

Portland  
Research  
Group

**May 23, 2011**

**Response by Portland Research Group to the "Review of the Bowers Wind Project Visual Impact Assessment" by James F. Palmer, dated April 28, 2011**

**Focus: Outdoor Activities Users Research (Telephone Survey and Snowmobiler Survey)**

**Telephone Survey**

*Dr. Palmer correctly states on page 10 that "The sample is not random. The original list only includes people who engage in outdoor activities and the actual size of this population is unknown. There are also other restrictions to eligibility. Then a "booster" sample of local residents was merged with the New England group. As a result, the survey cannot be used to estimate the "extent, nature and duration of potential affected public uses" of the area." Dr. Palmer makes similar points on page 33.*

The sample frame was constructed intentionally due to our hypothesis that only a very small portion of the general population would be aware of and regularly use the Study Area. As such, we targeted individuals who participate in the kinds of outdoor activities that one can do in the Study Area. Since many of the users of the outdoor resources in Maine come from outside the State, primarily from other New England States, we felt it prudent to draw sample for each New England State. Then, to make sure we captured the opinions of those who live in fairly close proximity to the Study Area, we garnered a "booster sample" (primary residence located within 50 miles of Study Area) from which we hoped to complete n=50 interviews. We felt the combination of the two samples would give us results, through a greater number of observations, in which we could place greater confidence. Details of the research objectives, sampling plan and screening criteria follow:

• **Research Objectives**

- Measure awareness of Study Area
- Measure frequency of usage of Study Area
- Understand expectations for views in the Study Area
- Determine impact of "human-made" structures on users of Study Area in terms of likelihood to return and enjoyment
- Assess whether and how commercial wind power projects fit within expectations of viewers using the Study Area and other parts of Maine for outdoor activities

One Union Wharf  
Portland, ME 04101-4777  
phone 207.874.2077  
fax 207.874.2076  
portlandresearch.com

- Sampling Plan

- Identified individuals from infoUSA (a well known, reputable sample provider for the market research industry) panel from New England region who participate in boating/sailing, camping/hiking, fishing, hunting and other outdoor sporting interests.
- 505,675 matches occurred, of which 5,000 records were pulled. 1,000 records from Maine and 800 from each of the other New England states were randomly selected to form the sample from which calls were made for the research: Maine (1,000 of 80,759), New Hampshire (800 of 71,342), Vermont (800 of 29,750), Massachusetts (800 of 29,696), Rhode Island (800 of 51,256) and Connecticut (800 of 242,782).
- An additional 1,000 records were taken to identify Maine residents who lived within 50 miles of the Study Area.
- Encountering disconnected telephone numbers, computer tones, language barriers, etc. is all normal for a typical research project using telephones as the data collection methodology.

- Screening Criteria

- Eighteen years of age or older (typical for phone study unless parents/guardians are involved to grant permission to speak with youth)
- Respondent personally participated in outdoor activities in Maine within the last three years
- Gender to obtain representation of both males and females
- Specific outdoor activities must mention (unaided), among others, at least one of: ATV Riding, Birding, Boating (Motor), Camping, Canoeing or Kayaking, Fishing, Foraging for Wild Plants or Mushrooms, Hiking or Walking, Hunting, Skiing (Cross Country/Nordic), Snowmobiling, Snowshoeing.

Portland Research Group's hypothesis going into the research proved to be correct. As shown below, just 3.06% of those contacted were aware of and at least sometimes (within the last three years) participate in an outdoor on or beside one of the eight lakes located within the Study Area. Had we conducted a purely random sample using a Random Digit Dial (RDD) sample and achieved the same incidence of 3.06%, we would have interviewed just 12 people from a sample of n=400 and 18 from a sample of n=600 who use the area. Instead, we were able to interview 31 people who were aware and had used the Study Area. This is more than double the quantity for a random sample of n=400 and almost twice as many as we would have interviewed as part of a random sample of n=600. The effect of our approach was to increase information from people who actually are aware of and use the area, which was an important part of the survey's purpose.

