

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

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

Back Bay National Wildlife Refuge was established in 1938 to protect and provide habitat for migratory waterfowl and other wildlife. This Refuge is located in the southeastern corner of Virginia, encompassing over 9,100 acres of freshwater wetlands, forests, beach and dune habitats. Ten freshwater impoundments are managed to ensure that migratory birds have the essential habitat they need during their migrations. The biological program at Back Bay NWR works to understand the complex nature of the forces that shape this unique piece of land. Surveys are conducted throughout the year tracking bird numbers, plant species, invasive species, sea level rise, wetland elevations, pollinators and more.

Additionally, opportunities for visitors are offered through a number of guided and unguided experiences. A Visitor Center, over five miles of hiking/biking trails, freshwater fishing and surf fishing spots, photography and wildlife viewing platforms and restrooms are also available to the visiting public.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 187,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 171,000 visits with residents comprising 66 percent of Refuge visitation.

A number of interpretive programs are offered at the Refuge throughout the year, including walks about birds or reptiles or craft days for children. Additionally, during the busiest visitation period of the year the Refuge offers summer camps, fishing clinics, photography workshops and more to the public.

Other recreation visits include a special partnership program with an adjacent state park and local non-profit organization. The Blue Goose Express Tram offers visitors access to the state park, located south of the wildlife refuge, while also providing information about the habitat, wildlife and management.

Table 1. Back Bay NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	36,086	24,058	60,144
Auto Tour	-	-	-
Boat Trail/Launch	7,844	872	8,716
Bicycle	34,648	11,549	46,197
Photography	21,965	14,644	36,609
Interpretation	2,391	422	2,813
Other Recreation	1,933	828	2,761
Visitor Center	6,840	6,840	13,679
Hunting:			
Big Game	-	-	-
Small Game	-	-	-
Migratory Birds	-	-	-
Fishing:	11,767	3,922	15,689
Total Visitation	123,474	63,134	186,608

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

It is assumed that visitor expenditures occur primarily in the economic area for the Refuge, which is the city of Virginia Beach, Virginia. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$2.5 million with non-residents accounting for \$1.7 million or 68 percent of total expenditures. Expenditures on non-consumptive activities accounted for 87 percent of all expenditures.

Spending in the local area generates and supports economic activity within the city of Virginia Beach (Table 3). The contribution of recreational spending in local communities was associated with about 35 jobs, \$1.1 million in employment income, \$253,000 in total tax revenue, and \$3.7 million in economic output.

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

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$608.7	\$1,579.6	\$2,188.3
Hunting	-	-	-
Fishing	\$186.4	\$146.1	\$332.5
Total Expenditures	\$795.1	\$1,725.7	\$2,520.8

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

	Residents	Non-Residents	Total
Economic Output	\$1,187.6	\$2,562.3	\$3,749.9
Jobs	12	23	35
Job Income	\$367.4	\$768.2	\$1,135.6
State and Local Tax Revenue	\$74.2	\$178.5	\$252.7

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.

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.