

# **Economic impact assessment of paddler recreation in the Adirondacks**

**A summary reported prepared for the  
New York State Department of Environmental Conservation**

**By**

**Noah Pollock  
University of Vermont Tourism Data Center  
September, 2007**

*Based on the report entitled*

**The Northern Forest Canoe Trail:  
Economic Impacts and Implications for Sustainable Community  
Development  
August 2007**

## Table of Contents

Abstract.....	3
Study Methodology.....	4
Study Region.....	4
Registration Kiosks .....	4
Non-response Bias.....	5
Lodging and campground manager interviews.....	5
Weighting .....	6
Results .....	7
Trip and User Profiles .....	7
Visitation and Economic Impacts .....	7
Social and environmental impacts .....	8
Conclusions and recommendations.....	10
Economic Impacts.....	10
Environmental and Social Impacts.....	11
Management Recommendations .....	11
Appendix One: Selected Paddler Comments.....	13

## Abstract

Recreation and tourism are increasingly promoted as a means of diversifying economies in the Adirondacks, yet few studies have quantified how visitors' recreational activities affect local businesses. This research examines the economic impact of paddler recreation along the waterways of the Northern Forest Canoe Trail (NFCT), a 740-mile route traversing New York, Vermont, Quebec, New Hampshire, and Maine. The Northern Forest Canoe Trail association has been working with communities to develop campsites, signage, and portage trails, as well as to promote the trail in the media. This project helps communities better understand the potential economic impacts of these endeavors.

The objectives of this research were to assess the group and trip characteristics of paddlers recreating on Northern Forest Canoe Trail waterways (including between the towns of Old Forge and Long Lake), to quantify the economic impact of paddlers in regional communities, to identify potential social and environmental impacts, and to highlight current success stories and challenges for businesses and communities along the NFCT.

Use levels were monitored utilizing registration kiosks at public boat launches and with staff assistance at campgrounds, checkpoints, and lodging establishments. Visitor demographics, trip characteristics, and expenditure data were collected at registration kiosks, and through in-person and mail surveys. 552 paddler surveys were completed. MGM2, an input-output model developed by the National Park Service, was used to model direct and indirect impacts. The spatial extent of impacts was mapped using ArcGIS software. Discussions with regional land managers and business owners helped identify potential social and environmental concerns, success stories, and challenges for communities seeking to attract new paddlers to the area.

Results indicate that approximately 28,000 visitors paddled the Adirondack study section. Their spending in local communities created over \$6 million in total economic impacts and supported about 134 jobs. Across the study, the median paddler group spent \$215 per trip, primarily at lodging establishments, restaurants, grocery stores, and service stations. Non-locals spent an average of \$414-498, or \$46 per person per day. However, use levels, types of users, average expenditures, and resulting economic impacts vary significantly between regions. While increases in paddler recreation raise several social and environmental concerns, land managers and business owners are supportive of the NFCT where proactive management and paddler educational efforts are in place.

The results of this study suggest that the Northern Forest Canoe Trail has potential as a tool for diversifying local economies. As economic impacts are modest within the regional economies, rather than creating new markets, the trail will better benefit existing businesses by presenting them with an opportunity to provide additional food, lodging, and outfitting services to paddlers drawn to the area.

# Study Methodology

Figure 0.1. Study regions

## *Study Region*

This area marks the western terminus of the Northern Forest Canoe Trail in the Adirondack Mountains of New York. It encompasses 58 miles of paddling along the “Fulton Chain of Lakes” and the Raquette River. Three public campgrounds, dozens of remote campsites, over fifty lodging establishments, and three canoe outfitters are located on the waterway. This section of the waterway falls primarily within Hamilton County, and includes the villages of Old Forge, Inlet, Raquette Lake, and Long Lake, home to 3,170 residents. Tourism is the primary industry in the region, and ample goods and services are available for visitors.

## *Registration Kiosks*

A system of registration kiosks was used to distribute half page paddler intercept surveys, which included questions on group demographics and trip characteristics. Respondents were also requested to estimate how much money their group would spend on the trip, within twenty-five miles of the waterway. As paddler groups were intercepted mid-trip, they were asked to include what they expected to pay before leaving the region.

Six survey kiosks were installed at un-staffed public boat launches (Table 1). A display contained information on the research study and the canoe trail, as well as a posted paddler map. Over the course of the season, paddlers using the kiosks completed 552 usable surveys.

