

## **ECONOMIC CONTRIBUTIONS OF RECREATION AT CLINTON LAKE<sup>i</sup>**

**Craig M. Smith, John C. Leatherman, Will R. Boyer – January 2008**

This study estimated the regional economic effects arising from recreation at Clinton Lake (Figure 1). This analysis can help local Watershed Restoration & Protection Strategies leaders and others appreciate the value of preserving recreational amenities at Clinton Lake.

Clinton Lake is a 7,120 acre impoundment located in northeastern Kansas in the Kansas-Lower Republican River Basin. The watershed consists of 367 square miles in Douglas, Shawnee, Osage and Wabaunsee counties. Clinton Lake was built in 1977 by the U.S. Army Corps of Engineers (COE) for flood control, water supply, water quality, recreation, and fish and wildlife.

This analysis estimated two types of regional recreation effects associated with Clinton Lake. The first type includes the economic impact to the region arising from direct recreation expenditures in the area and the associated indirect effects which occur as the money “ripples” throughout the region. This impact is modeled using an economic accounting system that charts the financial connections between businesses, governments and households in the region.

In 2007, the Army COE reported 2,008,108 visits to Clinton Lake for a total of 10,659,086 visitor-hours from 10/2006 to 9/2007. Using this data (together with visitor-type and expenditure profiles shown in Tables 1 and 2 and Figure 2) and accounting for imported purchases, it was estimated that visitor expenditures generated \$19.3 million (2007\$) in direct economic activity (sales) within the regional economy, \$10.0 million in all types of income associated with the production of economic activities, and 325 area full- and part-time jobs. After calculating the indirect economic impacts, it was estimated that visitor expenditures were closely associated with \$30.4 million (2007\$) in overall economic activity, \$16.4 million in total income, and 423 jobs in the region. The total economic contributions to the local region are displayed in Table 3.

