

# **The Economic Contributions of Recreational Visitation at Iroquois National Wildlife Refuge**

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

Iroquois National Wildlife Refuge was established in 1958 and encompasses 10,828 acres of open water, emergent marsh, forested wetland, upland forest, grassland, and shrubland habitats. The Refuge lies within the rural towns of Alabama in Genesee County and Shelby in Orleans County in the Oak Orchard Creek Watershed on the Lake Plains of western New York. Iroquois NWR, in combination with neighboring New York State Wildlife Management Areas, forms the 19,000-acre Tonawanda-Iroquois-Oak Orchard Wetland Complex; this complex is one of the largest contiguous blocks of natural habitat in western New York and includes some of the most productive inland wildlife habitat in the eastern United States.

Over half of the Refuge is wetland (6,500 acres) with 4,000 of these wetland acres contained in 19 managed freshwater impoundments. Forested wetlands comprise about 3,400 acres of the refuge and are located in the natural floodplain of Oak Orchard Creek and in Seneca Pool. Approximately 2,200 of the 4,100 acres of upland habitat at Iroquois Refuge are currently maintained in an early successional stage as grassland or shrubland. Grasslands are mowed or burned according to a multi-year rotation schedule to suppress encroachment of broadleaf forbs and woody plants.

Over 266 bird species have been observed on the Refuge, with 122 of these known to nest here. The interspersion of open water and aquatic and emergent plant communities provide resting and feeding habitat for over 120,000 waterfowl annually. The Refuge has long been considered an important migratory bird stopover area for mallard, blue-winged teal, ring-necked duck and wood duck. Other bird species that use the refuge include American bittern, brown thrasher, red-tailed hawk, bobolink, sandhill

cranes, eastern meadowlark and a multitude of warblers and sparrows. The Refuge is home to 42 species of mammal and 23 recorded amphibians and reptiles.

Iroquois Refuge was one of the first areas in New York designated as a National Audubon Society Important Bird Area. The 523-acre Oak Orchard Creek Marsh was designated in 1973 as a National Natural Landmark. When this landmark was established it included the 15 acre Milford Posson Research Natural Area.

The Refuge is open to the public and facilitates wildlife-dependent recreational opportunities including hunting, fishing, interpretation, environmental education, wildlife observation and photography. A large portion of visitors (75 percent to 80 percent) participate in the refuge's non-consumptive uses such as wildlife observation and interpretation. Iroquois Refuge has five nature trails meandering over six miles allowing visitors to experience the diverse wildlife habitats found on the refuge. Four overlooks provide vantage points for viewing wildlife, including nesting bald eagles. A smaller percentage of Refuge visitors (20 percent to 25 percent) participate in consumptive recreation. Consumptive recreation includes fishing, and hunting for deer, turkey, waterfowl, rail, snipe, woodcock, rabbit and squirrel. Trapping for furbearers including muskrat, beaver, and mink is conducted for management purposes.

The Refuge hosts a Spring into Nature Celebration each April in cooperation with partners providing a range of activities that introduce approximately 1,000 visitors to wildlife, wildlife habitat, and conservation on the refuge. A variety of nature programs help reach approximately 1,000 people annually. A Youth Turkey Hunt, Youth Waterfowl Hunt, and Youth Fishing Derby are conducted each year to introduce younger generations to these outdoor activities and to provide a quality recreational opportunity.

### **Activity Levels**

Table 1 shows the recreation visits for the Refuge. The Refuge had about 25,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 19,000 visits with residents comprising 60 percent of Refuge visitation.

**Table 1. Iroquois NWR: 2017 Recreation Visits**

<b>Activity</b>	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
<b>Non-Consumptive:</b>			
Pedestrian	5,998	5,998	11,996
Auto Tour	-	-	-
Boat Trail/Launch	101	25	126
Bicycle	27	7	34
Photography	608	405	1,013
Interpretation	1,976	104	2,080
Other Recreation	128	7	135
Visitor Center	1,877	1,877	3,753
<b>Hunting:</b>			
Big Game	2,920	730	3,650
Small Game	270	180	450
Migratory Birds	523	134	657
<b>Fishing:</b>	743	743	1,485
<b>Total Visitation</b>	<b>15,170</b>	<b>10,209</b>	<b>25,379</b>

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

### **Regional Economic Analysis**

The economic area for the Refuge is the two-county area of Orleans and Genesee Counties in New York. It is assumed that visitor expenditures occur primarily within these counties. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$517,000 with non-residents accounting for \$367,000 or 71 percent of total expenditures. Expenditures on non-consumptive activities accounted for 73 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 6 jobs, \$183,000 in employment income, \$70,000 in total tax revenue, and \$632,000 in economic output.

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

<b>Activity</b>	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
Non-Consumptive	\$73.1	\$304.1	\$377.3
Hunting	\$69.0	\$44.7	\$113.7
Fishing	\$7.8	\$18.4	\$26.3
<b>Total Expenditures</b>	<b>\$150.0</b>	<b>\$367.2</b>	<b>\$517.2</b>

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

	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
Economic Output	\$183.5	\$448.5	\$632.0
Jobs	2	4	6
Job Income	\$55.5	\$127.3	\$182.8
State and Local Tax Revenue	\$18.2	\$52.1	\$70.3

## 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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