Amenity-Supported Local Economic Vitality and the Apostle Islands and Pictured Rocks National Lakeshores on Lake Superior

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Executive Summary

This study analyzes the regional economic context in which two National Lakeshores, located on the south shore of Lake Superior in northern Wisconsin and the Upper Peninsula of Michigan, have operated since their creation in the late 1960s and early 1970s. The Apostle Islands and Pictured Rocks National Lakeshores are units of the National Park Service.

One important and explicit public policy objective of the creation of these particular National Lakeshores was regional economic development. In the 1960s the "north woods" of Wisconsin and Michigan were identified by the federal government as economically depressed rural areas, plagued by declining land-based industries (mining, forest products, and agriculture). Federal policy sought to stimulate economic recovery by supporting diversification of the local economic bases. Commercial recreation and tourism appeared to be a promising opportunity given the significant landscape amenities associated with the region's forests, small lakes, and Lake Superior itself. Creation of the Apostle Islands and Pictured Rocks National Lakeshores was intended to contribute to the expansion of the "visitor economy" and help put these two regions back on a growth path.

This study looks back at the impact that these two National Lakeshores actually had (and continue to have) on the local economy. It does that by focusing on three interrelated topics:

i. The actual evolution of both the local economies immediately around the National Lakeshores as well as the larger regional economies of northern Wisconsin and the Upper Peninsula since the National Lakeshores began operating.
ii. The specific role that the National Lakeshores have played and continue to play in the local economies in which these National Lakeshores are embedded.
iii. The role that natural and social amenities have or have not played in supporting ongoing economic vitality in both the local economies surrounding the National Lakeshores and the larger regional economies.

i. The Economic Evolution of the Local Economies

Proponents of the creation of these two National Lakeshores expected that these National Park units would stimulate an economic recovery in the areas around them. In

fact, one of the gateway counties to Apostle Islands NL, Bayfield County, and the gateway county for Pictured Rocks NL, Alger County, have shown considerable economic vitality since the creation of these National Lakeshores. Between 1969 and 2006 the growth of aggregated real income, real per capita income, and jobs were all much faster in those National Lakeshore gateway counties than in the states of Wisconsin or Michigan as a whole. Population growth was about the same. However, for the other Apostle Islands NL gateway county, Ashland County, the opposite was the case; it showed much less economic vitality than the state as a whole and lagged considerably behind the other two National Lakeshore gateway counties. See Table ES-1.

Table ES-1

Relative Economic Performance of Gateway Counties Percentage Growth in Economic Indicators 1969-2006				
Area	Aggregate Pe Real Personal Income	r Capita Real Income	Jobs	Population
Apostle Islands: Bayfield	147%	96%	110%	26%
Apostle Islands: Ashland	70%	78%	75%	-4%
The State of Wisconsin	113%	67%	86%	27%
Pictured Rocks: Alger	186%	65%	69%	16%
The State of Michigan	70%	48%	52%	15%

Source: US Dept. Comm, BEA, REIS

ii. Economic Links between the National Lakeshores and Gateway Counties

Although the economic linkage between a National Park and gateway communities is usually described exclusively in terms of the local spending of visitors to the National Park, this is just one of multiple potential economic links that attractive local qualities, including those protected by the National Lakeshores, create. The other potential economic linkages also include the attraction of part-time residents who own vacation homes, the attraction of new permanent residents including both retirees and working-age households, and the relocation of workers' residences to more attractive amenity locations from which they commute out to work.

This study sought to identify the potential size of the amenity-related economic forces by first estimating the impact on local real income of changes in the traditional economic base: mining, forest products, agriculture, other manufacturing, and state and federal government employment. We then estimated the impact of the visitor economy on local income. Part of the impact of part-time residents ("vacation homes") is included in the visitor economy. We moved beyond the visitor economy by also quantifying the impact of retirement and investment income and other types of non-employment income on the local economy. We also estimated the impacts of in- and out-commuting to work. Finally, we discussed, but did not quantify, the impact of the in-migration of new working-age households.

That analysis of the economic forces operating on the National Lakeshore gateway counties concluded that in the Apostle Islands NL gateway counties the amenity-related economic forces were the dominant drivers of the economic vitality that the gateway counties have enjoyed since the National Lakeshore was fully operating (1978-2006). For one of those counties, Ashland, however, changes in the traditional economic base were also significant. For Alger County, MI, the gateway county for the Pictured Rocks NL, the impact of changes in the traditional economic base and the amenity-related economic forces were more equally influential. See Table ES-2. It should be noted that the sum of the impacts of the four economic forces in Table ES-2 are not constrained to equal 100 percent. Our analysis "over-explained" the changes that actually took place.

Table ES-2

The Economic Impact of Amenity Economic Forces and the Traditional Economic Base in the Apostle Islands and Pictured Rocks National Lakeshores' Gateway Counties 1978-2006

Counties	% of Change in Personal Income Explained by Changes in				Total Change in Local Income Due to 4 Changes	The % of the 4 Changes Due to the Traditional Econ Base
	Traditional Econ Base	Visitor Spending	Non-Employment Income	Commuting Out to Work		
Apostle Islands Gateway Counties						
Bayfield-Ashland	7%	45%	55%	3%	111%	6.4%
Bayfield -	3%	50%	54%	27%	128%	-2.5%
Ashland	22%	38%	57%	-33%	84%	26.6%
Pictured Rocks Gateway County						
Alger	70%	22%	55%	-12%	136%	51.8%

We were able to quantify the specific role of the National Lakeshores on the local economy only for the visitor economy where we had survey data that detailed the expenditures of visitors to the National Lakeshores. Since this means that only **one** of the economic linkages between the National Lakeshores and the local economic has been measured, this is clearly an under-estimate of the National Lakeshores' actual economic impacts.

For the Apostle Island NL gateway counties the impact of the National Lakeshore on local income in 2006 was $14.0 million. That represented about 12 percent of the total impact of all visitors to Bayfield and Ashland Counties. Given the relative importance of the overall visitor economy in these counties, this meant that the spending of visitors to the Apostle Island NL boosted local income by 1.7 percent in 2006. The growth in National Lakeshore visitor spending over the 1978-2006 period, however, was responsible for a larger percentage of the overall growth in real income in these counties, 5.4 percent.

For the Pictured Rocks National Lakeshore, the spending by visitors to the National Lakeshore accounted for a much larger percentage of total visitor spending in Alger County, the gateway to that National Lakeshore. The impact on local income in 2006 was $8.6 million. This represented about 50 percent of all visitor spending in Alger County. When combined with the relative importance of the visitor economy in Alger County, this implied that the spending of visitors to the Pictured Rocks NL boosted local income by 4 percent. The contribution that the growth in the spending of visitors to the

National Lakeshore made to the growth in real income in Alger County between 1978 and 2006 was somewhat larger, 11 percent.

iii. Evidence of Amenity-Supported Economic Vitality in the Larger Region

This study sought to determine whether amenity-related economic forces *beyond* those tied to the visitor economy were operating in the larger region of northern Wisconsin and Michigan's Upper Peninsula. This part of the study specifically focused on counties that were geographically removed from the direct economic impacts of the National Lakeshores. This was of interest because such amenity-supported local economic development might, in the future, spillover into the gateway counties because of both the amenities protected by the National Lakeshores and other amenities these counties had to offer.

We analyzed 17 counties, including the gateway counties, the counties adjacent to the gateway counties, and other counties in the region surrounding the National Lakeshores that were showing rates of growth that could not be explained by their traditional economic bases.

The conclusions we reached included the following:

a. Amenity-supported economic vitality is a dominant feature of Bayfield County, one of the gateway counties of Apostle Islands NL. In-migration of new permanent residents, retiree spending, and residential location decisions of out-comuting workers have all had a major impact on local economic vitality in addition to the impacts of the visitor economy. Such non-visitor-related amenity-supported economic vitality has also begun to impact Alger County, the gateway county for Pictured Rocks NL, in recent years.

b. Across the 17-county study area, the amenity-related economic forces, including the visitor economy, were the primary drivers of real income growth. The minimum contribution of the amenity-related economic forces was 62 percent in the greater Apostle Islands study region and 69 percent in the greater Pictured Rocks study region.

c. After we have accounted for the impact of the traditional economic base and an upper estimate of the visitor economy, there is still a significant part of the growth in real income in the 17-county study region that is not explained. Close to 60 percent of the growth in the greater Apostle Islands region remains to be explained and close to 50 percent of the growth in the greater Pictured Rocks region (excluding Marquette County).

d. Overall, amenity-supported local economic vitality appears to have become a significant part of the dynamics of the local economies both in the gateway counties

to the Lake Superior National Lakeshores and in the larger region surrounding those gateway counties.

We conclude this study with an analysis of whether amenity-supported economic vitality actually improves the local economy and local economic well being. Much casual economic commentary criticizes amenity-supported economic forces for creating low-paid, part-time jobs while driving up the cost of housing and squeezing out long-time residents. A review of the empirical economic literature finds little support for these assertions. Our conclusion is that for the level of amenity-supported local economic vitality found in the study areas around Apostle Islands and Pictured Rocks NL, there need be little concern that these changes in the economy and demography will threaten economic well being, social stability, or cultural continuity.

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Introduction

Although one primary purpose of including a particular part of the natural landscape in the National Park system is to preserve the unique aspects of that natural system for future generations, the ability of the public to experience those natural landscape features has also always been an objective. That public visitation to unusual, high quality landscape features can have a stimulating impact on local economies as visitors spend money during their visits. This link between visitor spending and the local economy has, in turn, linked National Park units to local economic vitality.

This study analyzes the local economic role of two small National Park Service units on the south shore of Lake Superior, the Apostle Islands and Pictured Rocks National Lakeshores. The conventional approach to analyzing the role of a National Park unit in a local economy has been to study visitor spending as that money circulates within the local economy. That “tourist” view of the economic function of National Parks fits nicely within the popular view of the local economy as being driven by those economic activities that injected income into the local economy from outside, the economic base view of the economy.

Over the last several decades, regional economists have focused on another set of economic forces that appeared to be reshaping rural economies: The impact of attractive locally-specific qualities on residential and business location decisions. It appeared that local amenities were drawing people and economic activities to some areas and local disamenities were pushing people and economic activity away from other areas. Since National Parks specifically seek to recognize and protect high quality natural landscapes, it is natural to think of National Park units as natural landscape amenities that may be influencing local economies in ways that extend beyond the expenditures of temporary visitors.

This study seeks to look at the economic role of the Apostle Islands and Pictured Rocks National Lakeshores in this larger context of the possibility of amenity-supported local economic vitality.

The study was guided by three questions:

1. How have the local and regional economies around these two National Lakeshores evolved since the National Lakeshores were created and what role did they play in that evolution?

2. How are these National Lakeshores connected to their local economies?

3. Is there evidence of amenity-supported economic vitality in the vicinity of these two National Lakeshores and/or in the larger regions surrounding these two National Lakeshores in northern Wisconsin and the Upper Peninsula of Michigan?

This report will be organized around answering each of these questions in turn. We begin, however, with some historical background on the establishment of the Apostle Islands and Pictured Rocks National Lakeshores and the geographic context in which they are embedded. We also discuss the various ways in which such parks might influence local economies. We then turn to answering the questions laid out above. We end this report with a discussion of the local impacts of amenity-supported economic vitality. This seemed appropriate since there has been considerable skepticism and criticism of amenity-based economies. We, therefore, explore the question of whether amenity-supported local economic vitality actually benefits workers and the overall local economy.

I. National Parks and Local Economic Impacts: Historical, Geographic, and Economic Background

1. The Historical Context of the Establishment of the Apostle Islands and Pictured Rocks National Lake Shores

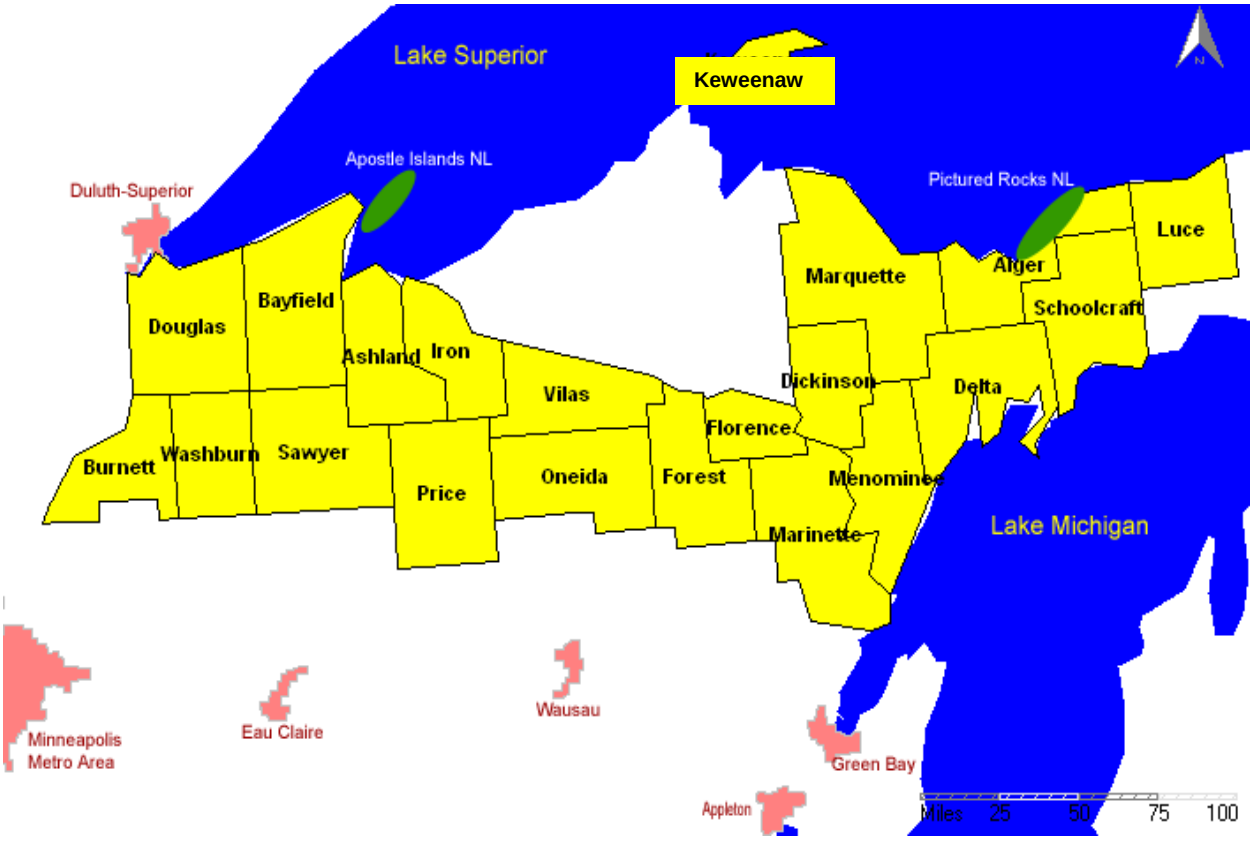
During the late 1960s and early 1970s, two new National Park Service units were established on the south shore of Lake Superior. Apostle Islands National Lakeshore is located in northern Wisconsin about 70 miles east of the Duluth-Superior metropolitan area. Pictured Rocks National Lakeshore is located on Michigan's Upper Peninsula about a hundred miles west of Sault Ste. Marie or 150 miles north of Green Bay, Wisconsin. See Figure 1.

Northern Wisconsin and the Michigan's Upper Peninsula were heavily logged and then burned in the late 19th and early 20th centuries, creating a cut-over wasteland. Despite the low fertility and high acid content of the glacial scoured soils, the cleared land was marketed to immigrant farmers. Most of the tens of thousands of farms that were established ultimately failed and much of the land was simply abandoned. In the decades that followed, the forests simply took back that land with some help from the Depression-era Civilian Conservation Corps. As a result of tax defaults, substantial blocks of that land moved back into the public domain as national, state, and county forests, wildlife refuges, and parks.

By the middle of the 20th century, these northern regions of Wisconsin and Michigan were recognized as areas of persistent economic distress. The federal government attempted to bring public policy to bear to boost regional economic development in this and other lagging regions of the United States. One of those federal policies sought to highlight and support unique aspects of the natural environment as tourist destinations that would draw people and money and the associated economic activity to these

depressed regions. The Apostle Islands and Pictured Rocks National Lakeshores were two of the results of that policy.

Figure 1
Apostle Islands and Pictured Rocks National Lakeshores
and the Larger Study Region



Thus, from the start, these National Lakeshores were linked to regional economic development efforts. Economic controversy also permeated the debate leading up to their creation. In the Pictured Rocks NL area, the timber industry, loggers, and mill workers opposed the creation of a National Park unit on the grounds that it would remove a source of raw material for the area's dominant industry. Proponents of Pictured Rocks NL also argued economics, not primarily landscape preservation: The National Lakeshore was to include a scenic shoreline drive and a variety of recreation-focused infrastructure to support a vibrant tourist sector of between one and two million annual visitors that would diversify the local economy and bring stability and prosperity.[1]

The Bayfield and Ashland Counties area in which the Apostle Islands NL is located had a somewhat more diverse economic base during the first half of the 20th century,

[1]***Pictured Rocks: An Administrative History of Pictured Rocks National Lakeshore***, Theodore J. Karamanski, Midwest Regional Office, National Park Service, Omaha, NE, 1995.

including luxury resort hotels, forest products, iron ore processing, commercial fishing, and agriculture. But the economic fortunes of all these basic industries fluctuated, were weak or declining, with some in a state of collapse. In that setting marketing the area as a tourist destination seemed an attractive way to avoid an ongoing regional depression. That provided the impetus for the idea of creating a state or federal park out the Apostle Islands that would anchor a recreation and tourist industry for the region. John F. Kennedy's administration emphasized regional planning as a way of coping with regional concentrations of persistent poverty. That Administration explicitly linked tourism, parks, and conservation with economic development. Kennedy personally carried that message linking the conservation of natural areas and regional economic development to the Apostle Islands area on a tour of the proposed park in September of 1963.[2]

After these National Lakeshore were established, planning and management alternatives continued to be debated at least partially in economic terms. For instance, both National Lakeshores sought to have parts of their landscape classified as part of the National Wilderness System, restricting motorized access and use. This was seen by some as a way to protect the Lakeshores' basic resource, their natural landscapes and the natural systems they supported. To others, however, this was seen as a betrayal of the intense recreation and tourist use that the Lakeshores were created to support.

Clearly local and regional economic development concerns were central to both those who proposed the National Lakeshore and to those who were critical of them. This study seeks to take a close look 40 years after the creation of Apostle Islands and Pictured Rocks National Lakeshores at just what role these two National Lakeshores have actually played in the local and regional economies. The report will seek to identify how these two National Lakeshores have interacted with the local and regional economies as those economies have evolved over the last 40 years. Included in that analysis will be a close look at what impact visitors to these National Lakeshores have on the local economies. But it is likely that the influence of the National Lakeshores extends beyond visitor impacts. The National Lakeshores protect part of the regions' natural landscape amenities. Other public forests, wildlife refuges, and parks also protect the regions' natural landscapes as do many private land holdings. The region is rich in lakes, lakeshores, rivers, forests, and mountains. These natural landscape amenities may help to hold and attract permanent residents rather than just visitors. The possibility of such amenity-supported local economic vitality and the National Lakeshores' contribution to it will also be explored in this study.

2. Linking National Parks and Local Economies

From the very beginning of the National Park System in the United States, many of the promoters of parks strongly believed that park creation would increase the level of

[2] ***A Unique Collection of Islands: The Influence of History, Politics, Policy and Planning on the Establishment of the Apostle Islands National Lakeshore***, Harold C. Jordahl, Jr., University of Wisconsin-Extension, Department of Urban and Regional Planning, Madison, Wisconsin, 1994, p . 248.

economic activity in the adjacent communities. That clearly was also true in the discussions surrounding the creation of Apostle Islands and Pictured Rocks National Lakeshores. For larger National Parks, those over 250,000 acres in size, the parks seem to have definitely had such a positive economic impact over the last 40 years.

An analysis done in 2001 covering the years 1969-1998 found that employment, aggregate real income, and population growth in counties adjacent to large National Parks were two to four times greater than for the average across the nation as a whole.[3] In addition, the overwhelming majority of these large National Parks were associated with above average economic growth. See Table 1.

Table 1

Economic Vitality in the Regions Surrounding 22 Large National Parks
All Counties for National Parks Greater Than 250,000 acres (unweighted)

Measure of Economic Vitality	Percentage Change		Percentage Change Relative to US		Percentage of Parks with Growth above the National Average	
	89-98	69-98	89-98	69-98	89-98	69-98
Population	23.8%	134.5%	2.5	3.9	90.9%	90.9%
Jobs	34.0%	205.3%	2.0	2.7	90.9%	90.9%
Aggregate Real Income	36.8%	254.7%	1.7	2.2	68.2%	86.4%

Source: US Dept. Comm. BEA. REIS

If, instead, we focus only on new National Parks that were created in the 1980s and 1990s, the results are similar. The counties surrounding new National Parks had higher levels of population and employment growth than the nation as a whole. Only for the more isolated of these parks was this not the case.[4]

Some might argue that labeling an area a National Park is not what makes an area attractive to visitors or permanent residents. The causation is the other way around: Attractive features of the natural landscape that have attracted the attention of visitors and residents tend to get classified as National Park units because they are attracting visitors. The landscape features were always there and would have continued attracting visitors regardless of the classification as a park, or so it might be argued.

That, however, ignores the information problems all of us face. It takes time and effort to gather detailed information about the attractive features of all areas. When the classification of areas as different types of National Park units is undertaken carefully and frugally, those labels, National Park, National Monument, National Lakeshore, Wilderness Area, National Recreation Area, etc. help convey information to citizens about natural landscape features that are unique enough that those areas earned a special designation. The title or classification conveys important information. Empirical analysis of changes in these National Park designations, for instance from National

[3] ***The Economic Impact of the Proposed Maine Woods National Park & Preserve***, Chapter III, The Role of National Parks in Promoting Local Economic Vitality, Thomas Michael Power, September 2001, RESTORE: The North Woods, Hallowell, Maine, http://www.cas.umt.edu/econ/documents/faculty/power_economicImpactoftheProposed.pdf

[4] Ibid, Table 4.

Monument to National Park, has demonstrated that just that reclassification can have significant and independent impacts on the level of visitation. These increased levels of visitation are also not just visits shifted from one area to another. They represent increases in overall visitation. In addition, the causation is not that more heavily visited areas get reclassified as National Parks. The reclassification itself has a significant impact on visitation.[5]

A study of the impact of state parks on employment and population growth in 250 rural western counties found that state parks also served as an amenity, attracting population and supporting employment growth.[6] A similar analysis of the impact of federal Wilderness Areas and National Parks in the Mountain West found that when a rural county was adjacent to a National Park population growth was higher compared to counties not adjacent to Parks. In addition, there was no negative impact of Wilderness designation on employment or income.[7]

These impacts associated with National Park classification can be sizeable enough that "gateway" communities adjacent to the National Parks can be overwhelmed by the visitors and the commercial businesses that develop to serve them. Despite the increased employment and income this can bring, it can also lead to a serious deterioration of the quality of life in those gateway communities that may require careful planning and regulation to avoid.[8]

There is clearly evidence that establishing a National Park unit such as the Apostle Islands and Pictured Rocks National Lakeshores may have a significant impact on local economic activity. Before exploring the extent to which that happened on the south shore of Lake Superior, we have to explore the various ways in which the establishment of these National Lakeshores might have affected the local economy.

3. Thinking about the Local Economy

Most discussions of the local economy in the popular media and by the local business community are carried out in terms of the local "economic base," the core of the local economy that is assumed to drive all of the rest of the economy.

The economic base approach to the local economy depicts the economy as driven by those economic activities that bring income into the local economy. It is only the

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[5] Weiler, Stephan and Seidl, Andrew. "What's in a Name? The Impact of National Park Designation." ***Review of Regional Studies***, Winter/Spring 2002, 32(1), pp. 97-111. Also see "A Park by Any Other Name: National Park Designation as a Natural Experiment in Signaling," Stephan Weiler, December 2005, The Federal Reserve Bank of Kansas City, RWP 05-09, December 2005.

[6] Duffy-Deno, Kevin T. 1997. "The Effect of State Parks on County Economies of the West," J. of Leisure Research. 29(2).

[7] Duffy-Deno, Kevin T. 1998. "The Effect of Federal Wilderness on County Growth in the Intermountain Western United States," J of Regional Science. 38(1) pp. 109-136.

[8] See ***Balancing Nature and Commerce in Gateway Communities***, Jim Howe, Ed McMahon and Luther Probst, Island Press, Washington DC, 1997.

availability of that outside income “injected” into the local economy that allows residents to make purchases in local businesses. In most applications of the simple model, this injection of money comes from the export from the local area to the larger economy of specialized local production. In rural areas, those export-oriented activities tend to be land-based activities such as forest products, the products of mineral extraction and processing (“mining”), and agriculture. As that resulting “injected” money is spent and re-spent, it has a “multiplier” effect creating additional jobs and income. The size of the multiplier is determined by how quickly the injected income “leaks out” of the local economy to fund imported goods and other “outside” expenditures. From this point of view, locally-oriented economic activity is passive or parasitic, made possible only by the income brought in from the outside. Crudely put: “only exports matter.” That has often led to this view of the local economy being labeled an “export base” view.

To many this appears to a relatively obvious form of hard-nosed economic realism. “That’s what makes the local economy tick.” However, the economic base approach implicitly makes two assumptions that, when stated, appear very questionable. The first implied assumption is that people do not care where they live. They simply move to where the economy demands. The second implied assumption is that business firms also do not care about where workers live or would like to live or where the markets for those business’ products are located. The location of the population determines both of these, but firms are assumed to ignore both and choose their location on some other basis. Neither of these assumptions can be defended on either theoretical or factual grounds. When these indefensible assumptions are discarded, residential location choice becomes an important economic force in determining the location of economic activity and seriously undermines the reliability of an exclusively economic base view of the local economy.

The economic base view focuses only on one potential set of local economic forces: labor demand created by local raw materials or a well established set of industries. But there is another set of economic forces economists almost always also consider, those of supply. An existing supply of experienced and skilled workers willing to work for an acceptable wage also is likely to attract new business activity. Similarly, if, because an area is an attractive place to live, businesses can easily attract additional skilled workers without bidding up wages significantly, those areas will also attract new business activity.

This is not a matter of choosing between two opposing but mutually exclusive views of how the local economy functions. The relative strength of the labor demand and labor supply forces at work is a matter of empirical investigation. These two sets of economic forces are likely to vary in relative strength over time and from place to place. It is not a matter of focusing exclusively on one or the other set of economic forces but of understanding the relative balance at any given place at any given time and understanding the likely trends going forward.

During the second half of the twentieth century, changes in the economy have made residential location choices increasingly important in the determination of the location of

economic activity. These changes have made both people and businesses more mobile. The following changes have contributed to the increased importance of residential location choice:

i. Improvements in transportation and communications that have drastically reduced the costs associated with geographic distance from economic centers. These changes include improved highway systems, the extension of regular airline service to small cities, the development of modern telecommunications networks and technology including the Internet, the development of national and international cable and television networks that reach the most isolated locations, and the emergence of competing next-day courier service. These changes significantly reduce the actual isolation from the national economy and culture associated with locations physically far removed from the nation's largest metropolitan areas.

ii. Changes in what the economy produces have also had an important impact on the location of economic activity. With the shift from the dominance of extractive and heavy industry to light manufacturing and services, the relative importance of transportation costs has declined as the value to weight ratio has risen dramatically. Transportation costs no longer tie economic activity as tightly to particular locations.

As a result of these changes and the increase in the relative mobility of economic activity, it is less costly for citizens to act on their preferences for certain types of living environments. Similarly, it has made it more feasible for economic activity to follow the population as it makes residential location decisions. The result is that economic activity often follows people rather than people passively following businesses. Consider the shift of economic activity from center cities to suburbs: first people fled those centers of employment and commercial activity and commuted back for work and shopping. Later the manufacturing base followed the population to the suburbs, as did the shopping centers. Similar things can be said about the shift of economic activity to the Sunbelt, the resettlement of the Mountain West, and the impressive growth in many relatively rural areas scattered across the United States.

An analysis of population growth in non-metropolitan counties during the 1990s clearly indicated the role that residential choice has been playing in determining local economic vitality. If non-metropolitan counties are sorted on the basis of the various economic categories the Economic Research Service of the U.S. Department of Agriculture has developed, the importance of local attractiveness is clear. The fastest growing non-metro counties were retirement counties, those dominated by the presence of federal lands, and recreation counties. See Table 2.[9] Counties with traditional export-oriented economic bases (manufacturing, including forest products, mining, and farming) had the greatest difficulty retaining their existing populations and attracting new residents.

[9] Table 3 in "Nonmetro Recreation Counties: Their Identification and Rapid Growth," Kenneth M. Johnson and Clavin L. Beale, ***Rural America*** 17(4):12-19, 2002.

The role of residential location choice in determining the location of economic activity has led to an increased focus on what it is about different locations that makes them attractive or unattractive to potential residents. Those site-specific characteristics have come to be labeled “amenities” or “disamenities.” They include characteristics of the social and natural environments: Good schools, parks, and other public infrastructure, low crime, congestion, and social breakdown rates, a shared sense of community and tolerance, good governance, a rich and diverse local culture etc. are elements of the social environment. The cleanliness of the air and water, open space, scenic beauty, access to outdoor recreation opportunities, wildlife, climate, etc. are elements of the natural environment.

Table 2

Population Change in Non-Metro Counties by Type of County, 1990-2000

County Type	Population Change	Net Migration
Retirement	28.4%	25.9%
Federal Lands	22.3%	16.4%
Recreation	20.2%	16.9%
Commuting	15.2%	12.0%
Services	14.6%	11.7%
Government	11.5%	5.2%
Non-Specialized	10.9%	8.4%
Total Non-Metro	10.3%	6.9%
Manufacturing	9.5%	6.1%
Poverty	9.1%	4.4%
Transfer Payments	8.5%	6.5%
Farming	6.6%	3.9%
Mining	2.3%	-1.5%

Source: See footnote 9.

Because of these observed patters of economic vitality in rural areas where the economic base approach would not have predicted it, researchers have begun including measures of local amenities and disamenities in their analysis of migration patterns and the location of economic activity.[10]

[10] See for instance: McGranahan, David A. and Calvin L. Beale. 2002. Understanding Rural Population Loss. *Rural America* 17(4):2-11; McGranahan, David A. 1999. Agricultural Economic Report No. 781. (Washington, D.C.: USDA Economic Research Service); Clark, David E., and Hunter, William J. 1992. "The Impact of Economic Opportunity, Amenities and Fiscal Factors on Age-Specific Migration Rates," J. of Regional Science. 32(3) pp. 349-365; Nord, Mark and Cromartie, John B. 1997. "Migration: The Increasing Importance of Rural Natural Amenities," Choices. 12(3) pp. 22-23;von Reichert, Christiane, and Rudzitis, Gundars. 1994. "Rent and Wage Effects on the Choice of Amenity Destinations of Labor Force and Non-Labor Force Migrants: A Note," J. of Regional Science. 34(3) pp. 445-455.

The idea is not that potential residents will sacrifice everything or, even, a lot to gain access to these amenities or to avoid these disamenities. The assertion is simply that amenities matter somewhat and that people take them into account when making decisions about where to settle and raise a family. Amenities matter in the sense that people are willing to sacrifice something in their pursuit. In that sense residential location choices are like any other economic decision: The strength of people's preferences and the costs of pursuing those preferences are ultimately what guides the choices actually made.

4. National Parks and Amenity-Supported Local Economic Vitality

Because National Parks protect and manage unique parts of the natural landscape, they can be seen as one of the local amenities that make an area an attractive place to visit and live. As a result, local economic vitality may be stimulated and supported. This report seeks to analyze the extent to which Apostle Islands and Pictured Rocks National Lakeshores have contributed to this sort of "amenity-supported" local economic vitality.

The idea behind amenity-supported local economic vitality spans both the economic base and amenity view of the local economy. Temporary visitors drawn to an area by the local amenities, tourists or recreationists, inject income into the local economy just as the economic base model envisions. On the other hand, permanent residents who are retained in or drawn to the area support local economic activity in ways not contemplated by the economic base model but that are central to the amenity view of the local economy.

We will divide the amenity-supported local economic vitality into several different pieces.

i. Temporary Visitors: The impacts of temporary visitors who come to the area to enjoy site-specific local amenities. As they make expenditures in the local economy during their visit, that income circulates in the local economy, triggering ripple or multiplier impacts in a variety of different types of local businesses. The direct, indirect, and induced impacts of this can be analyzed using the conventional economic base model. The part of this impact that is associated with the National Lakeshores can be estimated by focusing on what part of all of the visitors to a region and their spending was tied to visits to Apostle Islands and Pictured Rocks National Lakeshores.

ii. Vacation Homes: The impacts of second or vacation home owners. Some visitors come so frequently or are so attracted to a particular area that they purchase a second residence in the area. In the Apostle Islands area boat owners bring their boats to local marinas and live on their boats when they are visiting the area, providing floating and mobile "second homes." The spending and visitation patterns of these visitors may be quite different than those of other temporary visitors and therefore will be considered separately.

iii. Retirees: Retirees are more "footloose" than other citizens in the sense that at least some of their income (their retirement income) follows them wherever they choose to settle. This makes them more independent of local labor market conditions than working-age people. Their spending, consumption, and social patterns may also be

different leading to different impacts on the local economy. Some conversions of vacation homes into permanent residents are associated with retirees making their second homes their primary residences. In addition, local amenities can help an area retain retirees rather then giving them up to more attractive areas.

iv. Retaining and Attracting Permanent Residents: Local amenities can lead working age residents to stay in or relocate to a particular area. Their expenditures to set up residence and their employment activities can generate local economic activity. Although the economic base view rejects this possibility unless the "export base" has expanded, empirical evidence documents the fact that jobs can follow people (the amenity view) just as people can also follow jobs (the economic base view). One working age in-migrant acting to set up residence and become employed tends to generate economic activity that supports one job.[11]

v. Commuting to Work from Place of Residence: Workers and their families may choose to live in a more attractive area despite its limited employment opportunities and then commute some distance to work. This, too, is a type of amenity-driven economic vitality for the place of residence since the income earned at the place of work "leaks" back to the place of residence, supporting local economic activity there. For some communities and counties this can be a very important source of income.

These different ways in which local natural amenities can impact the local economy are not, of course, completely unrelated. Tourism often serves to introduce people to special qualities that a particular area has to offer. That can lead to second homes which later get converted to permanent residences or to in-migration of new permanent residents. Because visitors, second home owners, and in-migration are all driven to a certain extent by the same local landscape amenities, these separate types of amenity-supported local economic vitality also tend to blend together somewhat.

Designation of a unique landscape amenity such as the Apostle Islands and Pictured Rocks lakeshores as a National Park Unit has an intentional "signaling" impact, announcing to the nation that landscape features of unusual significance deserving of national recognition and protection are located there.[12] For people who do not live close to these unique landscape features, the National Lakeshore designation guides information-constrained potential visitors to locations with which they are may not have been familiar. Even if commercial advertising promoting the sites has been effective, the National Park designation itself signals a high quality site, setting it apart from all of the "tourist destinations" that get commercially promoted. The visitation motivated by the National Lakeshore designation introduces non-locals to the qualities relatively remote

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[11]See M.J.Greenwood et al., 1986, "Migration and Employment Change: Empirical Evidence on the Spatial and Temporal Dimensions of the Linkage," ***Journal of Regional Science*** 26(2):223-234; Greenwood, M.J., and G.L. Hunt, 1984, "Migration and Interregional Employment Redistribution in the United States," ***American Economic Review*** 81(5):1382-90***;*** Greenwood, M.J., 1981, ***Migration and Economic Growth in the United States: National, Regional, and Metropolitan Perspectives.*** New York: Academic Press.

[12]See "A Park by Any Other Name: National Park Designation as a Natural Experiment in Signaling," December 2005, Stephan Weiler, Research Working Paper 05-09, The Federal Reserve Bank of Kansas City, Economic Research Department. Also see ***Market Signaling***, 1974, Michael Spence (Cambridge, MA: Harvard University Press).

places have to offer. This, as mentioned above, can lead to return visits, and for some who find the area particularly attractive, the purchase of a second home or relocation to the region around that National Park unit.

In thinking about the local economic impact of the two National Lakeshores, it is important to note that when that impact is measured solely in terms of the local expenditures of non-local National Lakeshore visitors, only one part of the full range of potential amenity linkages is being considered. In studying the local economic impact of National Park units, the focus is often exclusively on non-local visitors because it is only they, within the economic base context, who bring money into the area. Local residents who visit the National Park unit tend to be ignored because it is assumed they are not bringing new money into the local economy.

But notice the peculiar result of such a visitor-impact approach to the local economic importance of a National Park unit: That National Park Unit is assumed to only be important to non-residents. The value of that National Park Unit to local residents and their direct and indirect use of it are entirely ignored. That is the result because only one aspect of the economic role of the park is being considered: the local impact of visitor spending. The value of the park to residents and the role of the park in attracting and holding permanent residents are completely ignored. From the amenity point of view, this could lead to a serious under-estimation of the contribution being made by the National Lakeshores to local economic well being and vitality. That is why the importance of the longer list of potential linkages between the National Lakeshores and the local economy presented above has to be kept in mind.

5. The Particular Characteristics of Apostle Islands and Pictured Rocks NLs

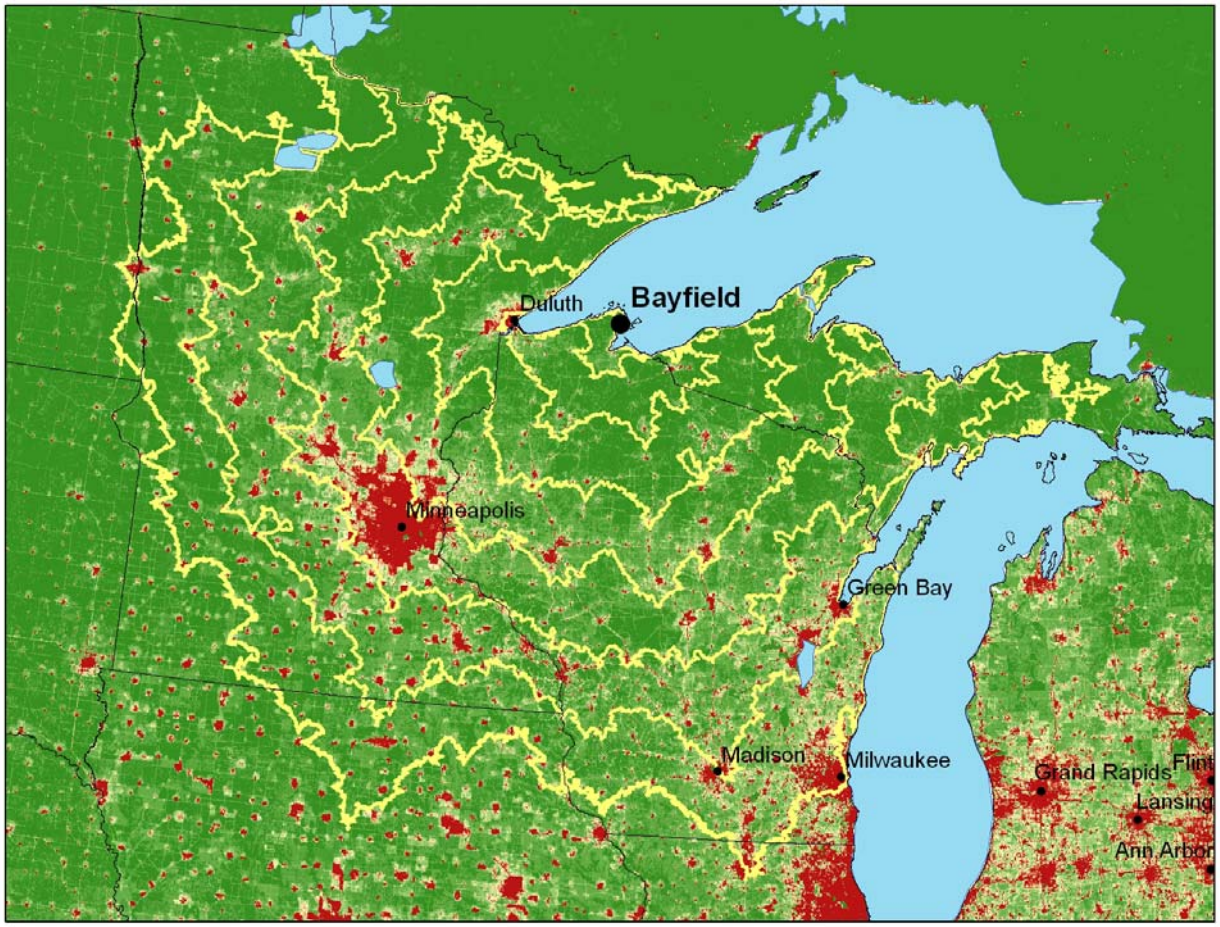
The two National Lakeshores that are our focus are relatively small National Park units in terms of both acreage and visitation. Apostle Islands NL, which, as the name indicates, consists primarily of a collection of islands that are accessible only by boat with an area of about 69,000 acres and has an annual visitation of less than 200,000. Pictured Rocks NL has 73,000 acres and an annual visitation between 400,000 and 500,000. In addition, they are both relatively isolated from population centers. That is especially the case for Pictured Rocks.

The following two maps, Figures 2 and 3, show the travel times from Apostle Islands NL ("Bayfield") and Pictured Rocks NL ("Munising") to various population centers. The white lines indicate one hour of travel time. Population density is indicated by red dots and larger urban areas by the resulting red shading.

The large population centers of Minneapolis, Chicago-Milwaukee-Madison, and Greater Detroit are clearly visible. What is also important is the scattering of smaller "red dots" indicating significant urban populations throughout southeastern Minnesota, northeastern Iowa, northern Illinois, and southern Michigan. Note that northern Wisconsin and the Upper Peninsula of Michigan have almost none of these population concentrations. The Duluth-Superior metropolitan area is within a two-hour drive of

Apostle Islands NL and the Greater Minneapolis area is within a five hour drive. Pictured Rocks NL, on the other hand, is a seven hour drive from a major urban center. In general, the region around these two national lakeshores is relatively rural, well outside the zones of influence of relatively large urban centers. But Pictured Rocks is particularly so.

Figure 2
Travel Times from Apostle Islands NL to Population Centers
(One Hour Travel Time Lines)

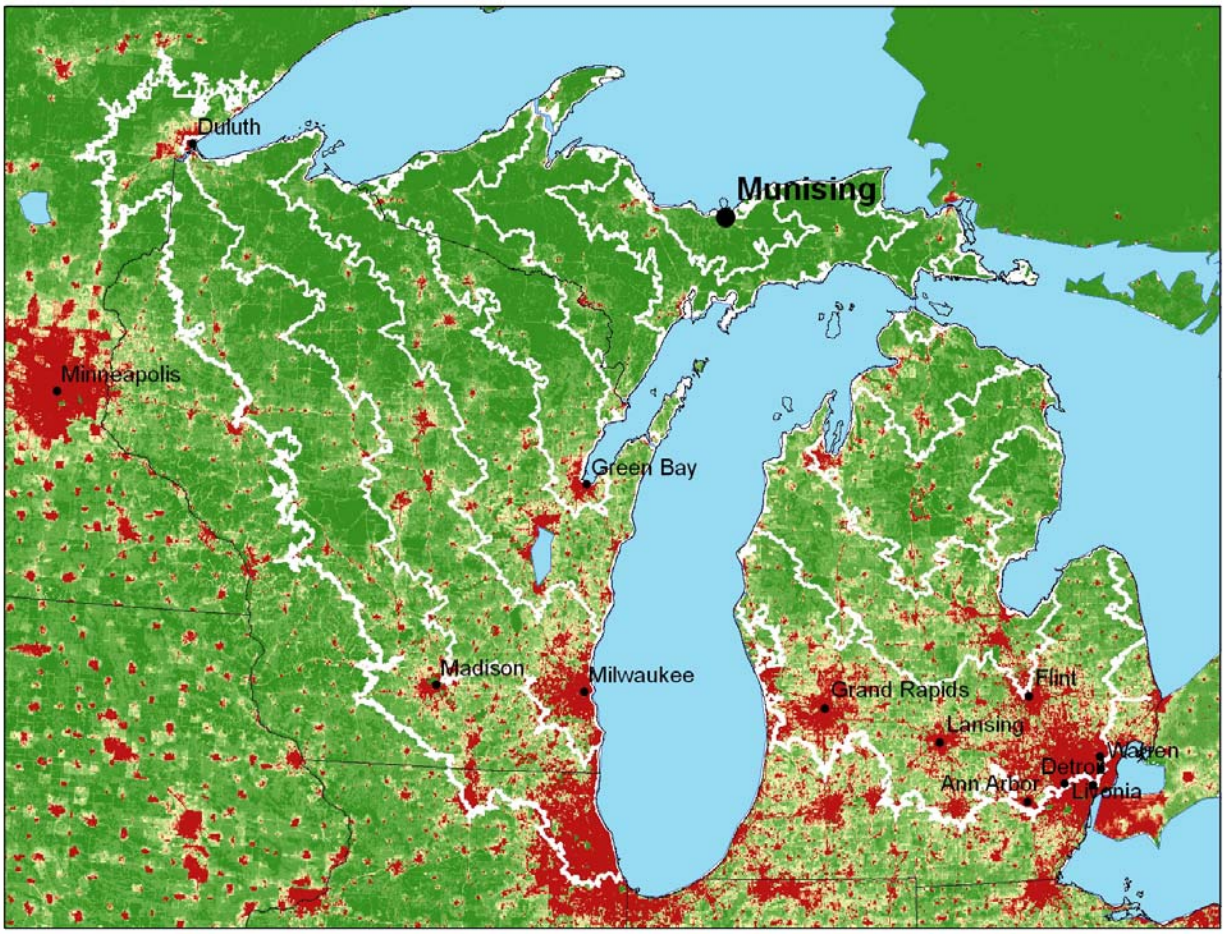


Source: Prof. Paul A. Lorah, Geography Department, University of St. Thomas, MN.

These features, relatively small National Park units located in relatively rural areas at substantial distance from large population centers, have several implications. First, these National Lakeshores may not attract large numbers of visitors on their own. Visitors may be drawn to the area by a variety of other regional landscape features with these National Lakeshores being a stop along the way. Second, given the absence of major trade centers, the economic impact of the visitors' expenditures is likely to be reduced as many of those expenditures leak out quickly to more distant trade centers. Third, there is evidence that people seeking to live near high quality natural landscapes also wish to maintain connections with large urban centers for the urban amenities

(entertainment, restaurants, specialty shops, the arts, etc.). Relatively sophisticated trade centers within commuting distance and easy highway or airline connections to even larger urban areas make rural areas with high quality natural landscapes more attractive as residential locations.[13] Bayfield and, especially, Munising may be limited in this regard although as regional economies change so does the relative degree of isolation.

Figure 3
Travel Times from Pictured Rocks NL to Population Centers
(One Hour Travel Time Lines)



Source: Prof. Paul A. Lorah, Geography Department, University of St. Thomas, MN.

The limitations that relative isolation can place on the role that National Park units can play in stimulating local economies can be seen in the data on the impact of larger National Park units have had on surrounding communities when those parks were relatively isolated. In the study of the impact of large National Parks cited above, a few

[13] ***Public Lands Conservation and Economic Well-Being,*** Sonoran Institute, 2004.

park units were not associated with above average economic performance in surrounding counties. Consider Isle Royale National Park, an island park in Lake Superior closer to Canada than to the United States. It is serviced by ferry boat from Houghton, Michigan in the Upper Peninsula. Houghton, itself, on the Keweenaw Peninsula sticking out into Lake Superior, is also quite isolated. In addition, for the time period studied, 1969-1998, the Keweenaw Peninsula was adjusting to the decline in its copper industry. As a result, this gateway county to a National Park showed below average economic vitality no matter what metric was used.[14]

Another example of a large National Park that was not associated above average economic performance is Big Bend National Park in extreme southwestern Texas. It is located far from any population centers and 300 to 400 miles from any of Texas' metropolitan areas. The surrounding economy struggled to perform as well as the nation as a whole, lagging somewhat behind in most measures of economic performance.

Even for the same National Park, different counties had quite different economic experiences. Glacier National Park, for instance, straddles the continental divide. To the west is rapidly growing Flathead County, part of a string of western Montana counties that have been booming. On the east side of the divide is Glacier County that is wrestling with the problems of economic decline characteristic of the Great Plains. The Blackfeet Indian Reservation, challenged by poverty and unemployment, also makes up most of Glacier County. The more isolated county, Glacier, showed much poorer economic performance than the nation despite its association with Glacier National Park.

Clearly, despite increased mobility, isolation still has its economic costs. In relative terms, Pictured Rocks, Munising, and Alger County are likely to be significantly more affected by isolation that Apostle Islands and Bayfield County. See Figure 4.