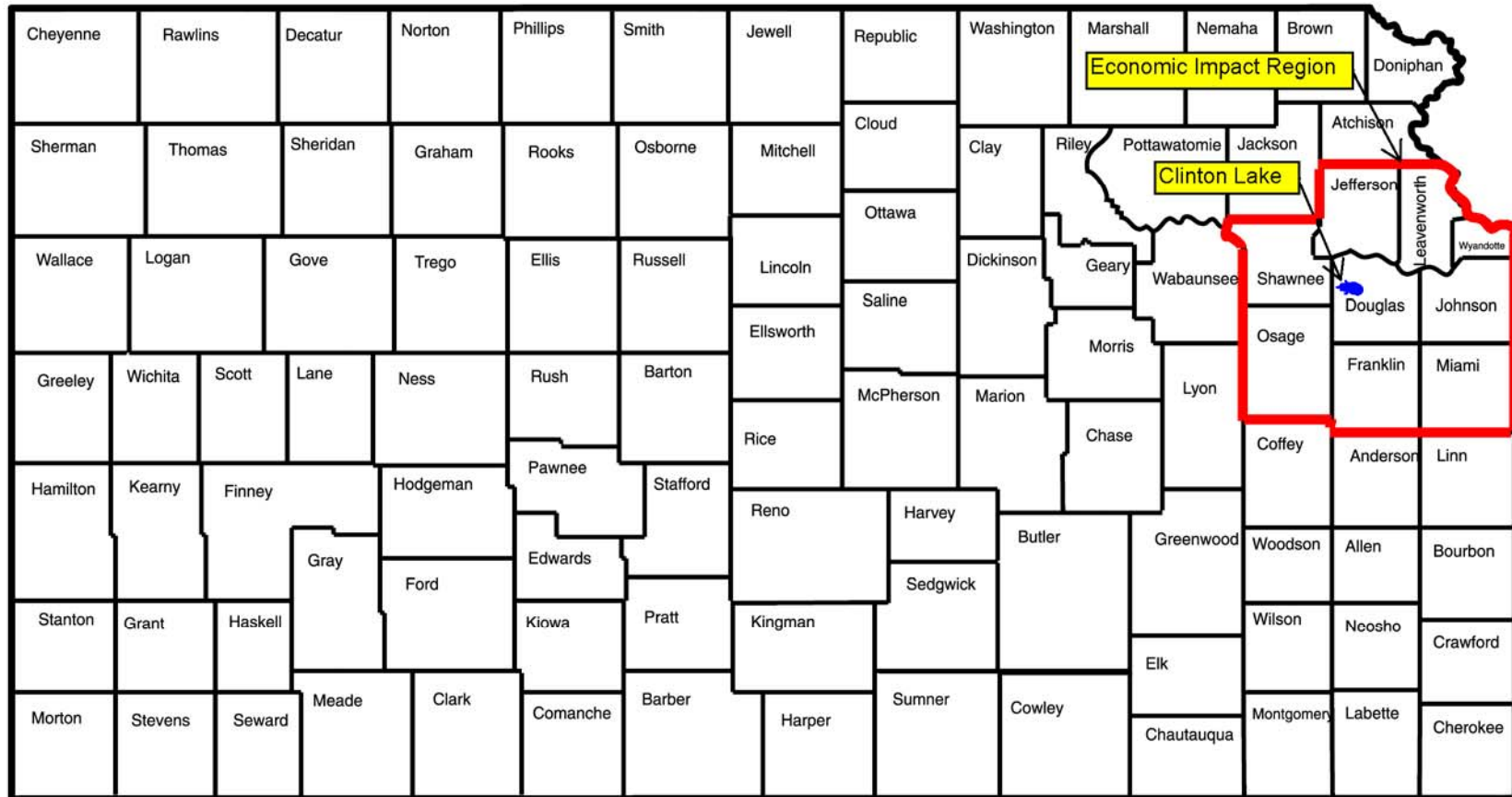
Not all of the economic effects of recreation are captured by observable market transactions. A second type of economic effect considered here includes certain non-market benefits derived through the self-reported value of participation in recreation activities. This notion acknowledges the value of benefit an individual experiences through participation in an activity exceeds what it actually costs, thereby motivating participation. These benefits are estimated through a process known as non-market valuation. Through surveys, economists have developed general estimates of what people report being willing to pay over and above what they actually are required to spend. This net willingness-to-pay value represents the additional incremental value of benefits afforded to the recreation participant. Net willingness-to-pay has been acknowledged by a U.S. governmental interagency committee as an appropriate measure of the economic benefits associated with outdoor recreation programs. Accepting the legitimacy of purported and generalized willingness-to-pay values and applying them to Clinton Lake recreation, it was estimated that Clinton Lake visitors receive up to \$26.7 million (2007\$) in additional non-market recreation benefits annually. The values by recreation activity are reported in Table 4.

On average, the annual visitation rates for Clinton Lake have increased steadily from 1996-2007 (Figure 3). Among the 17 Army COE Lakes in Kansas, Clinton Lake ranked 1<sup>st</sup> in number of visits and 1<sup>st</sup> in terms of visitor-hours in 2007. A graphical comparison of visits and visitor-hours for all 17 Army COE reservoirs in Kansas can be found in Figures 4 and 5.

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Figure 1: Clinton Lake economic impact region



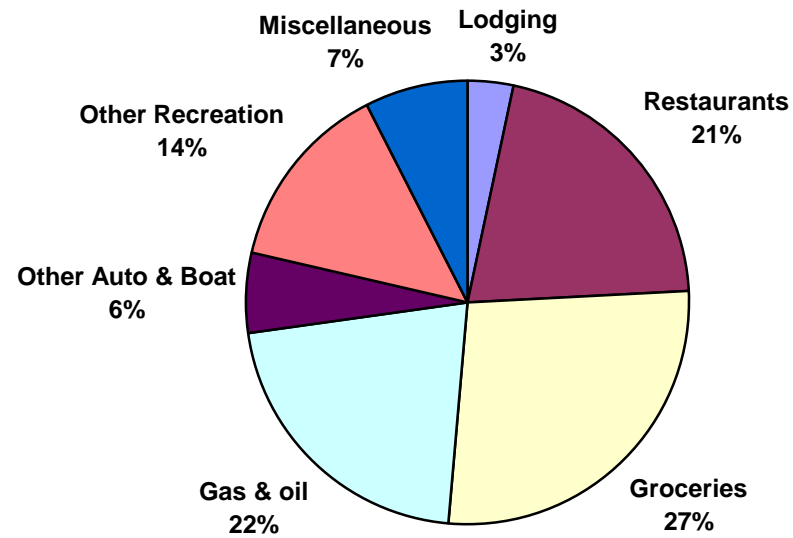
**Table 1: Visitation and spending for visits made to Clinton Lake, 2007**