- Summation of Sampling and Screening

- Due to our hypothesis, we did everything we could to target a sample of users of the Study Area. We tried to complete n=50 interviews with people who are aware of and at least sometimes (rating of 4 to 10 on a scale where 1 means, "Never participate in the outdoor activity on or around the lake", and 10 means, "Regularly participate in the outdoor activity on or around the lake") use at least one of eight lakes located within the Study Area: Bottle, Duck, Lower Sysladobsis, Keg, Junior, Scraggley, Shaw, and Pleasant (locations defined in survey). We completed 31 of our target of 50.
- Had we conducted a purely random sample of Mainers (using a RDD – Random Digit Dial and a cell phone number overlay sample), awareness and usage of the Study Area would have been a very small percentage of the total sample and would not have given us enough of the target segment to ask about expectations, impact on enjoyment and impact on likelihood to return. Based on this targeted sample the percent is still small of those who participate in outdoor activities on or beside the lakes in the Study Area:
 

✓ Not participated in activities in Maine last 3 years:	408
✓ Not engaged in activities around Study Area:	55
✓ Unaware or rarely uses Study Area (Over quota):	360
✓ Interviews among those unaware or rarely use Study Area:	160
✓ Aware and use Study area at least sometimes:	31
✓ $31/(408+55+360+160+31) = 3.06\%$	
- With a targeted sample, only 3.06% are aware of and sometimes use the Study Area. This incidence of awareness and usage would have been substantially lower with a purely random sample.
- While the outdoor activity usage levels by age do not line-up with SCORP data in terms of Fishing and Hiking or Walking, the statement can be made based on the research that the Study Area garners very low awareness and usage.

*Dr. Palmer states on page 10, "The number of people between 18 and 44 years old are significantly under represented compared to those who are 45 years old and older." Age ranges from the survey are compared to Maine's SCORP for the two most commonly reported activities from the survey: fishing and hiking or walking.*

The comparison correctly demonstrates that the survey is comprised of older respondents than those included in the Maine SCORP data. The data presented in the 2009 SCORP was analyzed based on a national survey of recreational activity conducted between 2002 and 2009. However, as shown in the table at the end of this document, the opinions shared regarding expectations, enjoyment, likelihood to return and disposition on wind power are very consistent with those shared by respondents from other studies independent of this work. Such consistency between independent studies enhances the reliability of the work.

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*On page 10 Dr. Palmer correctly points out that "Seeing wind turbines would affect the enjoyment of 48% negatively (rating 1-3) and 16% positively (rating 8-10)."*

As indicated on page 18 of the Telephone Research report, 36% gave neutral ratings (4-7) indicating that seeing wind farms would have no effect on their enjoyment. Another way to express the findings to this question is 52% (just over half) indicated that seeing wind farms would have a positive impact or no impact on their enjoyment.

*Dr. Palmer also points out on page 10 that "Seeing wind turbines would affect the likelihood of their returning for 32% negatively (rating 1-3) and 23% positively (rating 8-10)."*

These facts are correct about the effect of seeing wind turbines on likelihood of returning is negative (1-3 rating) for 32% and positive for 23% (8-10). However, referencing page 19 of the Telephone Research Report, 45% indicated seeing wind farms would have no impact (rating of 4-7) on their likelihood of returning. In other words, two-thirds (68%) said seeing wind farms would have either no impact (45%) or a positive impact (23%) on their likelihood of returning to the Study Area for outdoor activities.

*On Page 11 of the Review of the Bowers Wind Project Visual Impact Assessment, Dr. Palmer states, "Without a clear understanding of the visual scope and scale of the turbines, it is difficult to see how respondents can accurately determine how the turbines would affect their 'continued use and enjoyment of the scenic resource.'" On Page 33, Dr. Palmer again notes that without use of photo simulations "it is therefore highly unlikely that [the respondents] could have an accurate mental image of the "scope and sale" of the turbines . . . Without this, how could anyone give an accurate response to questions about how the project's scenic impact might affect their enjoyment and likelihood to return."*

True, respondents did not see photo simulations from the numerous vantage points to specifically assess the visual impact of the Bowers project. However, on page 20 of the Telephone Research Report, we see that 97% (30 of 31) who are aware and use the Study Area have seen wind turbines in Maine (94%; 29 of 31) and/or outside of Maine (58%; 18 of 31). Therefore, while not an exact idea, one can say that respondents familiar with the Study Area have general understanding of the visual scope – it would be a much different conclusion if just a small percentage of these respondents had previously seen wind turbines.

As stated previously, when compared to the results of several other independent research studies, the results are very consistent. While each Study Area for wind turbines is unique, the results from these other studies show remarkable consistency toward the disposition of commercial wind farm development. Please refer to Table 1 for a summary of these results.