II. The Evolution of the Regional Economies and the Role of the National Lakeshores in that Evolution

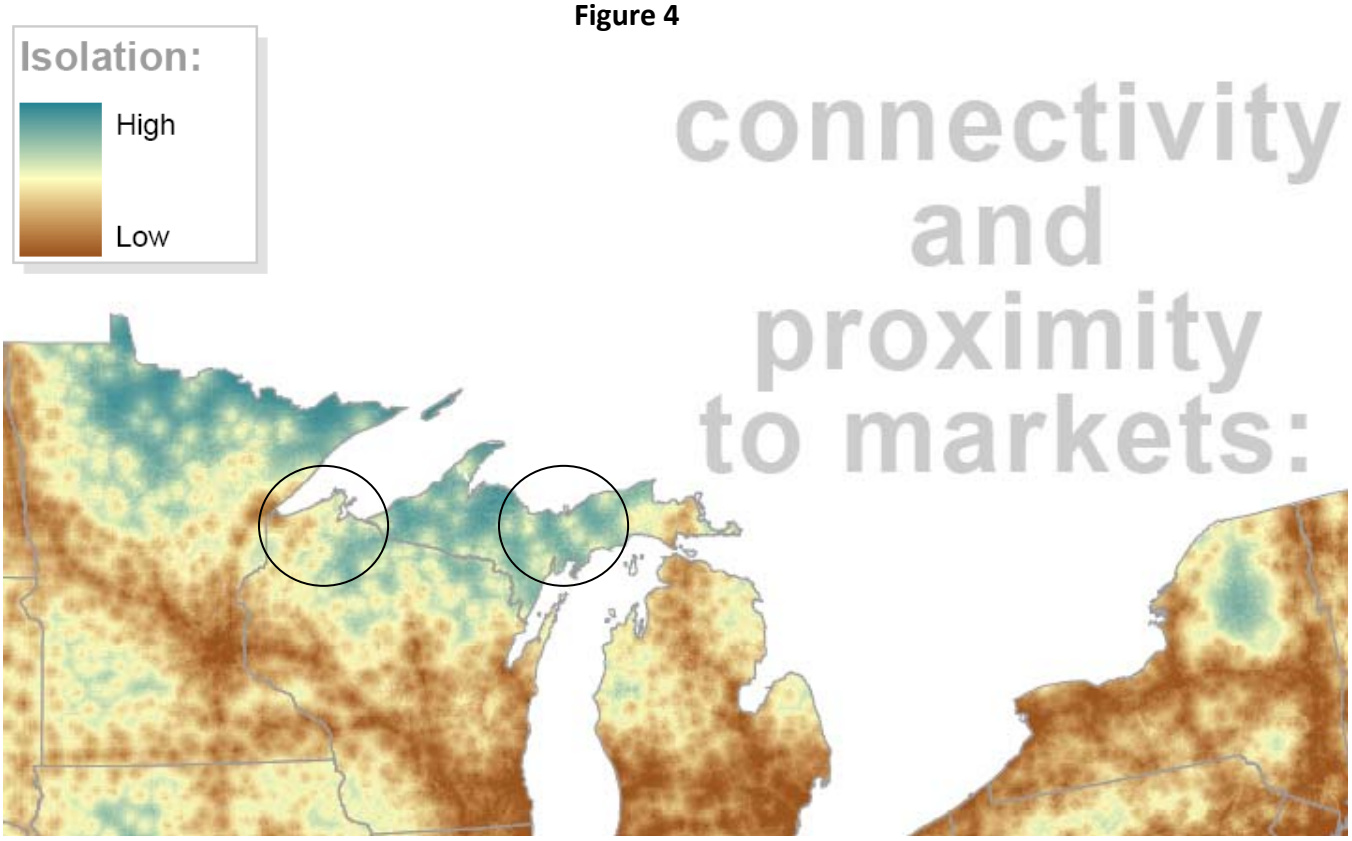
1. An Overview of Trends in the Local Economies in the Apostle Islands and Pictured Rocks NL Areas

One of the questions we seek to answer is whether the regional economy around these two National Lakeshores experienced significant economic vitality after the establishment and development of the National Lakeshores in the late 1960s and the early 1970s. That was the economic outcome projected by those promoting these two

[14] Interestingly, the very lightly settled and most isolated part of the Keweenaw Peninsula, Keweenaw County, itself experienced considerable expansion during the 1990s. Many workers in Keweenaw County commute into Houghton County to work. That flow of earnings back into Keweenaw County and in-migration, including retirees, energized the county during the 1990s.

National Lakeshores. In later sections of this report, we will try to parse out what elements of economic change were responsible for the trajectories that the Apostle Islands and Pictured Rocks regions have actually been on. Here we offer a snapshot of those trajectories.

Figure 4



http://www.stthomas.edu/geography/research/studentprojects/projectfiles/student%20projects/vonThunen.pdf

Apostle Islands NL Area

Since the establishment of the Apostle Islands NL the economy of Bayfield County has expanded substantially. Total real income received by residents increased 150 percent, employment more than doubled, real per capita income doubled, while population expanded 26 percent. This was considerably faster growth in aggregate real income, real per capita income, and employment than in Wisconsin as a whole. Population growth was about the same as that of Wisconsin. See Figure 5a and Table 3. Bayfield County performed significantly better than Douglas County to the west, part of the Duluth-Superior metropolitan area, and Ashland County, the other Apostle Islands NL gateway county to the east. But Washburn and Sawyer Counties immediately to the south of Bayfield County grew significantly faster.

Figure 5a

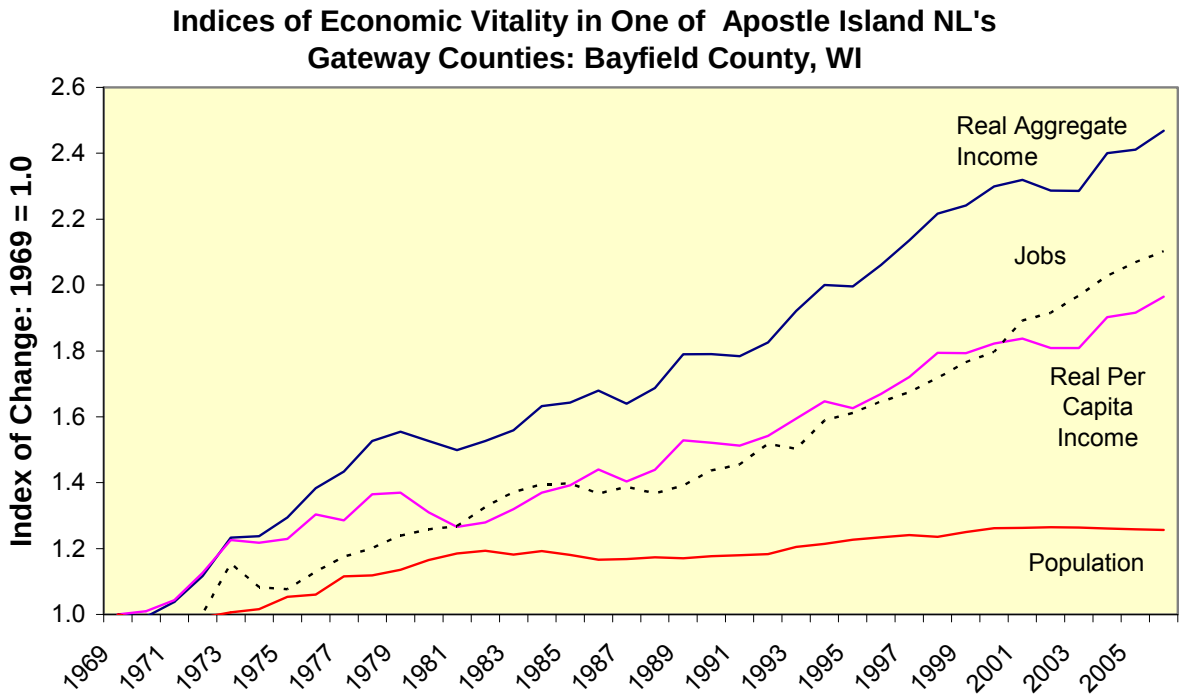
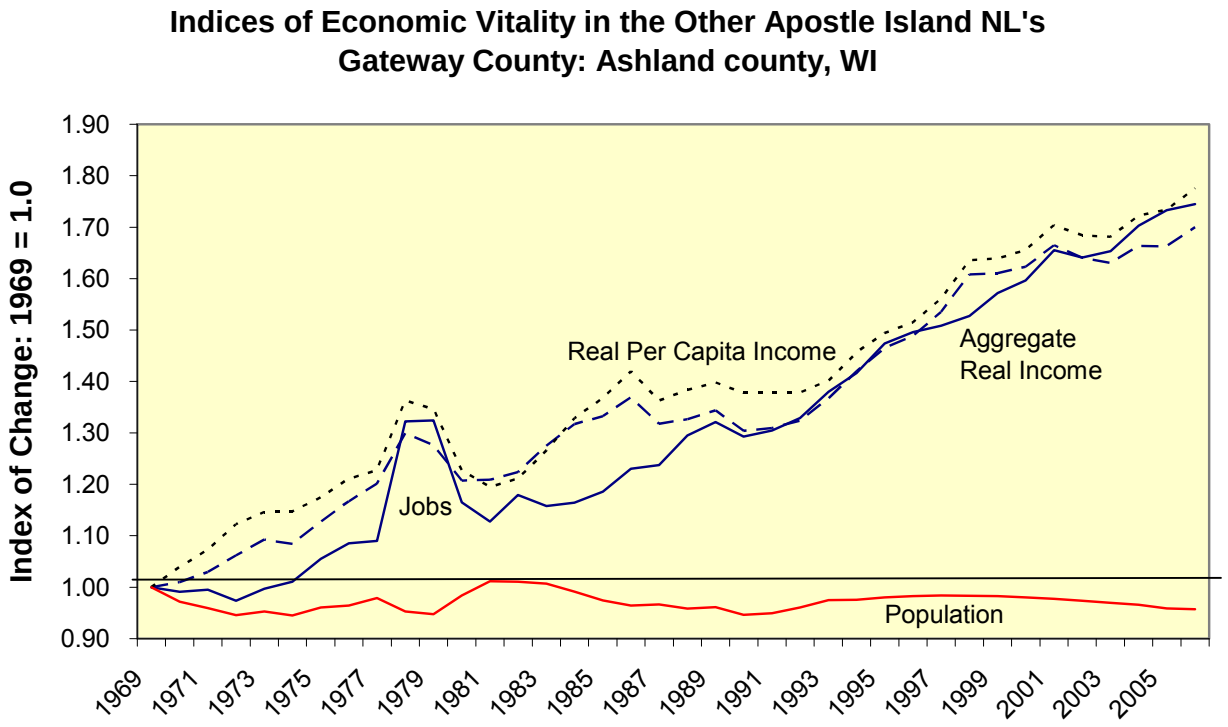


Figure 5b



The other gateway county to Apostle Islands NL also saw substantial growth in real income and jobs, especially after 1983 but its overall growth since 1969 was much more modest than in Bayfield County. Population actually declined slightly. See Figure 5b and Table 3.

Pictured Rocks NL Area

In the Pictured Rocks NL gateway county, Alger, aggregate real income almost tripled in the years following the creation of this National Lakeshore. Average real income grew more modestly but significantly, by 65 percent. Employment expanded by almost 70 percent while population went through expansion and contraction phases, growing 16 percent over the whole period. Job and income growth in Alger County were significantly greater than in the state of Michigan as a whole. Population growth was similar to that of the State of Michigan. See the Figure 6 and Table 3. Alger County's economic performance was also significantly better in terms of these indices than that of the four surrounding adjacent counties except for real per capita income where it was similar.

Table 3

Relative Economic Performance of Gateway Counties
Percentage Growth in Economic Indicators 1969-2006

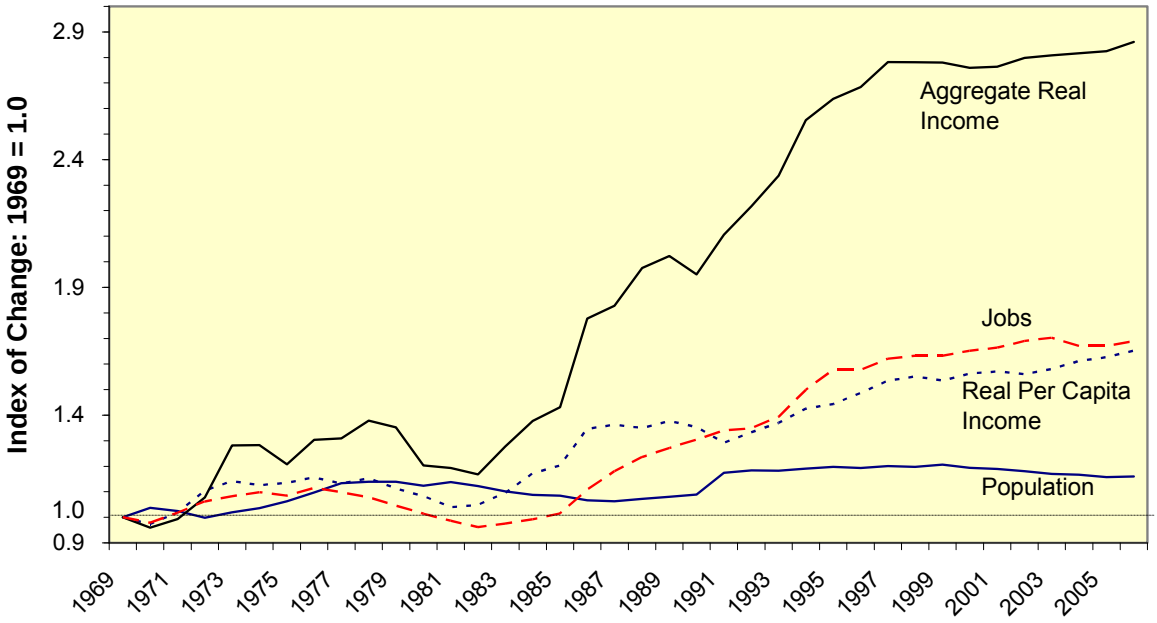
Area	Aggregate Per Real Personal Income	Capita Real Income	Jobs	Population
Apostle Islands: Bayfield	147%	96%	110%	26%
Apostle Islands: Ashland	70%	78%	75%	-4%
The State of Wisconsin	113%	67%	86%	27%
Pictured Rocks: Alger	186%	65%	69%	16%
The State of Michigan	70%	48%	52%	15%

Source: US Dept. Comm, BEA, REIS

Whatever the impact of the creation of these two National Lakeshores was on the local economies, that creation did not keep them from expanding significantly and out-performing the individual states in which they were located as well as most of their neighboring counties. These relatively small National Park units were associated with enhanced economic vitality just as communities adjacent to the much larger National Parks discussed above were. In that sense, the National Lakeshores advocates' expectations of renewed economic vitality were fulfilled. The objective of this study, however, is to understand the sources of that economic vitality in more detail.

Figure 6

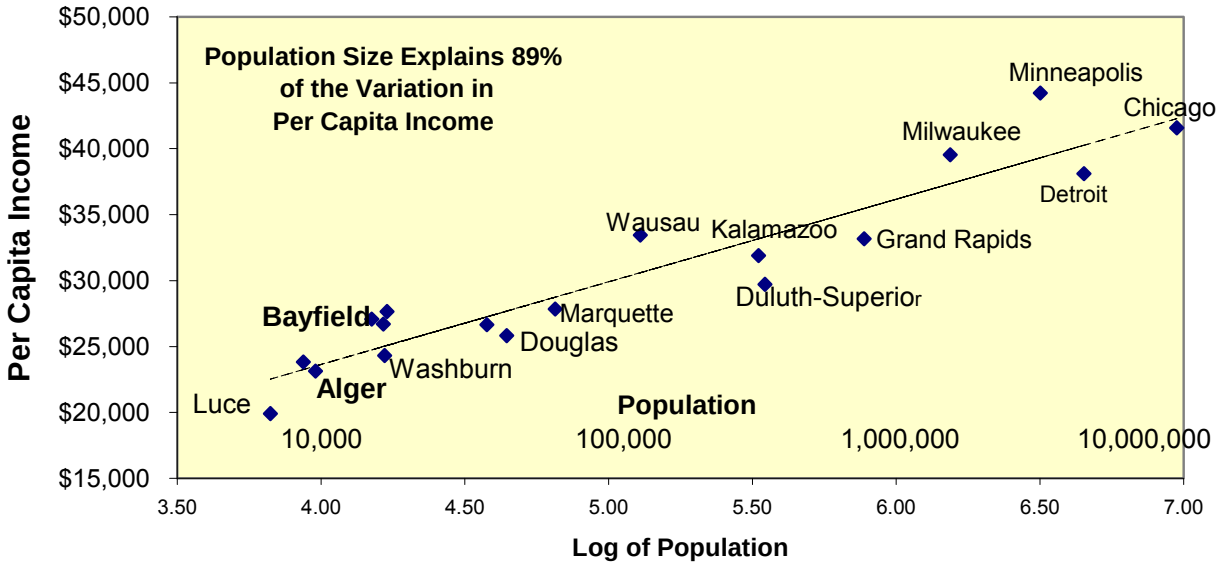
Indices of Economic Vitality in the Pictured Rocks NL Gateway County: Alger County, MI



The discussion above of the economic performance of the counties in which the two National Lakeshores are located was carried out in terms of their vitality, that is, improvement over time in various economic indicators. If, instead, we had focused on the level of average income or average pay, both Bayfield and Alger Counties residents would appear to be worse off than the average resident in Wisconsin or Michigan and much worse off than the residents of Chicago, Detroit, or Minneapolis. As population increases from the 7,000 living in Luce County, MI, just to the east of Alger County to about twice that in Bayfield County, average income rises. Larger Upper Peninsula county economies such as Marquette have higher incomes still. When metropolitan areas are included, average income rises steadily from Douglas County to the west of Bayfield to the whole of the Duluth-Superior metropolitan area and higher still in Minneapolis, Detroit, or Chicago, each of which steps up in terms of both population and average income. See Figure 7. There is a close linear relationship between average income and the logarithm of population.

Figure 7

The Impact of Population on Per Capita Income, 2006
Apostle Islands and Pictured Rocks NLs and Regional Metro Areas



Concluding from this that Alger and Bayfield and the other rural counties in northern Wisconsin and the Upper Peninsula are poorer and their economies are failing because of these lower money incomes would almost certainly be a misreading of the available statistics. After all, some of the higher income counties such as Douglas County, WI, part of the Duluth-Superior metropolitan area and Marquette County, MI, adjacent to Alger County to the west, have been losing population, not gaining it, while adjacent counties such as Bayfield and Alger have been gaining population despite their lower average incomes. And some of the highest paid areas such as Detroit have struggled to hang on to their population despite their high incomes. More densely settled areas tend to have significantly higher land values caused by the competition among businesses and residents to live in centrally located places. The higher productivity of economic activity associated with economies of size and scope and reduced transportation and communications costs in more densely settled areas compensate for those higher costs of doing business and living in those dense urban areas. The higher income and pay tends to be compensation for the higher cost of living and the disamenities of urban living including congestion, crime, and pollution. That higher pay tends to be offset by those higher costs of living, working, and doing businesses in more heavily settled areas.[15]

[15]See "Is the Mountain West Really Poor? Size of Place and Relative Pay and Income," Chapter 5 in ***Post-Cowboy Economics: Pay and Prosperity in the New American West,"*** Thomas Michael Power and Richard N. Barrett, 2001, Island Press, Washington DC, pp.103-124.

If we had good measures of how the cost of living and the value of amenities varied from place to place, we could correct local income statistics and get an accurate measure of local well being. We regularly do that for comparisons across time by using the Consumer Price Index to remove inflation. But the federal government quit collecting statistics dealing with geographic differences in the cost of living over 25 years ago. As a result, we cannot easily correct local income statistics to make them more accurate measures of local well being. We can, however, be careful not to compare rural area income with the incomes of people living in large urban areas. Using national or state averages as reference points does not solve this problem since those averages are dominated by the large percentage of citizens who live in large urban areas. The national average income, for instance, is associated with people living in cities of over one million people. In evaluating the well being of people living in a particular rural area, it is best to compare their income and pay levels to those of other rural areas rather than explicitly or implicitly to the incomes of residents in large urban areas.

2. The Lake Superior National Lakeshores and Amenity-Supported Local Economic Vitality

When the Apostle Islands and Pictured Rocks National Lakeshores were created 40 years ago, they were seen by many as a key element in an economic development strategy that would bring economic vitality to the south shore of Lake Superior, a region that at the time was seen as isolated, in decline, and facing long-term economic depression due to declines in the region's natural resource industries. The establishment of the National Lakeshore was expected to bring large numbers of visitors to the region, providing it with a new source of economic vitality.

The emphasis on economic development and the visitor economy created a tension with the primary function of the National Park system, the preservation of unique natural and historical treasures for future generations to enjoy. That tension has remained over the decades as management of the National Lakeshores has evolved. Some citizens conceived of the National Lakeshores as recreation intensive areas that would be managed to attract the largest number of visitors to the greatest variety of recreational activities supported by significant infrastructure put in place by the federal government. Others were more concerned about protecting these landscapes for posterity and minimizing the impact of visitors on those unique natural landscape features. At different times both groups may have felt that their originally expectations about how the National Lakeshore would be managed were betrayed by later management decisions.

The economic evolution of the region and the nation may be in the process of significantly easing the original tension between economic development and landscape protection. The high volume of visitors originally imagined and the intensive recreation economy did not materialize. But the regional economies did improve and diversify, making a transition in which the traditional natural resource industries have come to play a less dominant role while the role of the natural landscape amenities, including the National Lakeshores, have grown in economic importance. The National Lakeshores have played an important role in this transition, a role that probably was not part of

either the development or preservation scenarios at the time the National Lakeshores were established.

As Apostle Islands and Pictured Rocks National Lakeshores were becoming realities in the late 1960s and early 1970, major changes were taking place in rural America. For the first time in the 20th century, the rate of population growth in rural areas exceeded that in large urban areas. Rural America was being repopulated as a result of net in-migration. That non-metropolitan "turn-around" took most demographers and economists by surprise. Although the post-World War II period had seen the suburbanization of America, those suburbs were growing around our large urban centers, continuing the concentration of population in those metropolitan areas. The rural "turn-around" was different. It represented an "ex-urbanization," people shifting from large urban areas to rural areas or smaller cities.

It was this shift in population that got demographers and economists thinking about the "non-economic" motivations for residential location decisions. As with the move from center city to suburbs, the move to rural areas represented a move away from employment and other commercial opportunities. Clearly households were interested in a broader range of characteristics in choosing a residential site than just economic opportunity or transportation costs. The site-specific environmental qualities, both social and natural, associated with a place also had to be considered. From this came the increasing attention to local "amenities."

As the Apostle Islands and Pictured Rocks National Lakeshores were getting established in the 1970s, change was also taking place in rural northern Wisconsin along Lake Superior and the border with Michigan's Upper Peninsula. One indicator of that change was the near doubling in the number of second homes. Across the counties south of Apostle Islands NL and the Wisconsin counties southwest of Pictured Rocks NL, second homes grew by over 24,000 or 80 percent. In Marinette County to the southwest of Pictured Rocks and in Sawyer and Vilas Counties south of Apostle Islands second homes doubled in number. See Table 4.

Our point is that as these two National Lakeshores were being established, a new set of economic forces began impacting rural America, namely amenity-supported economic development that incorporated much more than just "tourism" or the visitor economy. Those changes also broadened the economic role of the National Lakeshores in the local economy beyond simply the impact of park visitors' local expenditures.

Table 4

Growth in the Number of Second Homes in Selected Northern Wisconsin Counties, 1970-1980				
County	Number of Recreation Homes		Change 1970-1980	
	1970	1980	Number	Percent
Ashland	814	1,104	290	36%
Bayfield	2,568	3,977	1,409	55%
Burnett	3,220	5,255	2,035	63%
Florence	984	1,697	713	72%
Forest	1,956	3,422	1,466	75%
Marinette	3,568	7,339	3,771	106%
Oneida	6,505	10,593	4,088	63%
Sawyer	2,797	5,784	2,987	107%
Vilas	5,670	11,341	5,671	100%
Washburn	1,794	3,391	1,597	89%
Total	29,876	53,903	24,027	80%

Source: 1970 and 1980 Census of Population and Housing

In an economy in which economic activity, workers, and their families have become increasingly mobile, the location of economic activity is increasingly influenced by the attractive or unattractive qualities associated with the multitude of locations available. Local amenities or disamenities can influence the economic activity that is drawn to any particular area. Those amenities or disamenities, in effect, become part of the local economic base, the local economic forces determining the character of local economic development. There is no need to exaggerate or minimize these new economic forces. Their strength and importance is an empirical question. The assertion is not that only local amenities matter. It is simply that local amenities matter somewhat, with a strength that varies from place to place and from one time period to another.

In the discussion and analysis above we laid out the multiple facets of “amenity-supported” local economic vitality. We included:

- Visitors drawn to the area because of its unique features.
- Part-time residents who facilitate visitation by owning a second home there.
- Retirees who choose an area for their new permanent residence.
- Working-age households who relocate in the pursuit of local qualities that match their preferences and the phases of their life cycle: Going away to college, starting a career as a young single, starting and raising a family, empty nesting, etc.
- Working-age households who choose to live in a preferred setting while commuting to work in a location in which they choose not to reside.

The last three elements in the list focus on the impacts of new permanent residents on a local economy rather than on the impacts of temporary visitors and the second focuses on part-time residents who, at least in northern Wisconsin and the Upper Peninsula,

spend considerable time at their second homes and are more appropriately thought of as part-time residents, not primarily as temporary visitors.

The National Lakeshores play two important roles beyond attracting temporary visitors, i.e. “tourists.” First, they provide permanent protection to unique local landscape amenities. Second, the very classification as a unit in the National Park system signals to a national audience the presence of high quality and protected natural landscape features. As discussed above, this draws people who are not familiar with an area to it where they discover not only something about the National Lakeshore but also about the broader natural and social environment surrounding the National Lakeshore. This, for a small number of visitors, may lead to further commitments to that place, including second homes or permanent residences.

To some, the latter may seem far fetched. But there is a broad body of evidence that protected natural landscapes have an impact on the location of economic activity. Studies of counties in which Wilderness Areas, National Parks, State Parks, or, even, just federal roadless areas or generic federal lands are located have shown higher levels of economic vitality than in areas without such protected landscapes.[16] Given that many of these protected landscapes do not draw large volumes of visitors and are not classified as recreation counties, the economic role being played by the protected landscapes goes beyond the usual “tourism” explanation. The presence of the protected landscapes identifies areas where open space, scenic beauty, wildlife, and recreation opportunities will be protected indefinitely into the future. The national classification of some of those protected lands signals something more: There are landscapes of national significance present.

It is also true that protected landscapes tend to cluster together to a certain extent. Consider the Apostle Islands and Pictured Rocks National Lakeshores. Parts of each of these two Lakeshores have been classified as part of the National Wilderness System.

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[16] See several articles in the volume ***Wilderness Science in a Time of Change Conference Proceedings***, RMRS-P-15-CD, Cole, David N. et al., eds., (Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station) including Loomis, John B. 2000. "Economic Values of Wilderness Recreation and Passive Use: What We Think We Know at the Beginning of the 21st Century," Lorah, Paul. 2000. "Population Growth, Economic Security, and Cultural Change in Wilderness Counties," Phillips, Spencer. 2000. "Windfalls for Wilderness: Land Protection and Land Value in the Green Mountains," Rudzitis, Gundars, and Johnson, Rebecca. 2000. "The Impact of Wilderness and Other Wildlands on Local Economies and Regional Development Trends."

Also see: Booth, Douglas E. 1999. "Spatial Patterns in the Economic Development of the Mountain West." Growth and Change 30(Summer) pp. 384-405. Crompton, John L. et al. 1997. “An empirical study of the role of recreation, parks and open space in companies’ (re)location decisions,” J. of Park and Recreation Administration. 15(1) pp. 37-58. Rasker, Ray. 1994. “A New Look at Old Vistas: The Economic Role of Environmental Quality in Western Public Lands," University of Colorado Law Review. 65(2) pp. 369-97. Johnson, J., and Rasker, R. 1993. “The Role of Amenities in Business Attraction and Retention.” Montana Policy Review. 3(2) pp. 11-19. Duffy-Deno, Kevin T. 1998. "The Effect of Federal Wilderness on County Growth in the Intermountain Western United States," J. of Regional Science. 38(1) pp. 109-136.Duffy-Deno, Kevin T. 1997. "The Effect of State Parks on County Economies of the West," J. of Leisure Research. 29(2).

In addition, the surrounding landscape is heavily protected by a variety of public agencies.

In the Apostle Islands area, the heart of the Bayfield Peninsula is largely in public ownership, federal, state, and county forest land. This assures residents and potential residents that these lands will not become densely settled and developed but will remain relatively wild. See Figure 8, a map showing the land ownership patterns in northern Wisconsin's Pine Barren that stretch through Burnett, Washburn, and Bayfield Counties.[17] The state and federal public land managers in the Apostle Islands region, including the U.S. Forest Service, the U.S. Fish and Wildlife Service, and National Park Service along with various state agencies recognize this joint attraction of these protected lands and jointly operate the Northern Great Lakes Visitor Center outside of Ashland, Wisconsin, just south of the Apostle Islands.

The Pictured Rocks National Lakeshore is also associated with a much larger set of public lands including the Grand Island National Recreation Area, the Hiawatha National Forest, the Lake Superior State Forest, and the Seney National Wildlife Refuge (in Schoolcraft County). Of Alger County's total area, 43 percent is public recreation land. Pictured Rocks NL makes up about a seventh of this total while the Hiawatha National Forest represents almost half and the Superior State Forest over a third.[18] The National Forest and National Lakeshore recognize the joint attraction to visitors of the federal lands they manage and jointly run a visitors center in Munising. Of course, the largest "public land" in both the Pictured Rocks and Apostle Islands regions is Lake Superior itself, the largest of the Great Lakes.

People are not attracted to an area by just one feature or quality. It is the suite of qualities and experiences taken together that draw them. Although we have not tried to quantify it, these National Lakeshores have played a vital role in drawing attention to the south shore of Lake Superior and the amenities that northern Wisconsin and the Upper Peninsula have to offer. Visitation to these National Lakeshores is a crucial part of this. But the economic impact does not end with the expenditures visitors to the National Lakeshores make. The knowledge and understanding that visitors obtain about the Lakeshores as well as the gateway communities and the other public recreation lands remain important into the future. That experience and knowledge will bring some of those visitors back and some of the repeat visitors will become residents of the region, if not the gateway communities. Like the initial visits to the National Lakeshores themselves, that National Park unit is unlikely to have been the only thing drawing people back, but it is likely to be what introduced people to the area and remains an important symbol of what the region has to offer residents.

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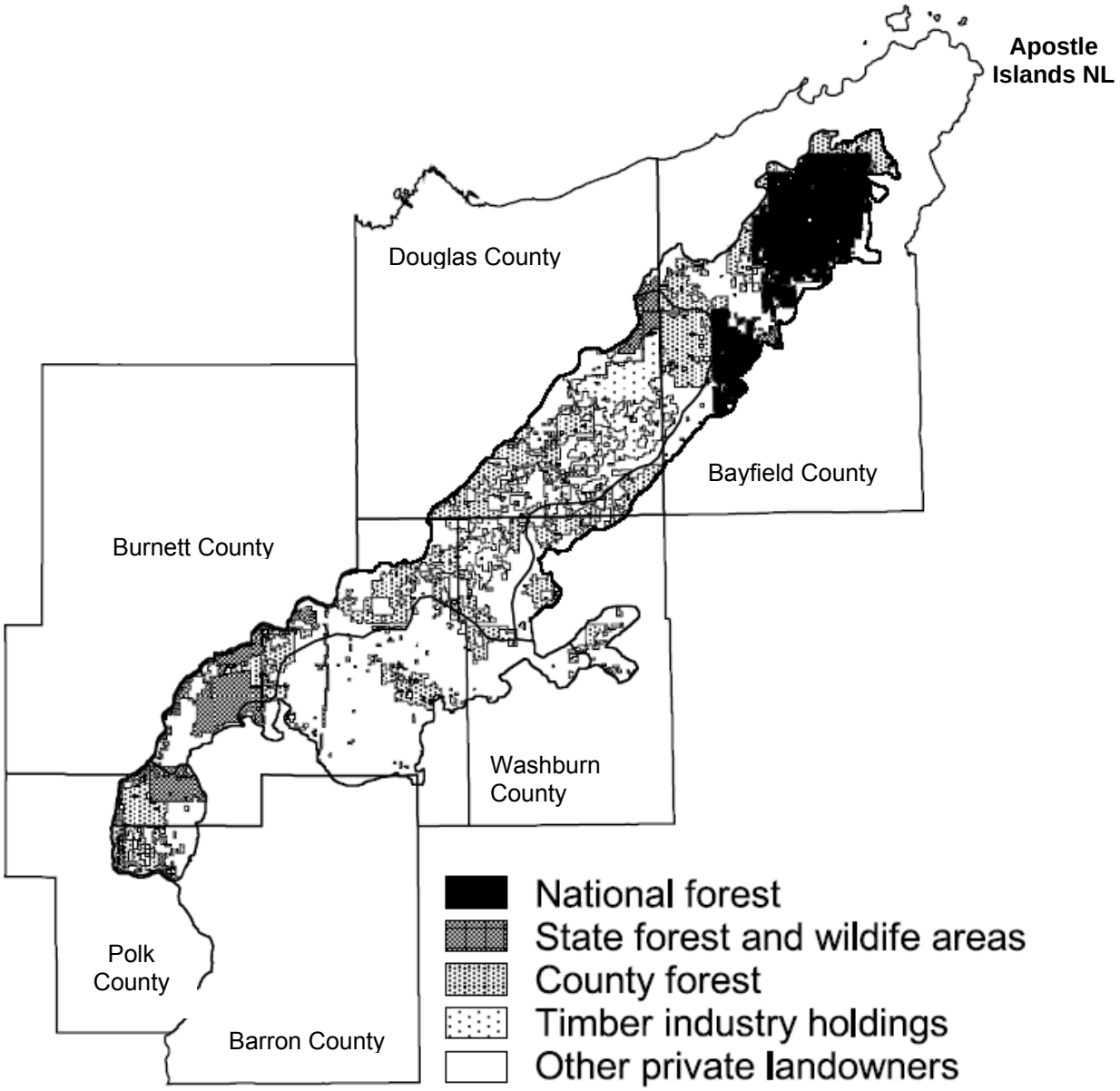
[17] Figure 2 in Human Demographic Trends and Landscape Level Forest Management in the Northwest Wisconsin Pine Barrens, Volker C. Radeloff et al., ***Forest Science*** 47(2), 2001, p. 234; data from the Wisconsin Department of Natural Resources.

[18] Holecek, Donald F., et. Al.. 2001. "Alger County Tourism Profile." Tourism Resource Center, Michigan State University, Extension, East Lansing, MI http://www.tourism.msu.edu/t-aoe/html-aoe/co-profile-aoe/RecentProfiles/02-Alger.pdf .

Figure 8
Land Ownership in the Wisconsin Pine Barrens



For all of these reasons, the economic impact associated with the spending of visitors to the National Lakeshores has to be seen as just one part of the overall contribution they continue to make to local economic vitality.

III. The Economic Connections between the Lake Superior National Lakeshores and Their Gateway Counties

1. Our General Approach to Measuring the Different Elements of Amenity-Supported Economic Vitality

In this analysis, we will use the conventional economic base view of the local economy to determine what part of the changes in the local economy over the last 30 years can be explained by changes in the payrolls of the traditional economic base: manufacturing (including, among others, logging, wood products, and paper), mining (and related ore concentration and/or refining), agriculture, and federal and state governments.[19]

Where there is considerably more economic vitality than these changes in the traditional economic base can explain, there is evidence of other economic forces at work, including those associated with amenity-supported local economic development such as the impact of temporary visitors (tourism and recreation), part-time residents (vacation homes), as well as in-migration of new permanent residents attracted by the local amenities.

We will use conventional economic base modeling to estimate the relative contribution of changes in the traditional basic industries as well as changes in the visitor economy in explaining the total changes in the local economy. We will also use those same tools to isolate the part of that visitor-related economic impact that can be attributed to the National Lakeshores. To the extent that these impacts of temporary visitors cannot explain the observed economic vitality, we will have isolated a part of the local economic vitality that the economic base view of the local economy cannot explain. We will then examine the likelihood that amenity-driven in-migration explains that residual part of local economic vitality. We will also explore the local economic impact of people who work in one county but choose to live in another, a residential choice decision that shifts the impact of those jobs and income away from the county where the economic activity actually takes place.

As will become apparent as the analysis moves beyond the visitor economy, our ability to tie particular economic changes to particular landscape or social amenities such as the National Lakeshores will diminish. We can study visitors and their spending and trace the impact of that spending and even ask those visitors if the National Lakeshores were the primary reason they came to visit. But when it comes to new part-time or full-time residents, as discussed above, it is not plausible to hypothesize just one local

[19] What is explicitly *not* included in the" traditional" economic base is the visitor economy. We will look at the impact of visitors separately as one part of amenity-supported local economic vitality. Since we are including federal government payrolls in the traditional economic base, however, we have implicitly included National Lakeshore payrolls in the traditional economic base. Although we could move those National Lakeshore payrolls to the "visitor economy" for the one or two years for which we have data on those payrolls, we could not make that adjustment for each of the thirty or forty years since the National Lakeshores were created. In that sense, we have not been able to cleanly identify and isolate the visitor economy over the longer historical period we have sought to analyze.

landscape feature such as a National Lakeshore was the sole or, even, primary cause of that location decision. The whole suite of local characteristics is likely to have influenced that decision: the presence of Lake Superior itself, the broad range of other protected public landscapes in the region, attractive "open space" provided by private landowners, the importance of local public services such as schools as well as private services such as medical care, entertainment, and cultural events, the social characteristics of the community, the local economic opportunities, the local cost of living, including home costs, the degree of isolation from "urban amenities," and so on. Teasing apart all of these location considerations and quantifying the specific role of the National Lakeshores is probably not empirically feasible. We will go as far as the available data allows, but ultimately we will be left with the fact that in-migration into the region that cannot be explained by the traditional economic base or the visitor economy has been playing a role. We can quantify the impact of that in-migration on the local economy, but convincingly tying that in-migration to specific local qualities such as the National Lakeshores will not be possible.

The Study Area and Time Period Studied

Our initial exploration of the role that amenity-supported local economic vitality has played in the evolution of the communities and economies in which Apostle Islands and Pictured Rocks National Lakeshores are embedded will focus on the areas most directly affected by the National Lakeshores: The "gateway" counties in which the National Lakeshores and/or facilities serving visitors are located. For Apostle Islands NL this includes Bayfield County which provides the primary access to the Apostle Islands as well as several mainland based facilities and access points. It also includes Ashland County within which most of the Apostle Islands are actually located. For Pictured Rocks NL Alger County in which the National Lakeshore is located is the gateway county and the area of primary impact.

Previous analysis has suggested that high quality amenities by themselves are not sufficient to generate local economic vitality. The costs of isolation can discourage the visitation, second home development, and the in-migration of both retirees and working-age families.[20] Ongoing economic development, by itself, can reduce the costs of isolation. For that reason we are also interested in whether within the larger region surrounding the National Lakeshore there was evidence of such amenity-supported development tied to other regional amenities rather than to the National Lakeshores. The presence of such development could be a sign of the type of development that may ultimately come to the counties surrounding the National Lakeshores. That analysis is provided in Appendix A and summarized in the main body of this report.

Pictured Rocks NL was established in 1966 but was not dedicated until 1972. It took many years to negotiate boundaries, management responsibility, and tenure over the

[20] Prosperity in the 21st Century West: The Role of Protected Public Lands, Ray Rasker et al. Sonoran Institute. July 2004.
http://www.sonoraninstitute.org/index.php?option=com_docman&task=doc_download&Itemid=177&gid=578

complex mix of individual private cabin sites, timber company forest lands, and state lands. In that sense, the signing of the legislation establishing Pictured Rocks NL was just the first step in actually creating that National Lakeshore. Significant visitor infrastructure was not constructed until the late 1970s. Its first General Management Plan was not released until 1981. Paved, National Park-standard roads are just now (2009) being built.

Apostle Islands NL was established in 1970. It, too, then had to negotiate to gain control of as much of the islands as possible and a small mainland unit from private owners as well as the State of Wisconsin. Wisconsin owned about 40 percent of the archipelago. It was not until 1976 that the state legislature authorized the transfer of state interests to the Apostle Islands NL. Long Island stretching to the south towards Ashland and the Bad River Indian Reservation was not added to the National Lakeshore until 1986.

Because it took so long to actually bring these two national lakeshores into existence and begin managing them as National Park Service units, we have chosen to carry out most of our analysis using the time period 1978-2006. For a larger overview we will, as we did above, look back to 1969, about the time both units were established and the furthest back that the county economic data will allow us to look.

The Size of Expected "Multiplier" Impacts in the Economic Base Approach

Bayfield, Ashland, and Alger Counties are all "rural" counties in the sense of having neither "metropolitan" urban areas (population greater than 50,000) nor "micropolitan" urban areas (population greater than 10,000).[21]

The rural and small town character of these counties is important in evaluating the local impact of changes in economic activity. The "ripple" or "multiplier" effects that amplify the impact of changes in the basic sectors are driven by income circulating within the local economy, from businesses to workers and back other businesses, etc. Rural areas and small towns usually do not have a sufficiently diverse set of businesses to allow them to absorb and "re-circulate" the income received by residents. Instead, that new income quickly "leaks" out of the local area to purchase goods and services produced and sold in more distant trade centers. As a result, the indirect and induced impacts of income received by local residents are reduced.[22] [23]

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[21] Bayfield County is adjacent to Douglas County which is part of the Duluth-Superior metropolitan area but is not strongly linked to that metropolitan area by commuting to work or shop. Alger County is adjacent to Marquette County which contains the city of Marquette, the largest urban area in the Upper Peninsula and a micropolitan area. Delta County adjacent to Alger County to the south is also a micropolitan county but the urban cores of each county, Munising in Alger and Escanaba in Delta are separated by 50 miles and there are limited economic ties.

[22] "Indirect" impacts are those associated with a local business purchasing materials, equipment, and supplies from other local businesses. "Induced" impacts are those associated with the additional workers spending their earnings in other local businesses.

[23] Scale Effects on Tourism Multipliers, Geoffrey Wall, *Annals of Tourism Research* **24**(2):446-450.

Economic analysis of the impact of visitor spending in Apostle Islands and Pictured Rocks National Lakeshores using the National Park Service's "Money Generation Model-2" (MGM-2) documents this. Those studies estimated that for each dollar of personal income received by households providing services to visitors, only an additional 29 cents in the Apostle Islands NL area and 21 cents in the Pictured Rocks NL area in personal income was generated as people working in visitor services spent those earnings in local businesses or businesses serving visitors bought supplies locally. [24] Most of the personal income earned in the visitor services industries quickly leaked out of these counties. These modest multiplier impacts are what one would expect for a rural area without a large trade center.

The MGM-2 Model indicates that for generic rural areas one dollar in visitor spending stimulates the creation of only about 32 cents in personal income. In small metropolitan areas the impact would be larger, 46 cents, and for the state as a whole the impact would be 63 cents.[25] The larger the economy, the higher are the visitor spending "multiplier" impacts. The Lake Superior National Lakeshores' gateway communities are quite small: Bayfield County has no towns large enough to exceed the "rural" threshold (2,500). Munising in Alger County just barely exceeds that rural threshold. Ashland, in Ashland County, with slightly over 8,000 residents, is the only gateway community that comes close to the size for micropolitan status.

2. The Impact of Changes in the Traditional Economic Base on the Local Economy

It is against these expectations that we analyzed the incremental changes in earnings in the traditional economic base ("basic earnings") of the gateway counties surrounding these two National Lakeshores and the accompanying change in earnings outside of the traditional economic base ("non-basic earnings") as well as the change in total personal income.[26] We used the 29 year period 1978-2006 for the analysis. Both the beginning and end years of this time period were well along in an expansionary phase of the national business cycle. Thus, the changes between the two end years cannot be

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[24] "Impacts of Visitor Spending on the Local Economy: Apostle Islands National Lakeshore, 2004," July 2006, Table 8, p. 8 and "Impacts of Visitor Spending on Local Economy: Pictured Rocks National Lakeshore, 2001," May 2003, Table 7, p. 12, Daniel J. Stynes, et al. Recreation and Resource Studies, Michigan State University, East Lansing, MI.

[25] MGM2 Short Form. http://web4.canr.msu.edu/MGM2/MGM2Shortform.xls .

[26] Our use of "basic" and "non-basic" earning here, while following popular economic dialogue about what is the "economic base" (the traditional export industries), is not the language economists would use. Because visitor expenditures "inject" income into the local economy, it is part of the economic base. Similarly, some economists would include investment and retirement income in the basic category. We will proceed to add these other economic forces into our analysis, supplementing the "traditional economic base" to reveal the impact of various parts of the "amenity economy"

"Earnings" refers to wages and salaries received by workers as well as the net income of self-employed individuals. "Personal Income" includes these earnings as well as other sources of income such as investment income, retirement income, and income from various government income support programs such as unemployment compensation, food stamps, and Medicaid for low income households. As will be discussed below, 30 to 40 percent of personal income is not associated with earnings associated with current employment.

attributed to different stages in the national business cycle. 2006 was the latest year of data available. By 1978 both National Lakeshores were well established and operating, at least to a certain extent, to greet and support visitors.

It should be pointed out that in this section and the following two sections we will be only roughly approximating the changes in the economic base and the impact of various components of those changes on local income. The resources available for this study did not allow for individual input-output modeling of each county economy, a total, ultimately, of 17 separate county economies. Instead we have identified the sectors conventionally identified as the economic base and used average income multipliers from previous studies. Although rough approximations, we believe that these estimates still provide insight to the relative size of the forces operating on these local economies.

The Apostle Islands National Lakeshore Gateway Counties

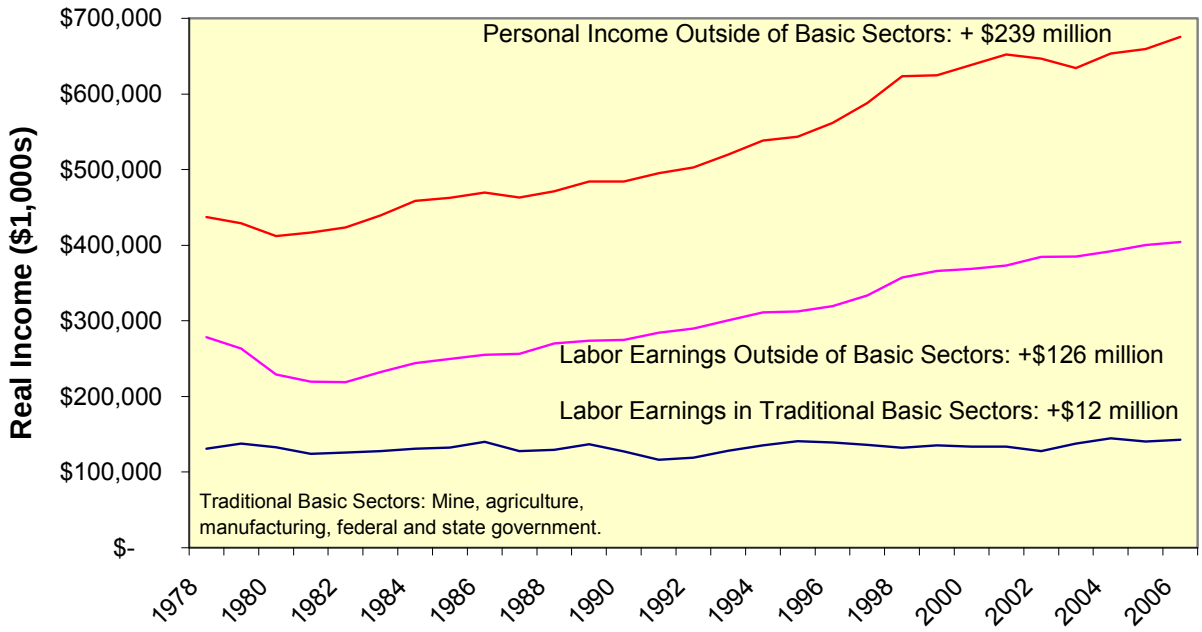
The primary "gateway community" for the Apostle Islands NL is Bayfield in Bayfield County, Wisconsin. Most of the islands themselves, however, are located in Ashland County. There is considerable commuting to work between Bayfield and Ashland Counties. For that reason, we look at both counties for this piece of the analysis. Between 1978 and 2006 workers' earnings in the traditional economic base of the two-county area grew by about $12 million dollars after inflation was removed. Worker earnings in other, non-basic sectors, however, grew by $125 million dollars, a ratio of almost 11 to 1. If the growth in personal income outside of the traditional economic base which includes income from investment, retirement, and other non-employment income is the reference for the comparison with the traditional economic base, the ratio is 20 to one.[27] See Figure 9.

If the income multiplier associated with changes in the Bayfield-Ashland county traditional economic base were at the upper end of plausible values for such a rural area, say 1.5, the $12 million increase in real earnings in the traditional economic base would have led to a $6 million increase in real personal income outside of the basic sectors for a total increase of $18 million. The growth in real earnings and income outside the basic sectors was clearly far greater, in fact twenty to forty times greater, than can be explained by changes in the traditional economic base. Even more dramatic, if one focuses exclusively on Bayfield County, the point of access for most visitors to the Apostle Islands NL, the traditional economic base actually contracted by $3 million while the rest of the economy expanded by $150 million. Clearly there were economic forces at work not associated with the traditional economic base in the two counties surrounding the Apostle Islands NL.

[27] Labor earnings include wages and salaries and the net income of the self-employed. Total personal income includes these labor earnings as well as investment income (dividends, rent, and interest) as well as government retirement programs (social security, Medicare reimbursements, and veterans' benefits), as well as income support programs (unemployment compensation, "welfare," and Medicaid). Because commuters receive wages and salaries (earnings) from jobs outside the county economy, we have included those earnings in the county total earnings by adding the "residence adjustment" to earnings by place of work in all of the analysis of earnings. Personal income statistics already include those "outside" sources of income.

Figure 9

Changes in the Traditional Economic Base and the Rest of the Economy: Bayfield and Ashland Counties, WI



The Bayfield-Ashland area exhibited considerable economic vitality since 1978 with jobs and aggregate real income rising about 45 percent and real per capital income increasing 35 percent. Population growth, however, was quite modest, only 6 percent during that 28 year period. Aggregate real income growth was faster in Bayfield County because job growth was over twice as fast as that in Ashland County (75 versus 32 percent) and because more and more Bayfield County residents were commuting into Ashland County to work, bringing those labor earnings back to Bayfield. The close linkage between the economies of the two areas led real per capita incomes in the two counties to track each other quite closely as they move upward together.