**Table 1: Survey locations**

<b>Survey Location</b>	<b>Location Type</b>	<b>Distribution Method</b>
Old Forge	Boat launch	Kiosk
Forth Lake	Day use area/campground	Staff, in-person
Seventh Lake	Boat Launch	Kiosk
Eight Lake	Day use area/campground	Kiosk
Raquette Lake	Boat Launch	Kiosk
Forked Lake	Day use area/campground	Kiosk
Long Lake	Boat Launch	Kiosk

To estimate registration rates, boat launches were observed on twenty-five days throughout the paddling season. Observations were made on both weekdays and weekends. Monitoring was conducted loosely proportional to use patterns and levels, and each boat launch was observed for one to three days. All groups returning from a paddling trip were asked if they had completed the survey. The registration rate was estimated to be 35% (n=78). All completed surveys were checked for completeness and

consistency. Attempts were made to contact respondents to clarify questionable responses, particularly responses with inconsistencies relating to accommodation types, trip lengths, and expense estimates.

### ***Non-response Bias***

As paddlers completing the survey through the registration kiosks were self-selecting, analyses were conducted to determine non-response biases. A non-response sample was taken by approaching and surveying non-registering groups during kiosk observations. All non-registering groups were also asked to complete a survey, administered by the researchers, with a 98% response rate (n=54). For key variables, responses were compared between self-registering and non-registering groups.

No significant difference was found between mean total trip expenses, group sizes, travel times, or median household income levels. However, self-registering groups ranked their knowledge of the NFCT higher (n=968, p<.01), and were twice as likely to report the NFCT as a reason for their trip n=968, p<.01. For these, correcting weights were assigned to the sample of non-registering groups.

Surveys gathered in registration kiosks were the primary instrument for estimating visitor use. The formula for calculating total user days was as follows:

Total group-days:  $(\sum_{(R,u)} d_i * n_i) * (1/r) * (1/v_{(R,u)}) * (1/o_{(R)})$ , where:

- R = study region
- u = user type
- i = survey element (each survey response)
- d = number of days in region
- n = number of paddling trips to the region in season, on average
- r = estimated response rate
- v = percent valid responses
- o = percent operational kiosks

Variable v (% valid response) is the percentage of completed surveys that had the necessary responses to conduct this analysis. Variable o (% operational kiosks), is a region specific calculation for the percent of the season the kiosks were fully operational. Vandalism, pen theft, and weather damage reduced the percentage of operational days for each kiosk. Kiosks were also installed and removed on different days. This variable factored in these discrepancies.

### ***Lodging and campground manager interviews***

In several of the study regions, paddlers stay in lodging establishments and campgrounds situated on the waterway. As paddlers staying in these locations do not use the public boat launches with the survey kiosks, use data necessary for conducting a comprehensive economic impact analysis was collected primarily through in-person surveys of the managers of lodging and campgrounds with waterway access in each study region.

Follow up phone calls were conducted in November to obtain end of the season use data as needed from the campgrounds. A mail back questionnaire was distributed to businesses to obtain more detailed quantitative data (Appendix 1). 48 lodging establishments and six campgrounds were approached. 37 lodging and campground surveys were administered, with a response rate of 77 and 100%, respectively.

The methodology used to derive a use estimate was customized based on the data availability of each establishment. For example, several cabin rental establishments had detailed records and knowledge of every group registered to stay at their facility for the summer season. In these situations, an establishment specific estimate was calculated by simply adding up the number of paddler groups registered. At other lodging establishments, such as motels, this approach was not feasible. Instead, the following formula was devised to form an estimate:

$T = \sum_{(s)} N * O_s * L_s * P_s / A_s$ , where  
T= Total paddler groups, per establishment  
N= Number of rooms and cabins  
P= Percentage of groups that are paddlers  
A= Average length of stay  
O= Average occupancy rate  
L= Length of the season (days)  
S= Season (summer or fall)

For campgrounds, estimates of total paddler groups were obtained by multiplying staff estimates of the proportion of campers and day users that are paddler groups with the number of camping and day user groups recorded using the facility over the course of the 2006 season. Finally, total group days for each region, per user type were estimated using the following formula:

$G = (\sum_{(i)} T) / o * a$ , where  
G= Total group days, per region, per user type  
T= Total groups, per establishment  
i= Survey elements (Each lodge or campground)  
o= The percentage of lodges or campgrounds successfully surveyed  
a= average trip length for lodging/cabin renters or campground campers for the region, obtained through the paddler survey

### ***Weighting***

As surveys were primarily administered at public boat launches, hotel/cabin renters and front country campers were underrepresented. In visitor economic impact studies, weighting survey results is often necessary to avoid biased estimates of key demographic and economic variables due to sampling procedures (Wilton and Nickerson 2006). To correct for these biases, a system of weights was assigned to each user group within each region by first dividing the total number of estimated groups by the number of groups in the sample, and then rescaling these values to reflect the actual sample size.