One Union Wharf  
Portland, ME 04101-4777  
phone 207.874.2077  
fax 207.874.2076  
portlandresearch.com

### Stetson Snowmobiler Survey

*Dr. Palmer states on page 11 of the Bowers VIA Review a statement is made in the second paragraph under the heading "Snowmobiler survey": "Therefore the respondents are primarily a self-selected group that is willing to at least tolerate the presence of grid-scale wind turbines." The paragraph continues by questioning what can be said about how "typical" snowmobilers might experience wind turbines. Dr. Palmer raises similar concerns on page 33 of his report.*

While this may be a true statement, one can also make the point that the snowmobilers are more representative of the snowmobiler segment than the paragraph implies:

- Curiosity likely influenced many snowmobilers to attend the gathering – curiosity rather than tolerance.
- On pages 32 and 33 of the Bowers VIA Review, an Associated Press (2011) news release about the gathering has been reprinted. The news release clearly states that there will be a barbecue lunch, which is an incentive to attend. In market research, we offer incentives for two reasons: improve cooperation to broaden the representation of a sample and to increase the speed of receiving results. The offer of a "barbecue lunch reception" likely acted like an incentive to broaden the "types" of snowmobilers who attended.
- Several factors point to the fact that the snowmobiler respondents could in fact represent typical users of the Study Area.
  - Snowmobilers from the research (see page 13 of the Snowmobiler Research Report) reported spending an average of 62 days (median of 30 days) participating in outdoor activities in the Study Area. As a result, they probably know the area well.
  - Fishing (81%) in Maine within the past three years is almost as prevalent among these respondents as snowmobiling (84%). (See page 19 of the Snowmobiler Research Report)
  - The majority of these respondents engage in outdoor activities in the Study Area throughout the year (See page 12 of the Snowmobiler Research Report): Winter (80%), Spring (55%), Summer (91%), and Fall (64%).
  - The demographic profile of respondents shown on page 25 of the Snowmobiler Research Report reveals a group of respondents with a good spread of years living in Maine. In addition, there is good representation of second home ownership in Maine, all age groups except 18 to 24, and gender. Not surprisingly, the sample is skewed towards membership in the Maine Snowmobile Association (66%) and people with their primary residence located in Maine (88%). Both of these facts are not surprising and do not undermine the sample as being comprised of people willing to tolerate wind turbines.

*Dr. Palmer comments on page 33 that, "I do not see what role this survey can play as a responsible decision making tool."*

The Stetson Snowmobiler Survey produced results consistent with other studies related to wind power development and offers another data point for purposes of comparison, as snowmobiling is a type of recreation use that has not been included in previous user intercept surveys that have focused primarily on hiking or shore-based water activities. When independent surveys show consistency, one can typically place greater confidence in the reliability of the results. Please see the table at the end of this document.

### Comparison of Results from Several Independent Studies in Maine

Portland Research Group reviewed the results of seven wind development-related public opinion projects conducted independently of each other in 2010 and 2011 and documented consistency across three important metrics: impact of wind energy facilities on enjoyment, likelihood of returning to area if a wind facility is seen, and disposition toward commercial-scale wind energy development in Maine.

Across each of the studies the majority of respondents was either in the positive/support or neutral/no change ranges. A higher percentage of respondents from the Stetson Snowmobiler Study than the Bowers Outdoor Users Activities Study and Highland Hikers Study indicated an expectation of seeing wind farm facilities within the region addressed in the survey. This is not surprising since the snowmobilers were surveyed at the Stetson wind facility. (Please refer to Table 1 at the end of this document)

Since the results from the two studies referenced in the Bowers Wind Project Visual Assessment corroborate with results from other independent studies, one can feel much more confident that the views shared are representative.

- A few notes on the studies:
  - Portland Research Group used a ten-point scale and Market Decisions used a seven-point scale. In the Market Decisions Reports, a score of 4 represented no effect. For comparison the following breaks were used: 8-10 vs. 5-7; 4-7 vs. 4; 1-3 vs. 1-3.
  - Enjoyment and likelihood to return ratings were facilitated through the use of photo simulations for the intercept studies.
  - Some of the question wording differed slightly, although the content of the questions remained consistent.

Table 1. Comparison of Results of Independent User Surveys at Proposed Wind Projects in Maine

