

The Economic Contributions of Recreational Visitation at Oxbow National Wildlife Refuge

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This paper establishes the economic contribution baseline for recreational visitation at Oxbow 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, Oxbow 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

The 1,697-acre Oxbow National Wildlife Refuge is located 40 miles west of Boston and lies along almost eight miles of the Nashua River in north-central Massachusetts. Within its boundary is a diverse array of habitats beneficial to wildlife: wetlands, forested uplands, old fields, oxbow ponds, and, of course, the river itself. The Refuge is managed for a variety of wildlife species, with a special emphasis on migratory waterfowl and birds that are dependent on grass/shrub land habitat.

There are numerous opportunities for wildlife-dependent recreation at the refuge, with several miles of hiking trails for wildlife observation and photography users. A visitor contact station opened in 2016 is available for environmental education and interpretation opportunities, and the Refuge also contains two canoe launches for access to the Nashua River. Fishing is allowed on the Nashua River and along its banks within the Refuge, and there are hunting opportunities throughout much of the Refuge.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 80,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 66,000 visits with residents comprising 91 percent of Refuge visitation.

Table 1. Oxbow NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	27,900	3,100	31,000
Auto Tour	-	-	-
Boat Trail/Launch	3,240	360	3,600
Bicycle	-	-	-
Photography	20,700	2,300	23,000
Interpretation	248	28	275
Other Recreation	6,075	675	6,750
Visitor Center	1,080	120	1,200
Hunting:			
Big Game	834	44	878
Small Game	27	1	28
Migratory Birds	157	8	165
Fishing:	12,113	638	12,750
Total Visitation	72,372	7,274	79,646

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is the two-county area of Middleton and Worcester Counties in Massachusetts. It is assumed that visitor expenditures occur primarily within these counties. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$490,000 with non-residents accounting for \$227,000 or 28 percent of total expenditures. Expenditures on non-consumptive activities accounted for 61 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 11 jobs, \$606,000 in employment income, \$82,000 in total tax revenue, and \$1.3 million in economic output.

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

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$296.7	\$193.3	\$490.0
Hunting	\$18.7	\$2.3	\$21.0
Fishing	\$255.9	\$31.7	\$287.5
Total Expenditures	\$571.3	\$227.2	\$798.5

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

	Residents	Non-Residents	Total
Economic Output	\$977.4	\$371.3	\$1,348.7
Jobs	8	3	11
Job Income	\$447.2	\$159.1	\$606.4
State and Local Tax Revenue	\$55.8	\$26.0	\$81.8

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

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