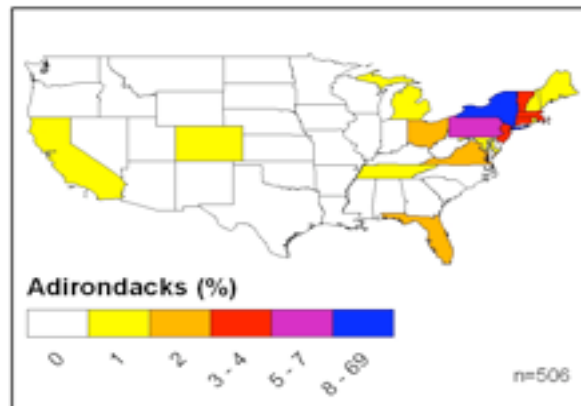
## Results

### *Trip and User Profiles*

The average paddler group had 4.12 persons (95% CI: 4.06-4.18). The highest proportion (40%) of paddling groups consisted of two adults. Paddling was a family activity for 20% of the users. Large groups, including scout troops, were 15% of the sample.

The average length of stay in the region was four days (mean: 3.6, 95% CI: 3.4-3.8). 26% of groups were on a day trip. 29% of the groups were in the region for 2-3 days. 27% reported stays of 4-7 days. 18% were vacationing in the area for longer than a week. While the average paddler spent seven hours on the water, the time spent varied widely.

Canoe campers, staying at remote, water accessible sites, made up 17.4% of the users. Hotel/cabin renters (35.5%), were the largest user group, followed by campground campers (32.2%). Other visitors included local day users (1%), non-local day users (8.5%), and second homeowners (14.8%). The median paddler traveled 4 hours to reach the waterway. The majority (69%) of Adirondack paddlers were from New York. 7% were from Pennsylvania, and 4% were from Vermont (Figure 1).



**Figure One: Home states of paddlers**

### *Visitation and Economic Impacts*

Table 2 presents estimates of visitation rates across all study regions. An estimated 22,074 groups (89,399 users) paddled the waterways in the six study areas. Measured in user-days, the Adirondacks received the heaviest use, followed by the Allagash, the Northeast Kingdom, Rangeley Lake, the Androscoggin, and the Missisquoi River. Standardized by waterway miles, Rangeley Lake and the Adirondacks appear to have the highest use intensity, due to the presence of state campgrounds and waterway lodging establishments.

**Table 2. Visitation estimates**

<b>Region</b>	<b>Groups</b>	<b>Group-days</b>	<b>Visitors</b>	<b>User-days</b>	<b>Trail miles</b>	<b>User-days/mile</b>
All areas	22,074	80,609	89,399	329,881	219	1510
Adirondacks	7,889	30,030	27,374	104,020	58	1809
Missisquoi	888	1,254	2,424	15,345	10	1535
Northeast Kingdom	4,686	8,389	16,870	55,504	33	1682
Androscoggin	1,799	5,642	13,939	24,255	17	1427
Rangeley Lake	2,834	10,095	8,503	25,340	11	2304
Allagash	3,978	25,200	20,565	86,785	90	964

The most common expenses were lodging (54%), restaurants (59%), groceries (56%) and transportation (45%). 9.4% of paddlers used guides or outfitters. 31% reported other retail purchases. The median paddler group spend \$215 in local communities. (Mean: \$395-\$544). The majority of paddlers in the study regions spent money in towns adjacent to the waterway access points and major roads, and the towns of Webb (Old Forge), Inlet, and Long Lake were most frequently mentioned (Figure 2).

An estimated \$4.4 million was spent in local economies by paddlers in the six study regions. After accounting for multiplier effects, these expenditures created \$3.3 million in value added to the local economy, \$6.1 million in total economic impact, supported an estimated 134 jobs, and provided \$2.1 million in personal income.