Study:	Snowmobiler	Outdoor Activities	Bull Hill	Little Bigelow	Hikers Study	Mt. Blue	Spruce Mountain
Wind Project:	Bowers	Bowers	Bull Hill	Highland Wind	Highland Wind	Saddleback Ridge	Spruce Mountain
Sponsor:	Champlain	Champlain	Blue Sky East	Highland Wind	Highland Wind	Patriot Renewables	Spruce Mtn. Wind
Completed by:	Portland Research Group	Portland Research Group	Market Decisions	Portland Research Group	Portland Research Group	Market Decisions	Market Decisions
Location:	Stetson Wind Farm	New England/50 mile radius	Donnell Pond Black Mountain	Bigelow Preserve	Northern New England/E. MA.	Mt. Blue	Bald Mountain
Date:	February 2011	January 2011	October 2010	Summer/Fall 2010	August 2010	September 2010	May 2010
Methodology:	Intercepts	Telephone	Intercepts	Intercepts	Web	Intercepts	Intercepts
Sample Size:	n=69	n=191	n=81	n=58	n=304	n=22	n=15
<b>Expectations of seeing energy facilities such as wind farms</b>							
	n=39	n=31	Not Asked	Not Asked	n=304	Not Asked	Not Asked
Likely	38%	10%			7%		
Neutral	49%	29%			58%		
Unlikely	13%	61%			35%		
<b>Enjoyment impact of seeing energy facilities such as wind farms on enjoyment</b>							
	n=40	n=31	n=?	n=37	n=304	n=22	n=15
Positive	50%	16%	9%	8%	21%	23%	20%
Neutral	45%	36%	45%	73%	61%	45%	47%
Negative	5%	48%	47%	19%	18%	32%	27%
Refused	0%	0%	0%	0%	0%	0%	7%

1 Due to fractional rounding, the Bull Hill and Spruce Mountain results total 101%.

Likelihood of retaining if respondent saw energy facilities such as wind farms									
	n=40	n=31	n=?	n=37	n=304	n=22	n=15		
More Likely	50%	23%	6%	14%	15%	27%	13%		
No Change	42%	45%	75%	73%	68%	50%	73%		
Less Likely	8%	32%	20%	14%	17%	23%	7%		
Refused	0%	0%	0%	0%	0%	0%	7%		
Disposition toward commercial-scale wind energy development in Maine									
	n=64	n=191	n=?	n=58	n=304	n=22	n=15		
Support	72%	52%	74%	38%	63%	77%	87%		
Neutral/ Don't Know	25%	33%	12%	43%	33%	18%	13%		
Oppose	0%	13%	14%	17%	4%	5%	0%		
Refused	3%	2%	0%	2%	0%	0%	0%		

Table 1. Comparison of Results of Independent User Surveys at Proposed Wind Projects in Maine

Study:	Snowmobiler	Outdoor Activities	Bull Hill	Little Bigelow	Hikers Study	Mt. Blue	Spruce Mountain
Wind Project:	Bowers	Bowers	Bull Hill	Highland Wind	Highland Wind	Saddleback Ridge	Spruce Mountain
Sponsor:	Champlain	Champlain	Blue Sky East	Highland Wind	Highland Wind	Patriot Renewables	Spruce Mtn. Wind
Completed by:	Portland Research Group	Portland Research Group	Market Decisions	Portland Research Group	Portland Research Group	Market Decisions	Market Decisions
Location:	Stetson Wind Farm	New England/50 mile radius	Donnell Pond Black Mountain	Bigelow Preserve	Northern New England/E. MA.	Mt. Blue	Bald Mountain
Date:	February 2011	January 2011	October 2010	Summer/Fall 2010	August 2010	September 2010	May 2010
Methodology:	Intercepts	Telephone	intercepts	Intercepts	Web	Intercepts	Intercepts
Sample Size:	n=69	n=191	n=81	n=58	n=304	n=22	n=15
<b>Expectations of seeing energy facilities such as wind farms</b>							
	n=39	n=31	Not Asked	Not Asked	n=304	Not Asked	Not Asked
Likely	38%	10%			7%		
Neutral	49%	29%			58%		
Unlikely	13%	61%			35%		
<b>Employment: Impact of seeing energy facilities such as wind farms on employment</b>							
	n=40	n=31	n=?	n=37	n=304	n=22	n=15
Positive	50%	16%	9%	8%	21%	23%	20%
Neutral	45%	36%	45%	73%	61%	45%	47%
Negative	5%	48%	47%	19%	18%	32%	27%
Refused	0%	0%	0%	0%	0%	0%	7%

<sup>1</sup> Due to fractional rounding, the Bull Hill and Spruce Mountain results total 101%.