Pictured Rocks National Lakeshore Gateway County

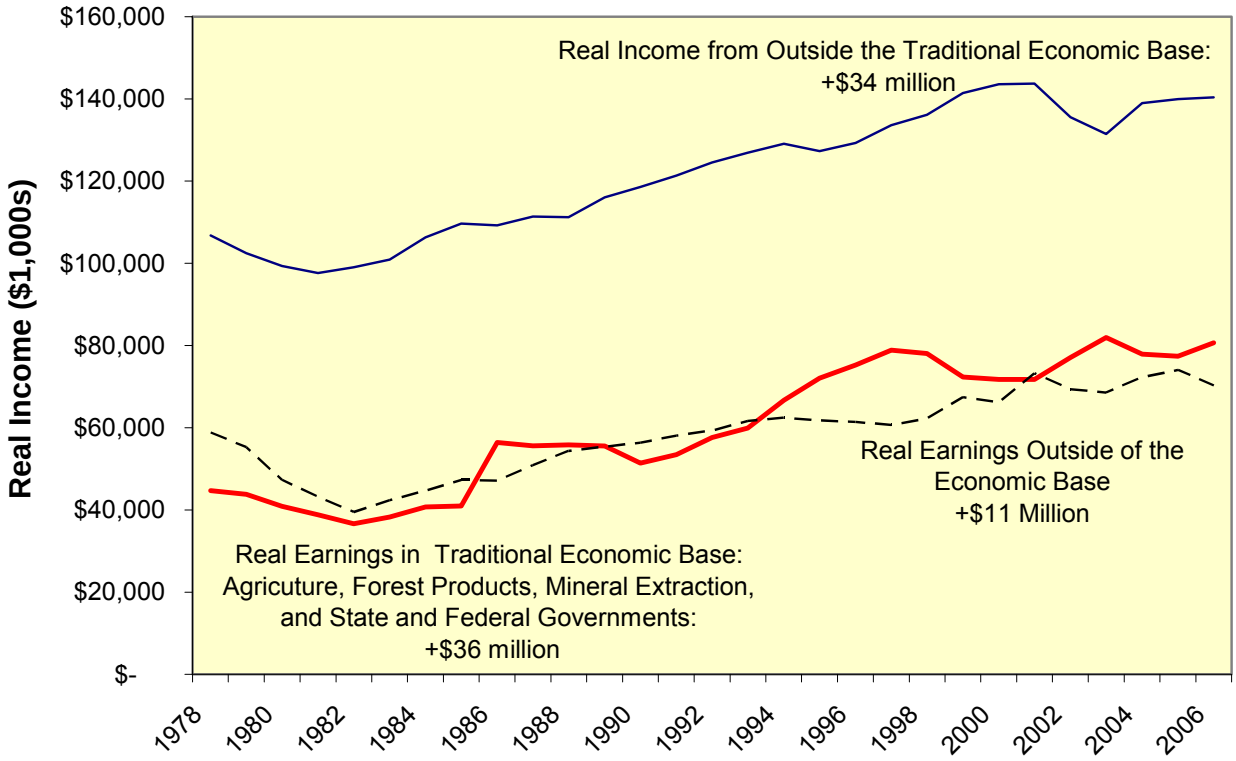
Economic developments in Alger County in which Pictured Rocks NL is located and Munising, Michigan, the dominant gateway community to Pictured Rocks, have been more closely tied to changes in the traditional economic base that was the case in the area around Apostle Islands NL.

In Alger County, the dominant source of growth in labor earnings and total personal income was growth in the traditional economic base between 1978 and 2006. Basic earnings grew by $36 million but earnings in the rest of the economy grew by only $11

million and non-basic sources of personal income expanded by $34 million. See Figure 10.

Figure 10

Changes in theTraditional Economic Base and the Rest of the Economy: Alger County, MI, 1978-2006



The growth in the traditional economic base was tied to growth in state government payrolls associated with the construction and operation of a prison, the expansion of manufacturing payroll (mostly paper and wood products), and expanded federal employment.[28]

Analysis of the Lake Superior NL gateway county economies, Alger County, MI, and Bayfield and Ashland Counties, WI, estimated income multipliers associated with the visitor economy in Alger County that were significantly smaller (27 percent smaller) than the same income multipliers for the much larger Bayfield-Ashland economy.[29] The

[28] The federal government payroll, of course, includes the National Lakeshore payrolls. As mentioned above, we do not have National Lakeshore payrolls from 1978-2006 that would allow us to remove them from the "traditional economic base." In that sense there is "double counting" in our analysis since we treat the National Lakeshore payrolls as part of the visitor economy in our analysis of the role of the National Lakeshores in the local economy in 2006. The traditional economic base amounted to $143 million in the Apostle Island NL gateway counties and $81 million in the Pictured Rocks NL in 2006. The National Lakeshore payrolls were $2.6 million at Apostle Islands NL and $1.9 million at Pictured Rocks NL. Thus we potentially overestimated the "non-visitor" traditional economic bases by 1.8 and 2.4 percent respectively.

[29] See Appendix B and the discussion of the visitor economy in these gateway counties below.

Bayfield-Ashland economy is almost 4 times the size of the Alger County economy. If we adjust the assumed multiplier impacts associated with the traditional economic base in Alger County downward by the same percentage, the appropriate income multiplier associated with the traditional economic base would be 1.36 as opposed to the 1.50 used for Bayfield-Ashland. The $36 million expansion in basic earnings in Alger County would be associated with a $50 million expansion in personal income. Total real income actually expanded $70 million. The expansion in the traditional economic base would explain 70 percent of the growth in the economy.

Since 1978 Alger County has showed more signs of economic vitality than any of its adjacent counties (Marquette, Delta, Schoolcraft, and Luce). Jobs, aggregate real income, real per capita income, and population have all expanded faster in Alger County than in adjacent counties.

The explanatory power of the traditional economic base in the gateway counties of the Apostle Islands and Pictured Rocks National Lakeshore are summarized in Table 5.

Table 5

Economic Change Explained by Changes in the Traditional Economic Base 1978-2006

Counties	Change in Real Total Personal Income ($millions)	Changes Caused by Changes in Traditional Econ Base ($millions)	% of Change Explained by Economic Base
Apostle Islands NL Gateway Counties			
Bayfield-Ashland	$250	$18	7%
Bayfield $1	50	-$5	-3%
Ashland	$100	$22	22%
Pictured Rocks NL Gateway County			
Alger	$70	$49	70%

3. Impact of the "Visitor Economy" on the National Lakeshore Gateway Counties

One widely recognized part of the economic base of northern Wisconsin and the Upper Peninsula of Michigan that we did not include in the "traditional" economic base in the analysis above is "tourism" or, more broadly, "the visitor economy": the economic stimulus provided by the spending by visitors who come on summer vacations or to enjoy a variety of recreation activities summer and winter. This includes both those who are truly temporary visitors as well as those repeat visitors who have purchased a second home in the area to facilitate their regular visits. The economic role of National Park units in the local economy is usually discussed in terms of the former: the temporary visitors and their spending attracted to the region by the presence of a landscape feature unique enough to have been recognized in the National Park system.

In this section we explore the extent to which the economic performance of the counties surrounding Apostle Islands and Pictured Rocks National Lakeshores can be explained by their "tourism" sectors and, more particularly, the impact of visitors to Apostle Islands and Pictured Rocks National Lakeshores.

Temporary Versus Second Home Visitors

One of the unusual features of the visitor economy of Northern Wisconsin and the Upper Peninsula of Michigan is the high concentration of second or vacation homes. In some counties in this larger region close to half of the housing units are seasonal homes. In the area around Apostle Islands NL, one of the gateway counties, Bayfield, 42 percent of the homes are vacation homes. In the Pictured Rocks NL area 31 percent of the housing stock is vacation homes. Some counties have nine to ten times the seasonal home density of about 6 percent found across the states of Michigan and Wisconsin as a whole.

Compared to the nation, northern Wisconsin and the Upper Peninsula are not unique but do represent one of a handful of areas with unusually high densities of seasonal housing including Florida, Arizona, parts of New England, and Upstate New York. See Table 6 and Figure 11.[30]

Clearly many of the visitors to the Lake Superior National Lakeshore gateway counties are regular return visitors who have invested in regularly enjoying the natural and social amenities found in these counties. In addition to these second home owners, in the Apostle Islands NL area there are also a large number of people who use their sailboats as summer homes, mooring them in local marinas and living on them when they visit the area. We will discuss this phenomenon more below.

A study of seasonal homeowners in Michigan found that those homes were used an average of 86 days a year. In 2008 dollars, seasonal homeowners spent about $9,000 per year to operate and maintain their vacation homes and $68 a day in the local area when using their vacation homes.[31] One interesting aspect of second home ownership is that almost half were owned by people over 60. Many of them indicated that they were considering converting them into their permanent residences once they retire. These "semi-permanent" residents may become permanent residents in the near future.[32]

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[30]Map from the Northeast Regional Center for Rural Development. http://www.nercrd.psu.edu/Land_Use/morgantown.2002.ppt#256,36

[31] "Seasonal Homes and Natural Resources: Patterns of Use and Impact in Michigan, Daniel J. Stynes et al., North Central Forest Experiment Station, USDA Forest Service, GTR NC-194, 1997. The analysis focused on a sample of seasonal homes in the northern Lower Peninsula, not the Upper Peninsula. The data was collected in 1994. Dollar values have been inflated to 2008 using the CPI.

[32] Ibid, p. 30.

Table 6

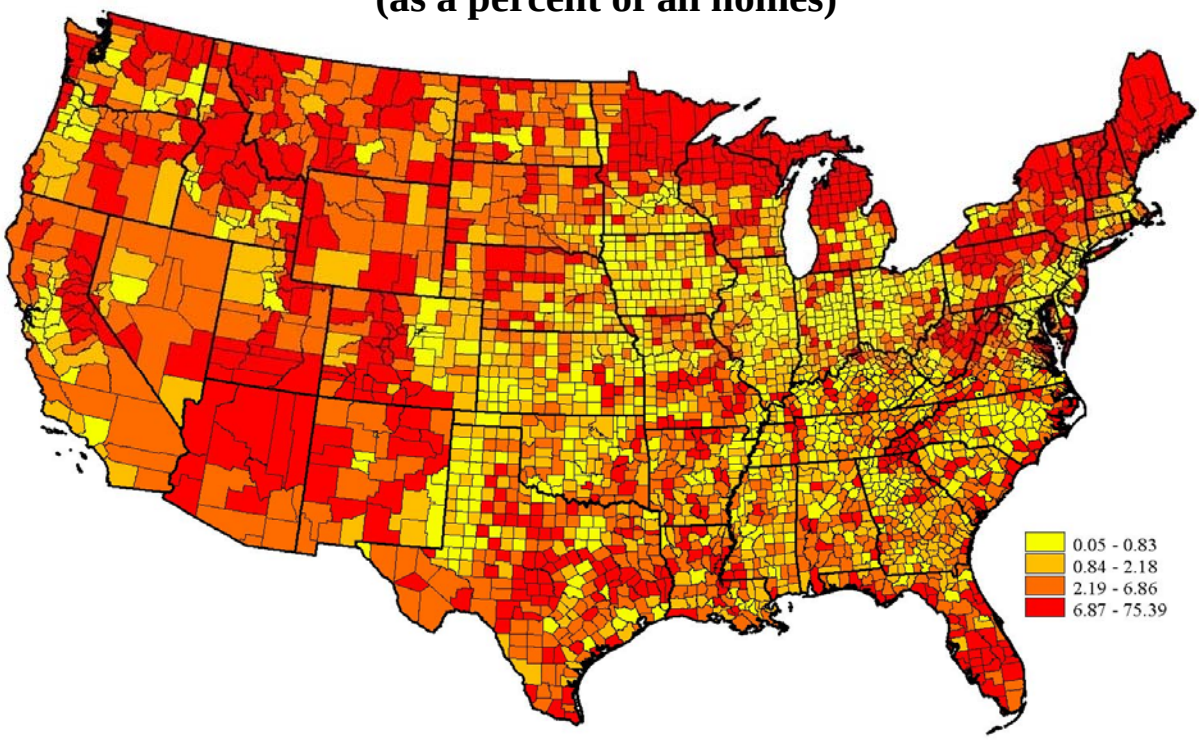
The Prevalence of Seasonal-Recreational Housing in Apostle Islands and Pictured Rocks Study Regions, 2000		
County	% of Total Housing That is Seasonal or Recreational	County % Seasonal Relative to the Average MI-WI State %
Pictured Rocks NL Region	20%	3.5
Alger County, MI	31%	5.4
Schoolcraft County, MI	30%	5.3
Luce County, MI	31%	5.5
Marquette County, MI	13%	2.2
Delta County, MI	12%	2.1
Dickinson County, MI	11%	2.0
Florence County, WI	46%	8.1
Marinette County, WI	29%	5.0
Menominee County, MI	17%	3.0
Keweenaw County, MI	51%	8.8
Apostle Islands NL Region	43%	7.5
Bayfield County, WI	42%	7.4
Ashland County, WI	19%	3.0
Burnett County, WI	45%	7.8
Washburn County, WI	35%	6.1
Sawyer County, WI	49%	8.5
Oneida County, WI	39%	6.8
Vilas County, WI	56%	9.8
States of WI and MI	5.7%	1.0

A 2000 analysis of Michigan county visitor spending broke that spending down into different categories based on the overnight accommodations (if any) used by the visitors. Averaged across all ten counties in our Pictured Rocks NL region, a third of visitor spending was associated with those making use of seasonal homes. The range was 22 percent in Marquette to 51 percent in Menominee, MI.[33] Clearly ignoring recreational homes would lead to a significant understatement of visitor spending impacts.

[33]"Michigan Tourism Spending by County, 2000 – Update," Daniel Stynes, 2002, http://web4.canr.msu.edu/mgm2/econ/MIindex.htm .

Figure 11

Seasonal/Recreational Homes, the US, 2000
(as a percent of all homes)



The Northeast Regional Center for Rural Development

A study of Wisconsin seasonal homes came to similar conclusions.[34] Usage of recreational homes is heavy, peaking during the summer at about 22 days per month and then declining during the winter to about 7 days per month.[35] Average annual expenditures on their recreational homes were identical to that estimated in the Michigan study, about $9,000 in 2008 dollars but the authors pointed out that not all of those expenditures took place in the local community. Local purchases were 40 to 60 percent of the total. But the split of expenditures between local and non-local purchases

[34] Recreational Homes and Regional Development: A Case Study from the Upper Great Lakes States, David W. Marcouiller et al. 1996, Cooperative Extension Publication G 3651, University of Wisconsin-Madison. Also, Recreational Homeowners and Regional Development: A Comparison of Two Northern Wisconsin Counties, John Preissing et al., 1996, Center for Community Economic Development, University of Wisconsin-Madison-Extension, Staff Paper Number 96.4. These studies focused largely on two Northern Wisconsin counties. Forest and Burnett. Burnett is one of the counties in our study area, southwest of Apostle Islands NL.

[35] We do not have data on Upper Peninsula seasonal home use. For all of Michigan the days of usage appear to be lower than those reported for northern Wisconsin: 16 days per month during the summer, falling off to 3 days per month during the lowest use season, winter. See Seasonal Homes and Natural Resources: Patterns of Use and Impact in Michigan, Daniel J. Stynes et al., 1997, USDA Forest Service North Central Forest Experiment Stations, General Technical Report NC-194, p. 12, figure 4.

by recreational homeowners was similar to those of permanent residents.[36] In relatively rural counties, much household expenditure must necessarily take place at distant trade centers because of the relatively underdeveloped local commercial infrastructure. The high level of local spending combined with a relatively low level of demand for public services, especially public schools, made this source of local economic vitality attractive to some communities. There was also evidence in Wisconsin of conversion of recreational homes to permanent home upon retirement.

A 2004 study of the "Contribution of Second Homes to Rural Economies" focused on the northeastern United States. It found that the higher the percentage of second homes in a county, the faster the growth in population, employment, and per capita income.[37] That study did not include upper Great Lakes counties in its sample. A related follow up study wrestled with the question: "Does Second Home Development Adversely Affect Rural Life?" One of the concerns was whether second home development conflicted with ongoing employment in land-based economic activities such as agriculture and forestry. It found no such negative impact but did find a positive relationship between the percentage of jobs in natural resource industries and the increase in second homes.[38]

Counties Specializing in Commercial Recreation

The Economic Research Service of the U.S. Department of Agriculture identifies rural counties that are especially specialized in certain economic activities, including commercial recreation. It does this on the basis of the percentage of local jobs and earnings generated by visitor oriented services such as accommodations, eating and drinking establishments, entertainment and recreation, and real estate. The percentage of the housing stock that is seasonal homes is also considered. On that basis, most of the northern tier of Wisconsin counties, including one of the Apostle Islands NL gateway counties (Bayfield), was classified as recreation counties. The other gateway county, Ashland, was one of the few northern Wisconsin counties that was not classified as a recreation county. In northern Michigan, including the Upper Peninsula, most of the counties were also classified as recreation counties, including the Pictured Rocks NL gateway county of Alger. See Figure 12.

Statistical analysis of the economic and demographic characteristics of the whole set of these American recreation counties undermines much of the popular conventional wisdom about local economies that are dependent on recreation and tourism. The conventional view is that because these are low paid and seasonal jobs, local economies dependent on them will suffer from depressed local wages and incomes, higher poverty levels, and poorer performance in terms of education and health. None

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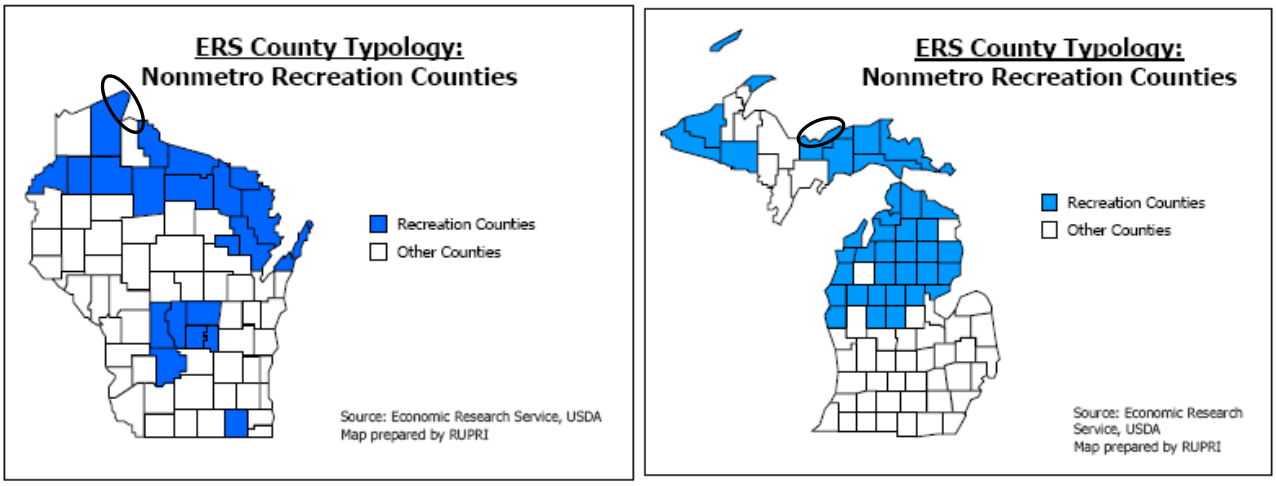
[36] Marcouiller et al. 1996, p. i. and Preissing et al.1996, Executive Summary.
[37] The Contribution of Second Homes to Rural Economies, Benjamin S. Weagraff, masters thesis, Pennsylvania State University, December, 2004.
[38] "Does Second Home Development Adversely Affect Rural Life?," Richard Stedman, Stephan J. Goetz, and Benjamin Weagraff, 2006, in ***Population Change and Rural Society***, W.A. Kandel and D.L. Brown, eds., Springer, The Netherlands, pp. 277-292.

of this was confirmed by this national set of 311 recreation counties.[39] The time period of the analysis was 1990 to 2000.

Figure 12



The study disaggregated the 311 national recreation counties into 11 different groups including "Midwestern lake homes" that focused on 70 recreation counties in the upper Great Lakes area of Michigan, Wisconsin, and Minnesota and included Lake Superior National Lakeshore gateway counties of Bayfield and Alger as well as many of their surrounding counties. For those 70 upper Great Lakes recreation counties, employment and population growth were higher; earnings per worker, per capita income, and median household income were higher; and growth in per capita income and median household income were higher; poverty rates were lower and declined more; educational attainment was higher; and mortality rates were lower. All comparisons were to non-recreation rural counties in the same region. Changes in earnings per jobs were almost identical to those in non-recreation rural counties.

The results of that analysis of recreation counties suggests that recreation and tourism have the potential of making a significant positive contribution to local economic well being. The popular disparaging attitude towards "tourism" and recreation may be inaccurate. This study will be discussed in more detail later in this report.

The Impact of Visitor Expenditures on County Economies

We begin our analysis of the impact of the visitor economy by looking at the overall impact on the county economies of visitor expenditures. "Visitors" or "travelers" are not necessarily "tourists," that is, people traveling to an area for recreation or pleasure. Visitors can include people on business trips, people just passing through on their way

[39] Recreation, Tourism, and Rural Well-Being, Richard J. Reeder and Dennis M. Brown, USDA ERS Economic Research Report Number 7, 2005.

to some place else, or those who have come to a trade center to shop. The common convention used to distinguish a visitor from a resident is simply that the person has traveled more than 50 miles from their home. The motivation for trips is often mixed. Business organizations typically hold conventions and meetings in attractive locations in hopes of encouraging people to attend. Those who travel to trade centers to shop may include an evening of entertainment in their plans. People may visit friends and relatives more often in locations that are attractive in their own right. For that reason, most "tourist" analysis actually includes all "visitors," no matter what their motivation for the visit.

The visitor expenditure data that is available for Michigan and Wisconsin includes the expenditures of those who own vacation homes as well as truly temporary visitors although the cost of owning and maintaining the vacation home itself is not included in the visitor expenditure data.

For Wisconsin there is data on visitor expenditures by county for the years 1994 through 2007. For Michigan there is no similar time series on visitor expenditures in each county. There is scattered data for selected years and selected counties. The most recent data for all Michigan counties is for the year 2000.[40]

We used the income multipliers derived from the IMPLAN input-output model and used in the National Park Services "Money Generation Model 2" to estimate the local economic impact of all visitor expenditures in the Apostle Island and Pictured Rocks NL gateway counties. That impact includes the expenditures of visitors to the National Lakeshores as well as visitors to these counties whose trips were not focused on those National Park units.

Visitor Impacts in the Apostle Islands NL Gateway Counties

A 2008 study of the impact of visitors on each Wisconsin county provides estimates of visitor expenditures for 1994-2007. For just the years 2006 and 2007 it also estimated both the direct impact of the visitors' expenditures on local income and jobs and the total impact after multiplier effects are taken into account.[41] Since we are interested in explaining the growth in real personal income beyond the traditional economic base, we will focus on the estimated impacts of these visitors on county income. To do that, we took the total county-wide visitor expenditures and applied the income multipliers developed for the National Park Service's "Money Generation Model 2" (MGM2). We used the same income multipliers that were used in the analysis of the impact of Apostle Islands NL visitors in 2004 (55 cents of additional local personal income from

[40] There is more recent Michigan data by county on person-days, person-trips, and person-day relative to county population, but the impact of the visitors is tied to their expenditures and there is no data for a series of years for each county on that.
[41] "The Economic Impact of Expenditures by Travelers on Wisconsin Calendar Year 2007: County by County Report," prepared by Davidson-Peterson Associates for the Wisconsin Department of Tourism, April 2008.

each dollar of visitor spending).[42] This gave us estimates of the impact of all county visitor expenditures on the personal income in each county from 1994 to 2007. We compared the additional income generated by these visitors' spending to the actual change in real income to see what part of that change could be explained by the expansion of the visitor economy. The results indicate that about a third of the growth in real personal income between 1994 and 2006 in Bayfield and Ashland Counties was associated with visitor expenditures. See Table 7.

Table 7

The Impact of the Vistor Economy: Bayfield-Ashland, WI, Counties, 1994-2006				
County	Changes in the Bayfielf-Ashland Economies, 1994-2006			
	Change in Visitor Expenditure	Change in Personal Income as a Result of Visitor Expenditure	Total Change in Personal Income	% Change in Total Income Due to Visitors
	(millions of dollars, real, 2006)			
Bayfield	$59	$33	$74	44%
Ashland	$39	$22	$70	31%
Bayfield-Ashland	$99	$54	$144	37%

An alternative approach to estimating the contribution that visitor expenditures have made to the growth of local earnings and income over past decades is to assume that the estimates of the impact for the most current year slowly developed over the years as the visitor economy developed. To overstate the contribution over time, we assume there was no visitor economy in 1978 and that the entire visitor economy developed since then. We can then compare the current impact of visitors on local income to the total change in real income since 1978. That will give us an overestimate of contribution visitor expenditures have made to the county economies since 1978. One reason for using this approach is that we do not have annual county data on visitor expenditures for the Pictured Rocks NL region and will have to work only with the recent visitor expenditures. So that the results for the Pictured Rocks NL gateway county can be compared to the Apostle Islands NL gateway counties on the basis of a similar methodology, below we provide a second estimate of visitor spending impacts for the Apostle Islands economic area (Bayfield and Ashland Counties) and then develop an estimate for the Pictured Rocks economic area (Alger County) using the same method.

Table 8 provides the results of that approach. It uses estimates of visitor expenditures in 2006 from the "The Economic Impact of Expenditures by Travelers on Wisconsin Calendar Year 2007: County by County Report" cited above. The relationship between visitor expenditures and local income developed from the MGM2 model for Bayfield and Ashland counties was used. Those MGM2 expenditure-income multipliers are about 25 percent higher than those assumed in the Wisconsin traveler study for these counties.

[42] The Wisconsin study used a smaller relationship between visitor spending and impacts on personal income for Bayfield-Ashland Counties, 44 cents. The MGM2 multipliers for Bayfield and Ashland Counties came from "Impacts of Visitor Spending on the Local Economy: Apostle Islands National Lakeshore, 2004," Daniel J. Stynes, Michigan State University, July 2006, Table 8, p. 8.

Table 8

Estimated Impact of All County Visitors' Expenditures on Bayfield and Ashland Counties, 1978-2006				
County	Changes 1978-2006			Visitor Impact as % of Total Income
	Visitor Spending	Visitor Spending Impact on Income	Total Income	
Bayfield	$136,942,338	$75,181,344	$149,719,528	50%
Ashland	$61,648,433	$38,172,573	$100,308,993	38%
Bayfield-Ashland	$198,590,771	$113,353,916	$250,028,521	45%

As expected, using this approach indicates that the role of the visitor economy in these local economies is higher than the earlier estimate provided in Table 5 above. The difference, however, 45 percent versus 37 percent of the growth in total real income having been caused by growth in the visitor economy, is relatively modest and could be explained by the larger expenditure-income multiplier estimated specifically for Bayfield-Ashland Counties by the MGM2 model. To the extent that the a county-specific multiplier was used in this second estimate, it may be the more accurate estimate.

Visitor Impacts in the Pictured Rocks NL Gateway County

For the Pictured Rocks NL gateway county, we have also used an estimate, the expenditures of all visitors to Alger County and their impact on county income, to represent the growth of the visitor economy between 1978 and 2006.[43] The MGM2 model for Alger County was used to convert the county-level total visitor expenditures into impacts on county income.[44]

The results are shown in Table 9. In Alger County where the Pictured Rocks National Lakeshore is located, the total visitor economy, including spending by visitors whose primary destination is not the National Lakeshore, appears to be responsible for 22 percent of the growth in the county economy between 1978 and 2006.

Table 9

Estimated Impact of All County Visitors' Expenditures on Alger County, 1978-2006				
County	Changes 1978-2006			Visitor Impact as % of Total Income
	Visitor Spending	Visitor Spending Impact on Income	Total Income	
Alger	$32,897,561	$15,330,263	$69,590,086	22%

The total visitor economy in Alger County appears to play a relatively smaller role in driving the overall economy than does the visitor economy in Bayfield and Ashland Counties: 22 versus 45 percent, when the same estimation procedure is used. This is

[43] The estimates of visitor expenditures by county are for the year 2000. These were inflated to 2006 using the Consumer Price Index. "Michigan Tourism Spending by County, 2000 – Update," Daniel Stynes, 2002, http://web4.canr.msu.edu/mgm2/econ/MIindex.htm .

[44] Impacts of Visitor Spending on Local Economy: Pictured Rocks National Lakeshore, 2001, Daniel Stynes and Ya-Yen Sun, Michigan State University, February 2003, Table 7.

explained by two factors. First, visitor expenditures in Bayfield and Ashland Counties represent a much larger part of the overall economy than is true in Alger County. The ratio of visitor expenditures to total personal income in 2006 was 0.25 in Bayfield and Ashland Counties but only 0.15 in Alger County. In addition, because Bayfield and Ashland Counties are larger, they have more developed economies that are able to capture and hold more of the dollars within the local economy, the total income to dollar of visitor expenditure multiplier is 0.55 in Bayfield and Ashland Counties but 0.47 for Alger County. The combination of these two differences in the two sets of gateway counties would imply that the relative importance of the visitor economy in the overall economy would be approximately twice as great in Bayfield and Ashland Counties compared to Alger County, which is what our estimates indicate.

As pointed out earlier, both estimates based on assuming that almost no visitor economy existed in 1978 are likely to be over-estimates, both the Bayfield-Ashland 45 percent and the Alger 22 percent.

4. The Role of the National Lakeshores in the Gateway Counties' Visitor Economy

Measuring the Relative Importance of an Economic Activity

Ultimately we want to be able to say something about the relative importance of the Lake Superior National Lakeshores in the local economies. In order to do that we have to chose a measure or measures which allow us to compare the economic contribution of the National Lakeshores with the overall economy. In popular economic dialogue many different measures of economic activity are used: spending, jobs, household income, etc. In professional economic analysis still other, more arcane, measures are used: value added, gross state product, employment, etc. Each of these measures has its appropriate uses. For this study, we seek a measure that most accurately indicates the impact of visitor spending on local residents' economic well being.

The number of jobs and/or the number of persons employed, by themselves, tell us nothing about the pay associated with that employment and, therefore, how those jobs contributed to local well being. For that reason, a monetary measure seems more appropriate. But there are many different monetary measures, too.

For instance, the National Park Service periodically estimates the local economic impacts of each of its park units. The estimates for 2007 used three different measures of impact: spending associated with the National Park unit, impacts on personal income, and impacts on value added. Those measures are shown in Table 10 for the Lake Superior National Lakeshores.

Table 10

Comparison of Different Monetary Measures of the Impact of the Lake Superior National Lakeshores on Local Economies, 2007		
Monetary Measure	Apostle Islands NL ($millions)	Pictured Rocks NL ($millions)
Visitor Spending	$19.4	$18.1
Non-Local Visitor Spending	$15.3	$18.1
Park Payroll and Benefits	$2.7	$1.9
Total Non-Local Park Spending	$18.1	$20.0
Impact on Personal Income	$12.5	$8.5
Impact on Value Added	$12.8	$12.7

Source: National Park Visitor Spending and Payroll Impacts, 2007, Daniel J. Stynes Michigan State University, September 2008, Tables A1 through A-4.. http://www.nature.nps.gov/socialscience/pdf/MGM2_CY07.pdf

The detailed studies of the local economic impacts of the Lake Superior National Lakeshores based on detailed information on actual visitor spending in the gateway counties that were done in the early 2000s, also provided information on local business production and sales, including multiplier impacts, associated with visitor and park unit expenditures. It is those updated studies that are discussed in Appendix B. Table 11 shows these sales impacts.

Table 11

Impact National Lakeshores on Local Business Sales, 2007		
Monetary Measure	Apostle Islands NL ($millions)	Pictured Rocks NL ($millions)
Direct Sales Impact	$16.6	$14.2
Total Sales Impact, with multiplier	$22.6	$17.6

Source: Appendix B, Tables 9 and 10.

According to these estimates, Pictured Rocks NL, for instance, contributes $8.5, $14.2, $17.6 or $20 million to the local economy. The monetary impact associated with Apostle Islands NL is $12.5, $15.3, $19.4, or $22.6 million depending on the measure used. That is quite a range of estimated monetary impacts with the larger being more than twice the smaller.

Obviously we need a principled basis for choosing among these different dollar measures of the contribution of the National Lakeshores to local economic well being. To arrive at that we discuss these alternative measures.

Total “spending” or “sales” within the local economy does not give an accurate measure of local economic impact for two important reasons. First, some of the spending is for things that are not produced locally but have been imported into the local economy for resale. The price local businesses paid to purchase those imported goods immediately flows out of the local economy. It does not ever become income to local residents. In addition, the same good or service can lead to multiple expenditures for the same thing: When a business buys goods from a local wholesaler, the business spends money just as it does when it buys advertising, accounting assistance, or financial services. When retail customers then buy a business’ goods and services, those costs are also included in the purchase price. If we just total up all spending by all the business firms within the local economy, we will count the same thing two or three or more times.

To avoid those exaggerations of actual economic impacts, economists recommend that only local value added at each business be included in the impact measure. Value added is the value produced by a firm less the cost of the purchases it made from other firms. In general it includes a firm’s payroll, profit, interest, and rent earned, and taxes other than income taxes.

Although value added accurately measures the value created by local businesses, it may not measure the part of that value that stays in the local economy and circulates there. Profit, interest, and rent earned and taxes paid may flow out of the local economy to the business owners (including stockholders and other investors) who live elsewhere or to distant state and federal governments. For that reason the impact of an economic activity on local personal income is often used to measure the local dollar impact on the economy. That impact on local personal income is largely in the form of wages, salaries, benefits, and net income to self-employed individuals. Since it aims at measuring income received by locals, it is a direct measure of how that activity affected local family incomes and, therefore, well being. A significant part of that income is also likely to circulate in the local economy, triggering multiplier impacts, the size of which will depend on how sophisticated the local economy is and how successful it is in capturing and holding that circulating income.

Total visitor spending associated with the National Lakeshores can be a valuable measure of relative importance when it is used to compare the economic importance of a National Lakeshore to, say, a large local manufacturing firm or to a large government facility (e.g. a prison). That is not true, however, of a spending measure since summing up all spending in the local economy makes no sense because of the double counting problem, there rarely is a “total spending” statistic available for the local economy. That makes it hard to use spending to say what percentage of the economy is directly tied to a National Lakeshore. We do have personal income and labor earnings data for each county in the nation just as we have county-level total employment data. That allows the use of labor earnings, personal income, or employment to estimate what share to the local economy is tied to the National Lakeshores.

For all of the above reasons, we have chosen to use the contribution to local personal income as the measure of local economic impact of the National Lakeshores.

It should be pointed out that the use of an impact measure that is a smaller number does not necessarily mean that the relative importance of the National Lakeshores in the local economy will be measured as smaller. If National Lakeshore expenditures are $20 million and total expenditures within the local economy are $800 million, the National Lakeshore would represent 2.5 percent of the local economy. If, on the other hand, the personal income associated with National Lakeshore visitors is $8 million and total personal income was $225 million, the National Lakeshore would represent 3.6 percent of the local economy, a larger share and relative importance in the local economy than implied by the higher dollar volume of expenditures. So the largest dollar measure of impact does not necessarily imply the largest importance or impact.

The Contribution of the National Lakeshores to Local Personal Income

Part of the visitor expenditures in Bayfield and Ashland Counties is associated with visitors to Apostle Islands NL and part of the visitor expenditures in Alger County is associated with visitors to Pictured Rocks NL. Visitors to both National Lakeshores were the subject of two separate studies published in 2006 and 2003, respectively.[45] As is discussed in considerable detail in Appendix B to this report, we have updated and, where appropriate, modified these analyses so that they better reflect current (beginning of 2008) economic conditions and a broader range of National Lakeshore visitor impacts in these three counties.

The Apostle Islands National Lakeshore

For the Apostle Islands NL we have significantly increased the estimated spending per trip by visitors compared to the 2006 study. The earlier study excluded the expenditures reported by many visitors because those expenditures appeared to the analyst be too high, the number of members of some visitor parties seemed too high, or the length of some trips seemed too long. On the basis of interviews with businesses serving Apostle Islands NL visitors, especially marinas, boat rental companies and sailing guides, we concluded that the higher expenditure levels that had been rejected in the earlier analysis were actually quite plausible for the sailing trip segment of visitors. In addition, interviews with the same businesses as well as National Lakeshore personnel indicated that the other observations that had been excluded from the impact analysis were also plausible for a minority of visitors. Including those previously excluded visitor reports led to our increasing the average spending per trip from $366 to $563, over a 50 percent increase. In addition, we used more recent visitation numbers, which boosted visitation by about 20 percent. The latest expenditure data in the earlier study was for

[45] Impacts of Visitor Spending on the Local Economy: Apostle Islands National Lakeshore, 2004, Daniel J. Stynes, Michigan State University, July 2006; Impacts of Visitor Spending on Local Economy: Pictured Rocks National Lakeshore, 2001, Daniel Stynes and Ya-Yen Sun, Michigan State University, February 2003. The data used for the studies was based on earlier years: 2004 in the case of Apostle Islands and 2001 in the case of Pictured Rocks. Updates of these studies base on 2007 data became available in late 2008 after this study was largely finished. For that reason, the results in this report are based on our own adjustments to the earlier studies.

2005. We used the consumer price index to adjust those expenditures upward to the beginning of 2008.[46]

As explained in Appendix B, our estimated impact of the spending by visitors to Apostle Islands NL at the beginning of 2008 on personal income in Bayfield and Ashland Counties is $14.4 million. This estimated impact is based both on visitor expenditures and the payroll expenditures of the Apostle Islands NL in supporting those visitors.[47]

In our analysis above of the overall impact of all visitors' expenditures in the county economies, we focused on the impact over a period of many years, 1994-2006 and 1978-2006. We can apply the same assumptions about how visitor expenditures impact local income to estimate the impact in just the last year of our data, 2006, to get a single-year estimate to be compared with the estimates of the impact just of the visitors to the National Lakeshore in that year.

For Bayfield and Ashland Counties combined, which are the gateway counties for the Apostle Islands NL, above we estimate the impact of all visitor and National Lakeshore expenditures on local income at approximately $116 million in 2006 or 14 percent of local income. See Table 11.

Adjusting the 2008 impact of Apostle Islands NL on local income given above to reflect price levels in 2006, we estimated a $14.0 million impact of just the visitors to Apostle Islands NL. That is 12 percent of the impact of total visitor expenditures in Bayfield and Ashland Counties in 2006. The estimate of the Apostle Islands NL visitor expenditures are more or less consistent with this estimated impact of Apostle Islands NL on income: The estimated National Lakeshore visitor expenditures were about 13.5 percent of the countywide estimates of all visitor expenditures compared to 12 percent of all visitor impacts on local income.

Combining these two results, the overall impact of the visitor economy in Bayfield-Ashland Counties and the role of the Apostle Islands NL within that visitor economy, the percentage impact of the National Lakeshore on income in the gateway counties appears to be quite modest, about 1.7 percent of total income in that two-county area in 2006. If the results of the historical analysis of the role of the visitor economy provided above are used, 45 percent of the growth in personal income between 1978 and 2006

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[46] While this report was being written, the National Park Service released an update of its MGM2 projections of the economic impact of all of its individual park units on local economies for 2007. See "National Park Visitor Spending and Payroll Impacts, 2007," Daniel J. Stynes, Department of Community, Agriculture, Our adjustments for number of visitors and level of expenditures are similar to those in that update. We however only went through 2006 for visitation numbers and expenditures while the update carried the adjustments to 2007.

[47] We included in this estimate the impact of National Lakeshore annual payroll expenditures. The cost of supplying services to visitors is automatically included in visitor expenditures in commercial businesses. For publicly provided visitor services, entry or user fees do not cover all or even most of the costs of operating and managing these public lands and resources. For that reason, following the earlier analysis and most recent updates, we have included the local payrolls of the National Lakeshores as part of the impact associated with the National Lakeshores.

was associated with the expansion of the visitor economy. If 12 percent of this was associated with the Apostle Island NL, the National Lakeshore contribution to the growth of income in the Bayfield-Ashland area over that period would be 5.4 percent of the total.

Table 11

The Relative Importance of the Visitor Economy as a Source of Income in Bayfield and Ashland Counties, WI, 2006	
Bayfield County--Visitor Spending	$136,942,338
Ashland County--Visitor Spending	$69,531,098
Total Visitor Spending	$206,473,436
Impact Visitors on Local Income	$113,353,916
Apostle Islands NL Payroll	$2,580,750
Impact of NL Payroll on Local Income	$2,890,440
Impact of NL on Local Income	$116,244,356
Total Local Income	$818,222,719
Visitor Impact as % of Total Income	14%

The Pictured Rocks National Lakeshore

For the Pictured Rocks NL, we began our analysis with the National Park Service impact analysis based on 2001 data.[48] We added in the National Lakeshore's annual operations expenditures to the visitor expenditures. The earlier study had not included that National Park Service local spending impact. We also adjusted for slightly higher recent visitation, about 5 percent. Because the previous Pictured Rocks study only included data through 2001, we adjusted the expenditure levels upward to reflect the decline in the purchasing power of the dollar (inflation) to the beginning of 2008. [49] The resulting estimated impact on Alger County income of just the visitors to the Pictured Rocks National Lakeshore in 2008 was $8.8 million. See Appendix B. Adjusted back to 2006 dollars, this would be $8.6 million.

For Alger County, which is the gateway county for Pictured Rocks NL, we estimated a total expenditure impact on local income of all visitors to the county (not just those to the National Lakeshore) to be about $17.5 million in 2006. See Table 12.

When the impact of the visitors to the Pictured Rocks National Lakeshore is put in the context of all visitors to Alger County, the visitors to the National Lakeshore are responsible for about 50 percent of the total impact of all visitors on Alger County income. Combining the importance of the overall visitor economy with the importance of the National Lakeshore within that visitor economy, we conclude that the Pictured Rocks National Lakeshore is responsible for 4.0 percent of Alger County income. If the results of the historical analysis of the contribution to the visitor economy in the 1978 to 2006 period are used as a reference point rather than just the recent year of 2006, the

[48] "Impacts of Visitor Spending on Local Economy: Pictured Rocks National Lakeshore, 2001," Daniel Stynes and Ya-Yen Sun, Michigan State University, February 2003.
[49] See footnote 45.

relative importance of the Pictured Rocks NL is larger. That historical analysis found that 22 percent of the growth in real income in Alger County was associated with the growth in the visitor economy. If 50 percent of this was also related to the National Lakeshore, a little over 11 percent of the growth in real income between 1978 and 2006 was associated with Pictured Rocks NL.

Table 12

The Relative Importance of the Visitor Economy as a Source of Income in Alger County, MI, 2006	
Visitor Spending	$32,897,561
Impact of Visitors on Local Income	$15,330,263
National Lakeshore Payroll	$1,886,000
Impact of NL Payroll on Local Income	$2,191,004
Total NL Impact on Local Income	$17,521,267
Total Local Income	$221,056,000
Visitor Impact as % of Total Income	8%

Further Analysis of the Local Economic Impact of the National Lakeshores

These results raise three questions. First, why is the apparent importance of the National Lakeshore so different in Alger compared to Bayfield and Ashland Counties? Second, why does the role of Apostle Islands NL appear to play such a modest role in the overall visitor economy of Bayfield and Ashland Counties? Finally, why does the historical analysis of the role of the visitor economy in the Bayfield, Ashland, and Alger county economies suggest a much larger role of visitors than the snapshot for just one recent year, 2006?

The smaller size and more isolated character of the Alger County economy combined with a significantly higher level of National Lakeshore visitation helps explain the higher relative importance of the National Lakeshore in that county. Bayfield-Ashland Counties are much larger than Alger County in terms of both population and area, about 3.5 times as large and an economy almost 4 times larger. That larger economy allows a broader range of recreation opportunities outside the Apostle Islands including vacation homes in the lake country in the southern part of Bayfield and Ashland Counties. There are about 6,600 vacation homes in Bayfield-Ashland compared to 1,800 in Alger County, almost 4 times as many. However, the number of measured visits to Apostle Islands NL is only 40 percent of the visitation to Pictured Rocks NL.

The larger size of the Apostle Islands economic area combined with the smaller level of visitation reduces the relative importance of that National Lakeshore to the overall economy. The higher level of visitation to Pictured Rocks NL is no doubt tied to the extensive level of winter use. Munising hosts substantial snowmobile winter recreation (the “snowmobile capital of Michigan”) that makes use of trails within the National

Lakeshore. On the other hand the larger Bayfield-Ashland County economy has recreation economies that are not exclusively focused on Apostle Islands NL. A half-dozen marinas make this area the "sailboat capital" of Lake Superior, and that sailing is not just focused on visiting the Apostle Islands. In addition, the Bayfield Peninsula supports winter recreation (downhill and cross-country skiing) and summer recreation (orchard tours, vacation homes, festivals) that are not primarily associated with Apostle Islands NL.

Of course, the National Lakeshores are not the only landscape features that draw visitors to Bayfield-Ashland and Alger Counties. Lake Superior, itself, is certainly a dominant feature that can be accessed other than via the National Lakeshores. Just offshore from Munising, the gateway community to Pictured Rocks NL, is Grand Island National Recreation Area, part of Hiawatha National Forest. Just offshore from Bayfield is Madeline Island, largely privately owned with a variety of businesses and public areas serving visitors.

The value of Lake Superior as an amenity that has boosted the value of land in the vicinity of the shoreline has been documented in a study of the entire Upper Peninsula shoreline, including that in Pictured Rocks NL. The study was titled "Economic Values of Protected Areas Associated with Private Property along Michigan's Lake Superior Shoreline." [50] That analysis found that the closer an inland parcel of land was to a public park that allowed access to the Lake Superior shoreline, the higher was that land's market value.

Another study of land-use change in the Upper Peninsula noted that of the nine Upper Peninsula counties with Lake Superior shoreline, Alger County had the second highest percentage of that shoreline in public and conservation ownership, 66 percent, including the Pictured Rocks NL shoreline. It also had the largest percentage increase in total homes between 1980 and 1990 with all of that growth in homes accounted for by increases in seasonal homes. In 1990 Alger County also had the second highest percentage of homes that were seasonal.[51] Luce County, just to east, had the highest percentage of shoreline in public and conservation ownership (69 percent) but showed no signs of amenity-supported economic vitality. Luce County is, arguably, more isolated and rural that Alger County. Alger County is adjacent to Marquette County and within commuting distance of Marquette, the Upper Peninsula's largest urban area. Luce has the second fewest people of all of Michigan's 83 counties, 6,700 residents, about a thousand of which are prisoners in the Newberry Correctional Facility. Fifty percent of the area of Luce County is water, most of it fresh water wetlands associated with the rivers flowing into Lake Superior.

The "north woods" with its forests, rivers, and lakes have been a significant draw for visitors for a century, long before the National Lakeshores were created. National Forest

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[50] Blair Orr et al, Michigan Technological University, School of Forestry and Wood Products, 2001, funded by Michigan Great Lakes Protection Fund, Grant Number ECGL 99-52.

[51] Land Use Change on Michigan's Lake Superior Shoreline: Integrating Land Tenure and Land Cover Type Data, Blair Orr, 1997, ***Journal of Great Lakes Research***, 23(3): 328-338, Tables 3 and 5.

land makes up a significant part of Bayfield, Ashland, and Alger Counties. In Bayfield-Ashland it is the Chequamegon-Nicolet National Forest and in Alger County, the Hiawatha National Forest. Pictured Rocks NL and the Hiawatha National Forest operate a joint visitor center in Munising. Also in Alger County, just to the south of Pictured Rocks NL are the Lake Superior State Forest and the Seney National Wildlife Refuge. In the Apostle Islands area, the Chequamegon-Nicolet National Forest, the Whittlesey Creek National Wildlife Refuge, and two Wisconsin state agencies operate a joint visitor center with the National Park Service outside of Ashland, WI. The regions surrounding both National Lakeshores are rich in natural amenities. At the same time, the National Lakeshores, as units of the National Park system may provide an out-of-area draw simply because of the public's confidence in the National Park system to identify and protect unique, high quality, natural landscapes. As one researcher put it, the National Park designation "signals" potential visitors who are not familiar with an area that there is something special at that location and is the initial draw to an area.[52] Once visitors then become more familiar with the regions and their amenities, visitation and activities are likely to become more varied and dispersed rather than remaining focused only or primarily on visits to the National Lakeshores.

Measured by visitation, the National Lakeshore may appear to be less important than it actually is to the local visitor economy as well as to other aspects of the amenity economy. The impact of the National Lakeshores in helping to "brand" these two areas as high quality natural areas, introducing visitors to all of the amenities of the area, and then retaining some as frequent visitors, second home owners, or amenity in-migrants is difficult to measure.

Finally, we need to consider the difference in our historical estimates of the importance of the visitor economy in a region's economic development and our "snapshot" estimate for the single recent year, 2006. The historical estimates of the contribution that the visitor economy made to the growth of the local economies are two to three times the estimate of the contribution the visitor economy currently makes to the size of the local economies.

This is not a contradiction. If an economy is growing relatively slowly and the dominant source of what growth it does have is a particular industry, that one industry, even one relatively modest in size, can be the source of almost all of the overall economy's growth. In addition, as economic development proceeds and a local economy diversifies, the relative role played by particular basic industries can be expected to shrink as the economy becomes more self-sufficient, providing more of the goods and services its residents desire. Those basic industries may have been the dynamic force behind that economic development, but their role within the economy is likely to change and diminish as that economy successfully makes the transition to a more complete and less "frontier-like" economy. That diversification of the economy can stabilize the local economy as it becomes less dependent on one or a few local industries.

