

Great Ponds Play an Integral Role in Maine's Economy

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Introduction

In 1995, the Maine legislature authorized the Great Pond Task Force (GPTF) for the purpose of developing a Great Pond Strategic Management Plan to address numerous existing and newly emerging issues facing Maine lakes. The Governor appointed 22 members to the GPTF; eight from state agencies, four designated members, and ten public members with special interests or expertise concerning Maine lakes. Item (h) of the GPTF legislation instructed the Task Force to determine the economic benefit of Great Ponds to the state economy. The GPTF membership lacked the expertise to determine the economic benefit of Great Ponds to the state economy. Therefore, members of the University of Maine Department of Resource Economics and Policy were commissioned for this purpose, with funding raised by the University of Maine Water Research Institute from organizations represented on the GPTF.

Objectives

This study was designed and completed to meet the following objectives:

1. Document recreational use and other uses of Maine's Great Ponds by residents and nonresidents.
2. Estimate expenditures associated with uses of Maine's Great Ponds by residents and nonresidents, and compute the economic impact as the money from these expenditures is respent within Maine's economy (direct and indirect sales, income and employment).

3. Estimate net economic values associated with resident and nonresident uses of Maine's Great Ponds. Net economic values represent the amount people are willing to pay to use Great Ponds above what they actually have to pay. This is an economic measure of satisfaction with lake use.
4. Show how net economic values and economic impacts can be affected by changes in water quality of Maine's Great Ponds.

Selected Results

Lake Use

The largest single source of usage of lakes in Maine is associated with potable water. If the number of residents served (Table E1) by public water district residential accounts is multiplied by 365 days, assuming water is used every day of the year, this results in 93.5 million user days. In addition, 73 percent of camps on lakes are used seasonally and the average days of use is 83. This results in an additional 9.8 million user days for drinking water. Ownership of lake-front properties supports over 300 thousand users and an estimated 25.6 million user days. Recreation is the second most important use of Maine's lakes, with swimming having the highest participation rate.

Table E1. Total Use of Maine's Great Ponds.

Type of Use	Number of Users			Annual User Days		
	Residents	Nonresidents	All Users	Residents	Nonresidents	All Users
Recreation	NA ¹	NA	NA	10,790,843	1,959,868	12,750,711
Residential Drinking Water	371,852	46,122	417,974	NA	NA	NA
Public, Commercial & Industrial	NA	NA	(14,589 Accounts)	NA	NA	NA
Youth Camps	118,071	55,980	174,051	NA	NA	NA
Lake-Front Properties	231,574	77,191	308,766	NA	NA	NA

¹ NA indicates that the data are not available.

Lake-Related Expenditures

The total direct expenditures by lake users are estimated to be \$1.8 billion annually (Table E2). Of this total \$0.3 billion (15 percent) is new money that is brought into the state economy each year by nonresidents. The \$1.8 billion in direct expenditures results in over \$2.8 billion in total economic activity. Of this total, nearly \$0.4 billion (13 percent) is attributable to nonresidents. Overall economic activity associated with Great Ponds represents 5 percent of Maine's gross regional product.

The economic activity associated with lakes leads to over \$1.2 billion in annual income for Maine residents and supports over 50,000 jobs (Table E3). The nonresident share of sales provides nearly \$0.2 billion in income and over 8,500 jobs. In terms of the total number of jobs, nonresident expenditures support an approximate equivalent to Bath Iron Works. The jobs associated with Great Ponds, however, are likely to be less skilled with lower wages than those at Bath Iron Works.

Table E2. Total Direct Expenditures for All Uses of Maine's Great Ponds (July 1996 Dollars).

Type of Use	Aggregate Annual Expenditures		
	Residents	Nonresidents	All Users
Recreation	\$928,731,424	\$158,652,660	\$1,087,384,084
Other Uses ¹	\$189,962,159	\$23,070,497	\$392,170,419
Lake Front Properties	\$262,468,444	\$87,489,481	\$349,957,925
Total Direct Expenditures¹	\$1,381,162,028	\$269,212,638	\$1,829,512,429
Direct and Indirect Sales	\$2,116,300,000	\$392,090,000	\$2,857,390,000

¹Resident and nonresident totals do not sum to the total for all users because these estimates do not include the figure for commercial and industrial uses.