Likelihood of returning if respondent saw energy facilities such as wind farms									
	n=40	n=31	n=?	n=37	n=304	n=22	n=15		
More Likely	50%	23%	6%	14%	15%	27%	13%		
No Change	42%	45%	75%	73%	68%	50%	73%		
Less Likely	8%	32%	20%	14%	17%	23%	7%		
Refused	0%	0%	0%	0%	0%	0%	7%		
Disposition toward commercial scale wind energy development in Maine									
	n=64	n=191	n=?	n=58	n=304	n=22	n=15		
Support	72%	52%	74%	38%	63%	77%	87%		
Neutral/ Don't Know	25%	33%	12%	43%	33%	18%	13%		
Oppose	0%	13%	14%	17%	4%	5%	0%		
Refused	3%	2%	0%	2%	0%	0%	0%		

***Baskahegan Stream Watershed Recreation  
Use & Resource Analysis***

***Summer, 2010***

**Funded by Washington County TIF  
&  
Stetson Mountain Fund Committee**

**In Partnership with the Forest Society of Maine**

**Andrea Ednie, Ph.D.  
Assistant Professor of Environmental Recreation & Tourism Management  
University of Maine at Machias**

**Chad Everett  
UMM Student, Recreation Resource Management  
University of Maine at Machias**

**John Daigle, Ph.D.  
Associate Professor of Parks, Recreation & Tourism  
University of Maine**

## ACKNOWLEDGEMENTS

The authors would like to thank and acknowledge the people and organizations that have contributed to this project. This study was made possible by the Sunrise County Economic Council (Washington County TIF), the Stetson Mountain Fund, and the Forest Society of Maine. We would like to thank Janice Melmed and the Forest Society of Maine for her partnership and help throughout this process. We would also like to thank Brian Higgs at the Baskahegan Land Company for his support and for providing housing and a boat for the student researchers. The study data were collected by two University of Maine at Machias students, Chad Everett and Corey Patrick. We thank them for their dependability, effectiveness in approaching potential study participants, and for their versatility in terms of project components. Thank you to our study participants – the people who agreed to help by being surveyed at the lake, and the volunteers who graciously invited us to their homes or places of work for interviews.

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## INTRODUCTION

The purpose of this study was to illuminate the characteristics of recreation use patterns and site conditions around the Baskahegan watershed area. The goal was to obtain and present accurate information that will serve as a foundation for informed decision-making pertaining to the planning and management of the area's resources and the recreational opportunities provided. A related goal was to establish a baseline of information to be used for comparison with future research initiatives.

To fulfill the purpose and goals of the study, the research concentrated on three main objectives:

1. Gather, analyze and map recreational use data including: visitor counts, indicators of visitor use (recent campfires and other evidence of recent recreational traffic), distribution of visitors throughout the study area, and travel patterns collected through observation, onsite survey cards, and interviews with local frequent visitors.
2. Inventory, analyze and map recreation resources including: identifying and mapping existing campsites and trails; assessing, recording, and mapping campsite condition and size (including indications of overuse); and identifying, recording, and mapping existing problems (such as trash/human waste, continuous camping by one party that prevents visitor opportunities).
3. To develop design considerations and suggestions for facilities deemed necessary based on use and resource inventories such as parking lots and sanitary facilities.

### **Background on Baskahegan Watershed and Area Characteristics**

Located in northern Washington County, the Baskahegan watershed is situated in the Maine/New Brunswick Lowland biophysical region (McMahon, 1990). The watershed feeds the Mattawamkeag River, a tributary of the Penobscot. Peat bogs occupy a relatively high proportion of the landscape, roughly ten percent. These include unusual eccentric fens noted in Davis and Anderson's *The Eccentric Bogs of Maine*. The defining feature of the landscape is Baskahegan Lake, one of Maine's largest, comprising 7,145 acres. Also notable is the Crooked Brook flowage, an impoundment created by a dam in Danforth, which provides excellent wading waterfowl habitat and 23% of the high-value wetland in Washington County. The lake, streams, and land features provide unique opportunities for recreation.

The Baskahegan watershed has a rich cultural history that is a direct result of the interaction of the natural resources and the people (Scott and Wilson, 2000). Natives used the watershed as an important travel and trade route between the St. John River, NB and the Penobscot River, ME. Early settlements were followed by many logging camps, sawmills, and farms in the 1800s and 1900s. Most of the land today remains undeveloped and the local population depends primarily on forest products industry for employment. However, this rural sparsely populated region supports a small but robust recreation economy created by hunters, anglers and snowmobilers. There are sporting camps in Kossuth, Topsfield, Brookton, Forest City, Danforth and Weston which serve visitors who enjoy the landlocked salmon fishery, abundant deer, moose, waterfowl and partridge, and the extensive snowmobile trail system. Spednick and East Grand Lakes in the adjacent St. Croix watershed are well known for their coldwater fisheries, while warm water

anglers enjoy Baskahegan Lake and the Crooked Brook Flowage. A strong connection to the environment is felt by many of the residents and it is this connection and the natural and cultural resources that have formed the basis for the local economy.