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[52] "A Park by Any Other Name: National Park Designation as a Natural Experiment in Signaling," Stephan Weiler, The Federal Reserve Bank of Kansas City, Economic Research Department, Research Working Paper No. 05-09, 2005.

Conclusion on the Visitor Economy

The visitor economy contributes significantly to the economies of gateway counties to the Apostle Islands and Pictured Rocks National Lakeshores, 45 and 22 percent of the growth in real income, respectively. When this is added to the part of real income growth explained by changes in the traditional economic base, we have explained 52 percent of the growth in Bayfield-Ashland and 92 percent of the growth in Alger County. For Bayfield and Ashland Counties there clearly is a significant amount of growth that is not explained by these traditional "economic base" effects. For Alger County the economic base approach appears to be more successful. We will now turn to the role that these areas' ability to attract and hold permanent residents may play in supporting local economic vitality.

5. Looking Beyond Visitor Expenditures: The Larger Economic Role of Natural Amenities

As discussed at the beginning of this report, many rural areas have been attracting in-migrants not just because of the employment opportunities available but also because of attractive social and environmental characteristics, that is, local amenities. A study of land use changes on Michigan's Lake Superior shoreline summarized a review of the economic literature on amenity-supported in-migration in the following way:[53]

These studies, both within and outside the Upper Great Lakes region, and related anecdotes can be summarized. Rural areas are regaining population and the driving forces behind the migration are changing the land use patterns, especially along lakeshores. People are moving to the Upper Peninsula of Michigan for its amenity values, and lakeshore is considered more desirable than other property.

But the study concluded with the observation that: "The Upper Peninsula is currently [1996] in the early stages of amenity-based rural in-migration when compared to other parts of the Upper Great Lakes Basin." [54] The northern Wisconsin counties in our larger study areas fall into that "other part" of the Upper Great Lakes Basin where amenity-supported in-migration was already underway. We discuss our own evidence for this in Appendix A.

An earlier, 1979, analysis of "Turnaround Migration in the Upper Great Lakes Region" specifically studied Burnett, Washburn, Sawyer, Oneida, and Vilas Counties in Wisconsin to the south and southeast of Apostle Islands NL because they all had high rates of in-migration during the 1970s.[55] On the other hand, none of the Upper Peninsula counties were included in that analysis because they had not experienced

[53] Land Use Change on Michigan's Lake Superior Shoreline: Integrating Land Tenure and Land Cover Type Data, Blair Orr, 1997, ***Journal of Great Lakes Research*** 23(3):328-338, pp. 329-330. Professor Orr at the time was at Michigan Tech in Houghton.
[54] Ibid. p. 337.
[55] Paul R. Voss and Glenn V. Fuguitt, Applied Population Laboratory, Department of Rural Sociology, University of Wisconsin-Madison, Population Series 70-12, August 1979.

similar in-migration.[56] Since 1990, however, in-migration rates in the Lake Superior National Lakeshore gateway counties have been substantial. Alger County saw in-migration contribute over 15 percent to population growth.[57] Bayfield County saw population increase by 10.5 percent due to in-migration. Ashland County, however, saw a slight decrease in population as a result of net out-migration. See Table 13.

The latest data indicates that between 2005 and 2006 there was continued net in-migration into Alger and Bayfield Counties and many of the counties adjacent to them. In that sense, amenity-supported in-migration may have reached these gateway counties. Conversations with civic and business leaders in Munising and Bayfield confirm what the data suggest, that the attraction of the social and natural amenities of the region around these National Lakeshores is already supporting the local economy. See Figure 13.

Table 13

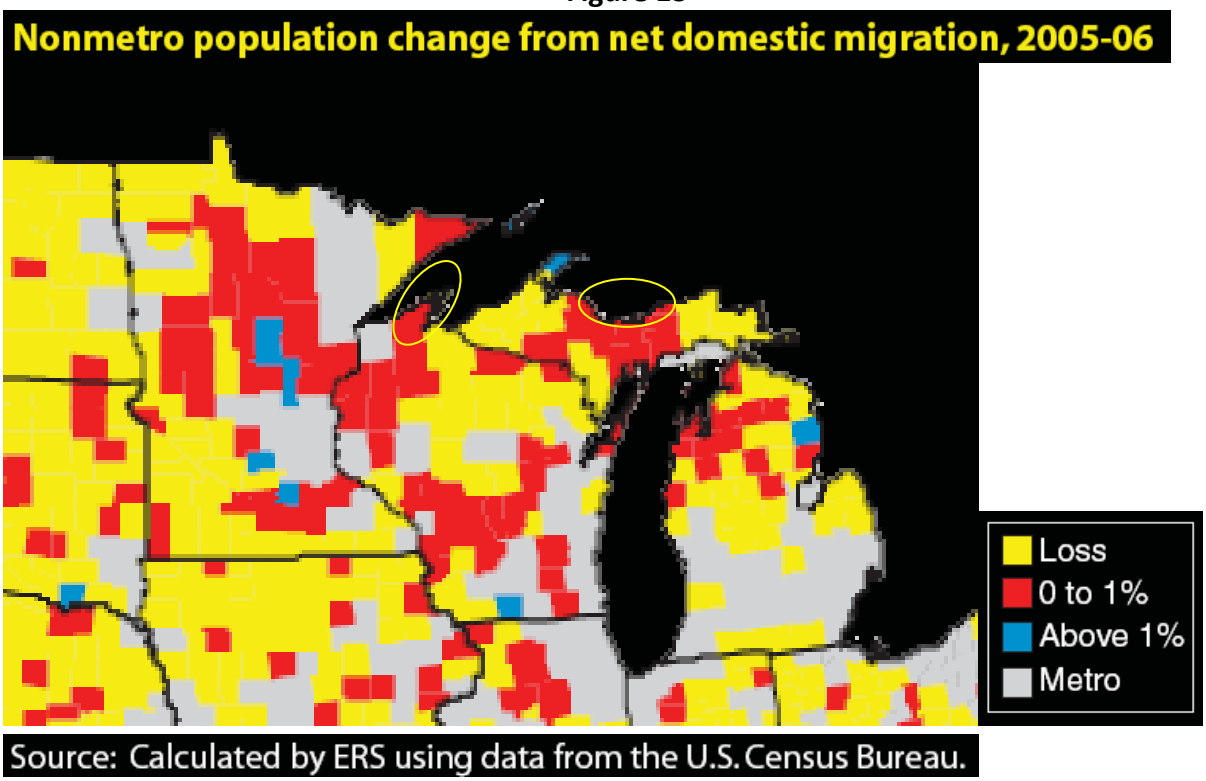
In-Migration to the Lake Superior National Lakeshores Gateway Counties: 1990-2006	
County	% Net In-Migration
Apostle Islands NL	
Bayfield-Ashland, WI	10.5%
Bayfield, WI	12.5%
Ashland, WI	-1.3%
Pictured Rocks NL	
Alger, MI	15.4%

There are several dimensions to this type of amenity-driven in-migration that we explore below.

[56] A 2005 study of whether amenities in northern Wisconsin, Michigan, and Minnesota had an impact on population, job (retail and service), and per capita income growth in 1980-1990 concluded that there was no sign of such amenity-supported growth. The 1980s were a particularly harsh period for rural areas around the nation and in these upper Great Lakes states. The "non-metropolitan turn around" of the 1970s largely reversed itself and then was revived in the 1990s. The 1980s were a period when it was hard to find any sign of economic development in rural areas, including amenity-supported economic development. In addition, the focus on a single region with similar water and forest landscape amenities may reduce the amount of variation in amenity distribution so far that impacts could not be statistically identified. "Natural Amenities and Rural Development: Understanding Spatial and Distributional Attributes," 2005,Kim Kwang-Koo, David W. Marcouiller, and Steven C. Deller, ***Growth and Change*** 36(2): 273-297.

[57]The "in-migration" rate for Alger County is somewhat misleading because some of the new residents were not there voluntarily. A prison was opened during the 1990s, adding "residents" who were actually incarcerated criminals. In 1991-92 Alger County gained 800 new "residents" in that way.

Figure 13



The Role of Investment, Retirement, and Other Non-Employment Income in Determining Local Economic Vitality

Some types of income flow to where people choose to live rather than to where current economic production is taking place. Dividends, interest and rent, for instance, flow to the owners of common stock, bonds or money market certificates, and rental property, wherever the owners happen to live. The place of residence of the owners of stocks bonds, or rental property, of course, does not have to be in proximity to the physical assets those financial investments helped create. Similarly the federal government's retirement-related payments such as Social Security, Medicare reimbursements to medical providers, and veteran benefits flow to retirees wherever they are living. Of course, some of the dividends, rent, and interest payments are returns on retirees' investments and are also retirement-related. In addition, private pension programs also make payments to retirees wherever they happen to reside and those payments are usually generated by the financial investments the pension funds have made. Other income flows from governments are associated with efforts to provide a social safety net for households in distress: unemployment compensation payments, food stamps, Medicaid, and other income assistance programs. These, too, flow to qualified households wherever they happen to be located.

These are substantial income flows. Combined, these non-employment income flows represent almost a third of the income received by households across the United States as well as in Michigan and Wisconsin. In the gateway counties to the Apostle Islands and Pictured Rocks National Lakeshores, this retirement, investment, and other non-employment income made up 40 to 42 percent of total personal income. See Table 14.

Table 14

The Contribution of Investment, Retirement, and Other Non-Employment Income to Total Personal Income, 2001-2006

County	Percent of Total Personal Income from Non-Employment Sources
United States	31%
State of Michigan	30%
State of Wisconsin	31%
Pictured Rocks NL Gateway County	
Alger, MI	42%
Apostle Islands NL Gateway Counties	
Ashland, WI	42%
Bayfield, WI	40%

Source: US Department of Commerce, BEA, REIS

It is useful to divide these income flows not associated with current labor earnings into at least two categories in order to understand their likely impact on local economies. These are the same categories used in federal economic statistics: “investment income” (dividends, rent, and interest payments) and “transfer payments” from the federal government that include both federal retirement benefits and income maintenance programs aimed at economically distressed households.

It is likely that federal payments to retirees, such as Social Security, and to distressed households, such as food stamps, lead to expenditures that stimulate the local or regional economy. On the other hand, some of the investment income may be immediately reinvested outside the local and regional economy, having little local impact. Of course other households, including those of retirees, may support current consumption by spending some of that investment income. Even households that reinvest their investment income will see their wealth grow as a result of this income and that higher wealth is likely to encourage higher levels of consumption. So, overall, there is likely to be a stimulating impact on the local and regional economies as a result of increases in investment income.

Part of the federal transfer payments aim to relieve economic distress, including unemployment compensation, food stamps, and Medicaid for low income household. These income flows not only support households but also support local economies that are under stress. Without those federal income maintenance efforts, local economies would be even more depressed by unemployment and poverty. But if the federal transfer payments primarily flow to local economies in distress or decline, increases in these income flows may be associated with economies in trouble rather than economies stimulated by the income inflows. Statistical analysis, both cross-sectional and time

series may show a negative relationship between transfer payments and earnings or income. Cause and effect could get confused.

This, in general, is not likely to be a problem. For the Pictured Rocks gateway county (Alger), 75 percent of these federal transfer payments were retirement-related in 2006: Social Security, Medicare, and veteran benefits. For Ashland County, one of the gateway counties to the Apostle Islands NL, 70 percent of the transfer payments were retirement-related. In Bayfield County, the other gateway count for Apostle Islands NL, 60 percent were retirement related. For Alger and Ashland Counties, this was a significantly higher percentage than for the nation as a whole where only about 63 percent of federal transfer payments were retirement-related. This is evidence the gateway counties to these two National Lakeshores have been relatively more successful in retaining their retirees and attracting retirees from other areas.

Because this non-employment income is relatively "footloose," following people's residential location decisions, at least part of it can be considered "amenity-related." This is especially true of retirement-related income which, as pointed out above, is the majority of the federal transfer payments and a significant part of the investment income. In addition, accompanying the retirement-related income we can measure with the federal statistics, there are also income flows associated with private pension plans which are not reported. Because retirees are less constrained by local economic opportunity, it is reasonable to look at a significant part of the non-employment income as "amenity-related."

Nationwide, retirees have had a significant positive impact on local economic vitality. When counties are classified according to their various economic characteristics, retirement counties were the fastest growing group of non-metropolitan counties in the nation in the 1990s. Recall Table 2 on page 9.

Not only are the income flows associated with investment, retirement, and other non-employment income an important part of total household income in the region around these National Lakeshores, but it has been an increasing flow. One way of measuring the importance of these increases in non-employment income is to compare it to the changes in earnings from the traditional economic base in each of these counties. That comparison reveals that in the Apostle Islands NL gateway counties, the increases in real income from these non-employment sources have been almost 12 times larger than the increases in traditional basic industry earnings between 1978 and 2006. In the Pictured Rocks NL gateway county, the growth in non-employment income was somewhat larger than the growth in its traditional economic base.

Clearly these retirement and investment income flows associated with the residents the region has been able to retain and/or attract have contributed significantly to local economic vitality, as these counties have gone through a difficult transition in their economic bases. The Figures 14 and 15 show this for both the Apostle Islands and Pictured Rocks National Lakeshores' gateway counties.

Figure 14

The Role of Investment & Retirement Income in the Apostle Islands NL Gateway Counties: Bayfield and Ashland Counties, WI

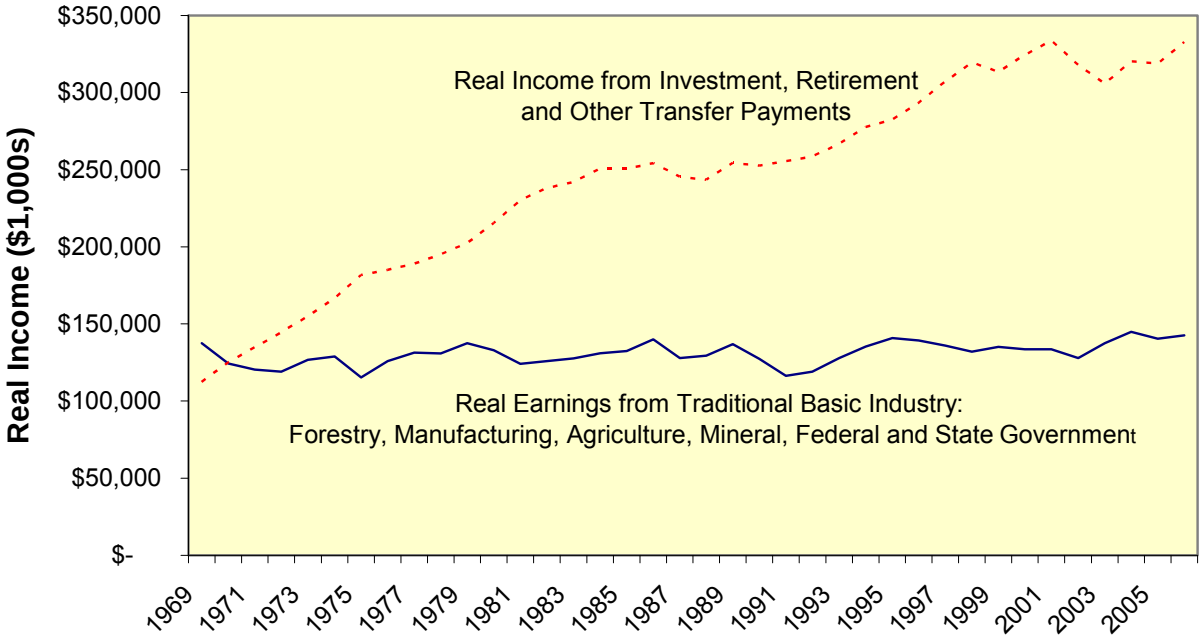
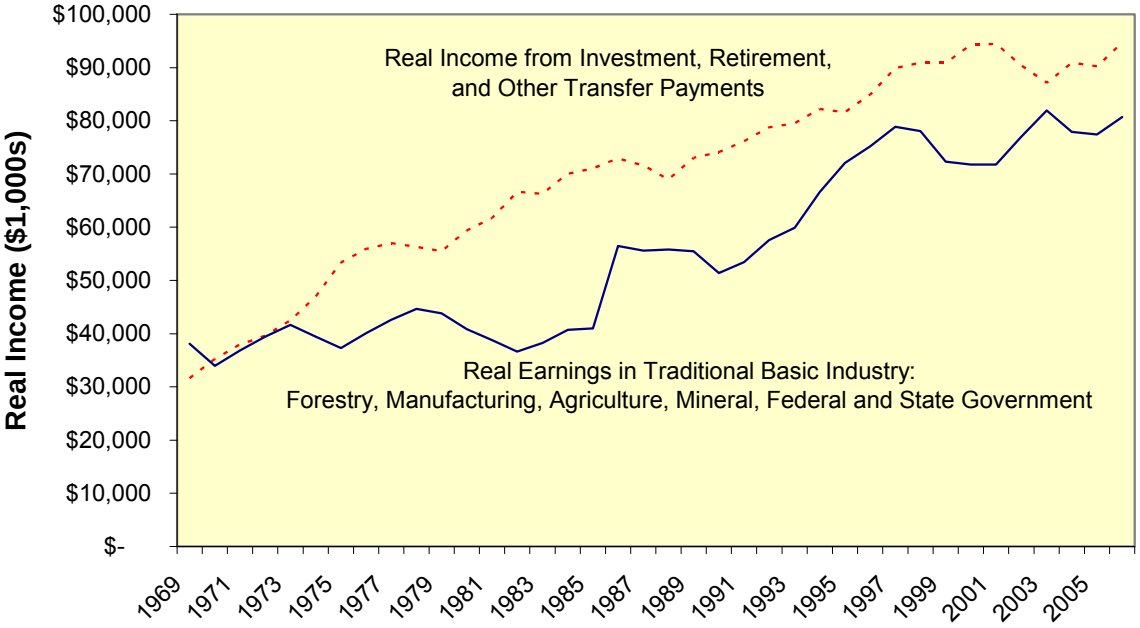


Figure 15

The Role of Role of Investment and Retirement Income in the Pictured Rocks NL Gateway County: Alger County, MI



Notice that in the Apostle Islands NL area, real income from investment, retirement, and other transfer payments expanded significantly while the traditional economic base did not expand much at all. In that setting those non-employment income sources may have been one of the primary sources of economic vitality. In contrast, as mentioned earlier, the traditional economic base did expand significantly in Alger County where the Pictured Rocks NL is located. It almost doubled in size as a source of real earnings. Non-employment income, however, tripled in real terms over that same time period, adding an additional source of economic vitality.

The empirical relationship between investment, retirement, and other non-employment income and local economic vitality in Michigan's counties was analyzed in a 1994 study.[58] That study found that non-employment income in the aggregate, as well as investment income and transfer payments separately, had a significant impact on income within Michigan's local economies that was, in general, greater than the impact of changes in the payrolls of the traditional basic industries. This impact was greatest in urban counties, both metropolitan areas such as Duluth-Superior, and "micropolitan" areas, such as Marquette, Marinette, Dickinson, and Delta, to the east and south of Pictured Rocks NL, than it was in rural counties like Alger.[59]

This is not surprising. Rural counties tend not to have a complete enough commercial infrastructure to capture and "re-circulate" local household spending. Most rural and small city household spending, whether it is from basic industry payrolls or non-employment income, "leaks" out of the rural areas into urban trade centers. That is where most of the "multiplier" impacts are felt, not within the small cities and rural areas. As the diversity of local businesses expands in small cities, however, more of the positive impacts of household spending are likely to be felt locally. That is, the multiplier effect of local spending increases as the diversity of the economy does.

This Michigan study of the county-level impact of non-employment income on the rest of the economy estimated income multipliers for three different levels of county population density: metropolitan, micropolitan, and rural. The gateway counties to the Lake Superior National Lakeshore are all rural in character. The Michigan study estimated the impact of non-employment income on total income in rural counties to be about 1.4.[60] However, the income multipliers varied by year. For rural counties it varied from 1.3 to 2.2. The upper end of these estimated income multipliers for rural areas is not plausible. For the Apostle Islands and Pictured Rocks NL gateway counties, the use of the low end of these income multipliers would lead to a projection that over 70 percent of the actual growth in real income was tied to growth in non-employment income. An impact of this size from just this one source of local economic vitality seems unlikely.

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[58] Joan Kendall and Bruce Wm. Pigozzi, "Nonemployment Income and the Economic Base of Michigan Counties: 1959-1986, ***Growth and Change***, Vol. 25 (Winter 1994), pp. 51-74.

[59] Metropolitan counties are large urban areas having at least 50,000 people and usually more than 100,000. Micropolitan counties are smaller urban areas with between 10,000 and 50,000 residents.

[60] Op. cit. Jendall and Pigozzi, p.64, Figure 5. The article actually estimated non-basic income multipliers to which 1.0 has to be added to make them income multipliers. The multipliers varied by year. I have chosen to use the lower level of values reported.

As discussed above, there is some empirical controversy over whether investment income has a reliable impact on the local economy. A significant portion of the investment income may not actually circulate in the local economy. Instead this household income may be added to households' total savings that are then invested throughout the national economy. If that is the case the impact on the local economy could be less than the dollar amount of non-employment income received by local residents.

For this reason, we have used an income multiplier for non-employment income that is well below what the Michigan study estimated. We use an income multiplier of 1.0 which implies that this income is added to the local economy but with no multiplier impact. The retirement income, for instance, may impact the economy with a multiplier impact as high as 1.4, but the investment income may add considerably less to local spending than its dollar amount, e.g. only a fraction of it may circulate in the local economy. That could lead to the assumed overall multiplier of 1.0 applied to non-employment income.[61]

Even with this low multiplier, changes in non-employment income appear to explain about 55 percent of the change in local income in the Lake Superior National Lakeshore gateway counties. See Table 15.

Table 15

Economic Change Explained by Changes in Non-Employment Income: Retirement, Investment, and Other Transfer Payments 1978-2006

Counties	Change in Real Total Personal Income ($millions)	Change Caused by Changes in Non-Employment Income ($millions)	% of Change Explained by Non-Employment Income
Apostle Islands NL Gateway Counties			
Bayfield-Ashland	$250	$138	55%
Bayfield $	150	$81	54%
Ashland	$100	$57	57%
Pictured Rocks NL Gateway County			
Alger	$70	$38	55%

The Impact of Out-Commuting to Work on Local County Income

If an area that has attractive social and natural landscape amenities is within commuting distance of a less attractive area that has significant employment opportunities, workers and their families may choose to reside at some distance from where the household

[61] For the split of non-employment income between investment income and transfer payments actually found in Bayfield-Ashland counties about 57 percent of the investment income circulating in the local economy would lead to a multiplier of 1.0. For Alger County, the part of investment income circulating in the local income could only be 20 percent to support an overall multiplier of 1.0.

earns its income. This out-commuting to work, in effect, produces a reverse flow of income into the community where the workers have chosen to reside.[62]

This has been a significant source of income to one of the gateway counties to the Apostle Islands NL, Bayfield County, but a significant source of a loss of income to the other, Ashland County. The Pictured Rocks NL gateway county, Alger, also lost income to workers commuting in to work from outside the county.

The impact on the local economy of these labor earnings associate with out-commuting to work is somewhat problematic. Out-commuting to work is often associated with workers leaving smaller, less developed, economies to work in larger, more developed ones. In that setting, families are also likely to commute to do much of their shopping except for convenience shopping. Workers are also likely to spend part of their income in the area where they work. For that reason, we have not attributed any "spillover" or multiplier impact to these income flows, either inflow or outflows.

Bayfield County residents who worked outside the county supplemented the labor earnings generated by economic activity within the Bayfield County by 27 percent as residents chose to live in Bayfield but work elsewhere, primarily in Ashland County. Ashland County, on the other hand, saw fully a third of the local payroll leak out to other counties, primarily Bayfield, because the Ashland County jobs were held by people who chose not to reside in Ashland County. Alger County lost about an eighth of its payrolls to other counties as a result of workers commuting into Alger County to work while choosing to reside elsewhere. See Table 16.

Table 16

Economic Change Explained by Changes in Out-Commuting to Work 1978-2006

Counties	Change in Real Total Personal Income ($millions)	Change Caused by Changes in Out-Commuting to Work ($millions)	% of Change Explained by Changes in Out-Commuting
Apostle Islands NL Gateway Counties			
Bayfield-Ashland	$250	$8	3%
Bayfield $150		$41	27%
Ashland	$100	-$33	-33%
Pictured Rocks NL Gateway County			
Alger	$70	-$8	-12%

[62] We measured the impact of commuting across county lines on local labor earnings using the "residence adjustment" that the U.S. Bureau of Economic Analysis reports in its county estimates of personal income. These adjustments are based on the U.S. Census Bureau's journey-to-work estimates.

The Role of Working-Age In-Migrants in Supporting Local Economic Vitality

All of the elements of amenity-supported economic vitality quantified above can be made to fit into a conventional economic base framework: Income is injected into the local economy where it circulates causing multiplier impacts. However, the economic forces behind two of those element, the changes in non-employment income and out-commuting to work, may not really fit the conventional economic base view. If some of the growth in non-employment income is not related to nationwide trends in non-employment income per capita but to the in-migration of new residents, especially retirees, we do not really have an explanation for the increase in income because we do not have an explanation of that in-migration. Within the economic base framework, people move only to where expansion in the economic base creates jobs.

The out-commuting to work could be forced into an economic base framework by asserting that lack of jobs in the local economy was forcing residents to commute to distant jobs. But that would not explain why those workers did not change their residence to be closer to those jobs. In addition, as suggested above, it is also possible that people move to attractive residential environments that are within easy travel to jobs. That certainly has been the pattern within most large urban areas in the 20th century: Workers, who could afford to, moved away from the urban centers where the jobs were for more attractive neighborhoods and then traveled from home to jobs.

As discussed at the beginning of this report, one possible source of local economic vitality that does not fit into the economic base view is a more expansive version of the amenity-driven out-commuting to work: People choose residential locations on the basis of being drawn to attractive local amenities and being pushed away by local disamenities where they previously resided. This could happen not only across county lines but also across state lines. People move to where they prefer to live and then jobs follow people. That set of economic forces is what originally led to the discussion of amenity-supported economic vitality. In this section we return to that economic role of local amenities.

As discussed above, there was significant in-migration into the gateway areas of both Apostle Islands and Pictured Rocks NLs. Recall Table 13 above. In the Apostle Islands gateway counties, Ashland had a small net out-migration despite job growth in that county, while Bayfield County, where many of the workers filling those jobs live, gained population from in-migration so that those two economically linked counties, together, had significant in-migration. As also pointed out above, Bayfield County saw significant in-migration even though its traditional economic base actually contracted slightly.

In-migrants can stimulate local economic vitality in several ways, including:[63]

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[63] For a more detailed discussion of the potential impact on the local economy of new in-migrants, see the author's "Seeking Greener Pastures: Residential Choice and Local Economic Vitality," Chapter 2, pp. 29-56, in ***Lost Landscapes and Failed Economies: The Search for a Value of Place***, Island Press, Washington DC, 1996. Empirical estimates indicate that a working-age in-migrant seeking to settle in an area tends to stimulate the economy in a way that creates one additional job. That is, the in-migration can

i. The investment, retirement, and other non-employment income that follows them to their new residence; this is “foot-loose” income. We have already discussed the impact of changes in non-employment income above and tried to quantify its impact. Included in that estimated impact is the non-employment income associated with new in-migrants, including both working-age families and retirees.

ii. The “in-migrants” may be workers and their families who have moved across a county line to live in a more attractive setting while out-commuting to a nearby county. We have also discussed this impact and tried to quantify it above.

iii. New in-migrants can bring wealth with them that they partially invest in establishing themselves in their new location. This can include investing in a new home and/or new business potentially boosting the local construction industry and adding to the level of ongoing local economic activity. The proceeds from the sale of a home or business in their previous, higher cost, location could be the source of this new investment capital. They may also draw down their savings as they get themselves established, contributing to the local demand for goods and services.

iv. As the population of an area grows, the range of goods and services that is feasible to provide locally increases. A broader range of economic activity takes place locally. This reduces leakage of income and increases the multiplier associated with existing basic activity, effectively stimulating the local economy. Even when an area remains relatively rural, the population growth and income and spending associated with it will stimulate economic activity in the trade centers that serve that area, creating additional economic opportunity.

v. As growth in the region continues and trade centers expand, the larger regional population and growing urban areas will attract new export-oriented firms that seek to take advantage of lower land and labor costs. Areas that are attractive to workers and their families tend to have a relative over-supply of labor and the lower wage levels, in turn, are attractive to new or relocating businesses. In addition as local businesses find that they are successful in serving local and trade area demands, they may begin to serve more distant export markets and become basic industries themselves.

In our efforts at quantifying different aspect of amenity-supported economic vitality above, we did not deal with the last three of these potential impacts of in-migrants. All of the last three are part of an on-going dynamic economic process rather than a series of easily measured individual “impacts.”

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be self-sustaining. See Greenwood et al., 1986, “Migration and Employment Change: Empirical Evidence on the Spatial and Temporal Dimensions of the Linkage,” ***Journal of Regional Science*** 26(2):223-234; Greenwood, J.J., and G.L. Hunt, 1984, “Migration and Interregional Employment Redistribution in the United States,” ***American Economic Review*** 81(5):1382-90***;*** Greenwood, M.J., 1981, ***Migration and Economic Growth in the United States: National, Regional, and Metropolitan Perspectives.*** New York: Academic Press.

The investments and spending of in-migrants might be considered a relatively easily analyzed "impact," but by themselves, those impacts are not entirely sustainable. The stimulus to the local construction industry, for instance, is short term and ends when the home or business is constructed. It would take another in-migrant just to maintain that level of construction spending. That is, it takes an ongoing higher rate of in-migration just to maintain construction activity at that higher level. There has to be a dynamic process that continues to support local economic vitality. That is where the diversification of the economy that goes along with population growth and expansion of the labor supply comes in.

In the Apostle Islands NL gateway counties there are clear signs of this type of economic vitality in the combined Bayfield-Ashland area and most of the adjacent counties. In the Pictured Rocks NL gateway county the signs of such in-migrant-led economic vitality are more tentative. As pointed out above, between 2005 and 2006 Alger County, along with the adjacent counties of Marquette, Schoolcraft, and Delta Counties did experience net in-migration. In addition, between 1990 and 2006 Alger Counties and all of those adjacent counties except Marquette saw net in-migration. Adjacent Marquette County saw net out-migration as it wrestled with declines in mining and the shutdown of a major military base. Local business leaders in the Pictured Rocks NL gateway county report that local amenities are playing an increasing role in supporting the local economy.

Summary of the Impact of the Amenity-Related Economic Forces on the Gateway Counties

In the analysis above, we have provided relatively rough estimates of the size of the impacts on county income of three amenity-related changes in the county economies in the gateway counties of the Apostle Islands and Pictured Rocks National Lakeshores: visitor expenditures, non-employment income (dominated by retirement and investment income), and commuting to work. We also developed measures of the impact of changes in the traditional economic base. These estimates are summarized in Table 17.

Table 17

The Economic Impact of Amenity Economic Forces and the Traditional Economic Base in the Apostle Islands and Pictured Rocks National Lakeshores' Gateway Counties 1978-2006

Counties	% of Change in Personal Income Explained by Changes in				Total Change in Local Income Due to 4 Changes	The % of the 4 Changes Due to the Traditional Econ Base
	Traditional Econ Base	Visitor Spending	Non-Employment Income	Commuting Out to Work		
Apostle Islands Gateway Counties						
Bayfield-Ashland	7%	45%	55%	3%	111%	6.4%
Bayfield -	3%	50%	54%	27%	128%	-2.5%
Ashland	22%	38%	57%	-33%	84%	26.6%
Pictured Rocks Gateway County						
Alger	70%	22%	55%	-12%	136%	51.8%

For the Apostle Islands NL gateway counties together, almost all (93 percent) of the measured impacts from the four economic forces we have studied is associated with the amenity-related economic forces, the visitor economy, changes in non-employment income, and commuting out to work. For Ashland County about three-quarters of the

economic forces operating to expand the economy were amenity-related while 100 percent were in Bayfield County. In the Pictured Rocks NL gateway county, about half of the sources of economic vitality were amenity-related.

For the three gateway counties the amenity-related forces and the traditional economic base combined explained most of the actual changes in local income. In the Apostle Islands NL gateway counties combined, these four economic forces provided a reasonable accurate explanation of what happen to the local economy, “over explaining” the actual change in income by 11 percent. But for each of the individual counties, these four sources of economic vitality “explained too much” in Bayfield County, “over explaining” by 28 percent. For Ashland County, 16 percent of the growth in real income was not explained. This suggests that we are not accurately accounting for the actual impacts of the out-commuting and in-commuting to work between those two counties. More of the income may stay in the county where the work actually takes place, Ashland County, and less of it may flow into the county of residence of the commuting workers, Bayfield County.

In the Pictured Rocks NL gateway county, Alger, these four sources of local income growth “over explained” growth by 36 percent. Clearly we are overestimating the income multipliers associated with one or more of these economic forces acting on the Alger economy.

The roughness of our estimates is apparent in these results. We have either “over-explained” or failed to explain significant amounts of the actual changes in real income. Despite this, we believe these estimates still provide a rough indication of the relative importance of the various forces operating on these local economies. And underline the role being played by amenity-related economic forces.

The National Lakeshores and These Amenity-Related Economic Forces

In the preceding analysis and in Appendix B we have quantified the role of the National Lakeshores only in terms of the impact that visitors to the National Lakeshores have on the gateway county economies as a result of their spending. Apostle Islands NL contributed $14.4 million and Pictured Rocks NL $8.8 million to local income in 2008. When stated in terms of the contribution to all personal income received by residents of the gateway counties, this was a relatively modest percentage, 1.7 percent of total income in Bayfield and Ashland Counties in 2006 and 4.0 percent of Alger County income. Our estimates of the contribution this visitor spending made to the growth of total real income in these counties between 1978 and 2006 was somewhat larger, about 5 percent for Ashland-Bayfield Counties and 11 percent for Alger County.

As discussed at the beginning of this report, the National Lakeshores play two important roles beyond attracting temporary visitors. First, they provide permanent protection to unique local landscape amenities. Second, their very classification as a unit in the National Park system signals to a national audience the presence of a high quality and protected natural landscape feature. This draws visitors who are not familiar with an area to it where they discover not only something about the National Lakeshores but

also about the broader natural and social environment surrounding the National Lakeshore. The presence of the protected landscapes identifies areas where open space, scenic beauty, wildlife, and recreation opportunities will be protected indefinitely into the future. The National Park unit designation signals something more: These are landscapes of national significance. It is also true that protected landscapes tend to cluster together to a certain extent. Consider the Apostle Islands and Pictured Rocks National Lakeshores. Parts of each of these two Lakeshores have been classified as part of the National Wilderness System. In addition, the surrounding landscape is heavily protected by a variety of public agencies. This combination of characteristics, for a small number of visitors, may lead to further commitments to that place, including the building of second homes or permanent residences.

People are not attracted to an area, however, by just one feature or quality. It is the suite of qualities and experiences taken together that draw them. Although we have not tried to quantify it, these National Lakeshores have played a vital role in drawing attention to the south shore of Lake Superior and the amenities that northern Wisconsin and the Upper Peninsula have to offer. Visitation to these National Lakeshores is a crucial part of this. But the economic impact does not end with the expenditures visitors to the National Lakeshores make. The knowledge and understanding that visitors obtain about the Lakeshores as well as the gateway communities and the other public recreation lands remain important into the future. That experience and knowledge will bring some of those visitors back and some of the repeat visitors will become residents of the region, if not the gateway communities. Like the initial visits to the National Lakeshores themselves, that National Park unit is unlikely to have been the only thing drawing people back, but it is likely to be what introduced people to the area and remain an important symbol of what the region has to offer residents.

For all of these reasons, the full economic impact associated with the National Lakeshores is significantly greater than what is indicated by just the impacts of visitor spending. Because of the complexity of these connections between natural landscapes protected by the National Park system, other parts of the natural landscape, and the economic dynamics of the local economies, we have not tried to quantify this broader amenity role of the Lake Superior National Lakeshores. We are not aware of any other studies that have tried to measure this broader role of unique natural landscape features that have received national protection. Of course just because something has not been or cannot be quantified does not mean it is of no or small importance.

Evidence of Amenity-Supported Local Economic Vitality Elsewhere in Northern Wisconsin and the Upper Peninsula

One of the objectives of this study was to examine the larger region of northern Wisconsin and the Upper Peninsula for evidence that amenity-supported economic vitality had been playing a role in local economic development. The initial hypothesis that led to this separate objective was that amenity-supported economic forces had not yet reached the relatively isolated gateway counties where the Lake Superior National Lakeshore were located. As the above analysis makes clear, this does not appear to be true. Natural landscape amenities, including the National Lakeshores themselves, are

already positively influencing the gateway counties in a significant way. This is especially true in Bayfield County, one of the Apostle Islands NL gateway counties.

However, we have analyzed a total of 17 counties in northern Wisconsin and the Upper Peninsula of Michigan, including the three gateway counties, for signs of amenity-supported local economic vitality. That analysis largely follows that provided above for the gateway communities. Appendix A provides that analysis. Here we simply list the conclusions from that analysis of the 17-county region divided between 7 counties in the greater Apostle Islands region and 10 counties in the greater Pictured Rocks region.

For these larger regions stretching far beyond the area of economic influence of the Apostle Islands and Pictured Rocks NLs, we came to the following conclusion in Appendix A on the role amenity-supported economic vitality in explaining the growth in real personal income between 1978 and 2006. See Table A16.

The traditional economic base explains only a small part of the total change in local real income. This is especially true in the greater Apostle Islands study region where in four of the seven counties, changes in the traditional economic base explained only single digit percentages of the change in total real income. In Ashland and Washburn Counties the traditional economic base had the highest explanatory power, explaining a little over 20 percent of the growth in real income.

In the greater Pictured Rocks study region, the traditional economic base explained the majority of the change in real income in Alger County, the gateway county. If we set aside the anomalous Marquette County, changes in the economic bases of the 9 remaining counties, including Alger County, explained only 11 percent of the growth in real income. This is because the economic base shrunk in 3 of these 9 counties and grew hardly at all in one other.

The amenity-related economic forces, including the visitor economy, were the primary drivers of real income growth in these counties. The minimum contribution of the amenity-related economic forces was 62 percent in the greater Apostle Islands study region and 69 percent in the greater Pictured Rocks study region. The average across the 7 counties in the greater Apostle Islands study region was 92 percent and for the greater Pictured Rocks study region 106 percent. That percentage is over 100 percent because the traditional economic base for the ten counties shrunk significantly and the amenity-related forces compensated for that decline.

Keeping in mind that our historical estimates of the role of the visitor economy over the last three decades is biased upward, the visitor economy may have been responsible for over a third of the growth of real income in the greater Apostle Islands region and about a fifth of the growth in the greater Pictured Rocks region. In Bayfield and Ashland Counties, the upper end of the impact of the visitor economy was 45 percent of the growth in real income. In the greater Pictured Rocks region the visitor economy may have been responsible for about 20 percent of the growth in income in Alger,

Schoolcraft, Florence, and Marinette Counties and over 30 percent of the growth in Marquette and Keweenaw Counties.

After we have accounted for the impact of the traditional economic base and an upper estimate of the visitor economy, there is still a significant part of the growth in real income in the local economies that is not explained. Close to 60 percent of the growth in the greater Apostle Islands region remains to be explained and close to 50 percent of the growth in the greater Pictured Rocks region (excluding Marquette County). There is one important exception to this pattern: For Alger County, the gateway county for Pictured Rocks NL, only 8 percent of the growth of real income between 1978 and 2006 remains unexplained after growth in the traditional economic base and the visitor economy are accounted for.

The unexplained residual after changes in the traditional economic base, an upper estimate of changes in the visitor economy, changes in non-employment income, and changes in work out-commuting patterns are taken into account are quite small in the greater Apostle Island region, only 1 percent of real income growth. However, because of the large decline in the traditional economic base in Marquette County whose size dominates the greater Pictured Rocks region, 30 percent of the growth in that region (less Marquette County) remains unexplained. If Marquette County is excluded, then we have explained all of the growth in the region. In fact, we have over-explained the growth by 20 percent. But these averages hide significant unexplained growth in some counties: 40 percent in Oneida County and about 20 percent in Ashland and Sawyer Counties in the greater Apostle Islands region and 20 percent in Delta and Dickinson Counties in the greater Pictured Rocks region. In several counties we have also significantly “over-explained” the total growth.

Overall, amenity-supported local economic vitality appears to have become a significant part of the dynamics of the local economies both in the gateway counties to the Lake Superior National Lakeshores and in the larger region surrounding those gateway counties.

IV. Criticisms of Amenity-Supported Economic Development

Although amenity-supported local economic vitality in rural areas is increasingly acknowledged as an economic reality in many parts of the nation, vocal critics have condemned the phenomenon as undermining local well being in a variety of ways. Some of the criticisms focus on claimed negative economic impacts including depressed wages and income and higher costs of living. New in-migrants and economic activity are also seen as displacing existing, long-term residents, and forcing them out of their communities. Other criticisms are social and cultural. The new in-migrants and the economic activity they bring are seen to be disrupting existing social patterns of interaction, imposing new social and legal constraints on longer-term residents, and undermining unique aspects of local culture that were tied to land-based economic activities that the new economy is displacing. We will discuss the economic criticisms of

amenity-supported economic vitality first and then turn to the social and cultural critiques.

Because our thinking about local economies tends to be dominated by the economic base view of the economy, “amenity-supported” economic vitality is usually translated into “tourism.” Within an economic base framework, that translation keeps the focus on familiar income flows being injected into the economy from the outside. As discussed throughout this report, “amenity-supported” economic vitality, even in its economic base versions, stretches far beyond “tourism” to include retirement and investment income as well as living in a more attractive location and commuting out to work. Amenity-supported economic vitality also stretches far beyond the economic base view of the local economy to include other economic forces influencing residential location decisions. Nonetheless, we begin with the focus on tourism or the visitor economy

The conventional wisdom about a tourist or visitor economy is that the jobs it creates are inferior jobs characterized by low pay, short hours, seasonal employment, and career dead ends in the sense of there being no career ladders out of the low pay.

There is little dispute over the quantitative characteristics of many jobs associated with the visitor economy. They are low paid and often involve less than full-time hours and/or seasonal work. What is open to dispute, however, is whether these characteristics harm the employee and the local economy. We explore the impact of these visitor-economy jobs on workers first and then turn to the impact of those jobs on the local economy.

Visitor Economy Jobs and Worker Well Being

If a worker can get paid more per hour of labor effort at a job with similar characteristics, clearly the worker would be better off in that alternative job. The real alternative, however, may be no job at all or a job that is less attractive because of risks, stress, or physical discomfort or a job requiring more hours of work than the worker can afford to commit to. In real world labor market settings, a relatively low paid job may actually appear to be a preferred alternative. Consider several characteristics of many of the jobs associated with the visitor economy.

Part-time Employment

One reason that “tourist” jobs have dramatically lower annual pay associated with them, half or less of the average pay per job across all jobs, is that they have fewer hours of work per week associated with them or they are seasonal, offering employment for only part of the year. Often the pay per *hour* of work effort is nowhere near as low as average annual pay per *job* or average annual pay per *worker*. The question we wish to discuss is whether the part-time character of jobs is always or usually a negative characteristic. If it is not, the part of the notoriously low pay associated with many “tourist” jobs may not be a negative characteristic either.

Often the people who take part-time jobs are not seeking full-time employment because they have other commitments they are trying to combine with earning some income:

going to school, caring for children or other dependents, or working at another job that has complementary seasonal, weekly, or daily characteristics.

The U.S. Census Bureau every month interviews a large sample of households to determine who is working outside the home, how many hours they are working, and if they are working less than full-time, why they are doing so. This information is one of the bases for estimates of unemployment rates. The vast majority of part-time workers report that they chose part-time work. They did not want full-time work because fewer hours of work was what was compatible with their other commitments: family responsibilities, being in school, being retired, etc. In 2007, for instance, less than 4 percent of part-time workers reported that they were working part-time because they "could only find part-time work." About 9 percent reported they were working part-time because of slack work or business conditions had reduced their hours. Less than 15 percent of part-time workers typically indicate that they wanted to be working full-time but could not find such a job.[64]

Of course, during economic downturns, as firms try to cut costs but not lay off workers, the amount of involuntary part-time work is likely to increase. But in general the vast majority of part-time workers have chosen the reduced hour because it allows them to mix labor market activity with important activities outside of the labor market. This is not a sign of the failure of the economy but rather a sign of the adaptability of the economy, providing a range of employment opportunities that meet workers needs. This availability of part-time work for those who seek it enhances economic well being rather than reducing it.

Seasonal Employment

If workers are seeking year-round employment and can only find seasonal employment, clearly they are worse off than if they have been able to find the employment situation they were seeking. It should be kept in mind, however, that many workers seek seasonal employment because it complements other activities or other jobs that are important to them. Students and school teachers, for instance, usually have the summers free of school obligations. Summer jobs allow them to supplement their income and, for students, help pay for schools expenses. Students and teachers often are seeking work just as other workers are seeking to take their summer vacations, opening up seasonal employment opportunities. Some jobs are unavoidably seasonal: agricultural harvests, Christmas retail sales, some construction, timber harvest, agricultural, and other outdoor activities that are suspended during the depth of winter. Recreational jobs are not unique in that respect. Again, to the extent that potential workers are able to fit seasonal jobs in with their other activities, the existence of such jobs is not a sign of a weak or failing economy.

[64] ***Current Population Survey***. See Bureau Labor Statistics, Household Data, "Persons at work 1 to 34 hours in all and in nonagricultural industries by reason for working less than 35 hours and usual full- or part-time status," or similar tables. http://www.bls.gov/cps/cpsaat20.pdf .

Entry Level Jobs

Many of the retail and service industry jobs supporting visitors are entry level jobs that are taken by workers with limited workplace experience. Young people, including students, as well as women who have been out of the workforce for some time, often fill these jobs. Because of these workers' limited working experience and limited skills, their productivity is not especially high. There have to be some jobs in which people learn the discipline that is required to retain a job and develop productive skills. Such entry-level jobs are not jobs people expect to hold for a lifetime or, even, for more than a relatively brief period of time as they learn what they are good at and what the full range of opportunities is that regional labor markets offer them.

A detailed analysis of individual workers' work histories over an eight-year period based on their contributions to federal and state employment insurance programs documented the characteristics and importance of entry-level jobs. The long-term persistence of workers within a given industry was about 75 percent over a seven-year period across all industries but in travel-related and retail sales, the persistence was only 50 percent. People left those jobs relatively quickly. The net movement of workers, the inflow of workers minus the outflow, in travel-related jobs was a negative 8 percent even though total jobs in that industry were growing rapidly. This was possible because the workers who were leaving were being more than replaced by new entrants into the labor force. The same was true of workers in retail trade. Finally, when workers left travel-related jobs, their pay increased an average of 67 percent; in retail trade, workers leaving the industry saw their pay increase 41 percent. Workers were leaving these types of jobs as soon as they found jobs that paid better and when they made the shift, they improved their status considerably. That is, these jobs served as productive steps on the way to higher paying jobs.[65] Workers, in general, were not "trapped" in these low-paid jobs. For new entrants or return entrants to the workforce, low-paid entry-level jobs are an important, positive aspect of the economy. Of course, to the extent that people holding such jobs over time are not able to put the skills and experience they have to work, realize their potential productivity, and be paid for it, this does represent a failure of the economy.

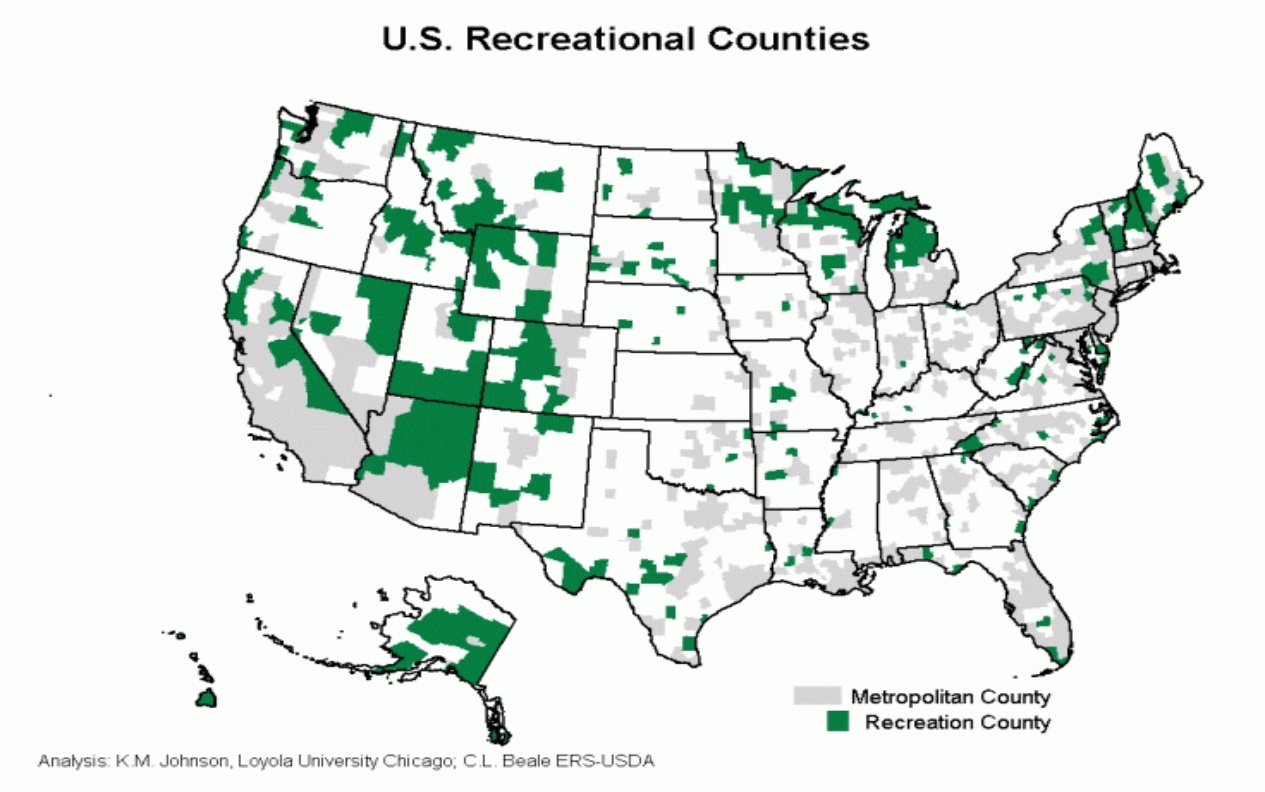
The point of these comments on part-time, seasonal, and entry-level jobs is not to assert that these job characteristics never represent an underemployment of individuals. Rather, the point is to underline the productive function such jobs can play in providing appropriate employment opportunities for a diverse workforce with different needs as well as serving the needs of different types of employers. Such jobs do not necessarily represent negative aspects of the local economy that disadvantages workers.