Visitation	Camper		Day User		Other Overnight		TOTAL
	Boater	Nonboater	Boater	Nonboater	Boater	Nonboater	
Percent of Total	0.5%	2.2%	17.0%	77.5%	0.5%	2.3%	100.0%
2007 Clinton visits	9,533	43,386	341,784	1,556,782	10,152	46,471	2,008,108
Spending	\$702,654	\$2,711,939	\$7,659,916	\$20,983,376	\$961,762	\$2,577,123	\$35,596,770

**Table 2: Spending categories by visitor type (dollars per visit, 2007\$)**

Spending Category	Campers		Day Users		Other Overnight		Weighted Average
	Boater	Nonboater	Boater	Nonboater	Boater	Nonboater	
Hotels, motels, cabins, B&B, and rental homes	0.83	0.12	0.00	0.00	19.46	20.17	0.57
Camping fee	15.47	16.01	0.00	0.00	0.11	0.03	0.42
Restaurants, bars, etc.	8.00	9.18	2.66	3.32	14.14	15.84	3.70
Groceries and take out food	20.41	16.62	4.39	4.39	14.71	6.31	4.82
Gas & oil	12.62	8.71	6.96	2.75	15.36	7.39	3.82
Other auto expenses	0.97	1.51	1.70	0.31	6.09	0.00	0.59
Other boat expenses	4.97	0.00	2.13	0.00	12.19	0.00	0.45
Entertainment and recreation fees	2.34	2.91	0.97	0.52	4.35	1.66	0.70
Sporting goods and boat equipment	4.76	1.51	3.09	0.86	4.95	2.37	1.33
Other expenses	3.34	5.94	0.50	1.33	3.37	1.69	1.31
<b>Total (within 30 miles)</b>	<b>\$73.71</b>	<b>\$62.51</b>	<b>\$22.41</b>	<b>\$13.48</b>	<b>\$94.74</b>	<b>\$55.46</b>	<b>\$17.73</b>

**Figure 2: Trip spending by category**



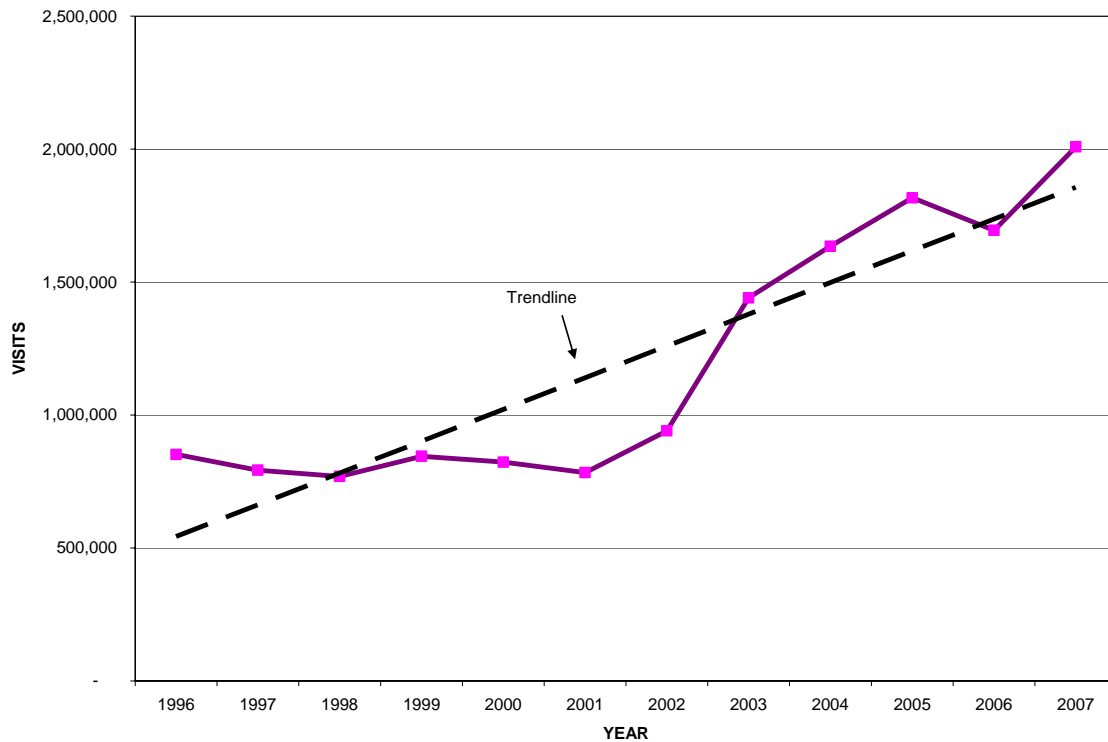
**Table 3: Clinton Lake total economic contributions**