The Baskahegan Company, founded in 1920, owns and manages 101,620 acres of forestlands in various parts of eastern Maine but the majority of this forestland is in the Baskahegan watershed. Similar to other large private forest landowners in Maine they allow public access to their lands for a variety of outdoor recreation activities including among others hunting, fishing, boating, canoeing, camping, hiking, and wildlife viewing. At present there is no fee associated with public use and management of recreation is minimal by the Baskahegan Company. The Baskahegan Company relies on entities such as the Inland Fisheries and Wildlife and Maine Forest Service to assist with regulating uses such as with fishing and hunting, and issuing fire permits. Snowmobile trails are located by permission of the Baskahegan Company and built and maintained by volunteers of organized snowmobile clubs. Roads built by the Baskahegan Company are maintained primarily for forest operations but this provides a means for the public to access areas of the forest for purposes of outdoor recreation. However, a few road segments are primarily maintained to allow public access such as the road to the boat landing on Baskahegan Lake. The campsites located on the lakes and streams rely on the public to regulate themselves such as adopting a carry-in and carry-out ethic. In some instances the Maine Forest Service assists with the cleanup of the campsites.

#### **Need for the Research**

No previous studies were found that examined aspects of the recreation use occurring in the Baskahegan watershed area. However, steadily growing research on recreation use and user characteristics in Maine and elsewhere in the nation suggests this information is critical for sound management of recreation resources and providing quality recreation experiences. For example, research has shown that the physical condition of a campsite can affect the quality of the visitor experience (Lee 1975; Shelby, Vaske, and Harris 1988; Roggenbuck, Williams, and Watson 1993; Daigle 2005; Ednie and Daigle 2007). Also, in areas managed for remote backcountry type experiences, recreation activity on campsites can be the activity that most severely alters the natural conditions. Impacts that affect visitor enjoyment, particularly those that impair the functionality or desirability of sites are a particular concern (Hammit and Cole 1998). Existing campsite conditions must be measured and documented before management can monitor changes over time (Cole 1989). By understanding present recreational use and the users, the Baskahegan watershed can be managed in a sustainable fashion based on sound knowledge.

## RECREATIONAL USE MONITORING

The study encompassed several approaches to monitoring visitor use of the watershed. The overall purpose of monitoring was to help resource managers, planners, and granting agencies understand the quantity of use, the use patterns, and the general experiences of visitors to the watershed in order to further develop recreation management strategies. Recreational use was monitored using four methods:

- A visitor survey
- Observations of groups on Baskahegan Lake
- Vehicle counts at the Brookton and Danforth Boat Launches
- Interviews with long-term and frequent visitors

### Sampling Protocol

The student researchers monitored recreational use two days per week between May 30<sup>th</sup> and September 5<sup>th</sup>, 2010. The sampling goal was to monitor use two days per week over a fourteen week period during the main visitation season. At least half of each day was spent monitoring use at Baskahegan Lake. The remainder of their time was spent traveling once per day to the Crooked Brook Flowage to check for evidence of use and working on other study components (campsite assessments, office work, etc.). The monitoring schedule was designed to provide a rotation representative of weekdays and weekend days, and to minimize travel by monitoring two consecutive days per week. The following list shows the monitoring schedule and days monitored (a total of 24 monitoring days were completed; the 3 scheduled days in bold were missed due to uncontrollable circumstances):

- Sun/Mon – May 30 & 31
- Fri/Sat – Jun 11 & 12
- Tues/Wed – Jun 15 & 16
- Sun/Mon – Jun 20 & 21
- Sun/Mon – Jul 4 & 5
- Tues/Wed – Jul 6 & 7
- Sun/Mon – **Jul 11 & 12**
- Fri/Sat – Jul 23 & 24
- Tues/Wed – Jul 27 & 28
- Sun/Mon – **Aug 1 & 2**
- Fri/Sat – Aug 13 & 14
- Tues/Wed – Aug 17 & 18
- Sun/Mon – Aug 22 & 23
- Sun – Sept 5

### Visitor Survey

A visitor survey was completed in order to analyze current visitation patterns of the watershed. The survey was designed to elicit information from participants regarding their travel patterns, their use history, and their observations of other groups on the watershed (see appendix A). To prepare for the survey procedures, the student researchers completed a training session and were observed by the principal investigators for the first three days of interviews. Throughout the survey process, only one person per group was approached, and returning groups were only asked to participate once over the season. Participants were greeted at the Brookton Launch, the

Danforth Public Landing, and the Crooked Brook Launch, were provided a brief description of the purpose of the study, and were asked to participate. Every visitor who was asked to participate in the study agreed. The student researchers reported that the vast majority of visitors were easily approachable, and seemed happy to provide information. A total of 48 surveys were completed over the season. The survey responses were coded and the data were entered into an excel spreadsheet. Frequency distributions were obtained and statistical analyses completed using PASW Statistics 18 (2009).