### ***Social and environmental impacts***

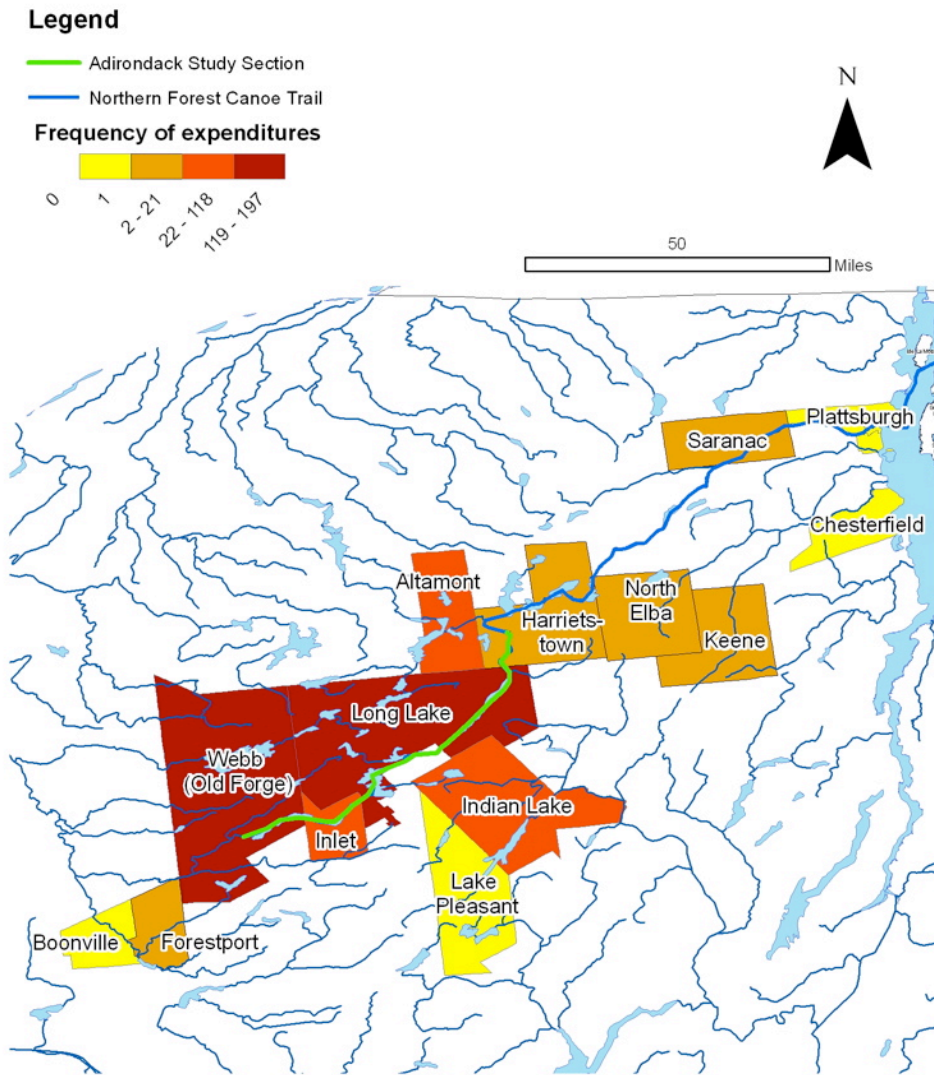
Through land manager, business owner, and paddler surveys, complemented by an analysis of town and agency reports, several potential social and environmental impacts of increased paddler recreation were identified (Table 3).

**Table 3. Potential social and environmental impacts of increased paddler recreation**

<b>Social impacts</b>	<b>Environmental Impacts</b>
Cultural and historical appreciation (+)	Increased environmental awareness (+)
Community sense of pride (+)	Prioritized land conservation (+)
Overcrowding of waterways (-)	Land degradation at campsites (-)
Traffic/disturbance in towns and private lands (-)	Wildlife disturbance (-)
Tourism dependence (+/-)	Increased development pressure (-)
	Spread of invasive aquatic species (-)



# Adirondack study area Location of paddler expenditures



**Figure 3: Location of paddler expenditures**

## Conclusions and recommendations

The primary goal of this research was to assess the ability of the Northern Forest Canoe Trail to stimulate sustainable community development. The results suggest that, to a modest degree, paddler recreation and tourism positively impacts local economies. While there are challenges and concerns, through targeted strategies and coordination efforts, the NFCT can create additional benefits at the business, community, and regional levels.

