

The Economic Contributions of Recreational Visitation at Guam National Wildlife Refuge

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

The Guam National Wildlife Refuge is comprised of three units: the Andersen Air Force Base Overlay Unit (Air Force Overlay Unit), the Navy Overlay Unit, and the Ritidian Unit. The Ritidian Unit, known to the Native Chamorro (CHamoru) people as Puntan Litekyan- the Stirring Place- and is located on the northern tip of Guam.

The Ritidian Unit encompasses approximately 1,217 acres, including 385 terrestrial acres and 832 acres of submerged areas offshore. The terrestrial acres are designated critical habitat for the Mariana crow, the Marina fruit bat and the Micronesian kingfisher.

The Ritidian Unit welcomes the public free of charge. Visitors can explore roughly two miles worth of trails, relax on a beautiful white-sand beach, or schedule a tour of the newly rediscovered ancient village or of the numerous caves found along the limestone cliff line. Visitors can also experience what Guam may have looked and sounded like 500 years ago, by visiting our Nature Center building, where four 16-foot murals depict Guam’s natural environment before European contact.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 38,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 37,000 visits with residents comprising 57 percent of Refuge visitation. Interpretation visits include guided tours of archaeological sites while other recreations includes beach goers and snorkeling.

Table 1. Guam NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	2,700	300	3,000
Auto Tour	-	-	-
Boat Trail/Launch	-	-	-
Bicycle	64	256	320
Photography	24	96	120
Interpretation	2,400	600	3,000
Other Recreation	13,500	13,500	27,000
Visitor Center	1,800	1,800	3,600
Hunting:			
Big Game	-	-	-
Small Game	-	-	-
Migratory Birds	-	-	-
Fishing:	1,215	135	1,350
Total Visitation	21,703	16,687	38,390

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is the Territory of Guam. Due to the data availability, the regional economic analysis uses the State of Hawaii as a proxy. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$1.6 million with non-residents accounting for \$1.3 million or 82 percent of total expenditures. Expenditures on non-consumptive activities accounted for 97 percent of all expenditures.

Spending in the local area generates and supports economic activity within the area (Table 3). The contribution of recreational spending in local communities was associated with about 17 jobs, \$744,000 in employment income, \$202,000 in total tax revenue, and \$2.5 million in economic output.

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

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$253.0	\$1,287.9	\$1,540.9
Hunting	-	-	-
Fishing	\$33.1	\$8.8	\$41.9
Total Expenditures	\$286.2	\$1,296.7	\$1,582.8

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

	Residents	Non-Residents	Total
Economic Output	\$447.1	\$2,094.7	\$2,541.8
Jobs	3	14	17
Job Income	\$135.4	\$608.3	\$743.8
Local Tax Revenue	\$34.5	\$167.3	\$201.9

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 8 activity visits to the refuge; yet, they are only four visitors.

References

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