[65] "Montana Workers' Labor Market Experiences during Industrial Transition: 1988-1996," Richard N. Barrett and Thomas M. Power, October, 1997. Economics Department, University of Montana, a study funded by the Claiborne-Ortenberg Foundation, NY.

The Impact of Recreation Jobs on Local Economies

As pointed out above, the Economic Research Service of the U.S. Department of Agriculture has identified non-metropolitan (small urban and rural) areas whose economies are unusually dependent on commercial recreation. These areas, in the vernacular, would be called “tourist economies” because of the relative importance of lodging, eating and drinking establishments, vacation homes, resorts, and businesses catering to visitors. A 2005 research report analyzed exactly this set of rural “tourist” economies to see how their economic performance across a broad set of measures compared to other rural economies in which commercial recreation did not play as dominant a role. Since six of the seven counties in the greater Apostle Islands NL study region and six of the ten counties in the greater Pictured Rocks NL study area were classified as recreation counties, this is a particularly relevant set of counties to study. (Ashland County was the exception in the Apostle Islands area and Marquette, Dickinson, Delta, and Menominee Counties were the exceptions in the Pictured Rocks area.) Recall Figure 12 above. This concentration of recreation counties in northern Wisconsin, Michigan, and Minnesota is unusual from a national perspective. Only New England and the Mountain West show similar concentrations. See Figure 16.

Figure 16



In evaluating the economic performance of a rural county, it is usually not appropriate to compare that rural county to larger urban areas such as the nation’s metropolitan areas. Large, densely settled, urban areas have characteristics that cannot be expected to be

reproduced in rural areas. In particular, the density of urban settlement boosts productivity as a result of economies of scale and scope and reduced transportation and communication costs.[66] That is what leads a broad range of economic activities to concentrate in large urban areas. That concentration, however, creates an opposite set of economic forces, higher costs, as the demand for centrally located land drives land costs up and, with it, increases the cost of operating a business and living in those urban areas. To be able to attract and hold workers in areas with a higher cost of living, higher money wages have to be paid simply to compensate for the higher cost of living. As a result, average pay and income tend to rise with the density and size of settlement.[67] Even within our northern Wisconsin and Upper Peninsula study region, we saw this pattern above. Recall Figure 7 above.

Even comparing a rural economy with the national average runs up against this problem since average pay in the United States is associated with workers residing in a metropolitan area of somewhat more than a million people while rural counties have populations below 50,000 and often below 10,000. The 17 counties in our extended study area in northern Wisconsin and the Upper Peninsula had, on average, 22,000 residents. Comparing rural "recreation counties" with other rural counties that have not specialized in serving visitors avoids such a comparison of "apples and oranges," rural areas with densely settled, heavily populated urban areas.

The recent Economic Research Service study of "Recreation, Tourism, and Rural Well-Being" pointed out what was mentioned at the very beginning of this report, namely that in terms of growth recreation counties were one of the main rural success stories of recent years.[68] During the 1990s these recreation counties attracted permanent residents through in-migration at a rate three times that of other rural counties. They also had employment growth that was double the rate of other rural counties. Recall the table of the most rapidly growing counties during the 1990s, Table 2 above.

References to the growth of jobs does not speak to the usual criticism of visitor economies, namely that they are dominated by "lousy" jobs, jobs that are unskilled and low-wage, that depress local wages and income and may boost poverty as well as have negative impacts on education, health and other aspects of community welfare. Large numbers of low-paid jobs may also put stress on local governments and non-profit organizations that provide local social services. The ongoing in-migration of new residents into communities that specialize in serving visitors, however, would raise some doubts about whether things could actually be that bad if people "voting with their feet" were choosing to live there. The Economic Research Service study aimed at investigating the common perception that recreation and tourist economies were poor

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[66] See Antonio Ciccone and Robert E. Hall, 1996, "Productivity and the Density of Economic Activity," ***American Economic Review,*** 86(1):54-70.

[67] See "Is the Mountain West Really Poor? Size of Place and Relative Pay and Income," Chapter 5 in ***Post-Cowboy Economics: Pay and Prosperity in the New American West,"*** Thomas Michael Power and Richard N. Barrett, 2001, Island Press, Washington DC, pp.103-124.

[68] Richard J. Reeder, Dennis M. Brown, USDA, Economic Research Service, ERS Research Report No. 7, August 2005.

economies by studying the actual economic and social characteristics of the rural recreation counties.

What the analysis found was that recreational counties, both across the nation and in northern Wisconsin, Michigan, and Minnesota, had statistically significantly higher earnings per worker, income per capita, and median household income than other rural counties that were not specialized in serving recreational visitors. In addition the growth in income per capita and median household income between 1990 and 2000 was statistically significantly higher. Monthly rental cost, a proxy for local cost of living, was also higher, but the differences in pay and income more than offset the higher housing costs, leaving residents with higher real incomes. Other studies have also pointed out that in-migration in northern Wisconsin, Michigan, and Minnesota has been associated with modest increases in housing costs.[69]

Social indicators in the recreation counties, including the subset in northern Wisconsin, Michigan, and Minnesota, were also superior in a statistically significant way. Poverty rates were lower and they fell more between 1990 and 2000. There were fewer less-educated and more college-educated residents, and the mortality rate was lower. See Table 18.

This is not the first study to note that, contrary to the conventional wisdom, recreation and high amenity areas had higher incomes, not lower incomes. A study of "The Role of Amenities and Quality of Life in Rural Economic Growth" analyzed how site-specific amenities, including climate, landscape characteristics, commercial recreation infrastructure, water features, and winter recreation capacity affected rural development.[70] The measures of local amenities were heavily tilted towards commercial recreation facilities and, in that sense, were identifying recreation areas rather than high amenity areas. The study found that all of the measures of amenities and recreation infrastructure had significant positive impacts on economic growth between 1985 and 1995: All of the statistically significant impacts of amenities on population, employment, and per capita income growth were positive. In particular, the higher the amenity values, the higher the per capita income. The study concluded that "…the concern expressed about the quality of jobs created, as measured by changes in per capita income, appears to be misplaced."[71]

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[69] Housing Affordability and Population Change in the Upper Midwestern North Woods, Rodger B. Hammer and Richelle L. Winkler, in ***Population Change and Rural Society***, Springer, Netherlands, 2006, pp. 293-309.
[70] Steven C. Deller et al. ***American Journal of Agricultural Economics*** 83(2)(May 2001): 352-365.
[71] Ibid. p. 363.

Table 18

Statistically Significant Differences among Rural Counties Recreation Versus Non-Recreation Counties			
Socioeconomic Indicators 2000 and 1990-2000 Change	Recreation Counties All	 Northern WI, MI, MN	Non-Recreation Counties
Economic Indicators			
Employment Growth	23.7%	23.3%	9.8%
Increase in Employment/Population Ratio			
Age 16-24	0.7%	2.7%	0.0%
Age 25-64	0.7%	2.8%	-0.3%
Earnings per Worker	$29,593	$29,314	$27,445
Income per Capita	$22,810	$21,485	$20,727
Growth in Income per Capita	$7,471	$7,243	$6,564
Median Household Income	$35,001	$34,896	$31,812
Growth in Med. Household Inc.	$11,952	$13,495	$10,531
Median Monthly Rent	$474	$421	$384
Social Indicators			
Population Growth	20.2%	15.8%	6.9%
Poverty Rate	13.2%	10.7%	15.7%
Decline in Poverty Rate	-2.6%	-4.4%	-3.1%
Residents w/o HS Diploma	18.4%	18.0%	25.0%
Residents with at least BA Degree	19.2%	14.9%	13.6%
Growth in Residents with BA Degree	4.0%	3.4%	2.4%
Age-Adjusted Death Rate per 100,000	817.3	829.7	898.3

Source: Recreation, Tourism, and Rural Well-Being, Richard J. Reeder, Dennis M. Brown, USDA Economic Research Service, Research Report No. 7, August 2005, Tables 5 and 6.

Another study sought to identify that part of local retail trade and service activity that was associated with landscape-based recreation visitors, distinguishing that "tourism" from visitors who had come for business or entertainment reasons or to shop as well as the spending associated with local residents rather than visitors. The study then used this information to identify those rural counties most dependent on landscape-based tourism and compared them to rural counties with little or no dependence on such tourism. It found that counties dependent on landscape-based tourism had higher per capita income levels in 1990 than did non-tourist-dependent counties and per capita grew more between 1980-1990.[72] The study concluded: "Our findings do not seem to support contentions that recreation and tourism jobs are necessarily lower with respect to aggregate local income generation, since mean incomes were higher in the more recreation-dependent counties."[73] The study cautioned, however, that it is possible that the higher incomes of amenity in-migrants were obscuring the lower earnings of existing workers.

[72] Tourism Dependence in Rural America: Estimates and Effects, 2000, Donald B. K. English, David W. Marcouiller, and H. Ken Cordell, ***Society and Natural Resources*** 13: 185-202, Table 4.
[73] Ibid. p. 200.

Another study focused on exactly this question: What was the impact of amenity-supported in-migration and/or commercial recreation ("tourism") on existing residents and workers? As with most studies of amenities and recreation, the focus was on rural counties. "Existing residents" were defined as those who had resided in the same county or a county within commuting distance of the same county for at least ten years.[74] The particular counties of concern were those that met the following criteria:

- rural,
- classified as "high amenity" on the basis of landscape and climate qualities by the USDA Economic Research Service, or
- classified as "recreation counties" by the USDA Economic Research Service, and
- grew rapidly in terms of population between 1970 and 1995.

These counties were labeled "high-growth, amenity, and recreation" (HGAR) counties. This actually mixes two quite different phenomena together: amenity supported in-migration and commercial recreation ("tourism"). But there is considerable overlap in these two sets of counties and the public tends to link them both together as "tourism."

The study used federal interview data of a group of heads of households that was intended to be a random sample of Americans. These families were repeatedly re-interviewed over a ten year period. This allowed the researchers to distinguish those who lived in HGAR counties and those who did not and also allowed a determination of how long the families had lived in the area, and how their family income had changed over time.

In the HGAR counties, average family income of long-term residents was $9,000 higher, compared to families in other counties, confirming other studies that have shown that amenity-supported in-migration and specialization in commercial recreation led to higher, not lower incomes. This result, however, is associated with longer-term residents' well being as opposed to that of recent in-migrants who may have higher incomes and wealth. Statistical analysis, as opposed to a comparison of the average values associated with the two different groups, confirmed that incomes of longer-term residents of HGAR counties were higher in a statistically significant way but the differences in family incomes was smaller $3,500 rather than $9,000. This lower family income differential was due to the fact that high-growth, amenity and recreation counties had other characteristics that boosted their incomes besides having high amenities or "tourist" facilities. The HGAR counties had more highly educated populations, fewer households headed by women, and smaller minority populations. They also had more senior citizens, which would have worked in the other direction, reducing family income.

[74] For many rural residents, a ten-year resident would not be an "old-timer" or a long-term resident. But the study was trying to distinguish *recent* in-migrants from the rest of the population and chose that particular definition. See "The Association between Natural Amenities, Rural Population, Growth, and Long-Term Residents' Economic Well-Being," ***Rural Sociology*** 70(4): 452-469, Lori M. Hunter et al. 2005.

HGAR rural counties also had higher median home values: $136,000 versus $76,000. This would have tended to increase local cost of living, reducing the real purchasing power of the higher family incomes. When home values were included in the statistical analysis, HGAR counties no longer had statistically significant higher income but home values had a statistically significant impact on income, boosting incomes in a county with $136,000 home values by $11,000 relative to family incomes in counties with home values of $76,000. As a result, long-term residents of HGAR counties were better off despite the higher home values.[75] Again, the conventional assumptions that recreation and amenity economies have inferior wages and incomes were not supported by empirical analysis, even when the focus was only on "long-term" residents and the higher income of in-migrants was ignored.

The Impact of Seasonal Homes on Local Economies and Communities

As discussed above, a significant part of the impact of visitors to northern Wisconsin and the Upper Peninsula is associated with repeat visitors who facilitate their visitation by owning a second home in the region. Such vacation homes can later become the homes of permanent residents as owners age and retire, converting their second home into their primary residence.[76] A study of second home ownership on rural economies in the northeastern United States found that a higher percentage of second home ownership was associated with higher growth in population, employment and per capita income in the 1990s.[77] The impacts were greater in the more rural counties. During the 1990s researchers at the Center for Economic Development at the University of Wisconsin-Madison Extension Service carried out case studies of vacation home owners using Burnett and Forest Counties in northern Wisconsin. [78] [79] Burnett County was part of our greater Apostle Islands study region. Forest County is nearly surrounded by counties in both the greater Apostle Islands and greater Pictured Rocks study regions: Oneida and Vilas Counties border Forest County on the west while Florence and Marinette Counties border it on the east. One of the reasons Forest

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[75] This was not the conclusion reached by the authors of the study. They simply concluded that HGAR counties had higher income but when home values were included in the statistical analysis, there appeared to be no statistically significant increase in family income in HGAR counties. This is because they ignored the impact of the higher home values on family income. In addition, to the extent that long-term residents owned homes in the HGAR counties, they would have seen their wealth increase as home values rose. Only if long-term residents were exclusively renters would the higher home values have been purely a cost burden on them.

[76] Seasonal Homes and Natural Resources: Patterns of Use and Impact in Michigan, Daniel J. Stynes, et al. USDA Forest Service, North Central Forest Experiment Station, General Technical Report NC-194, 1997. See p. 10 for a discussion of the conversion of seasonal homes to permanent residences.

[77] The Contribution of Second Homes to Rural Economies, Masters Thesis, Agricultural, Environmental, and Regional Economics, Pennsylvania State University, Benjamin S. Weagraff, 2004.

[78] Recreational Homeowners and Regional Development: A Comparison of Two Northern Wisconsin Counties, 1996, John Preissing, David W. Marcouiller, Gary P. Green, Steven C. Deller, and N. R. Sumathi, Center for Community Economic Development, University of Wisconsin-Extension, Staff Paper No. 96.4.,

[79] Recreational Homes and Regional Development: A Case Study from the Upper Great Lakes States, David W. Marcouiller, Gary P. Green, Steven C. Deller, and N.R. Sumathi, 1996, Center for Economic Development, University of Wisconsin-Extension, G3651.

County was chosen for the study was that in 1990 about half of the housing stock was vacation homes.

These case studies found relatively high levels of local expenditures associated with vacation home owners with substantial parts of those expenditures being made within the local economy. $2,400 to $3,400 per year in local spending was associated with vacation homes. These high levels of expenditure were associated with relatively high levels of use of vacation homes throughout the year. Although the homes were used most heavily during the summer (two to three weeks a month), they were also used during the winter, as much as seven days a month in Forest County. Much of the local expenditures were not in the categories usually associated with visitors, namely eating and drinking establishments, miscellaneous retail trade, and accommodations. Instead there was substantial local expenditure in construction and remodeling, 40 percent of the local spending by Forest County vacation home owners. The search for and building of vacation homes also impacted the real estate and finance sectors. In that sense the impact of vacation homes was broader than typical visitors or tourists.

In Forest County, the expenditures of vacation home owners and permanent residents were compared. Vacation home owners spent about half what local residents spent, $6,300 versus $12,000. A higher percentage of local residents' spending took place locally, 49 percent versus 38 percent. As a result, vacation home owners' local spending was about 40 percent of local residents local spending. Given that vacation home owners used their homes for only 142 days per year or 39 percent of the year, the vacation home owners' local spending per day of residence was similar to that of residents. The spending impact of vacation home owners was clearly significant.

Vacation home owners, according to local government officials, made modest demands on local services (e.g. no children in schools, no social services demands) while contributing significantly to the tax base. The judgment was that there was likely a net fiscal benefit to local governments.[80] The same authors, in a more detailed study a few years later, looked carefully at the impact of increased density of recreation homes on both county government expenditures on services as well as county government revenues available to cover the costs of those services.[81] They found that as the density of recreation homes rose, so did expenditures on police and fire protection, cultural and educational programs, as well as general government functions. A ten percent increase in the stock of recreation homes per capita resulted in a 1.2 percent increase in total per capita expenditures by local governments. At the same time, that increased density of vacation homes boosted property tax revenues, user fees, and fines and penalties while reducing state aid received. A ten percent increase in the recreation home density resulted in a 1.1 percent increase in total per capita revenues to local governments. In that sense recreation home development more or less just pays for itself. It is not a major boon to local government, but it also is not a significant burden.

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[80] Ibd. P. ii.

[81] Recreational Housing and Local Government Finance, Steven C. Deller, David W. Marcouiller, and Gary P. Green, 1997, ***Annals of Tourism Research*** 24(3):687-705.

The Economic Impact of In-Migrating Retirees

There have been efforts to consider the potentially different impacts that working-age in-migrants might have compared to retirement-age in-migrants. Because many people of retirement age have income sources that follow them when they make residential location decisions, they are more "footloose" in the sense of not having to pay as much attention to local labor market conditions. Since many people of retirement age, however, stay somewhat involved in the workforce, employment opportunities will receive some consideration from retirees but local cost of housing and overall cost of living may be the more important economic consideration. In-migration of households headed by working-age parents is likely to be at least somewhat affected by labor market opportunities. This is mentioned because it is unclear how to compare the economic impact of the two different types of in-migrants. At one extreme, a retiree can move in even if employment opportunities are not available and have a positive impact as a result of spending out of savings and retirement income. A working-age household might have a larger impact if it can actually find employment and take up residence, but no impact at all if uncertain employment opportunities leads it to move on to a different location.

A simulation analysis of three northern Wisconsin counties comparing the impact of the in-migration of older and younger households simply waived off the question of how the jobs facilitating the in-migration were created and simply assumed that those jobs were created and proceeded to track the economic impacts.[82] The three-county area lay between the east side of the Apostle Islands study region (Oneida County) and the west side of the Pictured Rocks study region (Forest and Langlade Counties, adjacent to Florence and Marinette Counties).

Two scenarios were compared: The in-migration of 500 households with two working-age parents and an average of about two children versus the in-migration of 500 retirement-aged households made up of about 2 adults. The younger families were assumed to have an average of 2.1 workers and 3.9 family members, implying 1.8 dependents per household. The older families were assumed to have, on average, only 0.4 workers and 1.7 family members, implying 1.3 dependents.

With the larger number of workers in the household, the younger households had after tax incomes much higher than the older households, $49,000 versus $21,000, supporting similar differences in their expenditures within the local economy.

When all of the direct and indirect impacts of these households and their spending were taken into account, the population growth associated with the 500 older households was 960 while that for the younger households was 2,166. The number of new students in schools was approximately zero for the older households but 379 for the younger households. This has implications for spending on local schools. Per capita incomes

[82] Comparing the Impacts of Retiree versus Working-Age Families on a Small Rural Region, 2001, Martin Shields, Steven C. Deller, and Judith I. Stallmann, ***Agricultural and Resource Economies Review*** 30(1):20-31.

declined slightly under both in-migration scenarios as incomes rose more slowly than population, but declined about twice as much as a result of the young family in-migration because of the larger number of dependents and the larger number of relatively low paid jobs in retail trade and services.

Estimates of the impact of each set of in-migrants on financing local government indicated that although expenditures on a variety of local government services would have to expand, revenues would expand in a similar fashion, resulting in a near zero impact on fiscal balance. Spending per capita would decline which could represent a decline in service quality unless economies of scale are present allowing the same or better levels of service to be provided at a lower cost per capita. Capital costs were not included, implicitly assuming that there was excess capacity that could absorb the five hundred new households. Since school populations would increase by 379, this may not be a reasonable assumption. For that reason, the in-migration of young families was likely to impose a financial burden on local schools that the in-migration of older households would not.

Overall, the in-migration of retirement-aged households did not impose a greater burden on communities than the in-migration of a similar number of working-age households. If there were negative impacts on required job creation, downward pressure on per capita income, or burdens on local governments, they were more likely to be associated with the in-migration of younger families, not older families.

The Impacts of Amenity-Supported Growth on Local Economies: Conclusion

There is little economic evidence that the various forms of amenity-supported economic vitality undermine local economic well being because of the relatively low pay often associated with the businesses serving visitors, in-migrants, recreation-home owners, and retirees. There is some evidence that this economic vitality has positive impacts on employment and income opportunities as well as a variety of social indicators. This is not to say that over-specialization in commercial recreation or attracting retirees or very rapid population growth may not harm existing residents in a variety of ways. Over-specialized economies, focused on any industry, tend to be unstable, and rapid growth based on almost any set of industries, can be disruptive. The conclusion from this brief analysis, however, is that amenity-supported development does not appear to carry with it particularly higher economic risks.

Does Amenity-Supported Economic Vitality Threaten Local Social and Cultural Values?

Ongoing technological change has steadily reduced the workforce that is necessary to produce any given level of output in the land-based economic activities that in the past defined the rural economy: agriculture, forest products, and mineral extraction. Even if world markets for various commodities were not unstable, periodically rendering production unprofitable, the number of jobs associated with our farms, forests, and mines would steadily decline. That is most obvious in agriculture where, for well over a century, farms have given up their workers to urban-based economic activities while farm output has continued to rise. But the same is true on a dramatic scale in mineral

extraction where new technologies centered on the increased use of capital, machinery, energy, and chemicals have displaced workers. In forest products, animals and hand tools have been displaced by power saws and motorized equipment only for that equipment to be displaced by new sophisticated equipment that allows one worker to do the work of six workers with chainsaws. Meanwhile, lumber and paper mills are increasingly automated, steadily reducing their labor needs even as the capacity of the mills grows ever larger. Older mills can no longer compete with the newer mills and have been shutting down.

One result has been that rural economies are no longer dominated by agriculture or other land-based activities. Crop, livestock, wood, paper, and mineral production may continue to be important locally, but they do not provide most of the local jobs. Because the forested landscapes, especially those with lakes and lakeshores, remain attractive places to live because of their natural amenities, they have been able to retain and attract new population and economic activity.

These new economies did not cause the declines in the previous land-based activities although they may have benefited from the reduced pressure on the landscape and the environmental services it provides.[83] Social scientists have been studying "ex-urbanization," the movement of previously urban residents to rural areas, since the 1970s. A 2000 review of that literature as it applied to rural forestlands found little evidence to support suggestions that these demographic changes had led to changes in how the forests were managed although differences in attitudes about forest management between newer and longer term rural residents were evident.[84] Of course, to the extent that the management of public forest lands should be guided, at least in part, by the desires and expectations of local citizens who may more heavily use those forest lands, one might expect changes in local citizens' views of "their" forests to lead to some changes in forest management. However, federal and state forest lands are not protected and managed only or primarily to serve local interests.

The combination of the relative decline of the traditional land-based economic activities and the rise of a different set of economic activities along with the in-migration of new residents has led to a concern that traditional ways of life and the culture associated with them are being lost and urban and suburban values are being imported into rural areas.

These concerns are often expressed in a way that suggests that rural areas can simply choose one type of economy over another. Implicitly, it is often suggested that if a rural

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[83] A study of the percent of second homes in 1990 and the percent of the population employed in farming, forestry, and fisheries in 2000 found a statistically significant ***positive*** relationship: The higher the increase in the percent of housing that was second homes between 1990-2000, the higher was the percentage of the population employed in these land-based economic activities. Growth of second homes did not appear to threaten land-based economic activities. See Does Second Home Development Adversely Affect Rural Life?, Chapter 13 in ***Population Change and Rural Society,*** W.A. Kandel and D.L. Brown (eds.), pp. 277-292, Springer: Netherlands, 2006.

[84] The Exurbanization of America's Forests: Research in Rural Social Science, Andrew F. Egan and A.E. Luloff, ***Journal of Forestry***, March 2000, pp. 26-30.

area values the culture that grew up around a mining or forest products economy, it can simply choose to stick with the mining or forest products economy and block whatever new economic activity has become increasingly important. But citizens and local governments did not choose to scale back mining activity in the Upper Peninsula and northern Wisconsin or to reduce the employment associated with timber harvest and wood products and paper mills. It was not local choice that led to the abandonment of commercial fishing on Lake Superior or the abandonment of agriculture that tried to follow the clearing of the northern forests. It was national and international market forces, ongoing technological change, or simply the exhaustion of the resource.

Similarly, it was not so much a change of mind that led to the "non-metropolitan turn-around" in the 1970s that saw migration patterns shift and people move back to rural areas. Polling data has shown for a very long time that people's preferred living environment had been a small town or rural area. But economic forces had operated for a century or more to draw people into larger and larger urban centers. Over the last fifty years, economic and technological changes reduced the costs associated with living in smaller cities and rural areas, allowing some people to act on long held preferences as to where they would prefer to live. As a result, there were substantial shifts in residential location, first to the suburbs and then, on a more limited scale, to more distant rural areas and small cities.

As has been true for centuries, technological and economic changes have been constantly modifying the set of economic activities that is most productive and profitable. That has led to the agricultural and then the industrial "revolutions." The pace of change has not slowed as we have moved towards "service-based" "post-industrial" economies. With each economic change has come social and cultural changes, welcomed and un-welcomed. Think of the shift in economic activities that have dominated those living on the shores of Lake Superior: the fur trade, commercial fishing, stone quarrying, grand hotels and resorts, copper and iron mining, concentration, and smelting, timber harvest and processing, and farming. It seems unlikely that we have come to an end of such economic changes or that finally, residents or their governments can now dictate the character of the economy that develops.

Local Economic Balance and Well Being

None of the above discussion is meant to dismiss concerns that uncritical specialization in tourism or an uncritical embrace of amenity-driven in-migration could damage local communities. Over-specialization in any industry can put a local economy at risk of instability and, ultimately, degradation and decline. Similarly, the uncritical refusal to consider managing rapid changes that threaten to degrade valued qualities of the local economy, social structure, or culture are likely to lead to a decline in the well being of existing residents.

Residents need to be self-conscious of the choices they themselves have made about residing in a particular area. Something drew and/or held them in that particular place. In rural areas, residents are likely to have made substantial monetary sacrifices to continue to live there, sacrifices that were justified by the qualities or amenities

associated with that place. Protecting those qualities makes economic sense; it protects those residents' overall well being. Residents need to self-consciously face the fact that they made a good residential location decision and act on that understanding to protect those qualities. Residents have invested years of reduced income in order to retain access to those qualities. It is economically rational for them to continue to invest resources to protect those same local qualities.

No community with any sense of self-respect wants to turn itself over to hoards of strangers who inundate and congest all of the special places that make our communities our homes. The visitor economy has to be kept in balance with what the community can tolerate and retain its identity and sense of place. The rate of visitation and in-migration has to be such that we, collectively, can integrate those visitors and new-comers into our community. If the inflow of strangers gets out of hand, our connection with our community can be fatally damaged and our well being seriously diminished.

But every change or even ongoing change is not likely to be fatal to community. Complete lack of change, on the other hand, is likely to mean an absence of local vitality and the slow but steady death of that community. We should practice a healthy skepticism about claims that there is only one way a local area can provide itself with livelihoods, namely the ways our parents and grandparents supported themselves. Economies and societies are dynamic and all change is not threatening. In addition, different residents have different needs when it comes to the economy. All of us are not currently seeking full-time employment with as much over-time pay as possible in a physically strenuous blue-collar job. Many of us have more complicated and constrained lives in which we have to balance many competing objectives. A diverse economy offering a broad range of economic opportunities is likely to best serve all of our needs. "Tourism" and amenity-supported in-migration on a scale compatible with continued community and the quality of the local natural environment can contribute to that. Those economic activities are not, by their very nature, destructive and to be avoided. Balance, scale, and the avoidance of over-specialization are the keys.

Many of the cultural criticisms of amenity-supported local economic vitality use as their examples communities that have allowed themselves to become destination resort towns: The Wisconsin Dells, Gatlinburg TN, Aspen CO, Moab UT, Jackson WY, Branson MO, etc. These are presented as examples of the new amenity economy and then their distorted social and cultural character is criticized.[85] These examples deserve the critiques they get. Often these towns, themselves, provide some of the most powerful critiques as residents wrestle with the problem of recreating community after it has been lost to visitors or in-migrants.

The vast majority of rural counties that have been experiencing amenity-supported in-migration are not resort communities and will never become resort towns because it is new permanent residents who are the source of the local economic vitality. These

[85] Consider, for example, ***Brave New West: Morphing Moab at the Speed of Greed***, Jim Stiles, 2007, University of Arizona Press, Tucson.

communities, often quite self-consciously, are monitoring the changes taking place around them so that they can act to protect the local qualities that make their place special.

The communities in the vicinity of Apostle Islands and Pictured Rocks NL certainly are not on the verge of becoming primarily destination resort towns. Both Bayfield and Munising remain communities in their own right that serve a substantial number of visitors. Although they may call themselves the "sailboat capitol of Lake Superior" or the "snowmobile capitol of Michigan," these are still communities with locally owned businesses serving the visitors. There is little "homogenization" as a result of the invasion of the local economy by national franchises. One of the attractive features of both areas is what they do not have: a dominant big resort, business districts dominated by national franchises, accommodations indistinguishable from those found along the motel-strips of every other town, crowding and congestion, etc.[86]

Northern Wisconsin and the Upper Peninsula are not threatened by inundation by visitors and in-migrants seeking to enjoy their natural and social amenities. Amenity-supported development has been underway for a long period of time, stretching back a half-century, and it does not threaten to become an uncontrolled flood.

Consider vacation homes. Almost 40 years ago, in 1970, Bayfield, Burnett, Sawyer, Oneida, Vilas and Florence Counties in northern Wisconsin, vacation homes already made up 40 to 60 percent of the total housing stock. The number of vacation homes grew significantly in the 1970s, by 80 percent in our northern Wisconsin study areas.[87] But there has been little growth since then, with the number of vacation homes actually declining in the 1990s as some were converted to permanent residences. Northern Wisconsin and the Upper Peninsula adjusted to the growth of vacation homes between 1940 and 1980 and then dealt with them as a relatively stable part of the economic and social landscape for the past 30 years.[88] This was neither a sudden development nor a trend that continued indefinitely. It appears to have been a manageable change that has allowed rural communities to continue with their traditional economic activities while accommodating a new set of economic players.

A national study of the relationship between second home ownership and the maintenance of "social capital" across all U.S. counties found that the larger the percentage of housing that was second homes in 1990, the smaller was the social

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[86] See the Market Research Profile prepared for the Bayfield Chamber of Commerce by Platypus Advertising & Design (January 22, 2007) to confirm the attraction of Bayfield's "off the beaten path" "real, raw experience" character. P. 11.

[87] The 1970-1990 data came from Recreational Homes and Regional Development: A Case Study from the Upper Great Lakes States, David W. Marcouiller, Gary P. Green, Steven C. Deller, and N.R. Sumathi, 1996, Center for Economic Development, University of Wisconsin-Extension, G3651. The 2000 data came from the 2000 Census of the Population and Housing, U.S. Census Bureau.

[88] For a visual presentation of the 1940 through 2000 decade-by-decade growth of housing density in the Pine Barrens of northeastern Wisconsin, including Bayfield, Burnett, and Washburn Counties, see Figure 4, p. 236 of Human Demographic Trends and Landscape Level Forest Management in the Northwest Wisconsin Pine Barrens, Volker C. Radeloff et al., ***Forest Science*** 47(2): :229-241.

capital in 2000. However, the increase in the percentage of second homes during the 1990s did not have a statistically significant negative impact on social capital. Social capital was measured by establishments per capita related to the creation of social capital, such as bowling alleys, civic organization, etc.; also voting behavior, county-level response rates to the U.S. Census and the density of non-profit organizations were used.[89]

On the other hand, a study of "Social Change and Well-Being in Western Amenity-Growth Communities" found that "levels of social integration and community participation are not lower in these more rapidly-growing areas than in more stable communities, suggesting that they have not exhibited the 'social disruption' observed in western 'boomtowns' affected by extremely rapid growth…More importantly, community satisfaction is highest in the study areas that have achieved substantial amenity-based growth, likely reflecting the broader array of facilities, services, economic opportunities, and perhaps increased social vibrancy of these growing and changing places." [90]

Our conclusion is that for the level of amenity-supported local economic vitality found in the study areas around Apostle Islands and Pictured Rocks NL, there need be little concern that these changes in the economy and demography will threaten social stability and cultural continuity.

[89] **Does Second Home Development Adversely Affect Rural Life?,** Richard C. Stedman, Stephan J. Goetz, and Benjamin Weagraff, in ***Population Change and Rural Society***, 277-292, W.A. Kandel and D.L. Brown, eds. 2006, Springer, The Netherlands.

[90] Pp 327-328 of Chapter 15 in ***Population Change and Rural Society,*** W.A. Kandel and D.L. Brown (eds.), pp. 311-331, Springer: Netherlands, 2006.

Appendix A

Identifying Amenity Supported Local Economic Vitality in Northern Wisconsin and the Upper Peninsula of Michigan.

Introduction

One of the purposes of this study was to determine whether there were signs of amenity-supported local economic vitality in the larger region surrounding Apostle Islands and Pictured Rocks National Lakeshores. That effort was intended to look well beyond the zone of economic influence of those two National Lakeshores to see if there were trends in the larger regional economy that ultimately were likely to impact the National Lakeshore gateway counties themselves in the future. The general idea was that economic changes in some of the Northern Wisconsin and Upper Peninsula counties might provide some indication of changes that would ultimately make their way into the Lake Superior National Lakeshore gateway counties.

In that investigation we purposely looked beyond the counties directly affected by the National Lakeshores and focused not on all surrounding counties but on those that showed significant signs of economic vitality and/or that were adjacent to the gateway counties. Thus in the Upper Peninsula Keweenaw County far to the west of Pictured Rocks NL was included as were Florence and Marinette Counties far to the southwest and across the state line in Wisconsin. The same was done in the larger region to the southeast and southwest of Apostle Islands NL, far removed from any direct impact of that National Lakeshore.

The intent of this particular analysis was not to measure the economic impacts of Apostle Islands and Picture Rocks National Lakeshores, but to see if there were signs of amenity-supported economic development tied to other regional amenities. In that sense, our attention is reversed: We wanted to look at economic trends in areas outside of the influence of the National Lakeshores because those trends might ultimately impact the National Lakeshore gateway counties. The idea behind this investigation was to see if economic changes in the surrounding larger region were reducing the relative isolation of the National Lake shore gateway counties and increasing the likelihood that amenity-supported economic vitality, not necessarily tied primarily to the National Lakeshores, might play a larger role in these communities in the future.

To do that we will follow the line of analysis developed in the main body of this report for the analysis of the gateway counties of the Apostle Islands and Picture Rocks National Lakeshores: We will look at the role of the traditional economic base in explaining the changes in total personal income and then turn to alternative, amenity-based, economic forces: the visitor economy, retirement and investment income, and the impact of

people commuting to work. We will simply apply that analysis to counties outside of the economic influence of the National Lakeshore gateway counties. Not only will the analysis be identical as that used in the main body of the report, but much of the narrative will be too.

1. Our General Approach to Measuring the Different Elements of Amenity-Supported Economic Vitality

In this analysis, we will use the conventional economic base view of the local economy to determine what part of the changes in the local economy over the last 30 years can be explained by changes in the traditional economic base: manufacturing (including, among others, logging, wood products, and paper), mining (and related ore concentration or refining), agriculture, and federal and state government facilities.

Where there is considerably more economic vitality than these changes in the traditional economic base can explain, there is evidence of other economic forces at work, including those associated with amenity-supported local economic development such as the impact of temporary visitors (tourism and recreation), part-time residents (vacation homes) as well as in-migration of new permanent residents attracted by the local amenities.

We will use conventional economic base modeling to estimate the relative contribution of changes in the traditional basic industries as well as changes in the visitor economy in explaining the total changes in the local economy. To the extent that these impacts of temporary visitors cannot explain the observed economic vitality, we will have isolated a part of the local economic vitality that the economic base view of the local economy cannot explain. We will then examine the likelihood that amenity-driven in-migration explains that residual part of local economic vitality. We will also explore the extent to which people who work in one country choose to live in another county, a residential choice decision that shifts the impact of those jobs and income away from the county where the economic activity actually takes place.

The Study Area and Time Period Studied

Previous analysis has suggested that high quality amenities by themselves are not sufficient to generate local economic vitality. The costs of isolation can discourage the visitation, second home development, and the in-migration of both retirees and working-age families.[91] Ongoing economic development, by itself, can reduce the costs of isolation. We are interested in whether in the larger region surrounding the National Lakeshore there is evidence of such amenity-supported development tied to other regional amenities rather than to the National Lakeshores.

[91] Prosperity in the 21st Century West: The Role of Protected Public Lands, Ray Rasker et al. Sonoran Institute. July 2004. http://www.sonoraninstitute.org/index.php?option=com_docman&task=doc_download&Itemid=177&gid=578

In this particular investigation of evidence of amenity-supported local economic vitality, we focus our attention two other groups of counties beyond the gateway counties analyzed in the main body of the report: Those immediately adjacent to the National Lakeshores and those counties in the larger region in which the National Lakeshores are located that have seen significant growth. Note that we specifically picked regional counties that evidenced significant economic vitality so that we could explore the sources of that vitality. Those groups include the following counties can also be identified on the following regional map (Figure A1):

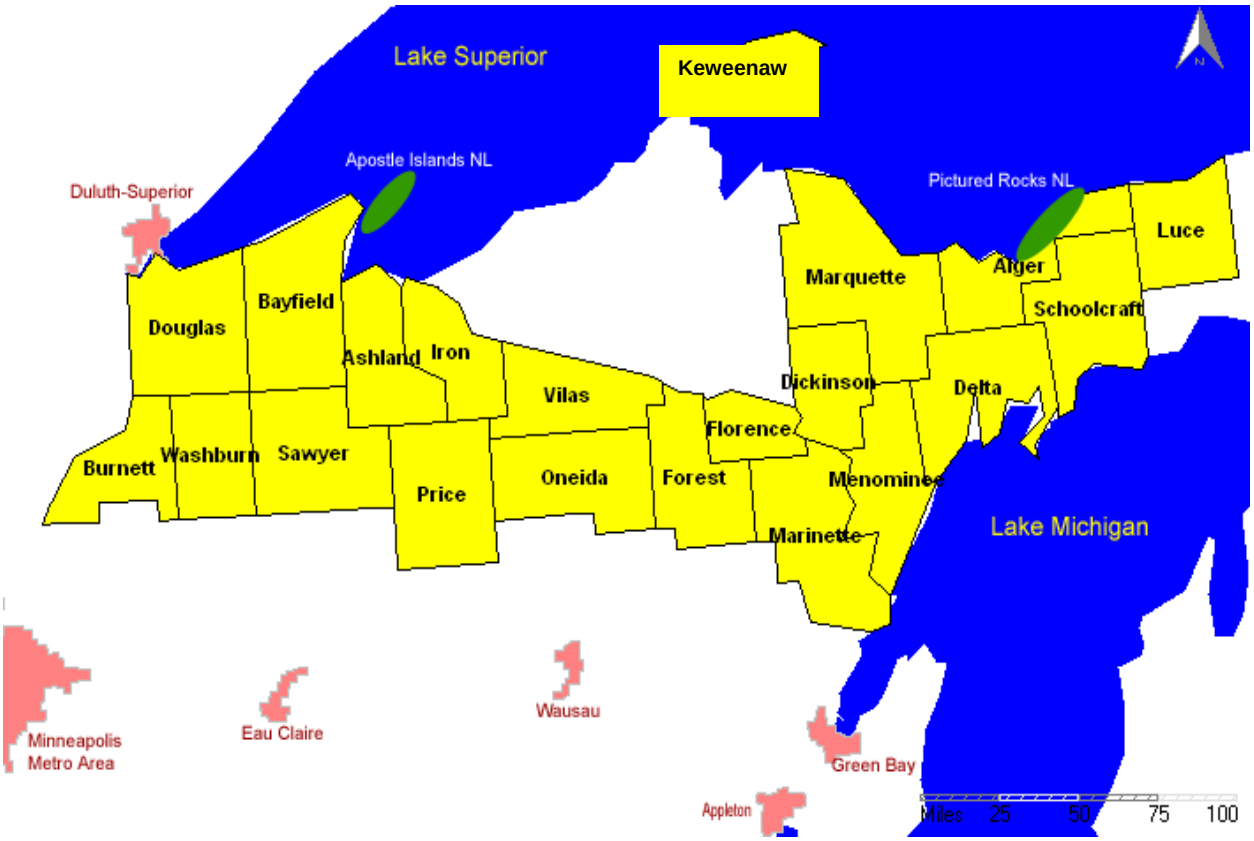
National Lakeshore	National Lake-shore County	Adjacent County	Regional Counties
Apostle Islands	Bayfield, WI	Washburn, WI	Burnett, WI
	Ashland, WI	Sawyer, W	Vilas, WI
			Oneida, WI
Pictured Rocks	Alger, MI	Marquette, MI	Dickinson, MI
		Delta, MI	Marinette, WI
		Schoolcraft, MI	Menominee, MI
		Luce, MI	Florence, WI
			Keweenaw, MI

Pictured Rocks NL was established in 1966 but was not dedicated until 1972. It took many years to negotiate boundaries, management responsibility, and tenure over the complex mix of individual private cabin sites, timber company forest lands, and state lands. In that sense, the signing of the legislation establishing Pictured Rocks NL was just the first step in actually creating that National Lakeshore. Significant visitor infrastructure was not constructed until the late 1970s. Its first General Management Plan was not released until 1981. Paved, National Park-standard roads are just now (2009) being built.

Apostle Islands NL was established in 1970. It too then had to negotiate to gain control of as much of the islands as possible and a small mainland unit from private owners as well as the State of Wisconsin. Wisconsin owned about 40 percent of the archipelago. It was not until 1976 that the state legislature authorized the transfer of state interests to the Apostle Islands NL. Long Island stretching to the south towards Ashland and the Bad River Indian Reservation was not added to the National Lakeshore until 1986.

Because it took so long to actually bring these two national lakeshores into existence and begin managing them as National Park Service units, we have chosen to carry out most of our analysis using the time period 1978-2006. For a larger overview we will, as we did above, look back to 1969, about the time both units were established and the furthest back that the county economic data will allow us to look.

Figure A1
Northern Wisconsin and Michigan Upper Peninsula Study Region



The Size of Expected "Multiplier" Impacts in the Economic Base Approach

In general the study area consists of relatively rural counties. None of them is large enough (greater than 50,000 population) to be classified as a metropolitan county. Four of the "regional" counties listed in the greater Pictured Rocks study area (Dickinson, Marinette, Menominee, and Florence) are classified as "micropolitan" counties, meaning that they have an urban center with a population of at least 10,000 or are economically associated with such a small urban area of that size through commuting patterns. Marquette and Delta Counties, Michigan, adjacent to Alger County in which Pictured Rocks NL is located, are also micropolitan counties. Even in these counties, however, most of the county is quite rural. In the larger study area around Apostle Islands, none of the counties were densely settled enough to be classified as micropolitan although just to the west of the study area, Douglas County, WI, is part of the Duluth-Superior metropolitan area.

The rural and small town character of these counties is important in evaluating the local impact of changes in economic activity. The "ripple" or "multiplier" effects that amplify the impact of changes in the basic sectors are driven by income circulating within the local economy, from businesses to workers and back other businesses, etc. Rural areas and small towns usually do not have a sufficiently diverse set of businesses to allow them to absorb and "re-circulate" the income received by residents. Instead, that new income quickly "leaks" out of the local area to purchase goods and services produced and sold in more distant trade centers. As a result, the indirect and induced impacts of income received by local residents are reduced.[92] [93]

Economic analysis of the impact of visitor spending in Apostle Islands and Pictured Rocks National Lakeshore using the National Park Service's "Money Generation Model-2" (MGM-2) documents this. Those studies[94] estimated that for each dollar of personal income received by households providing services to visitors, only an additional 29 cents in the Apostle Islands NL area and 21 cents in the Pictured Rocks NL area in personal income was generated as people working in visitor services spent those earnings in local businesses or businesses serving visitors bought supplies locally. Most of the personal income earned in the visitor services industries quickly leaked out of these counties.

These modest multiplier impacts are what one would expect for a rural area without a large trade center. The MGM-2 Model indicates that for generic rural areas one dollar in visitor spending stimulates the creation of only about 32 cents in additional income. In small metropolitan areas the impact would be larger, 46 cents, and for the state as a whole the impact would be 63 cents.[95]

Other studies of small town and rural areas of Michigan's Upper Peninsula confirm relatively small income multiplier impacts from visitor services.[96] In addition, analysis of changes in export-oriented forest products activity in one rural northern Wisconsin county, Menominee, estimated that there was almost no local multiplier impact associated with the county's dominant industry. The value added multiplier for forest products was only 1.08 primarily because there was little local commercial infrastructure to service the industry, because many of the workers commuted in to work, and because workers and residents commuted out to surrounding trade centers to do their shopping. When the study area was expanded to include the three surrounding

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[92] "Indirect" impacts are those associated with a local business purchasing materials, equipment, and supplies from other local businesses. "Induced" impacts are those associated with the additional workers spending their earnings in other local businesses.

[93] Scale Effects on Tourism Multipliers, Geoffrey Wall, *Annals of Tourism Research* **24**(2):446-450.

[94] "Impacts of Visitor Spending on the Local Economy: Apostle Islands National Lakeshore, 2004," July 2006, Table 8, p. 8 and "Impacts of Visitor Spending on Local Economy: Pictured Rocks National Lakeshore, 2001," May 2003, Table 7, p. 12, Daniel J. Stynes, et al. Recreation and Resource Studies, Michigan State University, East Lansing, MI.

[95] MGM2 Short Form. http://web4.canr.msu.edu/MGM2/MGM2Shortform.xls .

[96] See, "Economic Importance of Tourism to Marquette County, Michigan,"May, 2001, and "Economic Impact of Tourism in the Eastern Upper Peninsula," Daniel J. Stynes, Recreation and Resource Studies, Michigan State University, East Lansing, MI.

counties, the multiplier rose from 1.08 to 1.56. [97] An analysis of rural Alaskan forest communities also demonstrated that changes in the economic base may have few if any impacts on the local economy because the local economy is not diverse enough to supply the needs of either the export sector or most of resident households.[98] An analysis of the likely impact of the closing of a forest products mill in the small metropolitan area of Green Bay, Wisconsin, that lies adjacent the four county northern Wisconsin study area surrounding Menominee County, found an income multiplier of 1.8.[99]

This lays out the range of multipliers that one can expect for basic industries as one moves from relatively isolated rural areas to areas that include some small trade centers to small metropolitan areas. The multipliers will range from close to 1.0 to something less than 2.0.

Economic activities that can draw on local production such as food processing, lumber and paper mills, and metal smelting can have larger multiplier impacts if they create a local demand for their basic inputs such as local farm and ranch outputs, timber harvest, and ore mined. As the Menominee County and Alaskan examples make clear, some of these types of manufacturing operations also draw on outside sources of supply and may have very modest local multiplier impacts.

In general, in our rural Wisconsin and Upper Michigan counties, we expect the impact of each dollar of new basic income on non-basic income to be at most half of an additional dollar. That is, the personal income multiplier will be less than 1.5: One dollar of direct income leads to 50 cents of indirect and induced income for a total impact of less than $1.50. For the visitor economy, we will use the MGM2 modeling done for the two Lake Superior National Lakeshores' gateway counties as well as visitor spending multipliers estimated by a Wisconsin study of the impact visitor spending in each Wisconsin study.

2. The Impact of Traditional Basic Earnings on Other Earnings and Income within the Local Economy

It is against these expectations that we analyzed the incremental changes in earnings in the traditional economic base ("basic earnings") of the various counties in the larger region surrounding these two National Lakeshores and the accompanying change in earnings outside of the traditional economic base ("non-basic earnings") as well as the

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[97] "Regional Economic Impacts of the Menominee Tribal Enterprises Forestry and Mill Operations," Extension Report 08-2, August, 2008, Joshua Clements and Dave Marcouiller, University of Wisconsin-Madison, Extension, Tables 4 and 6.

[98] ***A Test of the Economic Base Hypothesis in the Small Forest Communities of Southeast Alaska, Guy C. Robertson,*** Gen. Tech. Rep. PNW-GTR-592, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR, 2003.

[99] Regional Economic Models for the State of Wisconsin: An Application of the Micro-IMPLAN Modeling System, Steven C. Deller, N.R. Sumathi, and David Marcouiller, Staff Paper 93.6, Center for Community Economic Development, Department of Agricultural Economics, University of Wisconsin-Madison/Extension, 1993.

change in total personal income.[100] We used the 29 year period 1978-2006 for the analysis. Both the beginning and end years of this time period were well along in an expansionary phase of the national business cycle. Thus, the changes between the two end years cannot be attributed to different stages in the national business cycle. 2006 was the latest year of data available.

It should be pointed out that in this section and the following two sections we will be only roughly approximating the changes in the economic base and the impact of various components of those changes on local income. The resources available for this study did not allow for individual input-output modeling of each county economy. Instead we have identified the sectors conventionally identified as the economic base and used average income multipliers from previous studies discussed above. In particular, we assume the income multiplier associated with changes in earnings in the traditional economic base is 1.5 for all of the counties we analyze. This is the same multiplier we used for the National Lakeshore gateway counties. Although this modeling only provides rough approximations of economic relationships, we believe that these estimates still provide insight to the relative size of the forces operating on these local economies.

