A Case Study  
of Napa County, CA**

This study examines the economic impact of nature based tourism generated by Lake Berryessa upon the Napa County in California. Four dimensions of economic impact were analyzed: output, employee compensation, indirect business taxes, and employment. The results indicated that despite low multipliers, non-resident visitors generate an economic impact of \$43.5 million.

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## **Introduction**

Businesses and public organizations have always been interested in the economic impacts of tourism. Impact analyses provide tangible estimates of these economic interdependencies and a better understanding of the role and importance of tourism (heritage or nature) in a region's economy. Much of the impetus for performing economic impact analyses often comes from political interest or local groups (English and Bowker, 1996). Several studies have determined significant economic impacts of nature tourism (Yuan and Christensen, 1994; Upneja et al., 2001; Keith and Fawson, 1995; Johnson and Moore, 1993).

This study determines the economic impact of the recreation provided by Lake Berryessa upon Napa County (California) in terms of direct, indirect and induced effects. Lake Berryessa is approximately 23 miles long and 3 miles wide. It is surrounded by approximately 28,916 acres of federally owned or managed lands. There are seven resorts and a day use area located along the Lake Berryessa shore. These resorts provide an array of recreational opportunities including overnight camping, boat rentals, marinas, restaurants, and entertainment.

## **Methodology**

A survey comprising of self administered questionnaires was conducted at Lake Berryessa during the spring of 2002. Non-resident visitors were asked to provide a breakdown of the expenditures incurred during their visit. Information was also elicited on visitor trip behavior. According to the Bureau of Reclamation (2003), total number of visitors for the year 2002 was 1.5 million. Approximately 53% of the visitors (795,000) stayed overnight. Median values were used to determine length of stay, number of people per group and total expenditures since they are less sensitive to outliers. The median value for the average number of nights was

found to be 2 and the number of people per group was 3. The median values for food and beverage, camping, lodging, souvenirs, and outdoor equipment were found to be \$30, \$30, \$148, \$10, and \$50 respectively. To identify other sources of spending, the visitors were given an “other” category and asked to specify it. The median value for this category was found to be \$32.45. However, visitors did not provide detailed breakdown. Per person per night expenditures were calculated to determine overall expenditures generated for the year 2002 for the above mentioned sectors. These expenditures were analyzed with the IMPAN input-output system.

### **Findings**

Expenditure breakdown per sector is provided in Table 1. Expenditures generated by visitor spending for 2002 were found to be between \$ 2.5 and \$ 14.2 million. Recreation equipment generated the highest spending followed by restaurants (eating and drinking). Total demand created upon the Napa County by the Lake Berryessa related nature tourism was approximately \$ 31.2 million.

**Table 1: Expenditure breakdown**

Sectors	2002 (million \$)
<b>Restaurants</b>	7.5
<b>Recreation Equipment</b>	14.2
<b>Souvenirs</b>	2.5
<b>Camping</b>	3.2
<b>Lodging</b>	3.8
<b>Total</b>	<b>31.2</b>

The model generated small multipliers for Napa County indicating leakages and the rural nature of the region. Type I multipliers (measuring the direct and indirect effects of change in economic activity) ranged from 1.05 to 1.25 and Type SAM multipliers (capturing the direct,

indirect, and induced effects) ranged from 1.14 to 1.48. Impacts were determined in terms of total output, employee compensation, indirect business taxes and employment. Total output, employee compensation, and indirect business taxes for 2002 were \$ 26.5, \$9.0, and \$2.3 million respectively. Table 2 provides a breakdown of overall direct, indirect, and indirect impacts generated in the region. Table 3 provides a breakdown of employment impacts. Total number of employees generated was 563.

**Table 2: Direct, Indirect and Induced Impacts**

<b>Total Impact</b>	<b>2002 (million \$)</b>
<b>Direct</b>	31.6
<b>Indirect</b>	5.4
<b>Induced</b>	6.5
<b>Total</b>	<b>43.5</b>

**Table 3: Direct, Indirect, Induced Impacts upon Employment**

<b>Total Impact</b>	<b>2002</b>
<b>Direct</b>	465
<b>Indirect</b>	39
<b>Induced</b>	59
<b>Total</b>	<b>563</b>

Finally, Table 4 provides a detailed sectoral breakdown of impacts. Restaurants generated the maximum economic impact followed by outdoor equipment and souvenir expenditures. Besides the visitor expenditure sectors, other such as wholesale trade, real estate and automobile repair and services, hospitals, other business services, personnel services received the maximum benefits.

**Table 4: Total impact for the visitor spending sectors**

Sector	2002 (million \$)
<b>Restaurants</b>	11.8
<b>Recreation Equipment &amp; Souvenirs</b>	10.1
<b>Camping</b>	5.1
<b>Lodging</b>	5.9
<b>Total</b>	<b>32.9</b>

### **Conclusion**

Significant market activity occurs at Lake Berryessa as a result of nature based tourism (\$43.5 million). Multipliers for industrial output, employment, employee compensation, and indirect business taxes indicate sufficient indirect effects. This study had several limitations: First, it did not take time-switchers and opportunity costs into consideration; secondly it did not analyze expenditures from the “other” category since the visitors failed to provide the venues and appropriate sectors could not be allocated.

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