Impact Measure	Direct	Indirect	Total
Output	\$19,257,555	\$11,174,092	\$30,431,647
Total Value Added	\$9,978,080	\$6,413,563	\$16,391,643
Employment	325	98	423

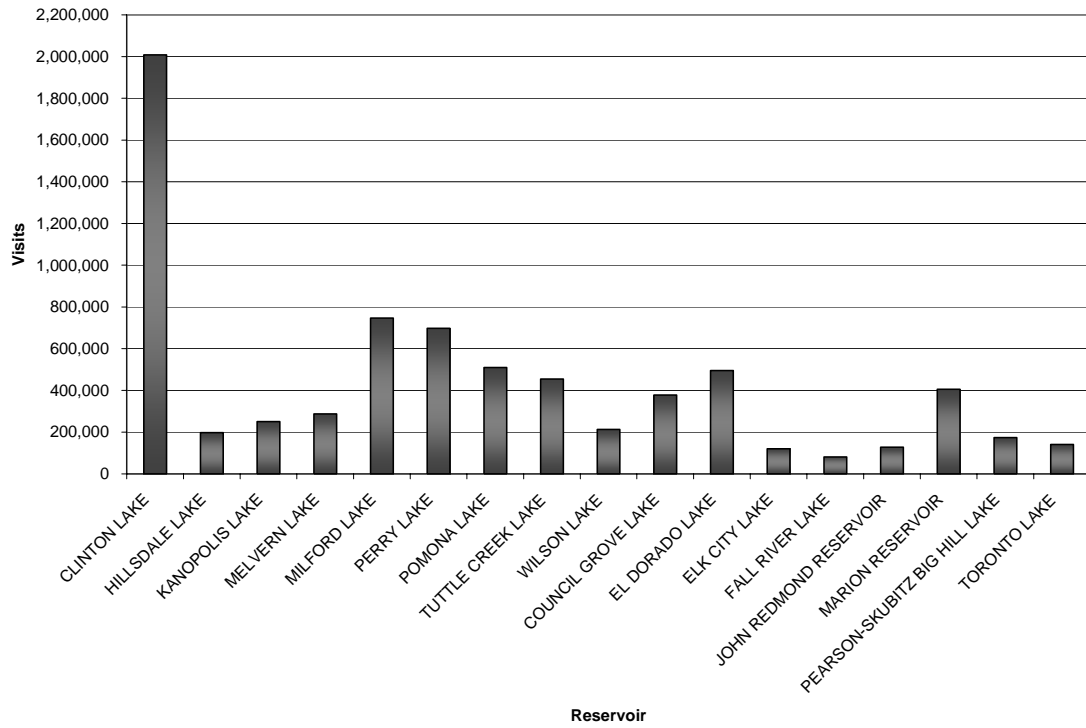
**Table 4: Non-market benefits of Clinton Lake recreation, 2007\$**

Activity	Days Spent in Activity	Activity Value per Day (2007\$)	Total Value per Year
Fish	374,845	\$38.58	\$14,461,847
Swim	202,523	\$19.75	\$3,999,400
Camp	108,367	\$29.54	\$3,201,032
Boat	72,837	\$27.45	\$1,999,194
Picnic	41,748	\$30.42	\$1,269,892
Other	87,937	\$19.94	\$1,753,300
<b>TOTAL</b>	888,257	-----	<b>\$26,684,664</b>