Table E3. Income and Employment Effects.

Type of Use	Aggregate Annual Net Economic Values		
	Resident	Nonresident	All Users
Recreation			
Income	\$675,700,000	\$117,070,000	\$792,770,000
Employment	30,920	5,318	36,239
Other Uses			
Income	\$133,210,000	\$25,580,000	\$259,620,000
Employment	4,714	1,429	8,834
Lake-Front Properties			
Income	\$125,120,000	\$42,000,000	\$167,120,000
Employment	5,481	1,825	7,316
All Uses			
Income	\$934,030,000	\$184,650,000	\$1,219,510,000
Employment	41,115	8,582	52,388

¹Resident and nonresident totals do not sum to the total for all users because these estimates do not include the figure for commercial and industrial uses.

Net Economic Values

The net economic value of Maine's Great Ponds is \$6.7 billion dollars (Table E4). Net economic value is the amount of an individual's total value for an activity that is retained after the daily costs of participation are paid. Net economic value is the difference between the individual's total willingness to pay and total daily expenditures. Net economic value is a measure of satisfaction; the cheaper an opportunity, the greater is the retained net economic value. Net economic value is nearly four times greater than direct expenditures, which indicates the high quality of Maine's lakes.

Table E4. Total Net Economic Values Associated with Uses of Maine's Great Ponds (July 1996 Dollars).

Type of Use	Aggregate Annual Net Economic Values		
	Resident	Nonresident	All Users
Recreation Uses	\$173,823,970	\$34,366,596	\$208,190,567
Other Uses	\$110,919,526	\$4,036,700	\$114,956,227
Lake Front Properties	\$4,803,876,456	\$1,601,292,152	\$6,405,168,608
Total Net Economic Values	\$5,088,619,952	\$1,639,695,448	\$6,728,315,400

Benefits from Water Quality Improvements

In this section a simulation is conducted to investigate how net economic values, expenditures and use rates might change if eutrophication were reduced in the 189 lakes that experience diminished water clarity. The statewide average minimum water clarity would increase from the current level of 3.78 to 5.15 meters (the average for lakes without compromised water clarity).

Net economic values would be expected to rise by \$2.0 billion. Thus, a 1.37 meter increase (a 36 percent increase) clarity during the summer months leads to a 30 percent increase in net economic. The increase in water clarity would be expected to increase recreation use rates by 1.6 million user days; an increase of 13 percent. Reducing eutrophication would increase direct expenditures by \$107 million, a six percent increase. The change in nonresident expenditures of, \$24.7 million in direct sales, results in \$39.0 million in direct plus indirect sales. These increases would increase income of Maine residents by \$18.2 million and would provide 825 more jobs. Only nonresident expenditures are considered here because they represent true increases in economic activity in Maine, while changes in resident expenditures represent transfers of expenditures within Maine. An equivalent decrease in water quality, a reduction from 3.78 to 2.41 meters would result in larger loss in economic activity due to a nonlinear relationship between water clarity and economic activity.

Conclusions

The data reported here indicate that Maine's Great Ponds are an extremely valuable economic resource as well as a stunning natural resource. If only one message comes out of this work it should be "Do not kill the goose that laid the golden egg. Maine's Great

Ponds provide a valuable source of potable water, they contribute to the enjoyment of many Maine residents, they help relive property tax burdens on local people in rural communities, and they support substantial economic activity. Protecting water quality and reducing user conflicts should be a priority of everyone who cares about Maine's Great Ponds.

Ordering Information

To obtain a complete version of REP 473 - Great Ponds Play an Integral Role in Maine's Economy, please enclose payment of \$5 (address checks to: University of Maine) and send your request in writing to: Kim Junkins, Department of Resource Economics and Policy, 5782 Winslow Hall, University of Maine, Orono, ME 04469.