### ***Survey Results***

Several visitor use characteristics were analyzed, including access point to the watershed, group size and type, length of stay, and previous experience on the watershed. The vast majority (90%) of participants accessed the watershed at the Brookton Launch. This majority occurred in part because of the sampling scheme, and also in part because the Brookton Launch is clearly the most popular and easily accessible entrance to the watershed. Eight percent of participants were surveyed at the Danforth Public Landing, and the remaining 2% were met at the Crooked Brook Launch. Table 1 shows participant group sizes, which ranged from 1 (alone) to 8 people. The most popular group size was two people, and the majority of participants traveled in small groups (81% in groups of four or less people). The majority of groups (57%) were of adults without youth under 16, however, 40% of the groups included between 1-3 youth (table 2). The groups were mostly (84%) of family, friends, or a combination of the two, the most popular being family groups (figure 1). Only three percent of the study participants were in guided groups; this likely because the guided trips are quick to launch (difficult to catch for a survey) and spend their day out in locations favored for fishing (which we were disinclined to interrupt). The majority (67%) of survey participants were visiting the watershed for day use (figure 2). The 33% of participants who were camping stayed for 1-6 nights, the most popular length of stay being two nights (50%) and the vast majority (88%) stayed for 3 or less nights (figure 3). Three-quarters (75%) of participants were from Maine. The remaining quarter came from other New England states (MA, NY, NJ, VT) as well as Delaware and Pennsylvania (figure 4).

Table 1. Group size, N=47.

<b>Group Size</b>	<b>Frequency Percentage (# Participants)</b>
1	11% (5)
2	36% (17)
3	21% (10)
4	13% (6)
5	9% (4)
6	2% (1)
7	6% (3)
8	2% (1)
<b>Total</b>	<b>100% (47)</b>
<b>Mean</b>	<b>3.15</b>
<b>Mode</b>	<b>2</b>

Table 2. Groups with youth under 16, N=47.

<b># Youth Under Age 16</b>	<b>Frequency Percentage (# Participants)</b>
0	57% (27)
1	24% (11)
2	11% (5)
3	6% (3)
4	0
5	0
6	2% (1)
<b>Total</b>	<b>100% (47)</b>
<b>Mean</b>	<b>0.77</b>
<b>Mode</b>	<b>0</b>

Figure 1. Group type, N=48.

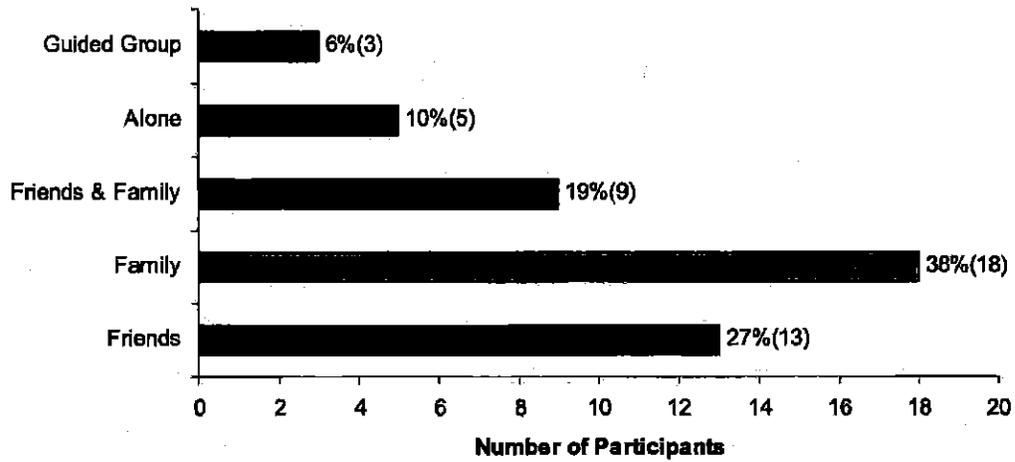


Figure 2. Proportion of day use versus camping groups, N=48.

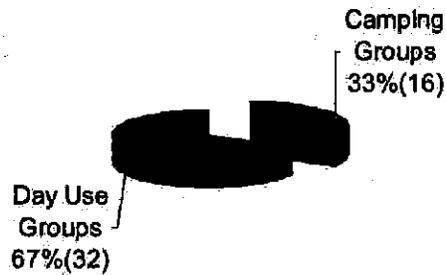


Figure 3. Number of nights camped, N=16.

