

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

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

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

Prime Hook National Wildlife Refuge is a 10,612 acre refuge stretched along the southeastern coastline of Delaware just north of Cape Henlopen. Eighty percent of its cover types are characterized by tidal and freshwater creeks and wetlands. The remaining 20 percent of refuge habitats include unvegetated sandy beach, dune grasslands, interdunal wetlands, *Spartina* high and low salt marshes, intertidal mudflats, red maple/Atlantic and white cedar/seaside alder swamps. These cover types provide habitat for 308 species of birds, 51 species of fish, 45 species of reptiles and amphibians, 37 species of mammals, and an array of rare insect and plant species.

## **Activity Levels**

Table 1 shows the recreation visits for the Refuge. The Refuge had about 154,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 145,000 visits with residents comprising 56 percent of Refuge visitation.

**Table 1. Prime Hook NWR: 2017 Recreation Visits**

<b>Activity</b>	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
<b>Non-Consumptive:</b>			
Pedestrian	30,000	45,000	75,000
Auto Tour	-	-	-
Boat Trail/Launch	3,893	1,298	5,190
Bicycle	483	121	604
Photography	30,273	5,342	35,615
Interpretation	5,429	55	5,484
Other Recreation	1,891	100	1,990
Visitor Center	8,400	12,600	21,000
<b>Hunting:</b>			
Big Game	432	48	480
Small Game	76	4	80
Migratory Birds	646	34	680
<b>Fishing:</b>	4,620	3,080	7,700
<b>Total Visitation</b>	<b>86,142</b>	<b>67,681</b>	<b>153,823</b>

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

### **Regional Economic Analysis**

The economic area for the Refuge is the three-county area of Newcastle, Kent, and Sussex Counties in Delaware. It is assumed that visitor expenditures occur primarily within these counties. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$2.4 million with non-residents accounting for \$1.9 million or 78 percent of total expenditures. Expenditures on non-consumptive activities accounted for 83 percent of all expenditures.

Spending in the local area generates and supports economic activity within the three county area (Table 3). The contribution of recreational spending in local communities was associated with about 29 jobs, \$958,000 in employment income, \$208,000 in total tax revenue, and \$3.4 million in economic output.

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

<b>Activity</b>	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
Non-Consumptive	\$369.2	\$1,653.1	\$2,022.4
Hunting	\$23.4	\$3.7	\$27.1
Fishing	\$146.4	\$229.4	\$375.8
<b>Total Expenditures</b>	<b>\$539.0</b>	<b>\$1,886.3</b>	<b>\$2,425.3</b>

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

	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
Economic Output	\$745.1	\$2,638.0	\$3,383.1
Jobs	7	22	29
Job Income	\$223.4	\$734.5	\$957.9
State and Local Tax Revenue	\$46.5	\$161.9	\$208.4

## 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*. 8<sup>th</sup> ed. New York: W.W. Norton & Company.