### *Economic Impacts*

The combination of visitor numbers, user types, and expenditure patterns shapes the impact visitors have on the local economy. Users employing guide and outfitters service and those staying in hotels and cabin rentals had the highest levels of expenditures. Although these types of users were comparatively few in numbers, they account for a disproportionate share of economic impacts.

While \$6 million in economic impacts is significant, it is small relative to the regional economy. Paddler tourism and recreation in the study region was estimated to support 49 jobs. The towns of Webb, Inlet, and Long Lake, which captured the majority of the paddler expenditures, have a combined population of 3,170.

These small relative impacts are due to the diffuse, low intensity, and seasonal nature of paddler tourism. Similar results were found in other studies. In the North Carolina coastal plains, the \$55 million in paddler economic impacts represented only 4% of the estimated economic impact of the region's tourism. These results indicate that, as opposed to creating entirely new markets, the NFCT will mainly benefit existing businesses by helping diversify and expand their customer base.

The use of their services was quite low among survey respondents. The majority of users appear to be self-supported. Interviews with outfitters confirmed this finding. The use of shuttling services is more common along rivers, where out and back trips are more difficult, and among users renting lakeside cabins.

The several, multi-day canoe races hosted in the Adirondacks bring a surge of visitors to the region. Interviews with area lodging establishments suggest that paddlers are more inclined to stay in lodging establishments during the races than during the rest of the season. Surveys conducted during the fall "90 miler" race revealed racers and their support crews were mostly non-locals, with 38% staying in local lodging establishments who made substantial expenditures in local communities during the race weekend.

The NFCT has a potential to increase both the number of paddling trips and average trip lengths in the area. Total group expenditures are strongly related to trip lengths. By expanding their knowledge of paddling opportunities within the region, visitors may be more inclined to take longer and more frequent trips.

## ***Environmental and Social Impacts***

This research identified several potential social and environmental impacts of increased paddler tourism. Some of these impacts, such as greater cultural appreciation, community pride, environmental awareness, and prioritized land conservation, are positive. Others are negative, including crowding, traffic, wildlife disturbance, the spread of invasive aquatic species, and increased development pressure. These impacts need to be addressed through proactive management to ensure sustainable development.

There are several challenges to addressing these negative impacts. First, many impacts cannot be isolated as a result of paddlers using the NFCT. All forms of tourism produce development pressure in local communities. Both non-motorized and motorized boaters spread invasive aquatic species. Second, temporal time lags are associated with many of these concerns. Community change is often a slow, piecemeal process, driven by a multiplicity of factors, including regional economic trends. This makes identification of cause and effect relationships difficult. In systems as complex as the Northern Forest, it is challenging to isolate the affects of NFCT management decisions from other impacts. A myriad of actions by disparate groups, which by themselves appear to have little impact, can collectively add up to disturbances that no one entity previously envisioned or desired.

## ***Management Recommendations***

More proactive management of invasive species is needed. Of all six study regions, Rangeley Lake has taken the most proactive approach, enlisting trained volunteers to check boats entering Rangeley Lake for plant fragments. The DEC should consider implementing a more aggressive monitoring and education plan as well.

The current DEC registers in place are insufficient for monitoring visitation and economic impacts. Kiosks are not present at all public access areas, notably missing at Raquette Lake and Eight Lake. However, without a protocol for observing actual sign in rates, data collected in these registers is not reliable. While this research suggests a 34% registration rate, regular monitor would greatly enhance the value of the registers. In addition, the information collected is inadequate for conducting an economic impact assessment. If registration forms also inquired about the length of stay in the region and type of accommodations used, the kiosks would provide adequate data for monitoring economic impacts while obviating the need for additional survey kiosks, a somewhat awkward arrangement.

Several paddler comments indicated there are some user conflicts in the region. Island campsites on Raquette Lake have become popular sites for parties, disturbing visitors seeking a wilderness experience. Motorboat and Jet Ski traffic on the Fulton Chain of

Lakes is frustrating to many paddlers (Appendix 1)<sup>1</sup>. According to campground staff, the number of through paddlers on the chain has dropped dramatically in recent years as the lakes have become increasingly developed and motorboat traffic has increased. More aggressive monitoring and patrolling of these waterways may help address these issues.

Further frustrating paddlers and campground staff is the Algier's Island permitting system that requires a two day stay, a poor arrangement for through paddlers. Future management plans and policies should consider waiving this requirement for paddlers traveling the Fulton Chain of Lakes or the Northern Forest Canoe Trail.

