

The Economic Contributions of Recreational Visitation at Horicon National Wildlife Refuge

May 2019
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This paper establishes the economic contribution baseline for recreational visitation at Horicon National Wildlife Refuge (Refuge). The paper addresses the levels of Refuge recreational activities and the economic effects of Refuge recreational activities. The analysis is followed by a glossary of terms. For more information regarding the methodology, please refer to “Banking on Nature – The Economic Contributions to Local Communities of National Wildlife Refuge Visitation” at <https://www.fws.gov/economics/divisionpublications/divisionpublications.asp>.

From an economic perspective, Horicon National Wildlife Refuge provides a variety of environmental and natural resource goods and services used by people either directly or indirectly. The use of these goods and services may result in economic effects to both local and state economies. The various services the Refuge provides can be grouped into five broad categories: (1) maintenance and conservation of environmental resources, services and ecological processes; (2) protection of natural resources such as fish, wildlife, and plants; (3) protection of cultural and historical sites and objects; (4) provision of educational and research opportunities; and (5) outdoor and wildlife-related recreation. A comprehensive economic profile of the Refuge would address all applicable economic effects associated with the use of refuge-produced goods and services. However, some of the major contributions of the Refuge to the natural environment, such as watershed protection, maintenance and stabilization of ecological processes, and the enhancement of biodiversity are beyond the scope of this paper. Therefore, this paper focuses on economic effects associated with recreational visitation. As a result, benefits represent conservative estimates and do not represent the Refuge’s total social impacts.

Refuge Description

Over 33,000 acres in size, Horicon Marsh is the largest freshwater cattail marsh in the United States. Two-thirds of the marsh, around 22,000 acres, is managed by the U.S. Fish and Wildlife Service as the Horicon National Wildlife Refuge. The southern one-third is administered by the Wisconsin Department of Natural Resources as the Horicon Marsh State Wildlife Area. The Refuge was established in 1941 for the protection and conservation of thousands of migrating ducks and Canada geese.

One of the main draws of the Refuge is the vast number of birds that use Horicon as a resting place during spring and fall migrations. The Refuge boasts hundreds of thousands of Canada geese, in addition to another 300 species of birds, white-tailed deer, red fox, river otters, muskrats, snapping turtles, garter snakes, and more. Visitors to the Refuge enjoy the auto-tour route, hiking, hunting, fishing, wildlife observation and environmental education.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 434,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 428,000 visits with residents comprising 41 percent of Refuge visitation.

Table 1. Horicon NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	58,481	87,721	146,202
Auto Tour	82,634	123,950	206,584
Boat Trail/Launch	-	-	-
Bicycle	1,001	1,001	2,001
Photography	20,800	31,200	52,000
Interpretation	574	143	717
Other Recreation	4,500	-	4,500
Visitor Center	3,167	12,667	15,834
Hunting:			
Big Game	1,078	22	1,100
Small Game	196	4	200
Migratory Birds	25	-	25
Fishing:	4,778	98	4,875
Total Visitation	177,232	256,806	434,038

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is the two-county area of Dodge and Fond du Lac Counties in Wisconsin. It is assumed that visitor expenditures occur primarily within these counties. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$6.5 million with non-residents accounting for \$5.1 million or 78 percent of total expenditures. Expenditures on non-consumptive activities accounted for 99 percent of all expenditures.

Spending in the local area generates and supports economic activity within the two county area (Table 3). The contribution of recreational spending in local communities was associated with about 104 jobs, \$2.3 million in employment income, \$577,000 in total tax revenue, and \$8.6 million in economic output.

Table 2. Horicon NWR: Visitor Recreation Expenditures (2017 \$,000)

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$1,352.1	\$5,065.6	\$6,417.7
Hunting	\$23.2	\$1.1	\$24.3
Fishing	\$32.6	\$1.7	\$34.2
Total Expenditures	\$1,407.9	\$5,068.4	\$6,476.3

Table 3. Horicon NWR: Local Economic Contributions Associated with Recreation Visits (2017 \$,000)

	Residents	Non-Residents	Total
Economic Output	\$1,878.3	\$6,699.4	\$8,577.7
Jobs	25	79	104
Job Income	\$519.0	\$1,806.2	\$2,325.2
State and Local Tax Revenue	\$118.7	\$457.9	\$576.5

Glossary

Economic Contribution: The economic activity generated in a region by residents and non-resident recreation spending.

Expenditures: The spending by recreational visitors when visiting refuges. Expenditure categories include food, lodging, transportation, and other. Expenditure information is based on the 2011 National Survey of Fishing, Hunting and Wildlife Associated Recreation (NSFHWR).

Economic Output: The total spending by final consumers on all goods. The amount reported in this study is the change in spending by final consumers in the region attributable to refuge visitation. Economic output includes spending by people who earn income from refuge visitors' activities as well as spending by refuge visitors themselves.

Impact: The new economic activity generated in a region as a refuge attracts non-residents to the area. This figure represents economic activity that would be lost if the refuge were not there.

IMPLAN: An economic modeling software package that applies input-output analysis techniques to regional economies.

Jobs: Full and part time jobs.

Job Income: Income to households from labor including wages and salaries.

Resident/Non-Resident: People living more than 50 miles from the refuges are considered non-residents for this study.

Tax Revenue: Local, county and state taxes: sales tax, property tax, and income tax

Visitors: A visitor is someone who comes to the refuge and participates in one or more of the activities available at the refuge.

Visits (visitation): A visit is not the same as a visitor. One visitor could be responsible for several visits on a refuge. For example, if a family of four went fishing in the morning and hiked a short nature trail in the afternoon, they would have contributed eight activity visits to the refuge; yet, they are only four visitors.

References

Minnesota IMPLAN Group, Inc. *IMPLAN System (2015 data and software)*.

U. S. Department of the Interior, U.S. Fish and Wildlife Service, Division of Federal Aid. 2013. *2011 National Survey of Fishing, Hunting, and Wildlife Associated Recreation*. Washington, D.C.

U.S. Department of the Interior, U.S. Fish and Wildlife Service, National Wildlife Refuge System. *Refuge Annual Performance Plan 2017*. Washington, D.C. Unpublished.

Varian, Hal R. 2010. *Intermediate Microeconomics: A Modern Approach*. 8th ed. New York: W.W. Norton & Company.