Northwestern and North Central Wisconsin: The Greater Apostle Islands Region

To the south and southwest of Apostle Islands NL, there is a tier of counties that, in general, have demonstrated considerable economic vitality. We begin by estimating what part of the change in total personal income can be explained by changes in the traditional economic base in each of those counties.

The "gateway community" for the Apostle Islands NL is Bayfield in Bayfield County, Wisconsin. Most of the islands themselves, however, are located in Ashland County. There is considerable commuting to work between Bayfield and Ashland Counties. For that reason, we have combined the two counties for this piece of the analysis. Between 1978 and 2006 workers' earnings in the traditional economic base of the two-county area grew by about $12 million dollars after inflation was removed. Worker earnings in other, non-basic sectors, however, grew by $125 million dollars, a ratio of almost 11 to 1. If personal income from investment, retirement, and other non-employment income is

[100] Our use of "basic" and "non-basic" earning here, while following popular economic dialogue about what is the "economic base" (the traditional export industries) is not the language economists would use. Because visitor expenditures "inject" income into the local economy, it is part of the economic base. Similarly, some economists would include investment and retirement income in the basic category. We will proceed to add these other economic forces into our analysis, supplementing the "traditional economic base" to reveal the impact of various parts of the "amenity economy"

"Earnings" refers to wages and salaries received by workers as well as the net income of self-employed individuals. "Personal Income" includes these earnings as well as other sources of income such as investment income, retirement income, and income from various government income support programs such as unemployment compensation, food stamps, and Medicaid for low income households. As will be discussed below, 30 to 40 percent of personal income is not associated with earnings associated with current employment.

included in the comparison with the traditional economic base, the ratio is 21 to one.[101] This overall growth in the economy is clearly far greater, in fact 14 times greater, than can be explained by changes in the traditional economic base.

Adjacent counties to the south of Bayfield and Ashland Counties, Burnett, Washburn, and Sawyer, also saw growth in personal income that cannot be explained by the expansion of the traditional economic base, although not as dramatic as in the Bayfield-Ashland area. In Burnett, Washburn, and Sawyer Counties personal income grew, respectively, 10, 6, and 12 times faster than traditional basic earnings. See Table A1.

Table A1

Comparison of Changes in the Traditional Economic Base and Total Personal Income: 1978-2006

County	1978-2006 Traditional Basic Labor Earnings (thousands of 2006 $s)	Real Change in Total Personal Income (thousands of 2006 $s)	Ratio of Change in Income to Change in Traditional Basic Earnings
Greater Apostle Islands Region			
Bayfield-Ashland, WI	$11,718	$250,029	21.3
Bayfield	-$3,240	$149,720	-46.2
Ashland $14,9	58	$100,309	6.7
Burnett, WI	$21,154	$202,741	9.6
Washburn, WI	$25,583	$164,186	6.4
Sawyer, WI	$19,918	$243,445	12.2
Vilas, WI	$11,908	$340,410	28.6
Oneida, WI	-$18,690	$522,428	-28.0

Source: US Dept. of Commerce, BEA, REIS

Further to the east in Wisconsin, Vilas and Oneida Counties, just south of the border with Michigan's Upper Peninsula, were clearly on a trajectory that the traditional economic base could not explain. Oneida County saw its traditional economic base contract by $19 million between 1978 and 2006 but total real income grew by $522 million. The traditional economic base in Vilas County expanded by $12 million but total real income grew $340 million that traditional economic base grew 29 times faster. See Table A1 above and Figure A2.

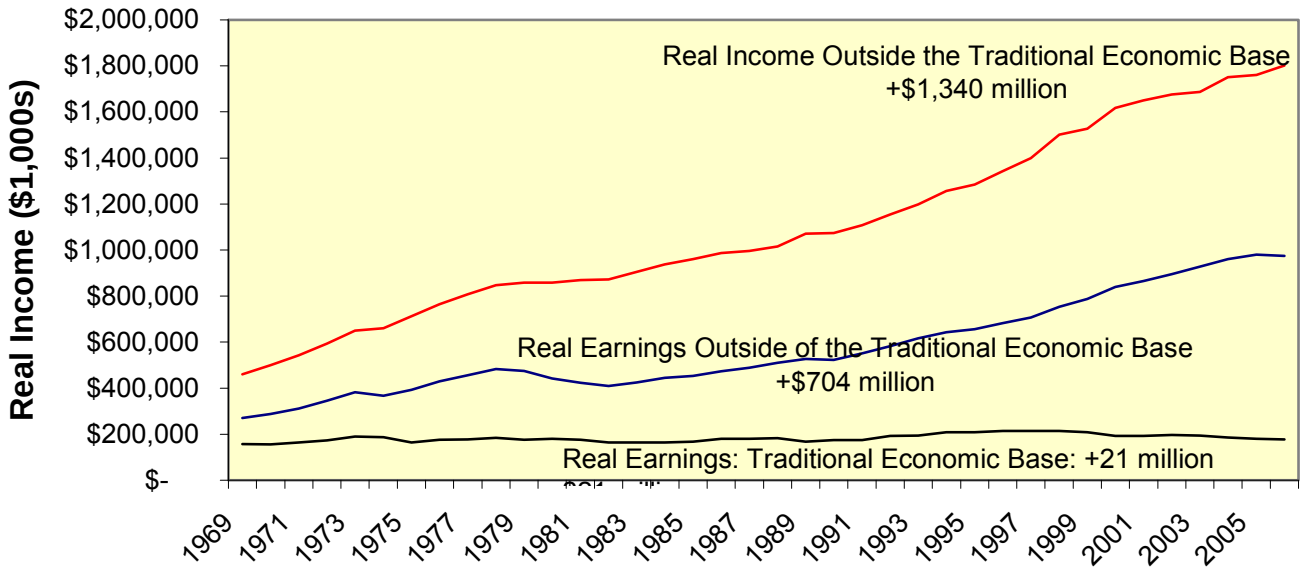
As discussed in the main body of the report, the traditional economic base of combined Bayfield and Ashland Counties leaves 93 percent of the actual change in personal

[101] Labor earnings include wages and salaries and the net income of the self-employed. Total personal income includes these labor earnings as well as investment income (dividends, rent, and interest) as well as government retirement programs (social security, Medicare reimbursements, and veterans' benefits), as well as income support programs (unemployment compensation, "welfare," and Medicaid).

income in those counties unexplained. In Bayfield County the traditional economic base actually contracted but the overall economy expanded. The same was true to the east where Oneida County also contracted but total personal income grew by $522 million between 1978 and 2006. In the tier of counties just south of Bayfield and Ashland the traditional economic base explained between 5 and 23 percent of the change in real personal income. Put the other way around, between 77 and 95 percent of the economic growth could not be explained by the traditional economic base. For the seven counties as a group, 93 percent of the change is real income is unexplained by the changes in the traditional economic base. See Table A2 below. Clearly some other important economic forces were operating in these counties besides the traditional basic industries.

Figure A2

Changes in the Traditional Economic Base and the Rest of the Economy: Oneida and Vilas Counties, WI



The Upper Peninsula and Northeastern Wisconsin: The Greater Pictured Rocks Region

Economic developments in Alger County in which Pictured Rocks NL is located and Munising, Michigan, the dominant gateway community to Pictured Rocks, have been more closely tied to changes in the traditional economic base.

In Alger County, the dominant source of growth in labor earnings and total personal income was growth in the traditional economic base between 1969 and 2006. Basic earnings grew by $43 million and non-basic sources of personal income expanded by $63 million. The growth in the traditional economic base was tied to growth in state government payrolls associated with the construction and operation of a prison, the

expansion of manufacturing payroll (mostly paper and wood products), and expanded federal employment.

Table A2

Comparison of Changes in the Traditional Economic Base and Total Personal Income: 1978-2006				
County	1978-2006 Real Change in			Percent of Change in Total Personal Income Explained by Changes in Traditional Economic Base
	Traditional Basic Labor Earnings (thousands of 2006 $s)	Personal Income Due to Change in Economic Base (thousands of 2006 $s)	Total Personal Income (thousands of 2006 $s)	
Greater Apostle Islands Region				
Bayfield-Ashland, WI	$11,718	$17,577	$250,029	7%
Bayfield	-$3,240	-$4,861	$149,720	-3%
Ashland $14,958		$22,438	$100,309	22%
Burnett, WI	$21,154	$31,732	$202,741	16%
Washburn, WI	$25,583	$38,374	$164,186	23%
Sawyer, WI	$19,918	$29,878	$243,445	12%
Vilas, WI	$11,908	$17,863	$340,410	5%
Oneida, WI	-$18,690	-$28,035	$522,428	-5%

Source: US Dept. of Commerce, BEA, REIS

Since 1978 Alger County has showed more signs of economic vitality than any of its adjacent counties (Marquette, Delta, Schoolcraft, and Luce). Jobs, aggregate real income, real per capita income, and population have all expanded faster in Alger County than in adjacent counties.

We have chosen counties surrounding the Pictured Rocks NL as well as counties to the south and west, some across the border in Wisconsin, in our search for amenity-supported economic development in the larger geographic region. Four of those counties actually saw their traditional economic bases contract, but other economic forces allowed the overall economy to expand. Except for the Pictured Rocks NL gateway county of Alger where the traditional economic base explained 70 percent of the change in total income, the traditional economic base was not much more successful at explaining changes in the overall economy than it was in the larger region around Apostle Islands NL. If for the moment we ignore the anomalous experience in Marquette County that will be discussed below, the traditional economic base in the 9 other counties in our expanded study area explained only 11 percent of the real growth in income. For four of the counties the overall economy headed the opposite direction as the traditional economic base. For those where the traditional economic base and the overall economy moved in the same direction, the economic base explained from 0.3 percent to 20 percent of the change in income. For Luce County, the change in the economic base would have predicted a change in total real income that was over twice what was actually observed. See Table A3.

Marquette County, just to the west of Alger County and Pictured Rocks NL, contains the Upper Peninsula's largest city, Marquette. It serves as a trade center for the more rural areas around Pictured Rocks NL. In contrast to Alger County, Marquette County's traditional economic base contracted dramatically after 1978. In the late 1970s the

wood products industry contracted. In the 1980s iron mining shrank dramatically. And in the 1990s Sawyer Air Force Base shut down. As a result, real earnings in Marquette County's traditional economic base contracted by over half, $410 million, between 1978 and 2006. The rest of the economy, however, did not follow the traditional economic base into decline. Instead non-basic sources of labor earnings more than doubled, adding $358 million in payroll while total non-basic personal income grew by $678 million. Clearly the Marquette County economy, despite being dominated by traditional land- and government-based economic activities in the past, had other strong economic forces operating that were able to offset approximately 90 percent of the real earnings impacts of the dramatic declines in the traditional basic sectors. See Figure A3.

Table A3

Comparison of Changes in the Traditional Economic Base and Total Personal Income: 1978-2006

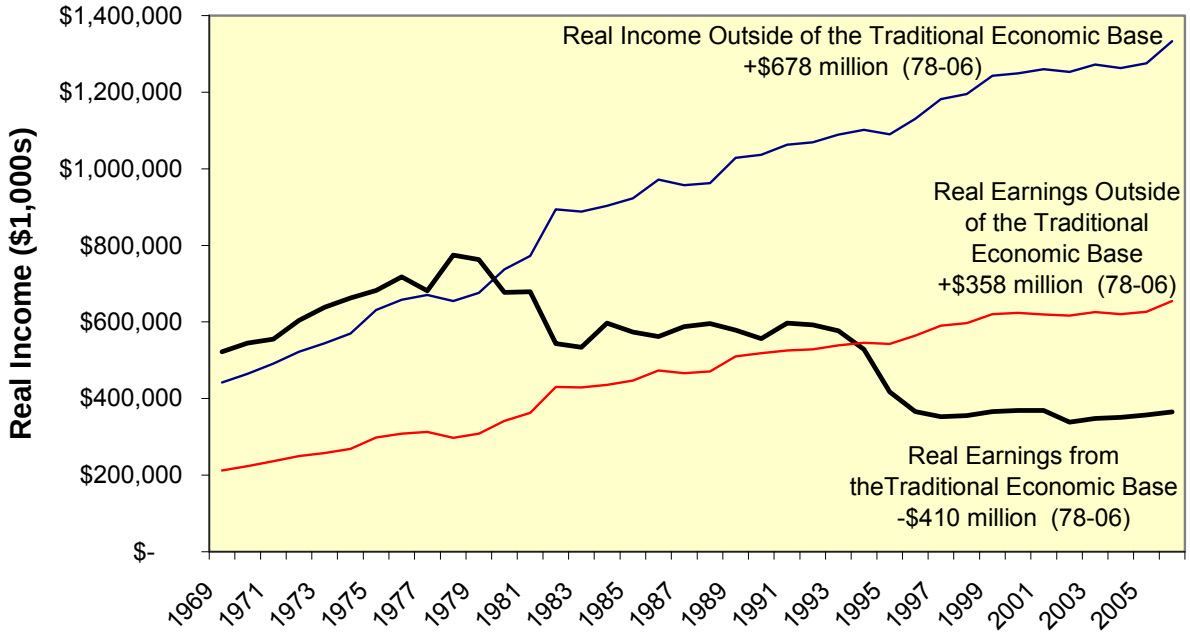
County	1978-2006 Real Change in			Percent of Change in Total Personal Income Explained by Changes in Traditional Economic Base
	Traditional Basic Labor Earnings (thousands of 2006 $s)	Personal Income Due to Change in Economic Base (thousands of 2006 $s)	Total Personal Income (thousands of 2006 $s)	
Greater Pictured Rocks Region				
Alger, MI	$35,995	$48,954	$69,590	70%
Marquette, MI	-$409,734	-$614,601	$190,956	-322%
Delta, MI	-$19,065	-$28,597	$234,434	-12%
Schoolcraft, MI	-$2,665	-$3,997	$51,350	-8%
Luce, MI (1978-2004)	$10,188	$15,283	$6,758	226%
Dickinson, MI	$22,083	$33,124	$216,130	15%
Florence, WI	$7,566	$11,350	$56,015	20%
Marinette, WI	$38,907	$58,360	$361,085	16%
Menominee, MI	-$7,534	-$11,300	$121,917	-9%
Keweenaw, MI	$53	$80	$23,674	0.3%

Source: US Dept. of Commerce, BEA, REIS

Delta County just to the south of Alger County and Pictured Rocks as well as Schoolcraft County just to the southeast and Menominee County just south of Marquette County also saw labor earnings from their traditional economic bases shrink between 1978 and 2006. But like Marquette County, they also saw the non-basic payrolls expand rather than contract. In Delta, Schoolcraft, and Menominee Counties, the expansion in real income was 12 to 19 times the size of the contractions in the basic sectors. Again there is evidence of powerful economic forces outside of the traditional basic sectors.

Figure A3

Changes in the Traditional Economic Base and the Rest of the Economy: Marquette County, MI, 1969-2006



Of the four counties that ring Alger County and Pictured Rocks NL, Luce County to the east had the worst economic performance between 1978 and 2004.[102] Aggregate real income, per capita income, and jobs all grew more slowly that the other four counties adjacent to Pictured Rocks NL. While population expanded modestly, this may have primarily been associated with the opening of a state prison and the inclusion of the inmates in the county's population. As the population rose with the opening of the prison, real per capita income, understandably, plummeted. Although real labor earnings in the Luce County traditional economic base grew significantly, earnings and personal income from non-basic sectors actually shrank. Retail trade, services, and construction all declined. In addition, more of the jobs in Luce County were held by people who lived outside of the county and commuted in to work, shifting the earnings associated with those jobs away from Luce County. With no growth outside of the traditional economic base, there is little sign of amenity supported economic vitality in Luce County.

Immediately south of Marquette County and southwest of Pictured Rock NL is a cluster of "micropolitan" counties, counties with a city of at least 10,000 or connected to such a small urban area by commuting: Dickinson County, MI, with its commuter satellite, Florence County, WI, and Marinette County, WI, and the adjacent county of

[102] The data on earnings was reliable only through 2004. So the analysis for Luce County was only carried through 2004 rather than 2006. After 2004 the data shows a very large drop in labor earnings that appears to be associated with the manufacturing sectors (mostly wood products) not being included.

Menominee, MI. In both of these micropolitan areas the expansion of the economy cannot be explained by the changes in the traditional economic base. In the Dickinson-Florence County areas the growth in real income was over nine times the growth in the traditional basic sectors. The same is true in the Marinette-Menominee Counties area where real income grew over 15 times faster than income in the basic sectors.

Finally, in one of the most isolated counties in Michigan's Upper Peninsula, Keweenaw County, located on a peninsula jutting out into Lake Superior northwest of Marquette County, between 1978 and 2006 earnings from the traditional economic base hardly grew at all but total real income increased significantly. Part of that growth in income was associated with people who worked in Houghton County and the City of Houghton just to the south but chose to live in Keweenaw County. But other positive economic forces outside the traditional economic base were operating as well.

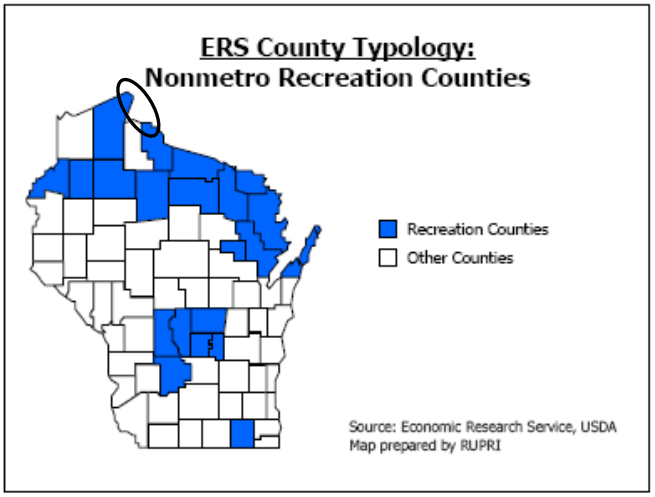
The performance of the traditional economic base as well as the overall local economy in these various counties in the greater Pictured Rocks NL region is summarized in Table A3 above.

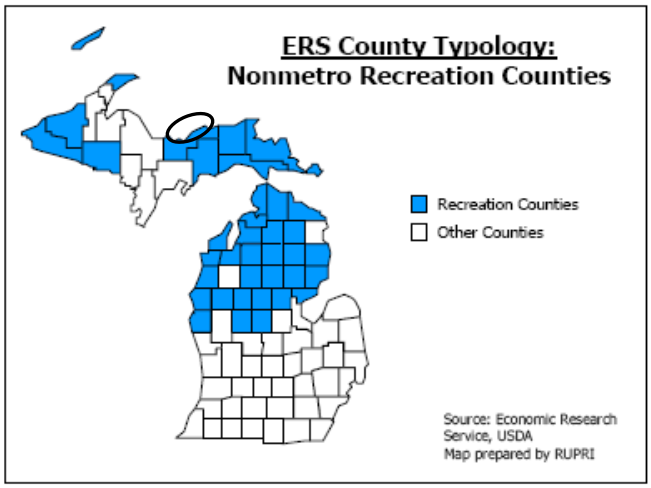
One widely recognized part of the economic base of northern Wisconsin and the Upper Peninsula of Michigan that we did not include in the "traditional" economic base in the analysis above is "tourism" or, more broadly, "the visitor economy": the economic stimulus provided by the spending by visitors who come on summer vacations or to enjoy a variety of recreation activities summer and winter. This includes both those who are truly temporary visitors as well as those repeat visitors who have purchased a second home in the area to facilitate their regular visits. The economic role of National Park units in the local economy is usually discussed in terms of the former: the temporary visitors and their spending attracted to the region by the presence of a landscape feature unique enough to have been recognized in the National Park system. In this section we explore the extent to which the economic performance of the counties surrounding Apostle Islands and Pictured Rocks National Lakeshores can be explained by their "tourism" sectors and, more particularly, the impact of visitors to Apostle Islands and Pictured Rocks National Lakeshores.

Counties Specializing in Commercial Recreation

The Economic Research Service of the U.S. Department of Agriculture identifies rural counties that are especially specialized in certain economic activities, including commercial recreation. It does this on the basis of the percentage of local jobs and earnings generated by visitor oriented services such as accommodations, eating and drinking establishments, entertainment and recreation, and real estate. The percentage of the housing stock that is seasonal homes is also considered. On that basis, most of the northern tier of Wisconsin counties, including one of the Apostle Islands NL gateway counties (Bayfield), was classified as recreation counties. The other gateway county, Ashland, was one of the few northern Wisconsin counties that was not classified as a recreation county. In northern Michigan, including the Upper Peninsula, most of the counties were also classified as recreation counties, including the Pictured Rocks NL gateway county of Alger. See Figure A4.

Figure A4





3. The Impact of Visitor Expenditures on County Economies

We begin by looking at the overall impact on the county economies of visitor expenditures. "Visitors" or "travelers" are not necessarily "tourists," that is, people traveling to an area for recreation or pleasure. Visitors can include people on business trips, people just passing through on their way to some place else, or those who have come to a trade center to shop. The common convention used to distinguish a visitor from a resident is simply that the person has traveled more than 50 miles from their home. The motivation for trips is often mixed. Business organizations typically hold conventions and meetings in attractive locations in hopes of encouraging people to attend. Those who travel to trade centers may include an evening of entertainment in their plans. People may visit friends and relatives more often in locations that are attractive in their own right. For that reason, most "tourist" analysis actually includes all "visitors," no matter what their motivation for the visit.

The visitor expenditure data that is available for Michigan and Wisconsin includes the expenditures of those who own vacation homes as well as truly temporary visitors although the cost of owning and maintaining the vacation home itself is not included in the visitor expenditure data.

For Wisconsin there is data on visitor expenditures by county for the years 1994 through 2007. For Michigan there is no similar time series on visitor expenditures in each county. There is scattered data for selected years and selected counties. The most recent data for all Michigan counties is for the year 2000.[103]

[103] There is more recent Michigan data by county on person-days, person-trips, and person-days relative to county population, but the impact of the visitors is tied to their expenditures and there is no data for a series of years for each county on that.

Visitor Impacts in the Northern Wisconsin

A 2008 study of the impact of visitors on each Wisconsin county provides estimates of visitor expenditures for 1994-2007 and estimates both the direct impact on local income and jobs and the total impact after multiplier effects are taken into account for 2006-2007.[104] Since we are interested in explaining the growth in real personal income beyond the traditional economic base, we will focus on the estimated impacts of these visitors on county income. To do that we applied the visitor spending multipliers that converts the level of visitor spending to impacts on local income that were contained in the Wisconsin study. The weighted average of those spending-income multipliers is almost the same as the average spending-income multipliers estimated in the MGM2 model for the Apostle Islands and Pictured Rocks NL gateway counties. We compared the implied additional local income generated by these visitors to the change in real income to estimate the contribution visitor spending played in expanding the local county economies.

In general, across the nine counties of northern Wisconsin in the vicinity of Apostle Islands and Pictured Rocks NL, changes in visitor expenditures between 1994 and 2006 explained between 10 and 44 percent of the change in total income, depending on the county. The impact in the gateway counties to Apostle Islands NL was the greatest, accounting for about 40 percent of the change in real income. In the counties at a greater distance from the National Lakeshore, the visitor economy was responsible for about 30 percent of the change in Villas County's economy and 25 percent of that in the Florence County economy. In the other counties the impact was between 10 and 20 percent. For these nine northern Wisconsin counties, growth in the visitor economy between 1994 and 2006 explained about 20 percent of the growth in the overall economy as measured by total income. See Table A4.

An alternative approach to estimating the contribution that visitor expenditures have made to the growth of local earnings and income is to assume that the estimates of the impact for the most current year slowly developed as the visitor economy developed. To overstate the contribution over time, we assume there was no visitor economy in 1978 and that the entire visitor economy that now exists developed since then. We can then compare the current impact of visitors on local income to the actual change in real income. That will give us an overestimate of contribution visitor expenditures have made to the county economies since 1978. One reason for using this approach despite its known bias is that we do not have annual county data on visitor expenditures for the Pictured Rocks NL region and will have to work only with the recent visitor expenditures. So that the results for the greater Pictured Rocks region can be compared to the greater Apostle Islands region on the basis of a similar methodology, below we provide a second estimate of visitor spending impacts for the northern Wisconsin counties and then develop an estimate for the Pictured Rocks region using the same method.

[104] "The Economic Impact of Expenditures by Travelers on Wisconsin Calendar Year 2007: County by County Report," prepared by Davidson-Peterson Associates for the Wisconsin Department of Tourism, April 2008.

Table A4

The Impact of the Vistor Economy on Northern Wisconsin Counties 1994-2006				
County	Changes in the County Economies, 1994-2006			
	Change in Visitor Expenditure	Change in Personal Income as a Result of Visitor Expenditure	Total Change in Personal Income	% Change in Total Income Due to Visitors
	(millions of dollars, real, 2006)			
Bayfield	$59	$33	$74	44%
Ashland	$39	$22	$70	31%
Bayfield-Ashland	$99	$54	$144	37%
Burnett	$35	$22	$132	17%
Florence	$12	$8	$31	25%
Marinette	$52	$32	$197	16%
Oneida	$62	$26	$268	10%
Sawyer	$62	$22	$130	17%
Vilas	$96	$60	$199	30%
Washburn	$27	$17	$92	18%
Nine County Total	$444	$242	$1,194	20%

Table A5 provides the results of that approach. It uses estimates of visitor expenditures in 2006 from the "The Economic Impact of Expenditures by Travelers on Wisconsin Calendar Year 2007: County by County Report" cited above. For the non-gateway counties, it also uses the 2006 relationship between visitor expenditures and personal income found in that study. For the gateway counties the specific MGM2 multipliers for those counties were used.

Table A5

The Impact of the Visitor Economy on Northern Wisconsin Counties 1978-2006				
County	Changes in the County Economies, 1978-2006			
	Change in Visitor Expenditure	Change in Personal Income as a Result of Visitor Expenditure	Total Change in Personal Income	% Change in Total Income Due to Visitors
	(millions of dollars, real, 2006)			
Bayfield	$137	$75	$150	50%
Ashland	$70	$38	$100	38%
Bayfield-Ashland	$206	$113	$250	45%
Burnett	$62	$39	$203	19%
Florence	$19	$12	$56	21%
Marinette	$112	$71	$361	20%
Oneida	$212	$89	$522	17%
Sawyer	$147	$52	$243	22%
Vilas	$254	$160	$340	47%
Washburn	$59	$37	$164	23%
Nine County Total	$1,070	$573	$2,140	27%

As Table A5 indicates, this approach suggests that for this group of northern Wisconsin counties almost 30 percent of the growth in personal income can be explained by the impact of the visitor economy. For the counties in which the Apostle Islands NL is located, Bayfield and Ashland taken together, between 40 and 50 percent of the growth in income is accounted for by the impact of visitors. Fully half of the change in real income in Bayfield County is tied to the visitor economy and almost as much in Vilas County is also explained by visitor spending. For this group of northern Wisconsin counties as a whole, 27 percent of the growth in these economies is explained by the growth in the visitor economy.

As expected, since these are overestimates based on the assumption that the visitor economy grew from near zero to its present size since 1978, these estimates of the relative contribution of the visitor economy to the overall economy are, in general, somewhat higher than the earlier estimates for the 1994-2006 period. For the nine counties as a group they are a third higher: 27 versus 20 percent. For Florence County the 1978-2006 estimates are 17 percent lower. At the other extreme these estimates were 74 percent higher in Oneida County.

Visitor Impacts in the Upper Peninsula

For the counties we focused on in the Upper Peninsula, we have also used an estimate of 2006 visitor expenditures and their impact on county income to represent the growth of the visitor economy between 1978 and 2006.[105] The MGM2 modeling of the Alger County visitor economy was used for that county. For the other Upper Peninsula counties, the visitor spending impacts on local income used in the Wisconsin study cited above were used. That study allowed the income multipliers to vary with the size of the local economy, with larger economies having higher income multipliers. The Wisconsin county visitor spending income multipliers were correlated with total county personal income and Upper Peninsula counties of similar size were assigned similar income multipliers. The resulting estimates of the impact of the growth in these counties' visitor economies on the growth in total income are shown in Table A6.

This modeling suggests that across all eight of these Upper Peninsula counties close to a fifth of the growth in the overall economies was associated with the growth in the visitor economy. The results for Alger County, the gateway county for the Pictured Rocks NL, were similar, as was adjacent Schoolcraft County. Marquette County, the largest county in the Upper Peninsula and the largest county among the seventeen counties we are analyzing, about a third of the growth in the economy is attributed to the growth in the visitor economy. This impact is partially tied the large income multiplier associated with this trade center and to the fact that growth in Marquette County slowed markedly in the 1978-2006 period because of the collapse of its traditional economic base.

[105] The estimates of visitor expenditures by county are for the year 2000. These were inflated to 2006 using the Consumer Price Index. "Michigan Tourism Spending by County, 2000 – Update," Daniel Stynes, 2002, http://web4.canr.msu.edu/mgm2/econ/MIindex.htm .

Table A6

The Impact of the Visitor Economy on Upper Peninsula Counties 1978-2006				
County	Changes in the County Economies, 1978-2006			% Change in Total Income Due to Visitors
	Change in Visitor Expenditures	Change in Personal Income as a Result of Visitor Expnediture	Total Change in Personal Income	
	($millions)			(%)
Alger, MI	$33	$15	$70	22%
Delta, MI	$55	$35	$234	15%
Dickinson, MI	$31	$17	$216	8%
Keweenaw, MI	$21	$7	$24	31%
Luce, MI	$21	$7	$7	109%
Marquette, MI	$97	$61	$191	32%
Menominee, MI	$28	$13	$122	11%
Schoolcraft, MI	$29	$10	$51	20%
Eight Counties	$314	$166	$915	18%

Keweenaw County, at the end of the Keweenaw Peninsula, which includes Isle Royale National Park off the north shore of Lake Superior, also had about a third of its growth in total real income explained by the growth of its visitor economy. Keweenaw County has a very small population and economy, the smallest of the seventeen counties we are analyzing, only three percent the size of the Marquette County economy. Its income multiplier is small but the role of the visitor economy is substantial.

Luce County, adjacent to Alger County to the east, was the slowest growing of our counties. Since we are assuming the visitor economy grew from 1978 through 2006, while the Luce County economy hardly grew at all, all of the county's growth was attributed to the visitor economy. That result is almost certainly an exaggeration tied to the assumptions we have made. The modeling for the northern Wisconsin counties where we had a reference point suggested that the exaggeration was at least one-third.

Conclusion on the Visitor Economy

The visitor economy appears to have played a relatively important role in contributing to income growth in the larger region surrounding Apostle Islands and Pictured Rocks National Lakeshores, explaining, on average, a fifth to a quarter of the growth in real income. When the estimated visitor economy impacts for the Upper Peninsula counties are compared to the same modeling for the northern Wisconsin counties, however, the visitor economy appears to have played a somewhat less important role in the Upper Peninsula economies. When the same modeling approach is used for both sets of counties, the average share of total income attributed to the eight Upper Peninsula counties between 1978 and 2006 was 18 percent while for the same time period in northern Wisconsin it was half again as high, 27 percent. As discussed above, both are over-estimates, possibly by a third or more.

4. Analyzing the Impact of New Permanent Residents

As discussed at the beginning of this report, many rural areas have been attracting in-migrants not just because of the employment opportunities available but also because of attractive social and environmental characteristics, that is, local amenities. A study of land use changes on Michigan's Lake Superior shoreline summarized a review of the economic literature on amenity-supported in-migration in the following way:[106]

These studies, both within and outside the Upper Great Lakes region, and related anecdotes can be summarized. Rural areas are regaining population and the driving forces behind the migration are changing the land use patterns, especially along lakeshores. People are moving to the Upper Peninsula of Michigan for its amenity values, and lakeshore is considered more desirable than other property.

But the study concluded with the observation that: "The Upper Peninsula is currently [1996] in the early stages of amenity-based rural in-migration when compared to other parts of the Upper Great Lakes Basin." [107] The northern Wisconsin counties in our study areas fall into that "other part" of the Upper Great Lakes Basin where amenity-supported in-migration was already underway.

An earlier, 1979, analysis of the "Turnaround Migration in the Upper Great Lakes Region" specifically studied Burnett, Washburn, Sawyer, Oneida, and Vilas Counties in Wisconsin because they all had high rates of in-migration during the 1970s.[108] On the other hand, none of the Upper Peninsula counties was included in that analysis because they had not experienced similar in-migration.[109]

Since 1990, however, in-migration rates in some of the Upper Peninsula study area counties have increased significantly. Alger County saw in-migration contribute over 15 percent to population growth. Luce County also saw double digit increases in population due to in-migration as did Florence County across the state border in Wisconsin. Keweenaw County was included in our study area primarily because it was an Upper

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[106] Land Use Change on Michigan's Lake Superior Shoreline: Integrating Land Tenure and Land Cover Type Data, Blair Orr, 1997, ***Journal of Great Lakes Research*** 23(3):328-338, pp. 329-330. Professor Orr at the time was at Michigan Tech in Houghton.

[107] Ibid. p. 337.

[108] Paul R. Voss and Glenn V. Fuguitt, Applied Population Laboratory, Department of Rural Sociology, University of Wisconsin-Madison, Population Series 70-12, August 1979.

[109] A 2005 study of whether amenities in northern Wisconsin, Michigan, and Minnesota had an impact on population, job (retail and service), and per capita income growth in 1980-1990 concluded that there was no sign of such amenity-supported growth. The 1980s were a particularly harsh period for rural areas around the nation and in these upper Great Lakes states. The "non-metropolitan turn around" of the 1970s largely reversed itself and then was revived in the 1990s. The 1980s were a period when it was hard to find any sign of economic development in rural areas, including amenity-supported economic development. In addition, the focus on a single region with similar water and forest landscape amenities may reduce the amount of variation in amenity distribution so far that the impacts of those amenities ould not be statistically identified. "Natural Amenities and Rural Development: Understanding Spatial and Distributional Attributes," 2005,Kim Kwang-Koo, David W. Marcouiller, and Steven C. Deller, ***Growth and Change*** 36(2): 273-297.

Peninsula county with a high rate of in-migration, 29 percent since 1990. That high rate of in-migration is partially tied to its tiny population, about 2,200, which allows a few hundred in-migrants to represent a large percentage growth rate. The significant in-migration was also partially associated with people choosing to live in Keweenaw County while working in adjacent, micropolitan, Houghton County.

In addition, all of the counties in our greater Apostle Islands study area except for Ashland saw double digit net in-migration. Four of those counties saw population increases close to 20 percent or above and one close to 40 percent. See Table A7.

Table A7

Impact of In-Migration on Population Growth 1990-2006	
County	Percent Growth in Population Due to In-Migration
Grteater Apostle Islands Region	
Bayfield	12.5%
Ashland	-1.3%
Burnett	24.5%
Washburn	22.6%
Sawyer	21.7%
Vilas	37.3%
Oneida	17.0%
Greater Pictured Rocks Region	
Alger	15.4%
Marquette	-14.6%
Delta	1.8%
Schoolcraft	8.7%
Luce	14.2%
Dickinson	1.9%
Florence	13.0%
Marinette	8.5%
Menominee	-2.8%
Keweenaw	29.3%

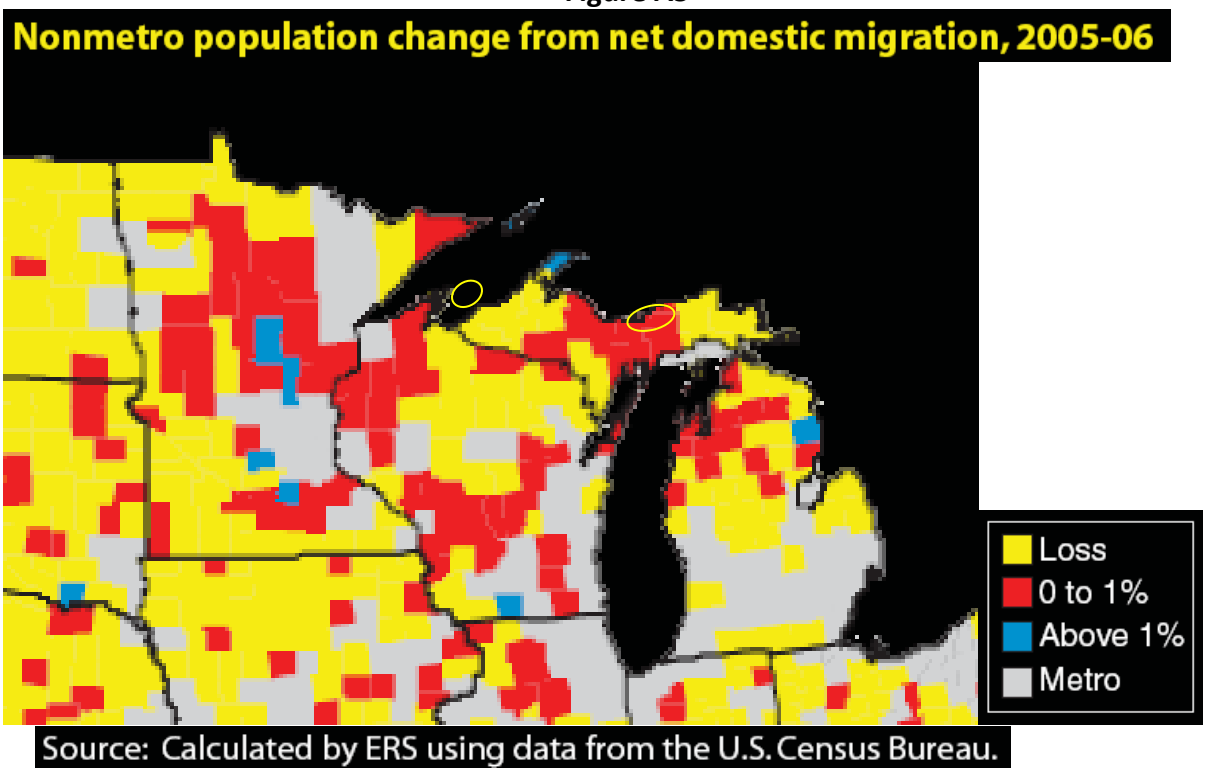
Source: U.S. Census Bureau

The “in-migration” rates for Alger and Luce counties are misleading because some of the new residents were not there voluntarily. Prisons were opened in both counties during the 1990s, adding “residents” who were actually incarcerated criminals. In 1991-92 Alger County gained 800 new “residents” as a prison opened and in 1995-96, Luce County gained 1,100 new residents as a prison opened there.

Despite this “non-amenity” explanation for the in-migration in Alger and Luce Counties, there is evidence of real in-migration in Schoolcraft, Marinette, and Florence Counties to the south and west of Pictured Rocks NL. In addition, the latest data indicates that between 2005 and 2006 there was net in-migration into Alger, Marquette, Schoolcraft,

Delta, and Florence Counties. In that sense, amenity-supported in-migration may be approaching and at the edge of Pictured Rocks NL area. Conversations with civic and business leaders in Munising confirm what the data suggest, that the attraction of the social and natural amenities of the region around Pictured Rocks NL is already supporting the local economy. There was also continuing in-migration at relatively high levels in Keweenaw County and ongoing in-migration in most of the counties in the Apostle Islands study region including Bayfield, Burnett, Washburn, Sawyer and Vilas Counties. See Figure A5.

Figure A5



Also impressive is the fact that some of the counties that saw their traditional economic bases shrink significantly since 1978 also experienced significant in-migration, indicating that some new set of economic forces was operating. See Table A8.

There are several dimensions to this type of amenity-driven in-migration that we explore below.

Table A8

Counties in the Greater Apostle Islands and Pictured Rocks Regions with Significant In-Migration But No Growth in Their Traditional Economic Bases: 1980-2006		
County	Net In-Migration 1980-2006	% change in Economic Base 1978-2006
Greater Apostle Islands NL Region		
Bayfield	10.3%	-11.4%
Oneida	16.2%	-11.5%
Greater Pictured Rocks NL Region		
Schoolcraft	4.1%	-6.0%
Keweenaw	22.9%	1.5%

The Role of Investment, Retirement, and Other Non-Employment Income in Determining Local Economic Vitality

Some types of income flow to where people choose to live rather than to where current economic production is taking place. Dividends, interest and rent, for instance, flow to the owners of common stock, bonds or money market certificates, and rental property, wherever the owners happen to live. The place of residence of the owners of stocks bonds, or rental property, of course, does not have to be in proximity to the physical assets those financial investments helped create. Similarly the federal government's retirement-related payments such as Social Security, Medicare reimbursements to medical providers, and veteran benefits flow to retirees wherever they are living. Of course, some of the dividends, rent, and interest payments are returns on retirees' investments and are also retirement-related. In addition, private pension programs also make payments to retirees wherever they happen to reside and those payments are usually generated by the financial investments the pension funds have made. Other income flows from governments are associated with efforts to provide a social safety net for households in distress: unemployment compensation payments, food stamps, Medicaid, and other income assistance programs. These too flow to qualified households wherever they happen to be located.

These are substantial income flows. Combined, these non-employment income flows represent almost a third of the income received by households across the United States as well as in Michigan and Wisconsin. In the five-county area surrounding the Pictured Rocks NL gateway county these investment, federal retirement, and other non-employment income flows represent 40 to 50 percent of personal income.[110] The same is true of the five-county area adjacent to and to the south of the Apostle Islands NL gateway counties.[111] In general, across the counties in the Upper Peninsula and Northern Wisconsin that we have analyzed, the role of non-employment income is in this same relatively high range. See Table A9.

[110] Alger, Marquette, Delta, Schoolcraft, and Luce Counties.
[111] Bayfield, Ashland, Burnett, Washburn, and Sawyer Counties.

Table A9

The Contribution of Investment, Retirement, and Other Non-Employment Income to Total Personal Income, 2001-2006	
County	Percent of Total Personal Income from Non-Employment Sources
United States	31%
State of Michigan	30%
State of Wisconsin	31%
Greater Pictured Rocks Region	
Alger, MI	42%
Marquette, MI	37%
Delta, MI	40%
Schoolcraft, MI	47%
Luce, MI	48%
Dickenson, MI	38%
Florence, WI	38%
Marinette, WI	36%
Menominee, MI	37%
Keweenaw, MI	48%
Greater Apostle Islands Region	
Ashland, WI	42%
Bayfield, WI	40%
Burnett, WI	42%
Washburn, WI	47%
Sawyer, WI	44%
Oneida, WI	41%
Vilas, WI	46%

Source: US Department of Commerce, BEA, REIS

It is useful to divide these income flows not associated with current labor earnings into at least two categories in order to understand their likely impact on local economies. These are the same categories used in federal economic statistics:"investment income" (dividends, rent, and interest payments) and "transfer payments" from the federal government that include both federal retirement benefits and income maintenance programs aimed at economically distressed households.

It is likely that federal payments to retirees, such as Social Security, and to distressed households, such as food stamps, lead to expenditures that stimulate the local or regional economy. On the other hand, some of the investment income may be immediately reinvested outside the local and regional economy, having little local impact. Of course other households, including those of retirees, may support current consumption by spending some of that investment income. Even households that reinvest their investment income will see their wealth grow as a result of this income

and that higher wealth is likely to encourage higher levels of consumption. So, overall, there is likely to be a stimulating impact on the local and regional economies as a result of increases in investment income.

Part of the federal transfer payments aim to relieve economic distress, including unemployment compensation, food stamps, and Medicaid for low income household. These income flows not only support households but also support local economies that are under stress. Without those federal income maintenance efforts, local economies would be even more depressed by unemployment and poverty. But if the federal transfer payments primarily flow to local economies in distress or decline, increases in these income flows may be associated with economies in trouble rather than economies stimulated by the income inflows. Statistical analysis, both cross-sectional and time series may show a negative relationship between transfer payments and earnings or income. Cause and effect could get confused.

This, in general, is not likely to be a problem. For most of the counties in the larger region around the Pictured Rocks and Apostle Islands National Lakeshore gateway counties, 70 to 80 percent of the federal transfer payments are retirement-related: Social security, Medicare, and veteran benefits. This is a significantly higher percentage than for the nation as a whole where only about 63 percent of federal transfer payments were retirement-related. This is evidence that the region around communities around these two National Lakeshores have been relatively more successful in retaining their retirees and attracting retirees from other areas. See Table A10.

Because the non-employment income is relatively "footloose" following people's residential location decisions at least part of it can be considered "amenity-related." This is especially true of retirement-related income which, as pointed out above, is the majority of the federal transfer payments and a significant part of the investment income. In addition, accompanying the retirement-related income we can measure with the federal statistics, there are also income flows associated with private pension plans which are not reported. Because retirees are less constrained by local economic opportunity, it is reasonable to look at a significant part of the non-employment income as "amenity-related."

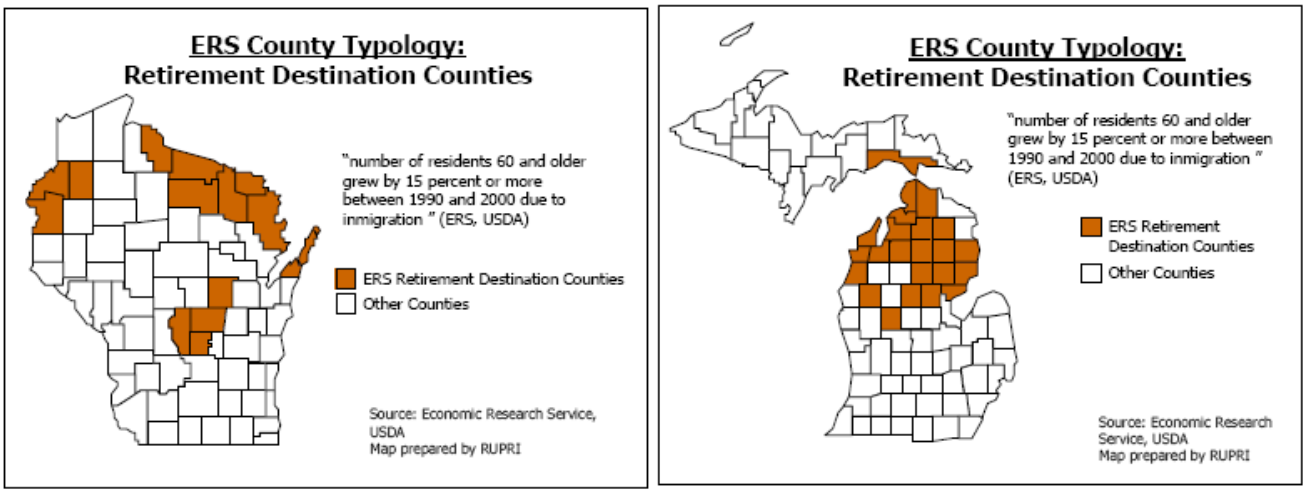
This success in retaining and attracting retirees and the income that supports them is confirmed for many of the Northern Wisconsin counties by federal government classification. The federal Economic Research Service has categorized many of these counties as "retirement destination" counties because those counties had net in-migration rates of 15 percent or more for those over 65. South of Apostle Islands NL, Burnett, Washburn, Oneida, and Vilas Counties all are retirement-destination counties. South of Pictured Rocks NL, just across the Wisconsin border, Marinette and Florence Counties are retirement destination counties. Between Ashland and Vilas Counties, Iron County, and between Vilas-Oneida and Marinette-Florence Counties, Forest County, are also retirement destination counties. In almost a contiguous strip across Northern Wisconsin, there is a series of such retirement-destination counties just to the south of the two National Lakeshores that are the focus of our attention. See Figure A6.

Table A10

The Retirement-Related Component of Federal Transfer Payments, 2006	
County	Percentage of Transfer Payments That Are Retirement-Related
United States	63%
State of Michigan	67%
State of Wisconsin	67%
Greater Pictured Rocks Region	
Alger, MI	75%
Marquette, MI	63%
Delta, MI	70%
Schoolcraft, MI	64%
Luce, MI	65%
Dickenson, MI	67%
Florence, WI	75%
Marinette, WI	71%
Menominee, MI	71%
Keweenaw, MI	71%
Greater Apostle Islands Region	
Ashland, WI	70%
Bayfield, WI	60%
Burnett, WI	75%
Washburn, WI	70%
Sawyer, WI	69%
Oneida, WI	75%
Vilas, WI	81%

Note: Retirement-Related includes Social Security, Medicare, and Veterans Benefits. US Dept. Commerce, BEA, REIS.

Figure A6



Nationwide, retirees have had a significant positive impact on local economic vitality. When counties are classified according to their various economic characteristics, retirement counties were the fastest growing group of non-metropolitan counties in the nation in the 1990s. Recall Table 2 on page 9.

Not only are the income flows associated with investment, retirement, and other non-employment income an important part of total household income in the region around these National Lakeshores, but it has been an increasing flow. One way of measuring the importance of these increases in non-employment income is to compare it to the changes in earnings from the traditional economic base in each of these counties. That comparison reveals that the increases in real income from these non-employment sources have been several to many times larger than the increases in basic industry earnings. Of course, for several of the counties we have been analyzing, real earnings in the traditional economic base actually declined between 1978 and 2006. No such declines took place in real investment and retirement income although Luce County, MI, just to the east of Pictured Rocks NL, saw little growth in non-employment income, just as it saw little growth in its economy overall. See Table A11.