This research explores the impacts paddler tourism and recreation has in the Northern Forest. Its primary goal is to help communities, businesses, and stewardship organizations form realistic expectations of the impacts the development of the NFCT will have in their local economies. The formation of the NFCT provides a unique opportunity to study community change early in the process. Continued monitoring of changes at the level of business, community, and region may shed new insights on how recreation shapes the Northern Forest.

---

<sup>1</sup> In her journal, through paddler Nicole Grohowski listed the first lakes of the Fulton Chain as their least favorite of the trip, due to motorboat traffic and shoreline development (NFCT 2007)

## Appendix One: Selected Paddler Comments

---

This Forked Lake is beautiful. We're planning on doing some camping here. Nice to be away from motorboats and have some quiet especially good since we're beginning paddlers.

---

We had a wonderful time at Arnold's Rock as usual. Missing door on outhouse (someone probably used for firewood- unprepared campers). The other outhouse at 12-man lean-to was great, had a door and facing the other way from the campsite. Thanks for your time!

6th-Long Lake maintenance of carry from 8th to Brown's Tract is much appreciated

8th lake should not have motor boats-gas/diesel  
Based on the reservation system for campsites we expected to see a lot more people, perhaps they were scared away? We like to through canoe and the reservation system with its 2-day minimums makes it difficult

Beautiful area! What a wonderful find, we will be back to bring others with us!

Beautiful! Life treasure being with family!

Concerned about Decrease Loon Population, Great area

Eat at Adirondack Mountain Grill! Wonderful people in area, especially the park ranger and office

Eight Lake should be motor free, the motor boars going back and forth with tubes and skiers are very annoying and dangerous since some operators do not watch out for paddlers and nearly hit them. There is plenty of room on 7th lake for the motor boats, we need more quiet lakes for paddlers that have good access or boat launches

Forked Lake is gorgeous!

Great activity of limited income families

Great Job on the kiosks! Need a canoe register book here. It's fun to see who goes thought! Thanks!

How can Whitney Park Legally block accessible waterways into little forked lake? I was planning on being on the water for 30 days. I was doing the trip solo, and during one of the portages my entire pack of gear was stolen while I portaged my canoe. I made just short of Lake Champlain (approx 130-140 miles) in about 6 days. I spent approximately \$800 on food and gear in Saranac Lake and Lake Placid. The gear stolen from me was worth upwards of \$5000. Please contact me if I can be of any further assistance.

It is a wonderful facility, I am surprised you allow speed boats and skidoos which pollute the water and make noise and air pollution

It looks great here!

Lean-tos in great shape along route. Trail along cold river take out to pine point in poor shape hard to find in places and some blown down trees that could be cleared. Overall excellent trip.

Leave eighth lake to paddling and small fishing boats

Lots of great water around. Thanks!

Lots of trash at campsites. Lots of nice rivers to paddle that come off of Raquette Lake. High Use area.

Love it here!

Love the Northern Forest Trail idea-will look into it more.  
More info on campsites remoteness, descriptions, areas least likely to encounter motor craft travelers logistics of one way travel, who offers shuttle services etc. safety (vandalism of parking areas)

Would like to see more restrooms, a good local map, and places to rent sailboats

Peaceful, quiet, calm water!

We ran into some crazy, drunken kayakers. Sea planes are kind of annoying as they fly by every couple of hours.

We stayed at the Adirondack Hotel on Long Lake for one night at the beginning of the trip and stayed 2 nights at Motel near the airport in Albany after we completed our canoe trip. This is the third such canoe trip we have taken since 1993 over the same route. We start at Blue Mountain Lake and end up at Tupper Lake.

Reservation systems are nice as you don't have to worry about a site.

So pretty in October, quite populated compared to Northern Ontario.

Tell the kids on jet skis to respect others, some created such wake we were almost swamped

The lake needs a bit of clean up like garbage pick up

This year it was most disturbing to have so many powerboats pulling rafts or tubes on 8th lake, too much speed boat noise and air pollution from power engines did not make this trip as enjoyable as in past years. This was definitely the worst year. Can anything be done?

We like the recycling toilets. Aurorws AWC

WE love the campground and appreciate it being available after the season, Thanks!

We mostly paddle the Saranac/St. Regis Lakes Region. But plan to expand our ventures to this area, as it is not as far to drive from Albany.

---