

The Economic Contributions of Recreational Visitation at Ten Thousand Islands National Wildlife Refuge

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This paper establishes the economic contribution baseline for recreational visitation at Ten Thousand Islands 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, Ten Thousand Islands 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

Ten Thousand Islands National Wildlife Refuge protects 35,000 acres of important mangrove habitats and a rich diversity of native wildlife, including several endangered species. The Refuge is part of the largest expanse of mangrove forest in North America. Approximately two-thirds of Ten Thousand Islands National Wildlife Refuge is mangrove forest, which dominates most tidal fringes and the numerous islands, or keys. The northern third of the Refuge consists of brackish marsh and interspersed ponds, small coastal hammocks of oak, cabbage palms, and tropical hardwoods such as gumbo limbo. Notable threatened and endangered species include the Florida manatee, peregrine falcon, wood stork, as well as the green, Atlantic loggerhead, and Kemp's Ridley sea turtles. The Refuge is located approximately 20 miles southeast of Naples, FL on the south side of U.S. 41 known as the Tamiami Trail.

A diversity of wildlife-dependent recreation activities are offered at Ten Thousand Islands National Wildlife Refuge. State regulated and Refuge permitted waterfowl hunting is offered at Ten Thousand Islands National Wildlife. Early Teal season opens in late September while waterfowl season runs late November until January. Fishing is the most popular recreational activity in the Refuge and is productive year-round. Common saltwater sport fish at the Refuge include tarpon, snook, redfish, and spotted seatrout. Birders will be delighted with the variety of feathered friends present on the Refuge and especially visible from the Marsh Trail. Birds are best viewed during the winter season, from approximately October – March. Wading birds such as egrets, herons, including the black-crowned night-heron, and white ibis are often plentiful. Roseate spoonbills and wood stork also regularly make an appearance on the Refuge.

One of the best ways to view wildlife at Ten Thousand Islands is from our Marsh Trail and Observation Tower. This 2.2 mile round trip trek follows the only land access trail found on the Refuge. The 2-story observation tower includes wildlife viewing scopes, benches, and the first level is handicap accessible. More than 40 species of birds have been seen from the trail and observation tower. One of the best ways to enjoy Ten Thousand Islands National Wildlife Refuge is from the water. The Refuge offers four canoe and kayak trails with launch sites located off of U.S. 41. Camping on the white sands of Ten Thousand Islands National Wildlife Refuge offers a primitive Southwest Florida experience that is often an ideal complement to fishing, canoeing and kayaking, or simply connecting with nature in the Refuge. Camping is allowed only on the outer barrier islands of the Refuge for fishing and wildlife observation. Camping is permitted October-April. The Refuge is closed to camping May-September due to nesting shorebirds and sea turtles.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 256,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 61,000 visits with residents comprising 55 percent of Refuge visitation.

Table 1. Ten Thousand Islands NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	10,200	23,800	34,000
Auto Tour	-	-	-
Boat Trail/Launch	356	89	445
Bicycle	161	69	230
Photography	12,500	12,500	25,000
Interpretation	330	220	550
Other Recreation	420	280	700
Visitor Center	-	-	-
Hunting:			
Big Game	-	-	-
Small Game	-	-	-
Migratory Birds	193	83	275
Fishing:	117,000	78,000	195,000
Total Visitation	141,160	115,041	256,200

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is Collier County, Florida. It is assumed that visitor expenditures occur primarily within this county. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$9.4 million with non-residents accounting for \$5.2 million or 55 percent of total expenditures. Expenditures on fishing activities accounted for 80 percent of all expenditures.

Spending in the local area generates and supports economic activity within Collier County (Table 3). The contribution of recreational spending in local communities was associated with about 104 jobs, \$3.8 million in employment income, \$791,000 in total tax revenue, and \$11.8 million in economic output.

Table 2. Ten Thousand Islands NWR: Visitor Recreation Expenditures (2017 \$,000)

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$188.1	\$1,696.4	\$1,884.5
Hunting	\$6.2	\$6.6	\$12.8
Fishing	\$3,996.9	\$3,498.4	\$7,495.3
Total Expenditures	\$4,191.2	\$5,201.4	\$9,392.5

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

	Residents	Non-Residents	Total
Economic Output	\$5,223.3	\$6,552.1	\$11,775.3
Jobs	49	55	104
Job Income	\$1,744.9	\$2,097.7	\$3,842.6
State and Local Tax Revenue	\$342.9	\$448.5	\$791.4

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*. 8th ed. New York: W.W. Norton & Company.