

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

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

This paper establishes the economic contribution baseline for recreational visitation at Arctic 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, Arctic 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. The economic effects of the research opportunity-related goods and services delivered within Arctic NWR are notable, since the Refuge hosts numerous arctic research projects conducted by institutions from around the world. Furthermore, the annual numbers of researchers using the Refuge may rival annual recreational visitor use levels. 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**

Situated in the northeastern corner of Alaska, the 19 million acre Arctic National Wildlife Refuge is one of the largest areas of wild lands preserved intact for all American citizens. Inupiat and Athabaskan residents continue their thousands-year subsistence lifeways within the Refuge’s boundaries. Caribou and moose roam freely throughout the Refuge. Black, brown, and polar bears all make their home here. Arctic fox, wolves, and wolverine hunt for ptarmigan, snowshoe hares and arctic ground squirrels. Located at the northern end of all four North American flyways, the Refuge hosts more than 200 species of birds through the year. Arctic Grayling, Arctic Char, and Dolly Varden are three of the more than 40 fish species in the fresh and marine waters of the Refuge.

The Refuge also hosts visitors from across the state, the nation, and the world who find exceptional opportunities to recreate in the Refuge’s raw, wilderness landscapes. The majority of visitors float rivers or view polar bears from coastal lagoon waters, while hiking/backpacking, and hunting/fishing comprise a smaller portion of visitor activities. Most visitation occurs north of the Brooks Range, with a minimal portion occurring on the south side.

## Activity Levels

Arctic Village and Kaktovik are the villages that are the most heavily dependent on the Refuge for subsistence use because of their immediate proximity to the Refuge. About 150 residents make Arctic Village home. Almost all are Gwich'in Athabascan peoples. Residents heavily harvest a wide variety of resources near the community, generally from either tribal reservation lands or Arctic Refuge lands, almost all months of the year. For the northern Gwich'in people, caribou is still the most important food and cultural resource and is often referred to as their "source of life," providing as much as 80 percent of their diet by weight in some years. The village of Kaktovik's population averages about 220 year-round residents who have a modern mixed subsistence-market based economy that is also highly dependent upon traditional subsistence harvesting of natural resources on a year-round basis. Approximately 93 percent of Inupiat households in Kaktovik participate in the subsistence economy, 80 percent of the non-Inupiat households use subsistence resources. Residents of both villages visit/utilize refuge lands and waters throughout all seasons traveling to subsistence harvesting and camping locations as well as recreating and enjoying the natural landscape. They closely monitor changing environmental conditions and seasonal movements of wildlife, waterfowl and fishery resources. The Refuge's natural landscape is their traditional homeland and they visit and utilize it for a variety of purposes grounded in their cultural beliefs and values.

While the Refuge provides value as a source of subsistence use, this report is limited to economic contributions related to recreational visits. Because residents are not considered visitors and use the Refuge primarily for subsistence use, we do not include residents as recreational visits. Furthermore, economic effects of the research opportunity-related goods and services delivered within the Refuge are not included in this report because we do not include researchers as recreational visits. Therefore, for the purpose of this analysis only recreational visitors are included.

The Refuge has no roads, trails, boat launches, campsites, or other recreational facilities, and visitors engaged in hiking, boating, camping, and other activities do not register their visits, so Refuge staff estimate use based on commercial service provider reports. Nearly all visitor use is commercially-supported by charter flights into the Refuge, and more than half of the Refuge's visitors are both chartered in and guided. Recreation visits at the Refuge totaled about 59,000 recreational visits in 2017 which contributed to the economic effect of the Refuge (Table 1).

The number of visitors to this vast area is generally low, and it should be noted that Table 1 describes the estimated number of "visits" by recreational visitors. Visitors to this remote landscape tend to make multi-day or multi-week stays, while USFWS defines recreational visits by the number of activities that a visitor partakes. Additionally, visitors come to the Refuge for multi-dimensional, immersive experiences (for example, the estimated number of hikers who are also wildlife photographers are reported in Table 1 for both the "Pedestrian" and the "Photography" activity categories).

While thousands of visitors come to the two off-site visitor centers representing Arctic Refuge each summer; only about 1,000 visitors come on to the Refuge throughout the summer visitation period from June to September (with visit lengths usually ranging from 6-10 days). About another 650 or so visitors come to Kaktovik during the polar bear viewing season to view and photograph polar bears from boats on

Refuge waters each fall (with an average visit length of 2.5 days). Visitors viewing polar bears from Refuge waters use local boat captains to access bear viewing opportunities.

**Table 1. Arctic NWR: 2017 Recreation Visits**

<b>Activity</b>	<b>Recreation Visits</b>
<b>Non-Consumptive:</b>	
Pedestrian	7,400
Auto Tour	0
Boat Trail/Launch	1,500
Bicycle	0
Photography	7,400
Interpretation	21,508
Other Recreation	5,000
Visitor Center	8,682
<b>Hunting:</b>	
Big Game	4,000
Small Game	500
Migratory Birds	775
<b>Fishing:</b>	2,500
<b>Total Recreational Visitation</b>	<b>59,265</b>

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

### **Regional Economic Analysis**

The geographic area for the Refuge is the eastern portion of the North Slope Borough and the northeastern portion of the Unorganized Borough of the Yukon-Koyukuk Census Area. Expenditures occur in this geographic area along with some occurring in Coldfoot, Deadhorse, Arctic Village, Fort Yukon, and Kaktovik. Because Fairbanks, Alaska is the nearest major hub location for supplies, regional commercial flights into communities in and around the Refuge, most charter flights into the Refuge, and the base for many guide services used by visitors, a large amount of visitor expenditures occur within the economic area of Fairbanks. This results in visitor expenditures occurring outside of the geographic area for the Refuge. This analysis assumes that visitor expenditures occur primarily within the State of Alaska. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$25.9 million. Expenditures on non-consumptive activities accounted for 70 percent of all expenditures.

Spending in the local area generates and supports economic activity within the State of Alaska (Table 3). The contribution of recreational spending in local communities was associated with about 218 jobs, \$8.9 million in employment income, \$1.4 million in total tax revenue, and \$29.8 million in economic output.

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

<b>Activity</b>	<b>Expenditures</b>
Non-Consumptive	\$18,140.5
Hunting	\$5,275.0
Fishing	\$2,500.0
Total Expenditures	<b>\$25,915.5</b>

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

	<b>Economic Contributions</b>
Economic Output	\$29,823.9
Jobs	218
Job Income	\$8,923.7
State and Local Tax Revenue	\$1,374.3

## 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

- McDowell Group 2018. *Economic Impact of Alaska's Visitor Industry 2017*. Accessed at [https://www.commerce.alaska.gov/web/Portals/6/pub/TourismResearch/VisitorImpacts2016-17Report11\\_2\\_18.pdf?ver=2018-11-14-120855-690](https://www.commerce.alaska.gov/web/Portals/6/pub/TourismResearch/VisitorImpacts2016-17Report11_2_18.pdf?ver=2018-11-14-120855-690).
- 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.