

The Economic Contributions of Recreational Visitation at Great Bay National Wildlife Refuge

May 2019
Division of Economics
U.S. Fish & Wildlife Service

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

Established in 1992, Great Bay National Wildlife Refuge is located along the eastern shore of New Hampshire's Great Bay in the town of Newington. The Refuge protects more than 1,000 acres along the seacoast for migratory birds and other wildlife. It is one of the longest stretches of undeveloped shoreline along the bay, and consists of mud flats, salt and freshwater marshes, swamps, ponds, streams, woodlands and fields. These diverse habitats support many plants and animals native to the area, including New Hampshire's greatest concentration of wintering bald eagles, and several state-listed rare and endangered species.

The rich and varied habitats of the refuge provide wildlife and visitors alike with a place to rest and recharge. Several recreational opportunities are available for visitors to watch wildlife, hike, bike, and hunt on the Refuge.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 22,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for most visits with residents comprising 80 percent of Refuge visitation.

Table 1. Great Bay NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	16,976	4,244	21,220
Auto Tour	-	-	-
Boat Trail/Launch	-	-	-
Bicycle	57	3	60
Photography	780	195	975
Interpretation	100	100	200
Other Recreation	-	-	-
Visitor Center	-	-	-
Hunting:			
Big Game	26	14	40
Small Game	-	-	-
Migratory Birds	-	-	-
Fishing:	-	-	-
Total Visitation	17,939	4,556	22,495

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is Rockingham County, New Hampshire. It is assumed that visitor expenditures occur primarily within this county. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$214,000 with non-residents accounting for \$128,000 or 60 percent of total expenditures. Expenditures on non-consumptive activities accounted nearly all expenditures.

Spending in the local area generates and supports economic activity within Rockingham County (Table 3). The contribution of recreational spending in local communities was associated with about 3 jobs, \$114,000 in employment income, \$23,000 in total tax revenue, and \$326,000 in economic output.

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

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$85.8	\$127.8	\$213.6
Hunting	\$0.3	\$0.4	\$0.7
Fishing	-	-	-
Total Expenditures	\$86.1	\$128.2	\$214.3

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

	Residents	Non-Residents	Total
Economic Output	\$132.4	\$193.5	\$325.9
Jobs	1	2	3
Job Income	\$48.8	\$65.6	\$114.4
State and Local Tax Revenue	\$7.2	\$15.8	\$23.0

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.