Table A11

Changes in Real Investment, Retirement, and Other Non-Employment Income Compared to Changes in Traditional Basic Real Labor Earnings, 1978-2006

County	1978-2006 Real Change in Traditional Basic Labor Earnings ($1,000s)	Investment, Retirement and Other Non-Employment Income (1,000s)	Ratio of ***Changes*** : Non-Employment Income to Basic Earnings
Greater Apostle Islands Region			
Bayfield-Ashland, WI	$11,718	$137,629	11.7
Burnett, WI	$21,154	$91,698	4.3
Washburn, WI	$25,583	$95,066	3.7
Sawyer, WI	$19,918	$117,075	5.9
Vilas, WI	$11,908	$207,298	17.4
Oneida, WI	-$18,690	$255,157	-13.7
Greater Pictured Rocks Region			
Alger, MI	$35,995	$38,332	1.1
Marquette, MI	-$409,734	$320,467	-0.8
Delta, MI	-$19,065	$178,672	-9.4
Schoolcraft, MI	-$2,665	$38,759	-14.5
Luce, MI (1978-2004)	$10,188	$10,540	1.0
Dickinson, MI	$22,083	$154,102	7.0
Florence, WI	$7,566	$28,268	3.7
Marinette, WI	$38,907	$167,374	4.3
Menominee, MI	-$7,534	$88,013	-11.7
Keweenaw, MI	$53	$11,219	210.1

Note: "Traditional Basic Industries" include agriculture, manufacturing (including wood products and paper), mining, federal and state government. Source: US Dept. Comm. BEA REIS.

Clearly these retirement and investment income flows associated with the residents the region has been able to retain and/or attract have contributed significantly to local economic vitality as the region has gone through a difficult transition in its economic base.

As discussed in the main body of this report, in the Apostle Islands NL gateway counties real income from investment, retirement, and other transfer payments expanded significantly while the traditional economic base did not expand much. In that setting those non-employment income sources may have been one of the primary sources of economic vitality. In contrast, as also mentioned earlier, the traditional economic base did expand significantly in Alger County where the Pictured Rocks NL is located. It almost doubled in size as a source of real earnings. Non-employment income, however, tripled over that same time period, adding an additional source of economic vitality.

The gateway counties for Apostle Islands and Pictured Rocks National Lakeshores were not unusual within the larger region of Northern Wisconsin and the Upper Peninsula. Some counties, such as Oneida and Vilas, WI, to the southeast of the Apostle Islands, saw spectacular growth in non-employment income, a four-fold expansion, while the traditional economic base hardly expanded at all. On the other hand, the counties surrounding Marinette County in both Wisconsin and Michigan, to the south of Pictured Rocks NL, saw significant growth in both the traditional economic base earnings (+50 percent) and growth in non-employment income (+180 percent). See Figures A7 and A8.

The empirical relationship between investment, retirement, and other non-employment income and local economic vitality in Michigan's counties was analyzed in a 1994 study.[112] That study found that non-employment income in the aggregate, as well as investment income and transfer payments separately, had a significant impact on income within Michigan's local economies that was, in general, greater than the impact of changes in the payrolls of the traditional basic industries. This impact was greatest in urban counties, both metropolitan areas such as Duluth-Superior, and "micropolitan" areas, such as Marquette, Marinette, Dickinson, and Delta, to the east and south of Pictured Rocks NL, than it was in rural counties like Alger.[113]

This is not surprising. Rural counties tend not to have a complete enough commercial infrastructure to capture and "re-circulate" local household spending. Most rural and small city household spending, whether it is from basic industry payrolls or non-employment income, "leaks" out of the rural areas into urban trade centers. That is where most of the "multiplier" impacts are felt, not within the small cities and rural areas. As the diversity of local businesses expands in small cities, however, more of the positive impacts of household spending are likely to be felt locally. That is, the multiplier effect of local spending increases as the diversity of the economy does.

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[112] Joan Kendall and Bruce Wm. Pigozzi, "Nonemployment Income and the Economic Base of Michigan Counties: 1959-1986, ***Growth and Change***, Vol. 25 (Winter 1994), pp. 51-74.

[113] Metropolitan counties are large urban areas having at least 50,000 people and usually more than 100,000. Micropolitan counties are smaller urban areas with between 10,000 and 50,000 residents.

Figure A7

The Role of Investment and Retirement Income in Oneida and Vilas Counties, WI

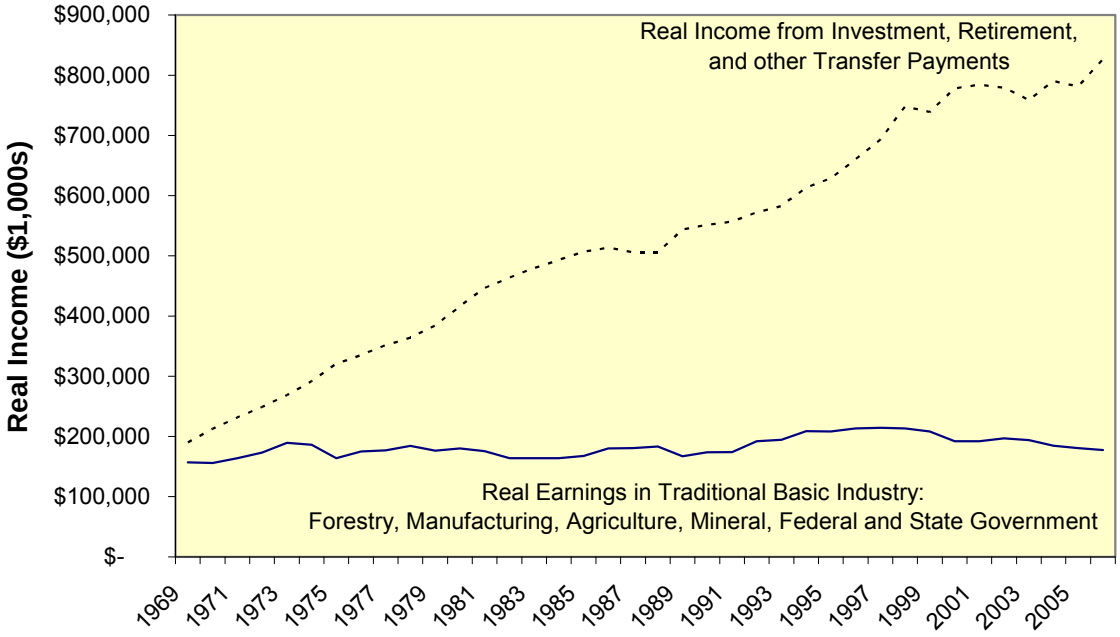
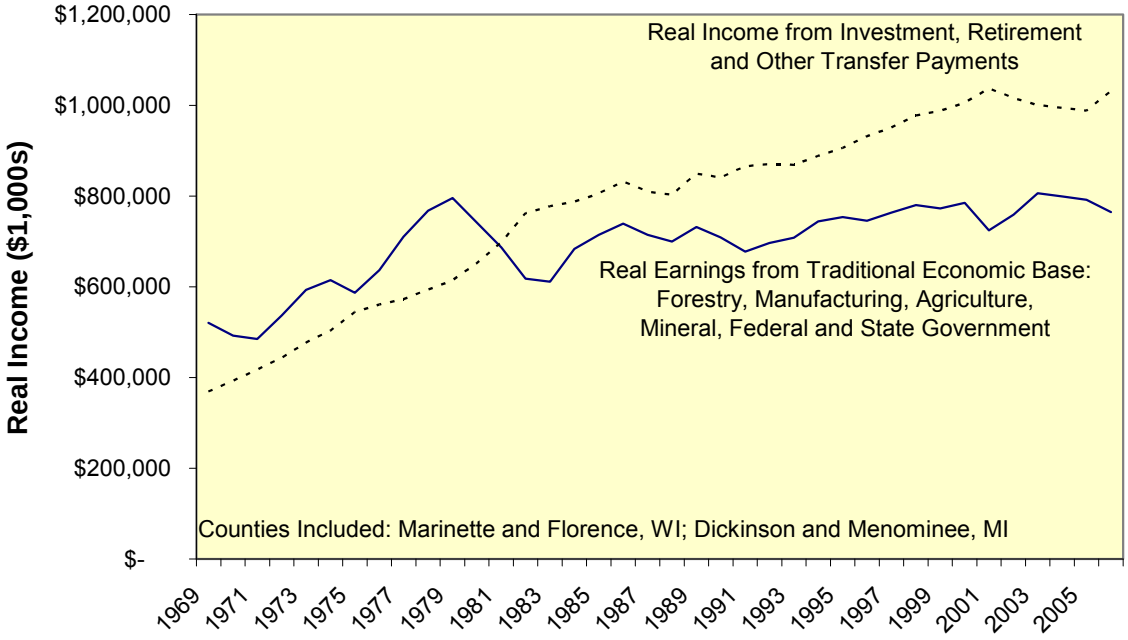


Figure A8

The Role of Investment and Retirement Income in the Greater Marinette Area, WI-MI



This Michigan study of the county-level impact of non-employment income on the rest of the economy estimated income multipliers for three different levels of county population density: metropolitan, micropolitan, and rural. The gateway counties to the Lake Superior National Lakeshore are all rural in character. The Michigan study estimated the impact of non-employment income on total income in rural counties to be about 1.4.[114] However, the income multipliers varied by year. For rural counties it varied from 1.3 to 2.2. The upper end of these estimated income multipliers for rural areas is not plausible. For the Apostle Islands and Pictured Rocks NL gateway counties, the use of the low end of these income multipliers would lead to a projection that over 70 percent of the actual growth in real income was tied to growth in non-employment income. An impact of this size from just this one source of local economic vitality seems unlikely.

As discussed above, there is some empirical controversy over whether investment income has a reliable impact on the local economy. A significant portion of the investment income may not actually circulate in the local economy. Instead this household income may be added to households' total savings that are then invested throughout the national economy. If that is the case the impact on the local economy could be less than the dollar amount of non-employment income received by local residents.

For this reason, we have used an income multiplier for non-employment income that is well below what the Michigan study estimated. We use an income multiplier of 1.0 which implies that this income is added to the local economy but with no multiplier impact. The retirement income, for instance, may impact the economy with a multiplier impact, but the investment income may add less to local spending than its dollar amount, potentially offsetting the multiplier impact associated with the retirement income.

Even with this low multiplier, changes in non-employment income appears to explain over 50 percent of the change in local income across the seven-county greater Apostle Islands study area and over 75 percent of the change in local income across the 10-county greater Pictured Rocks study area. See Table A12.

In counties that have particularly struggled economically over the last several decades such as Marquette and Luce counties, both adjacent to the Pictured Rocks NL gateway county in the Upper Peninsula, these investment, retirement, and other transfer payment sources of income actually exceeded the growth in total income in the counties indicating that with out these non-employment income flows, total real income would have actually declined.

[114] Op. cit. Jendall and Pigozzi, p.64, Figure 5. The article actually estimated non-basic income multipliers to which 1.0 has to be added to make them income multipliers. The multipliers varied by year. I have chosen to use the lower level of values reported.

Table A12

Economic Change Explained by Changes in Non-Employment Income Investment Income, Retirement and Other Transfer Payments:1978-2006			
Counties	Change in Real Total Personal Income ($millions)	Change Caused by Changes in Non-Employment Income ($millions)	% of Change Explained by Non-Employment Income
Apostle Islands Region			
Bayfield-Ashland	$250	$138	55%
Bayfield $	150	$81	54%
Ashland	$100	$57	57%
Burnett	$203	$92	45%
Washburn	$164	$95	58%
Sawyer	$243	$117	48%
Vilas	$340	$207	61%
Oneida	$522	$255	49%
7 Counties	$1,723	$904	52%
Pirctured Rocks Region			
Alger, MI	$70	$38	55%
Marquette, MI	$191	$320	168%
Delta, MI	$234	$179	76%
Schoolcraft, MI	$51	$39	75%
Luce, MI	$7	$11	156%
Dickinson, MI	$216	$154	71%
Florence, WI	$56	$28	50%
Marinette, WI	$361	$167	46%
Menominee, MI	$122	$88	72%
Keweenaw, MI	$24	$11	47%
10 Counties	$1,332	$1,036	78%

The Impact of Out-Commuting to Work on Local County Income

If an area that has attractive social and natural landscape amenities is within commuting distance of a less attractive area that has significant employment opportunities, workers and their families may choose to reside at some distance from where the household earns its income. This out-commuting to work, in effect, produces a reverse flow of income into the community where the workers have chosen to reside.[115]

This has been a significant source of income to several of the counties around Apostle Islands NL including Bayfield, Burnett, and Washburn Counties. In the region around Pictured Rocks NL the impact of out-commuting to work has not been as significant except for Florence County, WI, quite some distance to the southwest of Pictured

[115] We measured the impact of commuting across county lines on local labor earnings using the "residence adjustment" that the U.S. Bureau of Economic Analysis reports in its county estimates of personal income. These adjustments are based on the U.S. Census Bureau's journey-to-work estimates.

Rocks. Florence County boosted its labor earnings by 76 percent as a result of residents commuting out to work. Florence County is just across the Menominee River from the urbanized southwestern part of Dickinson County, MI, which experienced a loss of 5 percent of the labor earnings associated with jobs located there due to workers commuting in to work. Because the population of Florence is so small, about 5,000, compared to Dickinson County (27,000) and other surrounding counties, a relatively small number of workers commuting out to work had a large percentage impact on the labor earnings of residents of Florence County. Commuting to work had a modest impact, plus or minus 5 to 7 percent, on the income received by most of the counties surrounding Pictured Rocks NL. Alger County actually lost income to workers commuting in, while Marquette County appeared to gain income as a result of workers commuting out.[116] Lightly settled Keweenaw County, adjacent to the urbanized Houghton County also saw its residents' labor earnings boosted significantly, 48 percent, by out-commuting to work. See Table A13.

Table A13

Economic Change Explained by Changes in Commuting Out to Work

Counties	Change in Real Total Personal Income ($millions)	Change Caused by Changes in Commuting Out to Work ($millions)	% of Change Explained by Changes in Commuting Out
Apostle Islands Region			
Bayfield-Ashland, WI	$250	$8	3%
Bayfield, WI	$150	$41	27%
Ashland, WI	$100	-$33	-33%
Burnett, WI	$203	$36	18%
Washburn, WI	$164	$26	16%
Sawyer,WI	$243	-$5	-2%
Vilas, WI	$340	$9	3%
Oneida, WI	$522	-$4	-1%
7 Counties	$1,723	$71	4%
Pirctured Rocks Region			
Alger, MI	$70	-$8	-12%
Marquette, MI	$191	$61	32%
Delta, MI	$234	$8	3%
Schoolcraft, MI	$51	$1	2%
Luce, MI	$7	-$5	-77%
Dickinson, MI	$216	-$33	-15%
Florence, WI	$56	$25	45%
Marinette, WI	$361	$45	13%
Menominee, MI	$122	$23	19%
Keweenaw, MI	$24	$8	34%
10 Counties	$1,332	$126	9%

[116]In Marquette County, the gain in income from commuting is actually tied to a steep decline in workers commuting in to work in Marquette County to work in the mines. When mining declined sharply in the late 1970s and early 1980s, this in-commuting largely disappeared creating an "increase" from a large negative number to a near zero number.

The impact on the local economy of these labor earnings associate with out-commuting to work is somewhat problematic. Out-commuting to work is often associated with workers leaving smaller, less developed, economies to work in larger, more developed ones. In that setting, families are also likely to commute to do much of their shopping except for convenience shopping. Workers are also likely to spend part of their income in the area where they work. For that reason, we have not attributed any "spillover" or multiplier impact to these income flows, either inflow or outflows.

Summary of the Quantified Explanations for Changes in County Income

We have provided relatively rough estimates of the size of the impacts on county income of several changes in the county economies in the regions surrounding Apostle Islands and Pictured Rocks National Lakeshores: The traditional economic base, visitor expenditures, non-employment income (retirement, investment, and government income support), and commuting to work. These estimates are summarized in Table A14.

Table A14

Explanations for the Growth in County Real Income 1978-2006

County	Change in Real Total Personal Income ($millions)	Changes in Real Local Income Explained by Changes in the Traditional Economic Base ($millions)	Visitor Spending ($millions)	Non-Employment Income ($millions)	Income from Commuting Out to Work ($millions)	% Explained
Apostle Islands Region						
Bayfield-Ashland, WI	$250	$18	$68	$138	$8	92%
Bayfield, WI	$150	-$5	$45	$81	$41	108%
Ashland, WI	$100	$22	$23	$57	($33)	69%
Burnett, WI	$203	$32	$20	$92	$36	89%
Washburn, WI	$164	$38	$20	$95	$26	109%
Sawyer,WI	$243	$30	$49	$117	($5)	79%
Vilas, WI	$340	$18	$86	$207	$9	94%
Oneida, WI	$522	-$28	$71	$255	($4)	56%
7 Counties	$1,723	$125	$315	$904	$71	82%
Pictured Rocks Region						
Alger, MI	$70	$49	$11	$38	($8)	130%
Marquette, MI	$191	-$615	$32	$320	$61	-105%
Delta, MI	$234	-$29	$18	$179	$8	75%
Schoolcraft, MI	$51	-$4	$10	$39	$1	89%
Luce, MI	$7	$15	$7	$11	($5)	407%
Dickinson, MI	$216	$33	$10	$154	($33)	76%
Florence, WI	$56	$11	$4	$28	$25	124%
Marinette, WI	$361	$58	$17	$167	$45	80%
Menominee, MI	$122	-$11	$9	$88	$23	90%
Keweenaw, MI	$24	$0.1	$7	$11	$8	112%
10 Counties	$1,332	-$491	$126	$1,036	$126	60%

For the group of counties in northern Wisconsin in the greater Apostle Islands region, 82 percent of the change in real income was explained by these four factors. For our Upper Peninsula study area around Pictured Rocks, it appears that only 60 percent of the real

income growth was explained, but that is because of the anomalous role of Marquette County where the collapse of the traditional economic base created a large negative impact. We will discuss that county below. If it is removed from the group of counties surrounding Pictured Rocks NL, then the four factors we have analyzed explain almost 90 percent of the growth of income between 1978 and 2006.

When we look at the estimates for the individual counties, the roughness of our estimates is apparent. We often have either "over-explained" or failed to explain significant amounts of the actual changes in real income. Despite this, we believe these estimates still provide a rough indication of the relative importance of the various changes in the economy.

In the greater Apostle Islands region the largest under-estimate is in Oneida County which despite an actual decline in its traditional economic base, experienced significant economic expansion that visitor spending did little to explain. The large increase in retirement and investment income hints at a likely explanation: Significant in-migration not only of retirees but also of working-age adults. We will return to a discussion of this type of impact below. For most of the rest of the individual counties in the greater Apostle Islands region, these four economic forces provide a reasonable good explanation for the changes in local real income.

In the Pictured Rocks study area the largest under-estimate is in Marquette County just to the west of Alger County and Pictured Rocks. Marquette County, as discussed above, experienced a massive contraction of its traditional economic base over the last 30 years. Despite that, the economy was able to expand modestly. Marquette County is also the largest economy in the Upper Peninsula and with a population 50 percent greater than any of the other counties in our study area, and many times larger than most of them. The huge decline in Marquette's traditional economic base conceptually created a quantitative hole that none of the positive changes we studied could fill. Yet, in fact, it was filled and the economy was able to grow modestly. See Figure A8.

There are two possibilities. First, we may have over-estimated the spillover impacts of the collapse of the traditional economic base. Second, we may have under-estimated the spillover impacts of the positive economic changes that took place.

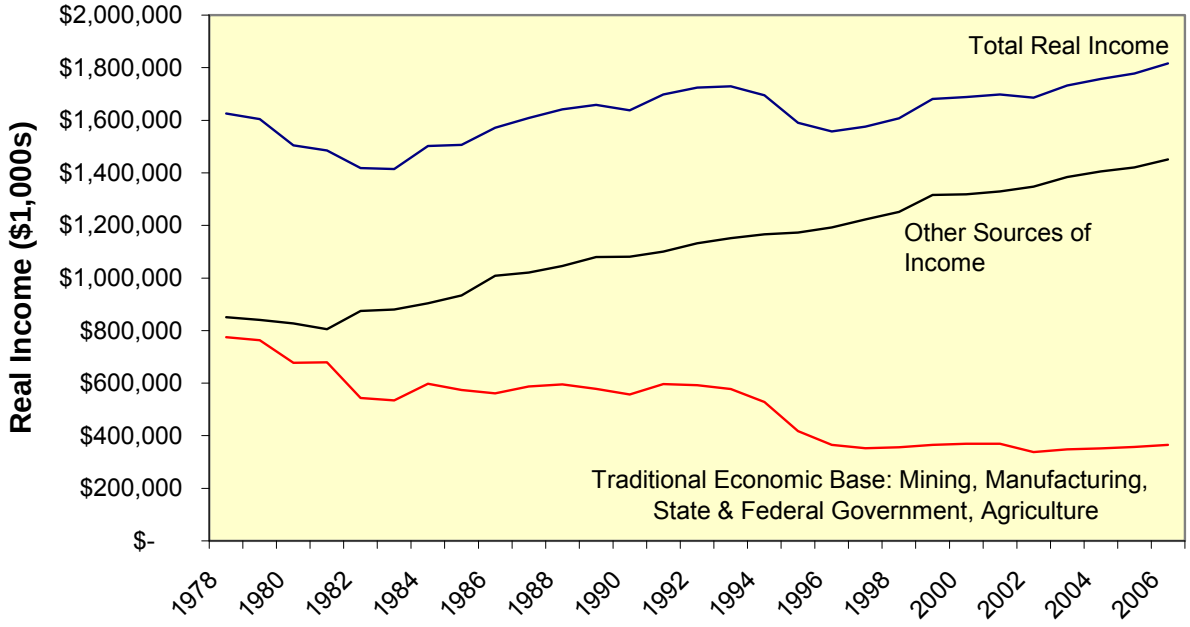
Given that we used a very modest income multiplier for the traditional basic industries (1.5), it seems unlikely that we exaggerated the impact of the loss of metal mining and military base payrolls. After all, Marquette County lost 26 percent of its population to out-migration between 1980 and 2006. Natural population growth as a result births exceeding deaths partially offset about half of that out-migration leading to a net 15 percent decline in residents.[117] Clearly the impact of the losses in the traditional economic base was significant. It is possible, however, that some of the military base payroll was funneled through military-run retail outlets and service providers and/or that

[117]U.S. Census Bureau, Cumulative Estimates of the Components of Population Change for Counties of Michigan, multiple dates.

a significant part of that military income was remitted to the home towns of military personnel rather than being spent in Marquette County.[118] That would increase the leakage associated with that source of basic income.

Figure A8

Real Changes in the Marquette, MI, Economy



On the other hand, we may well have under-estimated the offsetting positive changes in the Marquette economy. First, as the trade center serving a significant part of the Upper Peninsula, Marquette had a more complete economy, better able to capture and hold the dollars spent within it. Yet for non-employment income and the impact of commuting, we used the same multipliers for Marquette County as we did for rural counties a tenth the size of Marquette (e.g. Luce and Florence Counties). We used area specific multipliers only for visitor spending. That was probably inappropriate, both under-estimating the positive impacts on Marquette and over-estimating the impacts on the smaller counties. Given that we did not engage in an input-output analysis of each of the counties in our study group, we did not have county-specific multipliers that would allow us to make these distinctions among all of the counties except for the visitor economy.

[118] The shutting down of the military base in 1996 led to a loss of 10 percent of jobs and aggregate real income and 12 percent of the population in Marquette County. Payroll in services, however, declined by only 3 percent and payroll in retail trade declined by 7 percent. U.S. Bureau of Economic Analysis, Regional Economic Information System. That suggests that some of the income associated with the lost jobs had not been circulating in the local economy.

In addition, because Marquette County is a trade center for the surrounding counties, it was supplying goods and services to those surrounding counties and receiving in return a significant part of the income being earned in those counties. This “trade center” role led income to be injected into the Marquette economy that would have had the same type of multiplier impact as any other income injected into the economy. By using smaller income multipliers for the smaller surrounding economies, we took that into account for the smaller economies, but we did not measure the positive impact of this on the Marquette economy. That is, we did not account for Marquette’s “trade center” role. This, too, is not easily adjusted for. It would require an analysis of what part of the Marquette economy serves its own residents and what part serves the surrounding trade area.

As discussed earlier, Luce County experienced almost no real income growth between 1978 and 2006. Factually, then, there was nothing to explain. Yet the expansion of the traditional economic base and the visitor economy and the rise in retirement and investment income suggested that there should have been significant growth in income that did not actually take place.

For the other counties in the greater Pictured Rocks study region, our explanations for the observed growth were more successful. If the anomaly of Marquette County is removed, our four explanatory variables explained almost 90 percent of the change in real income.

Of the four economic forces that we have quantified, three are part of the larger set of “amenity-supported” economic forces: the impact of temporary visitors drawn by the region’s landscape amenities, the impact of “foot-loose” income that follows people’s residential location decisions: investment, retirement, and other non-labor income, and the impact of people choosing one location for a residence while working in another location. The other economic force quantified was the impact of the traditional economic base.

In Table A15 we restate the same information in the table above to allow us to compare the explanatory power of the traditional economic base, those amenity-related economic forces we have quantified and the remaining unexplained residual.

The results of our modeling as laid out in Table A15 support the following conclusions:

The traditional economic base explains only a small part of the total change in local real income. This is especially true in the greater Apostle Island study region where in four of the seven counties, changes in the traditional economic base explained only single digit percentages of the change in total real income. In Ashland and Washburn Counties the traditional economic base had the highest explanatory power, explaining a little over 20 percent of the growth in real income.

Table A15

Summary of the Explanations for the Changes in Real Personal Income in the Apostle Islands and Pictured Rocks National Lakeshores Regions, 1978-2006					
Counties	% of Change in Personal Income Explained by Changes in				Total Change Explained
	Traditional Econ Base	Visitor Spending	Non-Employment Income	Commuting Out to Work	
Apostle Islands Region					
Bayfield-Ashland, WI	7%	45%	55%	3%	111%
Bayfield, WI	-3%	50%	54%	27%	128%
Ashland, WI	22%	38%	57%	-33%	84%
Burnett, WI	16%	19%	45%	18%	98%
Washburn, WI	23%	23%	58%	16%	120%
Sawyer,WI	12%	22%	48%	-2%	80%
Vilas, WI	5%	47%	61%	3%	116%
Oneida, WI	-5%	17%	49%	-1%	60%
7 Counties	7%	35%	52%	4%	99%
Pictured Rocks Region					
Alger, MI	70%	22%	55%	-12%	136%
Marquette, MI	-322%	32%	168%	32%	-90%
Delta, MI	-12%	15%	76%	3%	82%
Schoolcraft, MI	-8%	20%	75%	2%	90%
Luce, MI	226%	109%	156%	-77%	414%
Dickinson, MI	15%	8%	71%	-15%	79%
Florence, WI	20%	21%	50%	45%	137%
Marinette, WI	16%	20%	46%	13%	95%
Menominee, MI	-9%	11%	72%	19%	93%
Keweenaw, MI	0%	31%	47%	34%	114%
10 Counties	-37%	19%	78%	9%	69%

In the greater Pictured Rock study region, the traditional economic base explained the majority of the change in real income in Alger County, the gateway county. If we set aside the anomalous Marquette County, changes in the economic bases of the 9 remaining counties, including Alger County, explained only 11 percent of the growth in real income. This is because the economic base shrunk in 3 of these 9 counties and grew hardly at all in one other.

The amenity-related economic forces, including the visitor economy, were the primary drivers of real income growth in these counties. The minimum contribution of the amenity-related economic forces was 62 percent in the greater Apostle Islands study region and 69 percent in the greater Pictured Rocks study region. The average across the 7 counties in the greater Apostle Islands study region was 92 percent and for the greater Pictured Rocks study region 106 percent. That percentage is over 100 percent because the traditional economic base for the ten counties shrunk significantly and the amenity-related forces compensated for that decline.

Keeping in mind that our historical estimates of the role of the visitor economy over the last three decades is biased upwards, the visitor economy may have been responsible for over a third of the growth of real income in the greater Apostle Island region and about a fifth of the growth in the greater Pictured Rocks region. In Bayfield and Ashland

Counties, the upper end of the impact of the visitor economy was 45 percent of the growth in real income. In the greater Pictured Rocks region the visitor economy may have been responsible for about 20 percent of the growth in income in Alger, Schoolcraft, Florence, and Marinette Counties and over 30 percent of the growth in Marquette and Keweenaw Counties.

After we have accounted for the impact of the traditional economic base and an upper estimate of the visitor economy, there is still a significant part of the growth in real income in the local economies that is not explained. Close to 60 percent of the growth in the greater Apostle Islands region remains to be explained and close to 50 percent of the growth in the greater Pictured Rocks region (excluding Marquette County). There is one important exception to this pattern: For Alger County, the gateway county for Pictured Rocks NL, only 8 percent of the growth of real income between 1978 and 2006 remains unexplained after growth in the traditional economic base and the visitor economy are accounted for.

The unexplained residual after changes in the traditional economic base, an upper estimate of changes in the visitor economy, changes in non-employment income, and changes in work out-commuting patterns are taken into account are quite small in the greater Apostle Island region, only 1 percent of real income growth. However, because of the large decline in the traditional economic base in Marquette County whose size dominates the greater Pictured Rocks region, 30 percent of the growth in that region (less Marquette County) remains unexplained. If Marquette County is excluded, then we have explained all of the growth in the region. In fact, we have over-explained the growth by 20 percent. But these averages hide significant unexplained growth in some counties: 40 percent in Oneida County and about 20 percent in Ashland and Sawyer Counties in the greater Apostle Islands region and 20 percent in Delta and Dickinson Counties in the greater Pictured Rocks region. In several counties we have also significantly “over-explained” the total growth.

Overall, amenity-supported local economic vitality appears to have become a significant part of the dynamics of the local economies both in the gateway counties to the Lake Superior National Lakeshores and in the larger region surrounding those gateway counties.

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Appendix B

Economic Analyses of Relationship between Apostle Islands and Pictured Rocks National Lakeshore Visitation, Visitor Spending, and Local Area Economic Activity

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1.0 Introduction and Scope of Report

Reports detailing the economic impact of visitor spending were published in July 2006 for Apostle Islands and May 2003 for Pictured Rocks. These reports used the MGM2 model and visitor survey data from 2004 at Apostle Islands and 2001 at Pictured Rocks to generate aggregate local economic impact estimates. MGM2 economic impact reports have similarly been generated for a number of NPS units. Each of these studies presents unique challenges in gathering complete and representative visitor data, accurately representing the local economic impact area, and framing the impacts estimated in the context of the greater regional economy. For example, the 2004 MGM2 report on the impacts of visitor spending at Apostle Islands NL notes that "As it is not clear whether higher end boat charters and guided trips were properly represented in the sample [of visitors], these spending outliers were omitted (Stynes D. J., 2006)." The question faced by Stynes was whether a number of very high expenditure trips using charters and guides reported in the Apostle Islands visitor survey data represented outliers to be omitted, or a valid and perhaps under-sampled visitor strata that should be included.

This report describes an economic investigation of the data, assumptions, and results associated with the MGM2 results published for Apostle Islands and Pictured Rocks National Lakeshores. The analysis includes a review of detailed visitation data, local and regional economic activity data, and visitor survey response data. Additionally, Information not used in the MGM2 analysis was examined, including personal conversations with marina operators near Apostle Islands NL, information on winter season use of the Upper Peninsula of Michigan, and related economic analyses for the Great Lakes region.

The primary purpose of this analysis is to update, where necessary, and "validate" where possible the previous MGM2 impact estimates.

This analysis is organized as follows. Section 2 presents information on recreational visitation to the two park units along with available information on visitor characteristics. Section 3 discusses the MGM2 findings from the Apostle Islands NL and Pictured Rocks NL reports and details limitations of the analyses noted by the authors. Section 4 presents validation and, where appropriate, updating of the local area economic impact estimates originally presented in theMGM2 reports. Finally, Section 5 includes a brief discussion of the importance and interconnectedness of the parks within their local recreational setting.

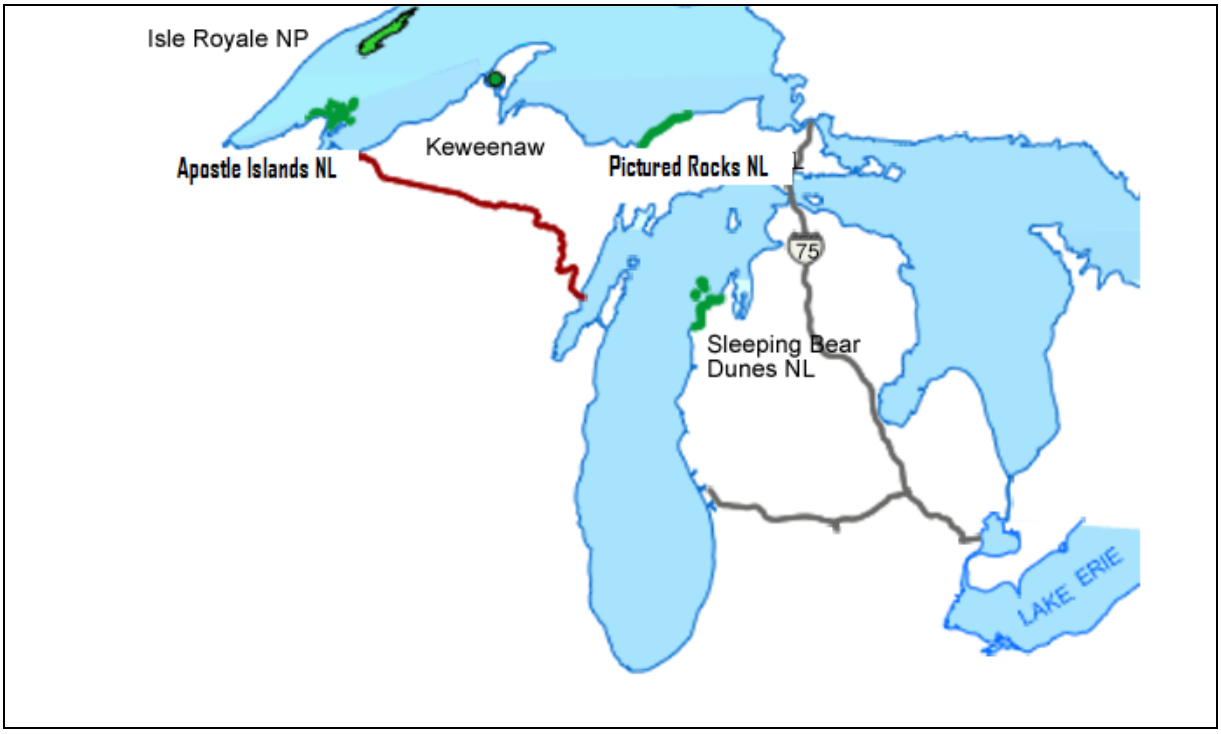
2.0 Apostle Islands and Pictured Rocks NL Setting and Recreational Use

2.1 The Setting of the Great Lakes National Lakeshores

Apostle Islands NL and Pictured Rocks NL are located on the southern shores of Lake Superior in the states of Wisconsin and Michigan, respectively (Figure 1). Both park units are located in predominately rural, heavily forested land. The two counties surrounding Apostle Islands NL, Bayfield, and Ashland, had a combined 2000 population of only about 31,000 (U.S. Census Bureau, 2008). Over 80 percent of these counties is forested with another 7-9 percent being in farmland (Wisconsin Department of Commerce, 2003). Per capita income in 1999 in the two Apostle Islands NL counties was about 25 percent less than the average Wisconsin income, at $16.407.

Alger County, Michigan, the county surrounding Pictured Rocks NL, is similarly rural. In 2000, Alger County had a population of about 10,000. Per capita income was approximately 20 percent less than for the average Michigan resident, at $18,210 (U.S. Census Bureau, 2008).

Figure 1. Geographic Setting of Apostle Islands NL and Pictured Rocks NL.



2.2 Recreational Visitation Levels

The National Park Service maintains a nationwide database of detailed visitation information on all NPS units (National Park Service, 2008). The visitation statistics shown in Table 1 through Table 4 show both trends in annual estimated visitation to the Lake Superior park units and the distribution of annual visitation across months of the year at those units.

Table 1 shows the trends in recreational visitation to Apostle Islands NL over the past 35 years. In general, this park unit has seen increasing use levels over this period, although there has been much variation in estimated use over the past 15 years. There is an indication that use has stabilized in the past few years at a level of approximately 180,000 recreational visits per year.

Table 1. Annual Recreational Visitation to Apostle Islands NL: 1973-2007

Year	Recreational Visitors	Year	Recreational Visitors
2007	182,396		
2006	189,051	1989	135,016
2005	175,245	1988	140,107
2004	151,881	1987	137,341
2003	169,699	1986	113,621
2002	169,674	1985	117,353
2001	185,435	1984	127,300
2000	181,760	1983	130,913
1999	193,260	1982	125,756
1998	236,829	1981	103,960
1997	183,636	1980	88,467
1996	168,614	1979	75,629
1995	167,909	1978	88,126
1994	147,376	1977	90,000
1993	129,793	1976	71,100
1992	113,106	1975	22,700
1991	141,038	1974	24,100
1990	140,980	1973	12,200

The 2007 distribution of recreational use of Apostle Islands NL across months of the year is shown in Table 2. Clearly, visitation to Apostle Islands NL is heavily dominated by the summer months of June through September. In 2007 these months accounted for over 150,000 (or about 83%) of the 182,000 visits to the park during the year.

Table 2. Apostle Islands NL Distribution of 2007 Recreational Use across Months.

2007	Rec Visits	Non-Rec Visits	Concession Lodging	Tent Campers	RV Campers	Concession Campgrounds	Back Country Campers	Misc Campers	Total Overnight Stays
January	2,562	82	0	0	0	0	0	0	0
February	3,925	82	0	0	0	0	4	1	5
March	2,148	82	0	0	0	0	0	0	0
April	3,550	92	0	0	0	0	16	2	18
May	9,552	92	0	0	0	0	897	32	929
June	21,270	102	0	0	0	0	2,458	1,286	3,744
July	55,307	102	0	0	0	0	5,583	3,966	9,549
August	54,559	102	0	0	0	0	5,709	3,783	9,492
September	18,966	92	0	0	0	0	1,304	349	1,653
October	7,309	72	0	0	0	0	236	8	244
November	1,382	72	0	0	0	0	0	2	2
December	1,866	82	0	0	0	0	0	0	0
2007 Total	**182,396**	**1,054**	**0**	**0**	**0**	**0**	**16,207**	**9,429**	**25,636**

Annual visitation to Pictured Rocks NL for the period 1973 to 2007 is shown in Table 3. Pictured Rocks NL has seen quite erratic visitation across this period with annual visits stabilizing in the 400,000 range over the last decade.

Table 3. Historic Recreational Visitation to Pictured Rocks NL.
(Source: NPS Visitation Statistics)

Year	Recreational Visitors	Year	Recreational Visitors
2007	441,521	1989	565,242
2006	419,298	1988	553,774
2005	476,888	1987	474,934
2004	381,854	1986	406,619
2003	382,456	1985	397,884
2002	429,229	1984	407,697
2001	421,312	1983	441,271
2000	422,683	1982	356,415
1999	442,916	1981	329,775
1998	455,120	1980	311,000
1997	413,963	1979	270,376
1996	403,684	1978	287,447
1995	462,687	1977	294,700
1994	581,281	1976	324,400
1993	610,811	1975	277,300
1992	583,110	1974	296,300
1991	704,894	1973	287,500
1990	561,973		

Table 5 shows the distribution of visitation to Pictured Rocks NL across months for the year 2007. Like Apostle Islands NL, annual use is dominated by the summer months of June through September (66% of annual 2007 use occurred in these months). However, unlike Apostle Islands NL a substantial proportion of annual use occurs in the winter months of December through February. Apostle Islands NL reports only about 4% of annual use during these winter months, while Pictured Rocks NL reports almost 16% of its use in the winter. This difference is reflective of the nature of recreational attractions for the two areas. Apostle Islands NL is primarily a water-based park unit that holds limited recreational opportunities for winter users. Pictured Rocks NL, however, is centered in an area known for winter recreation such as snowmobiling, skiing, and snowshoeing. Consequently, use of park roads and trails for snowmobiling and x-c skiing contributes to substantial winter use of the park.

Table 4. Pictured Rocks NL 2007 Distribution of Recreational Use across Months.

2007	Rec Visits	Non-Rec Visits	Concessions Lodging	Tent Campers	RV Campers	Concession Campgrounds	Back Country Campers	Misc Campers	Total Overnight Stays
January	20,531	50	0	0	0	0	40	0	40
February	32,394	50	0	0	0	0	70	0	70
March	15,967	50	0	0	0	0	91	0	91
April	10,260	230	0	0	0	0	81	0	81
May	23,016	230	0	490	187	0	1,081	0	1,758
June	54,045	230	0	1,337	369	0	2,184	0	3,890
July	97,479	170	0	4,016	1,019	0	3,602	0	8,637
August	95,054	170	0	4,611	1,280	0	5,733	0	11,624
September	47,179	170	0	1,414	590	0	1,455	0	3,459
October	28,276	230	0	615	331	0	613	0	1,559
November	10,738	135	0	0	0	0	46	0	46
December	6,582	135	0	0	0	0	59	0	59
2007 Total	**441,521**	**1,850**	**0**	**12,483**	**3,776**	**0**	**15,055**	**0**	**31,314**

As is discussed in Section 4, below, estimation of recreational visitation to many NPS units in general and to Apostle Islands NL and Pictured Rocks NL in particular is not a simple process of counting people passing through an entry gate. Rather, the process is based on estimation of visitors using hand counts, road vehicle counters, and a number of adjustments for non-recreational vehicles, number of people in a car, and number of re-entries into a park on a single visit. Appendix C shows the methodology behind counting visits to the two parks, as reported by the NPS.
The difficulty in accurately assessing the number visits to the Lake Superior park units is noted not to question the accuracy of the visitor counts reported by NPS, but to point out that these visitor estimates have a degree of uncertainty associated with them and thus should not be viewed as hard-and-fast numbers.

2.3 Recreational Visitor Characteristics

There are two primary sources of information on visitor characteristics for the two Lake Superior NPS units. The parks themselves collect detailed information on visitation patterns monthly which generally describe the destinations visited within the parks and the types of activities visitors engage in. More detailed information profiling visitors to the parks is gathered through visitor surveys undertaken by the NPS Social Science Program (Littlejohn & Hollenhorst, Apostle Islands National Lakeshore Visitor Study, 2005), (Littlejohn M. , 2002). Key characteristics of the visitor population for the two parks from these sources are discussed below.

2.3.1 Visitor Characteristics Collected by the Park Units

While some visitation data reported by the NPS is generally comparable across park units (such as monthly or annual recreational visitation), parks also prepare detailed monthly reports outlining visitation patterns specific to individual park units. These reports provide information specific and unique to a park unit, such as visitation by access point, or a detailed report of special use by visitors during a month. Table 5 and Table 6 show examples of the 2007 annual special use data for Apostle Islands NL and the 2007 detailed distribution of use for Pictured Rocks NL. Table 5 reaffirms that water-based access and recreation is a very substantial portion of Apostle Islands NL visitor use. In the case of Pictured Rocks NL, measured use is much more heavily dominated by vehicle-based access and use.

Table 5. Apostle Islands NL 2007 Special Use Recreational Visits and Visitors.

Special Use Data	2007
MAINLAND VISITORS	117,217
PRIVATE BOAT OVERNIGHTS	9,280
ISLAND VISITORS	65,178
MAINLAND CAMPERS	149
PRIVATE BOAT VISITS	12,932
TOUR BOAT VISITORS	29,815

Table 6. Pictured Rocks NL 2007 Distribution of Recreational Use across Sites.

Grand Marais District	2007	Munising District	2007
12 Mile (H-58) Vehicles	19,575	Sand Point Vehicles	87,465
12 Mile (H-58) Visitors	22,636	Sand Point Visitors	116,278
Grand Sable Vehicles	92,680	Munising Falls Vehicles	39,216
Grand Sable Visitors	94,818	Munising Falls Visitors	126,004
Sable Falls Vehicles	29,963	Miners Vehicles	97,155
Sable Falls Visitors	42,225	Miners Visitors	130,156
Lower Hurricane Vehicles	28,321	Little Beaver Vehicles	13,505
Lower Hurricane Visitors	40,162	Little Beaver Visitors	19,590
Log Slide Vehicles	27,154	Chapel Vehicles	15,412
Log Slide Visitors	37,542	Chapel Visitors	22,319
Maritime Museum Visitors	0	Becker Farm Visitors	1,055
Winter Activity Visitor Use	20,960	H-58 Lot Vehicles	1,961
Total Overnight Stays	31,314	H-58 Lot Visitors	1,711
Total Non-Adjusted Visitors	258,342	City Limits Lot Vehicles	2,384
Total Adjusted Visitors	148,471	City Limits Lot Visitors	2,631
		Beaver Basin Visitors	680
		Cruise Boat Passengers	49,419
		Total Non-Adjusted Visitors	469,841
Total Park Adjusted Visitors	441,520	Total Adjusted Visitors	293,050

2.3.2 NPS Survey-based Visitor Characteristics

In the summers of 2001 and 2004 the NPS Visitor Survey Project conducted one-week visitor surveys of Pictured Rocks NL and Apostle Islands NL, respectively. Table 7 shows some key visitor and visit characteristics from the two Visitor Services Project reports (Littlejohn M. , 2002), (Littlejohn & Hollenhorst, 2005). Visitors to the two park units are quite similar in regards to average age, and the percent of visitors using guided tours and who are on their first visit to the park. However, the water-based nature of Apostle Islands NL is evident from the most frequently cited type of in park lodging used in the two parks. At Pictured Rocks NL campgrounds were the most frequently used in park lodging (51%) while at Apostle Islands NL “boat” was cited as the most utilized in-park lodging by 51% of visitors.

Table 7. Comparison of selected Visitor and Visit Characteristics from NPS Visitor Survey Program Reports.

Characteristic / statistic	Apostle Islands NL	Pictured Rocks NL
Average survey respondent age	48.8	44.4
Percent of visitors on a guided tour	8%	3%
Percent on first visit to the park	33%	36%
Origin state for largest groups of visitors	WI 41% MN 32%	MI (58%)
Percent for whom visiting park was the primary purpose of their trip	48%	73%
Primary type of lodging inside of park	Boat (51%)	Campground (51%)
Primary type of lodging outside of park	Campground (31%)	Lodge/motel (60%)

Source: (Littlejohn & Hollenhorst, 2005), (Littlejohn & Hollenhorst, 2005).

3.0 Summary of NPS MGM2 Reports, Findings, and Limitations

The NPS Social Science Program has for a number of years sponsored studies of the local area economic impact associated with visitation to NPS units (Michigan State University, 2008). These studies are based substantially on the Visitor Services Project (VSP) survey data discussed in the previous section. The visitor expenditure data from the VSP studies is combined with NPS annual visitation statistics and inputted into the MGM2 Economic Impact model in order to produce estimates of total local area impacts associated with visitor spending at NPS units.

Table 8 details the key results of the two MGM2 economic impact reports for Apostle Islands NL and Pictured Rocks NL (Stynes D. J., 2006), (Stynes & Sun, 2003). While the two MGM2 reports arrive at nearly the same bottom-line economic impact attributable to visitor spending in the local areas, the details of visitation levels and spending per visitor-day are very different. The MGM2 reports estimated the average expenditure level that occurred within 30 miles of the parks, per party visiting the parks. This average expenditure per party/trip for Apostle Islands NL was over double the expenditure level of Pictured Rocks NL ($366 per party trip for Apostle Islands NL vs. $173 per party trip for Pictured Rocks NL). This difference is likely due to a large extent to the substantially longer trips taken to Apostle Islands NL as compared to trips to Pictured Rocks NL, and the slightly larger average group size visiting Apostle Islands NL.

Table 8. Comparison of Selected Results of Apostle Islands NL and Pictured Rocks NL MGM2 Studies.

Characteristic / Statistic	Apostle Islands NL	Pictured Rocks
Study Publication Year	2006	2003
Sampling Period	7/24 – 8/1 2004	7-24 – 8/4 2001
Sample Size	505	505
Response Rate	75%	82%
Estimated Visitor Spending in Local Area per day	$366	$173
Annual Visitation (Party trips not individual trips)	41,763 (2004)	84,900 (2001)
Estimated Total Visitor Spending within 30 miles	$15 million	$12 million
Total Spending Attributable to Park	$12 million	$12 million
Geographical Impact Area	Bayfield and Ashland Counties	Alger County
Park Employees	43	Not reported
Park Spending	$2.5 million	Not reported
Average Visitor Group Size	3.1 people	3.0 people
Average Length of Stay	3.1 days	1.82 days

The MGM2 reports provide estimates of the annual local area economic impact associated with "main-purpose" visitor expenditures to the NPS Lake Superior units. The MGM2 reports include sections outlining the limitations of each report. These limitations are generally centered on one of the three main components of regional economic impact estimation: the number of recreational visitors, the average spending per visitor, and the local area spending multiplier.

3.1 Apostle Islands NL MGM2 Analysis Caveats and Limitations

The Apostle Islands NL MGM2 report (Stynes D. J., 2006) was based primarily on 2004 summer season visitor survey data. In discussing the limitations of the MGM2 analysis, Stynes acknowledges the unique challenges that measuring visitation to the largely water-based park presents. He notes:

> "Most of the park is accessible only by boat. While reliable counts are available for visitors using the park tour boat, visitors in private or rental boats are more difficult to count, particularly if not staying overnight at one of the islands." (Stynes D. J., 2006, p. 9)

Conversations with Apostle Islands NL staff confirm that while the park takes efforts to provide accurate counts of park use levels, due to the challenging location and access profile of the park, there is some uncertainty as to how accurately the NPS visitation estimates reflect actual unique visits to the park (Krumenaker, 2008).
The Apostle Islands NL economic impact analysis outlined several assumptions made in interpreting the visitor expenditure data from the 2004 VSP survey. As noted by Stynes, "spending averages were estimated under conservative assumptions (Stynes

D. J., 2006, p. 9)." Specifically, the report outlines five assumptions made in interpreting the visitor survey expenditure responses:

1) Any expenditure categories in surveys that reported some spending that were left blank by the respondent were assumed to be zero,
2) Thirty-three cases where respondents skipped the spending question were assumed to have spent nothing on their trips,
3) Twenty-six surveys reporting spending more than $2,000 were not counted in the averages,
4) Twenty-eight surveys that reported party sizes of more than seven people were not counted, and
5) Twelve surveys reporting spending more than ten nights in the area were not counted.