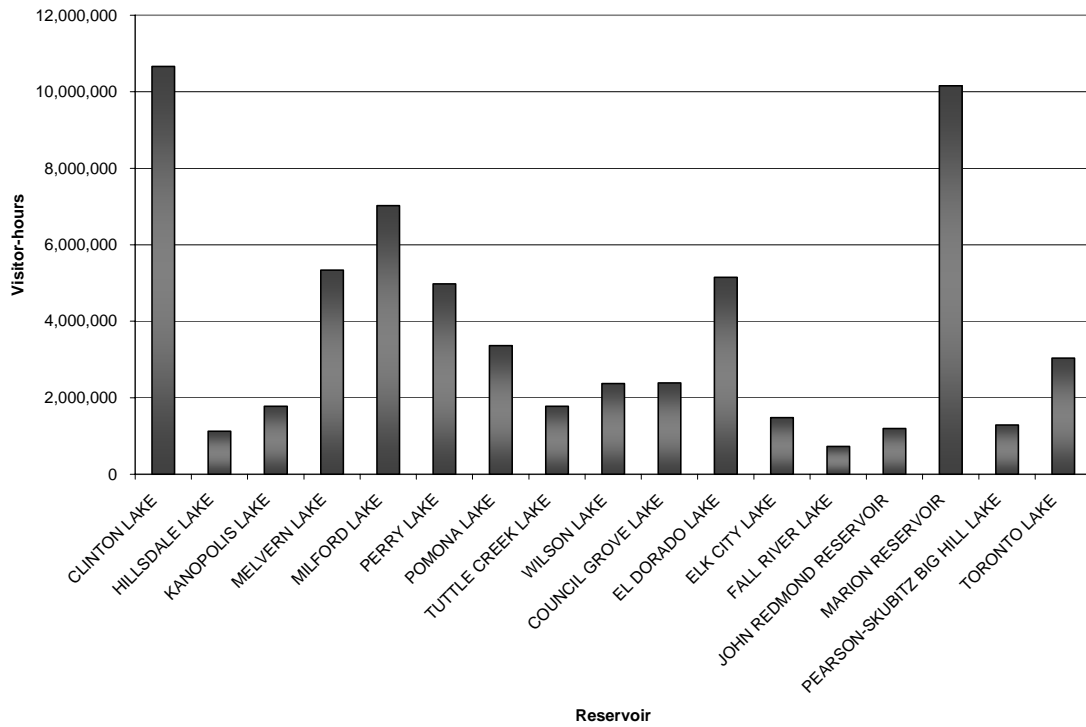
**Figure 3: Trends in Clinton Lake visitation**



**Figure 4: Visits to Kansas Reservoirs in 2007**



**Figure 5: Visitor-hours at Kansas Reservoirs in 2007**



## **REFERENCES**

Chang, Wen-Huei, D.B. Propst, D.J. Stynes, and R.S. Jackson. "Recreation Visitor Spending Profiles and Economic Benefit to Corps of Engineers Projects." US Army Corps of Engineers Environmental Laboratory, Publication ERDC/EL TR-03-21, December 2003.

Franco, Sammy. Army Corps of Engineers Operations and Maintenance Business Information Link (OMBIL) visitation data via personal communication. Engineer Development Research Center. January 23, 2008.

Gaunt, Philip M. "Water Recreation Needs Assessment Report to the Kansas Water Office." Wichita State University (2001).

Kansas Water Office. "Clinton Lake Reservoir Fact Sheet." Available online at: [http://www.kwo.org/ReservoirInformation/ReservoirFactSheets/Clinton\\_Lake.pdf](http://www.kwo.org/ReservoirInformation/ReservoirFactSheets/Clinton_Lake.pdf)

Loomis, John B. and Richard G. Walsh. Recreation Economic Decisions: Comparing Benefits and Costs, Second Edition. Venture Publishing, Inc. 1997.

Rosenberger, R.S. and J.B. Loomis. "Benefit Transfer of Outdoor Recreation Use Values." USDA Forest Service (2001).

Stynes, Daniel. "Recreation and Tourism Spending and Economic Impact." September 1996. Available online at: <http://www.msu.edu/user/stynes/mirec/index.htm>

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