While the assumptions employed in estimating average visitor spending at Apostle Islands NL were clearly detailed in the MGM2 report, the result of these decisions each acted to reduce the final estimated spending by visitors. Overall, the assumptions of zero spending for blank responses and omission of 66 survey s (13% of the total number of surveys) from the computations resulted in reducing estimated average spending per trip by well over one-third.

In addition to limitations associated with visitor counts and estimated expenditure levels, Stynes notes that basing annual economic impact estimates on the results of a one week visitor survey necessarily makes the assumption that visitors and visitor spending is homogeneous throughout the year. The MGM2 study attempts to correct partially for any differences in visitor and visit types across the year by adjusting the share of total visitation by month according to park overnight stay and cruise boat data. In the case of Apostle Islands NL, where a large majority of visitation occurs in the summer months, the potential error resulting from applying the results of a one-week summer visitor sample to the entire year is likely to be less than in the case of a park with a more distributed and varied use profile throughout the year.

3.2 Pictured Rocks NL MGM2 Analysis Caveats and Limitations

Visitation to Pictured Rocks NL follows a much more varied and distributed pattern than that to Apostle Islands NL. Winter use at Pictured Rocks is substantial and includes snowmobilers, skiers, and other over-snow recreationalists. The MGM2 study of the economic impact of visitor expenditures for Pictured Rocks NL is based on visitor survey data gathered during a one-week period in the summer of 2001. The authors of the MGM2 study acknowledge the potential for errors in estimation to result from miscounting the number of visits to the park unit.

> "The number and kinds of visitors is likely the largest source of error in this study (Stynes & Sun, 2003, p. 13)."

Additionally, the MGM2 report notes that applying the results of a one-week visitor sample across the visitor year presents the potential for biasing the results of the study.

> "Sampling visitors at selected entrances within a short time period during the peak season introduces some biases in parameters such as party size, length of stay, re-entry rate, and spending profiles. Off-season visitors typically possess different travel patterns than summer visitors, especially for Pictured Rocks NL where winter recreational activities are abundant. It is not clear to what extent visitors entering the park via snowmobiles or cross country skis may be captured in the visit counts. While efforts were made to adjust all estimates for off-season differences, some errors likely remain as information about lodging types and re-entry rates are not complete (Stynes & Sun, 2003, p. 13)."

A final limitation of the Pictured Rocks NL analysis, and one not shared by the Apostle Islands NL analysis, is that it does not include spending by the NPS in running the park in its expenditure totals.

4.0 Validation, Updating and Adjustments to MGM2 Analyses

This section looks at the inputs, assumptions, and limitations of the MGM2 analyses for Apostle Islands and Pictured Rocks National Lakeshores. The key components of a regional economic impact analysis are described, and the specific analyses for the two park units are examined in order to update, expand, and detail levels of uncertainty in current MGM2 impact estimates.

4.1 Key Components of a Regional Impact Analysis

A regional economic impact analysis, properly done, provides a static (point in time) estimate of the level of local economic activity that can be attributed to a certain business, attraction, or policy. In the case of this analysis, the attractions are National Park Service units providing recreational opportunities to the public.
There are two primary classes of impacts usually described in an MGM2 economic impact analysis. The first is the direct impact of NPS visitor spending. This direct impact can be generally described as:

$$\textit{Direct Spending Impact} = \textit{Number of Recreational Visits} * \textit{Average Spending per Visit}$$

In practice, however, local area direct impacts are somewhat less than the simple product of recreational visits and average spending per visit. Direct spending impacts include only the retail and wholesale margins on visitor purchases of goods. For instance, in the case of visitor spending at Pictured Rocks NL, Stynes and Sun estimate that approximately 81 percent of visitor spending is captured within the local economy as a direct spending impact (Stynes & Sun, 2003). The direct spending impact equation is additionally complicated in that an impact analysis seeks to only measure spending that would not have been made in a defined area without the attraction's (in this case, the NPS unit) existence. Researchers typically ask visitors for estimates of their spending within a local area, and only count spending from visitors who live outside of that local area.

A further complicating factor is identifying visits that truly are attributable to the existence of the NPS units. In order to identify these “main purpose” visits, researchers ask visitors whether the main purpose of their recreational visit to the area was to visit the NPS site.

The second class of impacts includes indirect and induced economic impacts which arise from the initial round of direct spending by visitors. These secondary impacts are sometimes referred to as resulting from a “multiplier effect” on initial spending. Put another way, a portion of each dollar spent in the local economy is then re-spent in the local area as well, thereby multiplying the overall economic impact of the original visitor spending. The size of the “expenditure multiplier” is dependent on the economic complexity of the area being analyzed. In cases of very small rural areas or counties, this multiplier can be very close to 1.0, indicating that there very little to no secondary expenditure impacts. In the case of more urban counties or states, the multiplier might be 2.0 or greater. The calculation to secondary expenditure impacts can be described as:

$$Secondary\ Spending\ Impact = Direct\ Spending\ Impact * Expenditure\ Multiplier$$

Finally, the total spending impact is described as:

$$Total\ Spending\ Impact = Direct\ Spending\ Impact + Secondary\ Spending\ Impact$$

Total spending impacts are directly tied to other, perhaps more familiar measures of economic well being such as personal income, and employment. In the case of Pictured Rocks NL, Stynes and Sum estimate that every dollar of total spending impact results in about a 38 cent increase in personal income in the local area.

4.1.1 Number of Recreational Visits

At first blush it would appear that the number of visits to a NPS unit of interest would be the easiest of the three components of total economic impact to arrive at. Indeed, for some NPS units recreational visitors are easily directly counted. NPS Units with one or a limited number of staffed entrances are able to provide accurate counts of park visits. When park access is more disperse and not all entry points are staffed, counting park visitors becomes more a blend between counting and estimating.

Appendix C shows the current visitor counting procedures for both Apostle Islands NL and Pictured Rocks NL. As can be seen from these procedures, counting recreational visits to the two Lake Superior NPS units is much more complicated than for smaller parks with better defined access points. Counting visitors to the parks entails combining the use of car counters, visual counts and campground counts along with application of adjustments for people per vehicle.

Apostle Islands NL has special challenges in counting visitors due to substantial use arriving by water using private, charted, or cruise boats. Boat visitors to Apostle Islands NL are counted to the extent that they use docks within the park, but may be missed if they stay on boat and simply enjoy cruising through the islands.

Conversations with the Superintendents of both Apostle Islands and Pictured Rock NLs indicate that while the park staffs feel visitor counts are comparably accurate to other similarly situated NPS units, the difficulties of counting visits to the parks leads to some degree of uncertainty as to the absolute accuracy of the visitation estimates. This is particularly true in the case of Apostle Islands NL (Krumenaker, 2008), (Northup, 2008).

4.1.2 Average Local Area Spending per Visit

While recreational visits to a NPS unit are ideally arrived at through direct counting, average spending per visit is more difficult and costly to assess. For this reason, the MGM2 ideally uses the results of a recent random survey of visitors to the park to estimate trip spending in general, and, more specifically, spending in the local economy by visitors from outside that area who visit the area primarily to utilize the park.

In the case of the MGM2 estimates for the Apostle Islands NL and Pictured Rocks NL, visitor surveys were conducted in the summer of 2004 and 2001, respectively, in order to estimate average local area spending per visit. The NPS visitor surveys from which expenditure data were derived were administered as one-week "grab samples" during the end of July and the first week of August in each park. These samples are collected randomly from visitors using a stratified sampling procedure that is designed to sample visitors proportionately to their use levels (Stynes & Sun, 2003) (Stynes D. J., 2006). As noted by Stynes (2003), there is danger in interpreting the expenditure estimates from the one-week summer samples as representative of year-round spending averages. Yellowstone NP offers an example of significant differences in spending levels between park visitors in different seasons. In a year-long visitor survey in Yellowstone NP, average spending per visit in winter months was estimated at about two times the average spending in summer months (Duffield, Neher, & Patterson, 2006).

In the case of the Pictured Rocks NL MGM2 report, the author recognized and tried to adjust for seasonal bias in his expenditure estimates by employing visitation survey parameters from other studies within the park. The MGM2 report of Apostle Islands NL makes no mention of adjusting for seasonal bias in expenditure patterns.
The MGM2 analysis also recognizes that not all of the expenditures that visitors to the National Lakeshore are actually made in the gateway counties, Alger County for Pictured Rocks. Some of the expenditures took place outside of the local economy. The MGM2 analysis assumes that 81 percent of the visitor spending was captured by Alger County businesses.

4.1.3 Economic Expenditure Multipliers for the Local Area

Expenditure and employment multipliers are both the most complex of the basic components of regional impact analyses to estimate and the most robust in terms of their likely reliability. Multipliers are estimated using specialized detailed input-output models of economic activity in an economic region (most often a county or group of counties) for a given year. The MGM2 impact model utilizes multipliers estimated with the IMPLAN Regional Economic Impact modeling program (Minnesota IMPLAN Group, 1999). The MGM2 studies utilized expenditure multipliers of 1.36 for Apostle Islands NL

and 1.24 for Pictured Rocks NL. These relatively low multipliers reflect the rural nature of the counties surrounding the park units and are consistent with IMPLAN-based estimates of multipliers from similarly rural counties in Montana, Idaho, and Wyoming (Duffield & Neher, 2007).

4.2 Pictured Rocks NL Updated and Revised Impact Estimates

While the authors of the Pictured Rocks NL MGM2 analysis provided credible estimates of the total local area economic impacts associated with visitor spending in and around the national lakeshore, use of additional information, and alternative assumptions can provide a broader view of the possible impacts of visitor spending on the local area. The following sections provide a discussion of the possible biases and revisions to estimates of recreational visitation, visitor spending, and NPS spending in estimating local area economic impacts. Additionally, estimated impacts are updated to account for changes in general price levels between 2005 and 2008.

4.2.1 Revisions and Biases Associated with Measurement of Recreational Visitation

As noted in Section 3, Stynes and Sun in their MGM2 report on Pictured Rocks NL noted that estimation of the number and types of visitors to the park unit are likely the largest source of error in their study. Errors in estimation of recreational visitation to Pictured Rocks are likely to arise from two different sources:

1) Miscounting (over or under) the total number of visits to the park, and
2) Not accounting for significant differences between different user groups and different times of the year.

Conversations with Pictured Rocks NL staff indicate that the NPS feels fairly confident in the actual visitation numbers reported for the park (Northup, 2008). The park makes extensive use of inductive loop vehicle counters both for summer wheeled use and for winter, snowmobile use. While the park staff has confidence in the general overall visitor counts in the park, they acknowledge that one group, skiers, may be undercounted due to the lack of formal trail counters on the park's 22 miles of groomed cross-country ski trails (Northup, 2008). Detailed 2007 visitor use statistics for Pictured Rocks NL (Table 4 and Table 6) showed that about 16 percent of annual use occurred in the winter months of December through February.

Lacking direct evidence of systematic and substantial undercounting or over-counting of recreational visits to Pictured Rocks NL within the NPS public use statistics, no adjustment is made for changed assumptions regarding use levels.

It is clear from the distribution of annual visitor use across seasons that Pictured Rocks NL continues to act as a substantial recreational destination in winter months, as well as during the summer. To the extent that winter (or other off-season) visitors spend more or less on their trips than do the summer visitors surveys in the VSP summer visitor survey, the total visitor expenditure estimates from the MGM2 study may be biased.

4.2.2 Revisions and Biases Associated with Measurement of Visitor Spending

Stynes and Sun explicitly recognized and addressed the potential for differences across visitors in different seasons to have different trip characteristics, and thus different impacts on the local economy. The MGM2 report notes several adjustments were made to the VSP survey results so they might better represent year-round visitation and spending patterns (Stynes & Sun, 2003, p. 7). In a study of another NPS unit with a majority of summer and a minority of winter/snowmobile visitation (Duffield, Neher, & Patterson, 2006), winter visitors spent roughly two times as much on their trips as did visitors in the other seasons. The authors of the MGM2 study, however, using data from previous Pictured Rocks NL visitor surveys estimated year-round average spending per party that was substantially less than the average visitor group expenditure reported in the VSP study (Littlejohn M. , 2002, p. 47). This is due to a combination of factors, including: 1) applying an "avidity bias correction" using an inverse weighting of responses based on the number of days their trip entailed, 2) using lower estimated group sizes for non-summer visitation shares, and 3) excluding visitor data where trips to the park exceeded 7 days or groups included more than 8 people. The net effect of the corrections employed by Stynes and Sun in the MGM2 analysis was to reduce average trip spending from the $294 estimated in the VSP study to an average annual $174 in the MGM2 study. It is unknown to what extent each of the adjustments made to spending estimates in the MGM2 report contributed to the final reduction from the VSP to the MGM2 average.

As a point of comparison, a 1998 study of snowmobiler expenditures in Michigan provides an estimate of average spending per party/trip for Michigan snowmobiling (Stynes, Nelson, & Lynch, 1998). After correcting for inflation between the study years, the Michigan snowmobiling per trip estimate is $199 per party/trip compared to the MGM2 estimate of $174. Applying this higher snowmobiling recreation spending level to the 16% of 2007 visitation to Pictured Rocks NL in 2007 only leads to an estimate of total average visitor spending that is about 5% higher than that estimated by the MGM2 report authors.

As was the case with estimates of recreational visitation to Pictured Rocks NL, in the absence of additional specific data on visitor spending across the seasons within the park unit no correction to the visitor expenditure estimates supplied by Stynes and Sun are made.

4.2.3 Revisions and Biases Associated with Measurement of NPS Spending

In addition to visitor spending impacting the local economy of a NPS unit, the spending by the NPS itself on wages, maintenance, and construction within the park also serve to provide a positive fiscal impact on the local economy. The Pictured Rocks NL 2003 MGM2 report was completed prior to routine inclusion of NPS spending in MGM2 analyses. This section provides a discussion and analysis of that NPS spending. Appendix D details the Budgets for Pictured Rocks NL over the years 2006-2008. During that period, annual spending by the park on staffing and projects within the local economy averaged $2.77 million (National Park Service Pictured Rocks NL, 2008). However, some of this spending is on materials, equipment and products not purchased

within Alger County. The National Park Service in calculating the local impact of its operations on local economies currently uses only the payroll (including benefits) as a measure of the local impact. To be consistent with how this park spending impact is handled for Apostle Islands NL and other National Park units, we will use that approach here (Stynes 2008) . This NPS payroll has a greater stimulating impact on the local economy compared to recreational visitor spending since all of it becomes local personal income which then circulates within the local economy. That is not true of visitor spending. The impact of including National Lakeshore payrolls in the MGM2 impact estimates is shown in the following section.

4.2.4 Revised and Updated Economic Impact Estimates for Pictured Rocks NL

Table 9 shows the original local area economic impact estimates attributable to visitor spending at Pictured Rocks NL. The type of impact is shown in the first column (spending per trip, spending, direct or direct and indirect impacts, sales, jobs, income, etc.) The table also shows an adjusted economic impact estimate based on updating the MGM2 estimates to account for three factors: 1) changes in NPS reported visitation levels between 2003 and 2007, 2) changes in price levels between the time of the original MGM2 report (2003) and January of 2008, and 3) the additional accounting for NPS administrative expenditures in the local area.

Overall, the adjustments increase the estimated local area economic impact associated with park visitation and operations on local income by about 57 percent over the original MGM2 estimates. Our adjustments for current visitor and price levels increased spending by 18 percent. The larger impact was adding in the NPS local payroll. That increased the impact on local income by 39 percent. The adjustments shown in Table 9 are not intended to provide a definitive estimate of local area impacts in lieu of the original MGM2 results. Rather the updated estimates provide an informed example of the likely direction and general magnitude of changes in impacts associated with changes in visitation, prices, and widening the scope of considered expenditures from the original study. The results shown in Table 9 are still subject to the limitations outlined by Stynes and Sun in the original MGM2 report. The assumption that 81 percent of total spending is captured by the local area economy is the same assumption made in the original Stynes and Sun study.

Table 9. Original MGM2 and Adjusted Local Area Economic Impacts of Park Operations: Pictured Rocks NL.

Statistic	MGM2	Revised	Comment
Recreational Visitation	421,000 visits 84,900 party/trips	441,000 visits 88,900 party/trips	Updated visitation using 2007 NPS public use Report data
Average spending per party/trip	$173.44	$195.44	Adjusted for changes in CPI-U from 2003 to January 2008
Total visitor spending in local area	$14,725,000	$17,375,000	Higher visitation and CPI result in an 18% increase.
Direct Visitor Sales Impact in Alger County	$12,021,000	$14,184,000	Assumes local area economy captures 81.6% of total spending (Stynes & Sum 2003)
Total Direct and Secondary Impacts of NPS Visitation	$14,941,000	$17,630,000	Assumes a sales multiplier of 1.24 (Stynes & Sun 2003)
Impact of NPS Visits on county personal income	$5,602,000	$6,610,000	Assumes income/sales ratio of 0.37 (Stynes & Sun 2003)
Impact of NPS Visits on jobs	469	554	Assumes jobs/sales ratio of 1.24 jobs per $mm sales (Stynes & Sum 2003)
Local NPS Payroll (including benefits)	--	$1,886,000	Not included in the original analysis. Current estimate from (Stynes 2008)
Impact of NPS Payroll on Local Personal Income	--	$2,191,000	Assumes income multiplier of 1.16 (Stynes 2008)
Impact of NPS Payroll on Local Employment	--	43	Assumes a jobs/income ratio of 22.8 jobs per $mm (Stynes 2008)
Total NPS Local Impact on Personal Income	$5,602,000	$8,801,000	Sum of visitation and payroll impact
Total NPS Local Impact on Jobs	469	597	Sum of visitation and payroll impact

4.3 Apostle Islands NL Updated and Revised Impact Estimates

The Apostle Islands NL MGM2 analysis provides credible estimates of the total local area economic impacts associated with visitor spending in and around the park unit. However, use of additional information, and alternative assumptions, can provide a broader view of the possible impacts of visitor spending on the local area. The following sections provide a discussion of the possible biases and revisions to estimates of recreational visitation, visitor spending, and NPS spending in estimating local area economic impacts. Additionally, estimated impacts are updated to account for changes in general price levels between 2005 and 2008.

4.3.1 Revisions and Biases Associated with Measurement of Recreational Visitation

As a largely water-based NPS unit, Apostle Islands NL poses significant challenges for counting annual visitor use. With 21 islands, 154 miles of shoreline, 2 mainland beaches and one visitor center, park staff acknowledge that accurate visitor counts can at times be difficult to maintain. Park staff report that while use of moorage and campsites can be readily counted, the possibility exists that a substantial amount of day use goes uncounted (Krumenaker, 2008). This problem is particularly acute in the case of day sailing around through park waters from marinas or other dockage in nearby communities. No specific evidence or estimates of the degree to which visitor counts at Apostle Islands NL may be conservative was found in this analysis. Therefore, for the sake of providing an updated and revised estimate of park-related local economic impacts, it is simply noted that current visitor counts likely bias impact estimates downward by an unknown amount.

4.3.2 Revisions and Biases Associated with Measurement of Visitor Spending

In the 2006 Apostle Islands NL MGM2 report, Stynes details a number of adjustments made to the reported expenditure data from the VSP report. These adjustments were noted in Section 3.1 and included:

1) Any expenditure categories in surveys that reported some spending that were left blank by the respondent were assumed to be zero,
2) Thirty-three cases where respondents skipped the spending question were assumed to have spent nothing on their trips,
3) Twenty-six surveys reporting spending more than $2,000 were not counted in the averages,
4) Twenty-eight surveys that reported party sizes of more than seven people were not counted, and

5) Twelve surveys reporting spending more than ten nights in the area were not counted.

Stynes is transparent in his MGM2 report as to what modifications were made to the VSP visitor expenditure data. He explicitly states that "the spending estimates are therefore conservative and won't fully capture the impacts associated with large boat rentals and guided trips. (Stynes D. J., 2006, p. 5). Stynes also supplies estimates in his report of per party/trip average spending levels assuming adjustments 1-5 above were not made. The difference is substantial: $366 per party/trip was used in the report, and $547 per party/trip is the unadjusted estimate of party spending.

While the average trip expenditure levels reported by Stynes for boaters is generally consistent with estimated private boat ownership and operation costs (Recreational Marine Research Center, 2007), costs associated with renting or chartering a boat in the region can be much higher than those reported in the MGM2 analysis. Conversations with marina operators around Apostle Islands NL suggest that trip expenditure levels of $2000 such as were excluded from the MGM2 estimates are not uncommon (Dykstra, 2007) (Boll, 2008). Additionally, rentals of bareboat charters in the area can cost from $400 to $1200 for 2 days for the boat rental alone (Apostle Charters, 2008). For boat rentals including a captain, costs are even higher, and can cost up to $3400 for a two day charter (Superior Charters, 2008). Clearly, total group trip costs exceeding $2,000 are well within the normal spending levels for at least some visitors to the Apostle Islands NL.

The combination of potentially undercounting boats that sail through the islands in visitor counts, and excluding reported expenditures for visitors who hire high-end boat charters has the potential to significantly understate the regional economic impact of expenditures to the Apostle Islands NL. For this revised estimate of expenditure impacts, the unadjusted expenditure per party/trip of $547 is used rather than the lower adjusted expenditure estimated presented in theMGM2 report.
In addition to including previously excluded visitor expenditure data in the estimates, the 2006 expenditure estimates in the MGM2 report are adjusted for general price changes up to January 2008 using the CPI-U.

4.3.3 Revised and Updated Economic Impact Estimates for Apostle Islands NL

Table 10 outlines a revised estimate of total local area economic impact associated with Apostle Islands NL visitor spending and NPS administrative spending in the local economy. The revised impact estimate is 64% greater than that reported in the original MGM2 report, at $14.4 million of total income impacts annually. The large majority of the increase from the original MGM2 estimate of $8.8 million in personal income is a direct result of inclusion of previously excluded visitor expenditure data from the VSP survey. In addition to using a higher average spending level, the revised estimate was raised by adjustments for overall price level increase, and increases in the annual level of visitation to the park. The assumptions about the part of total spending attributable to the National Lakeshore and the percentage of spending that the two counties are able

to capture are the same as those used in the original Stynes study. The first column indicates the impact being measured (visitation, spending per trip, total spending, sales, jobs, or income).
As noted in the case of Pictured Rocks NL above, the adjustments shown in Table 10 are not intended to provide a definitive estimate of local area impacts in lieu of the original MGM2 results. Rather the updated estimates provide an informed example of the likely direction and general magnitude of changes in impacts associated with changes in visitation, prices, and widening the scope of considered expenditures from the original study. The results shown in Table 10 are still subject to the limitations outlined by Stynes in the original MGM2 report.

A comparison of the Apostle Islands NL MGM2 analysis and that of Pictured Rocks NL might suggest a difference in how much of the spending associated with visitors to the National Lakeshore is categorized as "National Lakeshore-related." The tables for the Picture Rocks NL MGM2 analysis show no explicit reduction in visitor spending for visitors for whom the National Lakeshore was not the primary travel objective or for people who spend several days in the area but only visit the National Lakeshore once. The tables for the Apostle Islands NL MGM2 analysis explicitly adjust visitor spending to account for the spending that was not entirely tied to visiting the National Lakeshore. However, the Pictured Rocks NL MGM2 analysis (pp. 13-14) makes clear that it made the same sort of adjustment that was explicitly made in the Apostle Islands MGM2 analysis. The absence of a line in the tables summarizing the results of the Pictured Rocks NL MGM2 analysis showing the adjustment for "park-related" expenditures should not be interpreted as indicating a difference in methodology between the two National Lakeshores. For the Apostle Islands NL 79 percent of visitor spending was attributed to the National Lakeshore meaning that an estimated 21 percent of visitor spending would have taken place even if the National Lakeshore had not existed. The percentage of visitor spending that was assumed to be captured by local businesses was 74 percent. The other 26 percent was estimated to have taken place outside of Bayfield and Ashland Counties as visitors were traveling to the Apostle Islands NL.

Table 10. Original MGM2 and Adjusted Local Area Economic Impacts of Park Operations: Apostle Islands NL.

Statistic	MGM2 Analysis	Revised Estimate	Comment
Recreational Visitation	151,881 visits 41,763 party/trips	182,396 visits 50,153 party/trips	Updated to 2007 visitation levels
Average Spending per Party/trip	$366	$563	Revised estimate includes outliers and adjustment to Jan 2008 CIP
Total Visitor Spending in Local Area	$15,049,000	$28,236,000	--
Total Visitor Spending Attributed to Park visit	$11,908,000	$22,342,000	Assumes 79.1% of total spending attributable to park visit. (Stynes 2006)
Direct expenditure impacts to Ashland and Bayfield Counties (Sales)	$8,846,000	$16,598,000	Approximately 74% of total spending is captured by the 2 counties. (Stynes 2006)
Total Direct and Secondary Impacts of NPS Visitation on Local Area (Sales)	$12,031,000	$22,573,000	Assumes sales multiplier of 1.36. (Stynes 2006)
Impact of NPS Visits on Local Personal Income	$5,967,000	$11,197,000	Assumes an income to sales ratio of 0.50. (Stynes 2006)
Impact of NPS Visits on Local Jobs	282	528	Assumes a job multiplier of 23.4 jobs per $mm sales.
Annual NPS Payroll (including benefits) in Local Area	$2,500,000	$2,742,000	Updated NPS payroll from Stynes 2008.
Impact of NPS Payroll on Local Personal Income	$2,800,000	$3,166,000	Assumes income to park payroll ratio of 1.15 (Stynes 2008).
Impact of NPS Payroll on Local Jobs	64	60	Assumes a jobs per $mm NPS payroll ratio of 21.9 (Stynes 2008)
Total Impact of NPS Unit on Local Personal Income	$8,767,000	$14,363,000	Sum of Visitor and NPS Payroll Impacts.
Total Impact of NPS Unit on Local Jobs	345	588	Sum of Visitor and NPS Payroll Impacts

5.0 Relative Importance of the NPS Units within the Local Economy

The preceding discussion makes it clear that whether using the original MGM2 impact estimates or the revised estimates developed in this report, recreational visitation and NPS operations contribute substantially to the economies of the counties surrounding Apostle Islands and Pictured Rocks National Lakeshores. Within the MGM2 analyses adjustments are made to discount the expenditures of visitors who come to the park, but it is deemed that they would have come anyway, even if the park were not an attraction in the area. This distinction is commonly employed in regional economic impact analyses. Additionally, most spending by park visitors from the local region is somewhat discounted as it does not truly represent an infusion of dollars from outside the local economic area. These distinctions, however, fail to recognize several characteristics of natural resource amenities. These characteristics and the setting and interrelationship of Apostle Islands NL and Pictured Rocks NL within their local areas are briefly discussed below.

5.1 Relative Importance of Apostle Islands NL within the Economies of Bayfield and Ashland Counties, Wisconsin

The Apostle Islands, with or without the existence of a National Park Unit, are responsible for the safe boating conditions that give rise to much of the annual visitation to the park and its surrounding waters. Local marina operators state that nearly all of the recreational boat traffic through their businesses is attracted to the area by the existence of the Apostle Islands (Dykstra, 2007). Without the existence of the NPS unit at Apostle Islands NL there might be significant reductions in land access, but the islands would still provide attractive, recreational boating conditions. Without the National Lakeshore, its facilities, and its personnel, however, the docks, safe harbors, and rescue services the NPS provides would not likely be present. This would likely reduce the convenience and safety of visiting the Apostle Islands. Therefore it is difficult to untangle what recreational visitation the park is responsible for and what the naturally occurring environment is responsible for. However, the park provides assured access, and a large area of protected lands for visitors, and thus greatly enhances the recreational attractiveness of the area.

A direct comparison of total estimated personal income and employment attributable to Apostle Islands NL visitation and operations with total income and employment for Bayfield and Ashland Counties WI is shown in Table 11. In the context of the entire 2-county region, the estimated impacts of Apostle Island on personal income and employment are modest (1.7% and 3.0% respectively). However, the relationship between the park and the local economy is not a static one as is measured by models such as the MGM2. Rather, the park operations, local economic development, and visitation patterns to the park and the region involve a dynamic interplay. Park staff stress that the recreational amenities economy of the region is growing up in parallel to the park (Krumenaker, 2008). The existence and development of the park attracts recreational visitors, which in turn encourages local business activity to cater to visitors. The process is a circular one in which an NPS unit such as Apostle Islands NL can

serve as a reinforcing catalyst to local economic development that is not necessarily completely measured through the expenditures of seasonal visitors to the park.

Table 11. Comparison of Apostle Islands NL Income and Jobs Impacts to Local (2-COunty) Economic Activity.

Statistic	Personal Income ($000)	Employment
Bayfield County	405,266	7,888
Ashland County	439,351	12,283
2-County Region	844,617	20,171
Attributable to Park Operations and Visitation	14,548	597
Percent Attributable to Park	1.7%	3.0%

Sources: http://www.bea.gov/bea/regional/reis/ and derived from Stynes 2006.

5.2 Relative Importance of Pictured Rocks NL within the Economy of Alger County, Michigan

Pictured Rocks NL is Located on the Upper Peninsula of Michigan. While the geography of Pictured Rocks does not define local recreational opportunities to the extent that the Apostle Islands do, the area surrounding and including the park offers a wide range of recreational attractions and opportunities. These recreational opportunities include all seasons. The town of Munising boasts it is "the Snowmobiling capital of the world". In addition to snowmobiling trails in the park, there are over 300 miles of groomed and marked snowmobile trails in Alger County (Exploringthenorth.com, 2006).

In addition to Pictured Rocks NL there are many other recreational sites in the vicinity. Grand Island sits only ½ mile offshore from Munising. Also fishing, scuba diving, mountain biking, hiking and camping opportunities exist both within the park and in the lands surrounding it. In short, Pictured Rocks NL is an important part of a wide spectrum of recreational opportunities on Michigan's Upper Peninsula. As in the case with Apostle Islands NL, Pictured Rocks NL contributes to recreational opportunities and thus helps in the ongoing development of amenity-driven sectors of the local, mostly rural, economy.

A direct comparison of total estimated personal income and employment attributable to Pictured Rocks NL visitation and operations with total income and employment for Alger County MI, is shown in Table 12. In the context of the entire county, the estimated impacts of Pictured Rocks NL on personal income is 4 percent and the impact on jobs is 14 percent, significant but moderate impacts.

Table 12. Comparison of Pictured Rocks NL Income and Jobs Impacts to Local (Alger County) Economic Activity.

Statistic	Personal Income ($000)	Employment
Alger County	221,056	4,271
Attributable to Park Operations and Visitation	8,801	597
Percent Attributable to Park	4.0%	14.0%

Sources: http://www.bea.gov/bea/regional/reis/ and derived from Styne and Sun 2003.

A comparison of Table 11 and Table 12 show a significantly higher proportion of total employment attributable to Pictured Rocks NL (in comparison to Alger County) than for Apostle Islands NL (in comparison to Bayfield and Ashland Counties). The different percentages are in large part a simple reflection of the size and complexity of the base economic analysis areas used for comparison. The basic unit of comparison for which statistics are readily available is the county level. In the case of Apostle Islands NL, two counties with a total 2006 personal income of nearly 850 million dollars were used for comparison. In the case of Pictured Rocks NL the comparison is with Alger County, which has 2006 total personal income of 221 million dollars.

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Appendix C: Apostle Islands NL and Pictured Rocks NL Visitation Counting Methods

APOSTLE ISLANDS NATIONAL LAKESHORE PUBLIC USE COUNTING AND REPORTING INSTRUCTIONS

Following are detailed instructions for collecting and reporting data to be entered on Form 10-157, Revised, Monthly Public Use Report by Apostle Islands National Lakeshore. These instructions are effective the date of issuance and will continue in effect unless changed by amendment or by memorandum from the Socio-Economic Studies Division to the superintendent approving a requested change.

Each item below describes the procedures to be followed in collecting public use data and summarizing the various elements of those data for entry on the corresponding line on the 10-157, Monthly Public Use Report.

Recreation Visits

Island Areas

Visitors arrive at the following islands by vessels and tour boats. The islands are as follows: Basswood Island, Bear Island, Cat Island, Devil's Island, Hermit Island, Ironwood Island, Long Island, Manitou Island, Michigan Island, Oak Island, Outer Island, Otter Island, Raspberry Island, Rocky Island, Sand Island Light, Sand Island East Bay, South Twin Island, Stockton-Presque Isle, Stockton Quarry Bay Island, York Island, and any other islands.

Mainland Area

1. A traffic counter is located across the road at Little Sand Bay. The traffic count is divided by 2 to adjust for vehicles entering and exiting the park. The adjusted traffic count is reduced by the number of non-recreation vehicles (Table 1) and non-reportable vehicles (Table 1). The reduced traffic count is multiplied by the persons-per-vehicle (PPV) multiplier of 3.3.

2. A traffic counter is located across the road at Meyers Road. The traffic count is divided by 2 to adjust for vehicles entering and exiting the park. The adjusted traffic count is reduced by the number of non-reportable vehicles (Table 1). The reduced traffic count is multiplied by the PPV multiplier of 3.3.

3. The number of visitors entering the Headquarters visitor center.

4. The number of vessels at Little Sand Bay and Mainland West. Report only the raw number of vessels. Denver then multiplies this number by the persons-per-vehicle multiplier of 2.5

5. The number of campers at Little Sand Bay and Mainland West.

6. The number of private vessels that remain overnight at Little Sand Bay and Mainland West.

January 1, 1999

Table c1

Non-recreation Vehicles and Non-reportable Vehicles by Location and Month

MONTH	LITTLE SAND BAY		MEYERS ROAD NON-REPORTABLE VEHICLES
	NONREC VEHICLES	NONREP VEHICLES	
January	**41**	95	12
February	41	95	12
March	41	125	12
April	46	220	12
May	46	280	24
June	51	280	30
July	51	320	60
August	51	320	60
September	46	280	24
October	36	170	12
November	36	95	20
December	41	95	12

Non-recreation Visits

The number of non-recreation vehicles are estimated by month in Table 1 and then multiplied by the persons-per-vehicle multiplier of 2.

Recreation Visitor Hours

Recreation visitor hours are the sum of the subtotals of each of the locations listed in Table 2. Each subtotal is the result of multiplying the num ber of visitors associated with that location by its length-of stay multiplier. The length-of-stay multipliers are listed as hours.

Table c2
Length-of-Stay Multipliers by Location and by Month

MONTH	LITTLE SAND BAY	MAINLAND	HQ	ISLAND DAY USE	OVERNIGHT STAYS
January	0.5	2	0.25	2	18
February	0.5	2	0.25	2	18
March	0.5	2	0.25	2	18
April	0.5	2	0.25	2	18
May	2.0	2	0.25	4	18
June	2.0	2	0.25	4	18
July	2.0	2	0.25	4	18
August	2.0	2	0.25	4	18
September	2.0	2	0.25	4	18
October	2.0	2	0.25	4	18
November	2.0	2	0.25	4	18
December	0.5	2	0.25	2	18

Non-recreation Visitor Hours

The total non-recreation visitors are multiplied by 0.25 hour.

Overnight Stays

NPS Backcountry - Miscellaneous Sites

The number of overnight stays by backcountry campers at the various islands in the Island Area.

NPS Miscellaneous - Private Boat and Campers

The number of nights stayed by private boaters and campers at miscellaneous sites at the Mainland Area and the Island Area.

January 1,1999

PICTURED ROCKS NATIONAL LAKESHORE
PUBLIC USE COUNTING AND REPORTING INSTRUCTIONS

Following are detailed instructions for collecting and reporting data to be entered on Form 10-157, Revised, Monthly Public Use Report by Pictured Rocks National Lakeshore. These instructions are effective the date of issuance and will continue in effect unless changed by amendment or by memorandum from the Socio-Economic Studies Division to the superintendent approving a requested change.

Each item below describes the procedures to be followed in collecting public use data and summarizing the various elements of those data for entry on the corresponding line on the 10-157, Monthly Public Use Report.

Recreation Visits

Grand Marais District

1. An inductive loop traffic counter is located on Twelve Mile Beach Road near Alger County Road H-58. The traffic count is divide by two to adjust for axle counting. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2).

2. An inductive loop traffic counter is located on Alger County Road H-58 west of the Grand Sable Visitor Center. The traffic count is divide by two to adjust for axle counting. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2).

3. The number of visitors entering the Grand Marais Maritime Museum. This number is reported by the museum staff.

4. The number of Snowmobile users.

5. The number of cross-country skiers. This is the number of vehicles observed in the parking areas averaged by the number of days in the month. The estimated number of vehicles is then multiplied by a persons per vehicle multiplier of 2.

6. The number of snow shoers. This is an estimate based on ranger observations.

Munsing District

1. An inductive loop traffic counter is located at Sand Point. The traffic count is reduced by the number of non-reportable vehicles (see Table 2).

2. An inductive loop traffic counter is located at Munsing Falls. In the months of November, December, January, February, and March he traffic counter counts vehicles entering and exiting the park. During these months the traffic count is divide by two to adjust for vehicles entering and exiting. In the other months, the traffic counter is recording the actual number of vehicles. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2).

3. An inductive loop traffic counter is located at Miners Area. The traffic count is reduced by the number of non-reportable vehicles (see Table 2).

4. An inductive loop traffic counter is located at Chapel. The traffic count is divide by two to adjust for axle counting. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2). If this traffic counter is not operating please see Table 3 for the estimated number of visitors for this location.

5. An inductive loop traffic counter is located at Little Beaver. The traffic count is divide by two to adjust for axle counting. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2). If this traffic counter is not operating please see Table 3 for the estimated number of visitors for this location.

6. An inductive loop traffic counter is located at Munsing Ski Trails (H-58 Lot). The traffic count is divide by two to adjust for axle counting. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2).

7. An inductive loop traffic counter is located at City Limits Lot. The traffic count is increased by thirty percent to account for vehicles entering the ski trails but not recorded by a traffic counter. The corrected traffic count is divide by two to adjust for axle counting. The adjusted traffic count is reduced by the number of non-reportable vehicles (see Table 2).

8. The number of boat passengers. This number is estimated as 7,000 in June, 18,000 in July, 17,000 in August and 8,000 in September.

9. The number of snowmobiles. This is an estimated based on park staff counts.

10. The number of visitors to Beaver Basin and Becker Farms. This is estimated by the park staff and shown in Table 3.

During the months of April through November, the visitors counts are summed at each counting area (excluding boat passengers) and multiplied by 0.50 to correct for duplicate reporting. The adjusted traffic counts are multiplied by the persons per vehicle multipliers in Table 1. The winter months of December through March is the sum of all reporting areas.
Sand Point will only be reduced for the months of June, July and August.

Table 1
Person Per Vehicle Multipliers by Month and Location

MONTHS	Sand Point and Munsing Falls	All Other Locations
JANUARY	2.5	1
FEBRUARY	2.5	1
MARCH	2.5	1
APRIL	2.5	2.5
MAY	2.5	2.5
JUNE	3	3
JULY	3	3
AUGUST	3	3
SEPTEMBER	2.5	2.5
OCTOBER	2.5	2.5
NOVEMBER	2.5	2.5
DECEMBER	2.5	1

Table 2
Non-reportable Vehicles by Month and Location

MONTHS	Sand Point	Munsing Falls	Miners Area	Chapel	Little Beaver	12 Mile	Grand Sable	Munsing Ski Trail	City Limits
JANUARY	500	60	10	0	0	18	182	40	40
FEBRUARY	500	60	10	0	0	18	182	40	40
MARCH	500	60	10	0	0	18	182	15	15
APRIL	500	60	20	0	0	255	240	0	0
MAY	900	125	60	20	20	320	420	0	0
JUNE	1000	150	100	25	25	320	420	0	0
JULY	1000	150	100	25	25	320	420	0	0
AUGUST	1000	150	100	25	25	320	420	0	0
SEPTEMBER	1000	100	50	15	15	320	420	0	0
OCTOBER	500	100	60	10	10	255	240	0	0
NOVEMBER	500	60	30	10	5	255	240	0	0
DECEMBER	500	60	10	0	0	18	182	30	30

Table 3
Estimated Visitors for Little Beaver and Chapel Road

MONTHS	Little Beaver	Chapel Road	Beaver Basin	Becker Farm
JANUARY	50	30	20	80
FEBRUARY	150	30	100	250
MARCH	50	100	40	200
APRIL	5	20	0	40
MAY	1450	700	20	40
JUNE	2200	2400	100	100
JULY	4900	4200	100	100
AUGUST	4900	5500	100	50
SEPTEMBER	2700	3000	100	100
OCTOBER	800	1000	60	50
NOVEMBER	200	100	20	20
DECEMBER	50	30	20	25

Non-recreation Visits

Table 4
The Number of Non-recreation Visitors by Month

MONTHS	Non-recreation Visitors
JANUARY	50
FEBRUARY	50
MARCH	50
APRIL	230
MAY	230
JUNE	230
JULY	170
AUGUST	170
SEPTEMBER	170
OCTOBER	230
NOVEMBER	135
DECEMBER	135

Recreation Visitor Hours

1. The number of visitors, prior to corrections for duplicate reporting, is multiplied by four hours (May through October) or two hours (November through April).

2. The number of overnight stays is multiplied by 18 hours.

Non-recreation Visitor Hours

The number of non-recreation visitors is multiplied by 0.3 hours (18 minutes).

Overnight Stays

NPS Campgrounds - Hurricane River, Little Beaver Lake, and Twelve Mile Beach

The number of overnight stays by tent and RV campers at NPS campgrounds.

NPS Backcountry - Miscellaneous Sites

The number of overnight stays by backcountry campers.

Special Use Data

Line a. The number of visitors at Grand Marais District
Line b. The number of visitors at Munsing District
Line c. The number of visitors entering Grand Sable Visitor Center
Line d. The number of visitors entering the Grand Marais Maritime Museum
Line e. The number of skiers at H-58 and City Limits lot
Line f. The number of cross-country skiers and snowshoers at Grand Marais
Line g. The number of snowmobilers at Munsing District
Line h. The number of snowmobilers at Grand Marais District
Line i. The number of visitors at the visitor information station at Munsing.
Line n. The number of buses

Appendix D: Pictured Rocks NL Budget Information: 2006-2008

FISCAL YEAR 2006

ONPS Base Authorization			**$1,881,609**
Fee Demonstration	**Project**	**Category**	**Amount**
80% Fee Funds	FY06 Cost of Collection (101499A)	Operations	$22,000
	Rehab Backcountry Signing (8428)	Maintenance	$24,000
	Repair Ski Trails (68198A)	Maintenance	$12,000
	Trail Opening and Maintenance (52537)	Maintenance	$10,500
	Provide Energy Efficient Lighting (68038A)	Maintenance	$5,000
	Install Fire Suppression System (85202A)	Maintenance	$23,000
	Rehabilitate Visitor Parking (126435)	Maintenance	$9,500
	Mitigate Soil Erosion at Shoreline (113541)	Maintenance	$10,000
	Repair Log Slide Well	Maintenance	$2,000
20% Fee Funds	PLC-Repair Chapel Loop Trail (101094)	Maintenance	$25,000
	Install Geothermal System (42924)	Maintenance	$60,000
	Correct Walkway Hazard (85255)	Maintenance	$35,000
			$238,000
Other Project Funding			
Volunteer-in-Parks Volunteer-in-Parks Operations			$3,072
Natural Resources	Protect Threatened Plants	Research	$29,600
	Determine Black Bear Harvest Mortality	Research	$22,000
	Assess Mercury Levels	Research	$19,250
	Assess Status of Pitchers Thistle (FWS)	Research	$18,000
Donations Regular Donations		Income	$34,497
	12-Mile Beach Campground	Income	$500
Quarters Permanent Housing		Income	$580
	Seasonal Housing	Income	$1,000
YCC Program	Rehabilitate Trails Maintenance		$7,340
Hazardous Materials	Bio-lubricant and fuels program	Special	$4,200
	Outreach	Special	$1,900
			$141,939
Cyclic Maintenance			
	FY06 Program Support (93185C)	Maintenance	$22,000
	Replace Solar Pumphouse Batteries - 12-Mile Beach CG (85904A)	Maintenance	$3,000
	Mitigate Bat Feces Health & Safety Hazard - Salvage Museum Artifacts at Abrahamson Barn (113121)	Maintenance	$10,000
			$35,000

FISCAL YEAR 2007

ONPS Authorization			**$1,929,574**
Fee Demonstration	**Project**	**Category**	**Amount**
80% Fee Funds	FY07 Cost of Collection (101499A)	Operations	$23,000
	Estimate Black Bear Survival (92139)	Research	$11,877
	Develop Campground Monitoring Protocols (92264)	Research	$11,698
	Install Fire Suppression System	Maintenance	$23,000
	Rehabilitate Visitor Parking Maintenance		$1,699
	Mitigate Soil Erosion at Shoreline	Maintenance	$10,027
	Rehab Backcountry Signing	Maintenance	$23,905
	Provide Energy Efficient Lighting	Maintenance	$5,000
	AuSable Tours	Operations	$8,182
	Campground Operations	Operations	$41,751
	AuSable Cultural Landscape	Maintenance	$25,000
	Deferred Trail Maintenance	Maintenance	$41,518
	Chlorinate Water Supply	Maintenance	$11,380
20% Fee Funds	Correct Walkway Hazard (42924A)	Maintenance	$20,000
	Install Geothermal System (85255A)	Maintenance	$60,000
	PLC (123812)	Maintenance	$25,000
	PLC (126023)	Maintenance	$25,000
	Log Slide Paving (123323)	Maintenance	$152,000
			$520,037
Other Project Funding			
Volunteer-in-Parks	Volunteer-in-Parks Operations		$3,025
Natural Resources	Protect Threatened Plants	Research	$44,139
	Assess Economic Impacts of Wilderness	Research	$2,203
	Assess Mercury Levels	Research	$1,403
	Determine Impacts of Spotted Knapweed	Research	$16,573
	Assess Status of Pitchers Thistle (FWS)	Research	$18,000
Donations	Regular Donations	Income	$34,497
	12-Mile Beach Campground	Income	$500
Quarters	Permanent Housing	Income	$1,469
	Seasonal Housing	Income	$4,300
YCC Rehabilitate	Trails Maintenance		$7,340
Repair/Rehabilitation	Relocate Septic Field	Maintenance	$30,000
	Relocate Beaver Basin Structure	Maintenance	$26,500
	Replace Intrusion Alarm	Maintenance	$20,000
			$209,949
Cyclic Maintenance			
	FY07 Program Support (93185C)	Maintenance	$16,000
	Remove Hazard Trees	Maintenance	$24,720
	Repair and Paint Porch - Munising Range Light	Maintenance	$12,700
	Maintain Roadway - Log Slide	Maintenance	$12,000
	Replace Aging Wayside Exhibits	Maintenance	$3,000
	Mitigate Bat Feces Health & Safety Hazard - Salvage Museum Artifacts at Abrahamson Barn	Maintenance	$30,000
			$98,420
	Total All Funds Fiscal Year 2007		**$2,757,980**

FISCAL YEAR 2008

ONPS Authorization			**$2,035,000**
Centennial Initiative			**$117,000**
Fee Demonstration	**Project**	**Category**	**Amount**
80% Fee Funds	FY 2008 Cost of Collection - Operations	Operations	$23,000
	Mitigate Threat - Au Sable CLP	Maintenance	$21,860
	Remove Encroaching Vegetation along Roads	Maintenance	$3,000
	Campgrounds Operations and Maintenance	Operations	$39,663
	Au Sable Interpretive Tours	Operations	$8,411
	Accomplish Deferred Trail Maintenance Maintena	nce	$41,518
	Separate Fire and Domestic Water Wells at	Maintenance	$11,640
20% Fee Funds	PLC-NCT from Miners Castle to Sable Falls	Maintenance	$25,000
			$174,092
Other Project Funding			
Volunteer-in-Parks Vo	luntee r-in-Parks Operation	s	$2,477
Natural Resources	Protect Threatened Plants at Pictured Rocks NL	Research	$40,194
Donations	Regular Donations	Income	$9,301
	Education Programs	Income	$543
	NPSLF	Income	$598
	Donation Boxes	Income	$305
	Au Sable	Income	$639
	Spotting Scope	Income	-$510
Quarters	Seasonal Quarters	Income	$5,268
	Permanent Quarters	Income	$4,000
Repair/Rehabilitation	Relocate Threatened Wastewater Septic Field - HQ	Maintenance	$30,000
	Replace Metal Shingle Roofs - 3 Au Sable Buildings	Maintenance	$78,000
	Replace Non-Functioning Intrusion Alarm System -	Maintenance	$121,970
	Replace Pavement on Miners Road	Maintenance	$69,580
			$362,366
Cyclic Maintenance			
	Project Support (FMSS)	Maintenance	$16,000
	Replace Deteriorated Storm Windows - Sand Point	Maintenance	$5,000
	Repair Deteriorated Trail - Miners Falls	Maintenance	$20,000
	Repair Ski Trail Sections - YCC Program (Phase I-	Maintenance	$14,020
	Apply Preventive Treatment To Wood Walks &	Maintenance	$20,600
	Relocate Threatened Wastewater Septic Field - HQ	Maintenance	
	Replace Metal Shingle Roofs - 3 Au Sable Buildings		
			$75,620
Flexible Park Funding			
	Restore Auxiliary Structures Au Sable Light Station	Maintenance	$69,580
	Repair and Paint Front and Rear Towers - Munising	Maintenance	$47,000
	Repair Plaster and Paint Interior - Au Sable Double	Maintenance	$27,500
	Conduct Integrated Invasive Exotic Plant	Research	$125,000
	Enhance Black Bear Habitat through Improved	Research	$152,907
	Examine Resident & Coaster Brook Trout Response	Research	$77,094
			$499,081
	Total All Funds Fiscal Year 2008		**$3,263,159**