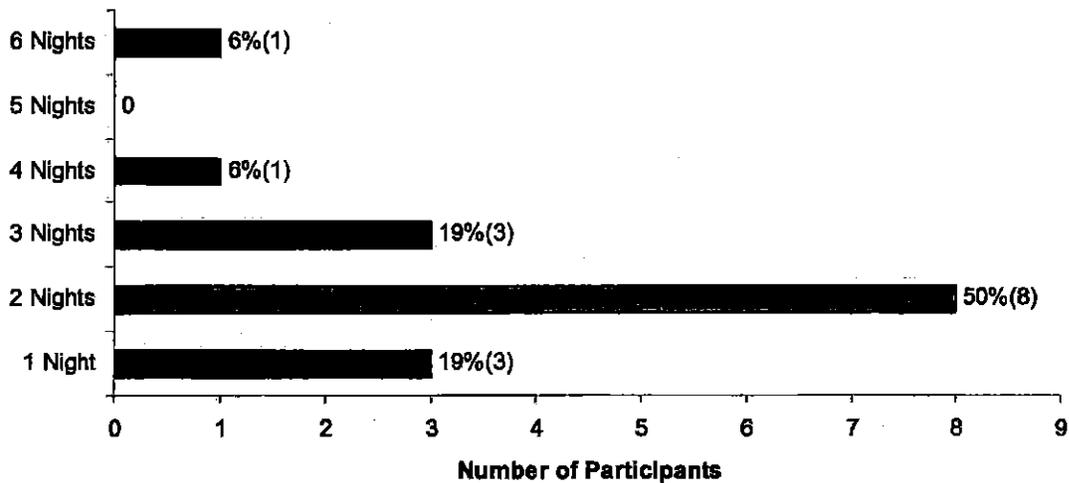
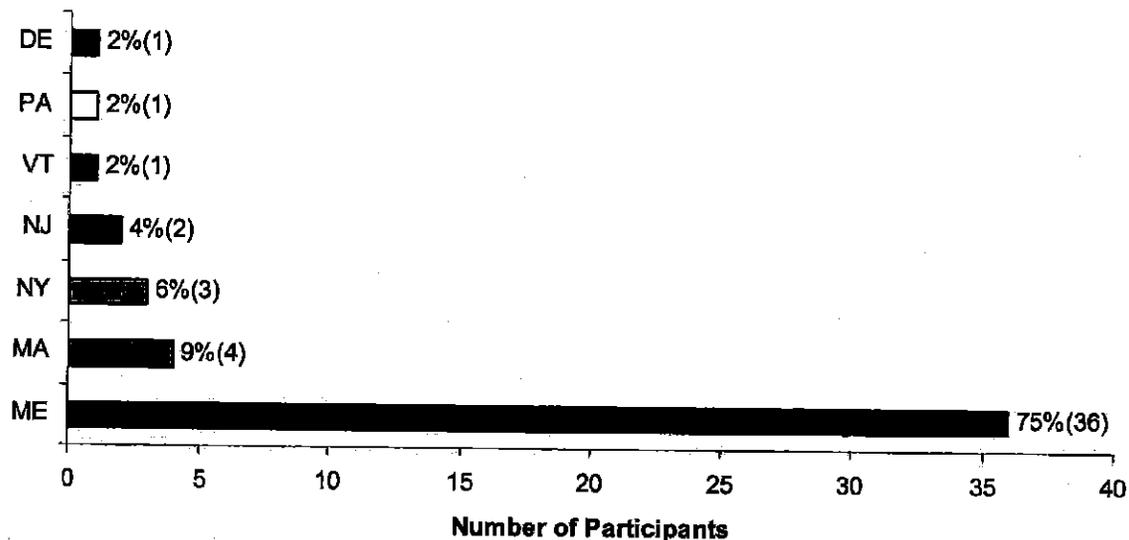


Figure 4. Home state of participants, N=48.



While powerboats were by far the most popular mode of travel on the lakes (67%), some participants traveled by kayak or canoe, or a combination of two (figure 5). Seventeen percent of participants did not travel on the lake, and came to fish, swim, or simply relax at the Baskahegan Lake launch site. Nearly all (94%) participants have visited the watershed before (figure 6), and nearly half (45%) have been visiting for more than 11 years (table 3). The study participants were also asked to recollect how many other groups they saw while they were out on the water. Nearly one-third (31%) of participants reported seeing between 1-5 groups on the water, and an additional 19% saw six or more groups (table 4). It should be noted that while half of participants saw no other groups, some of these respondents had not yet launched or were not traveling far on the lake themselves.

Figure 5. Mode of travel, N=48.

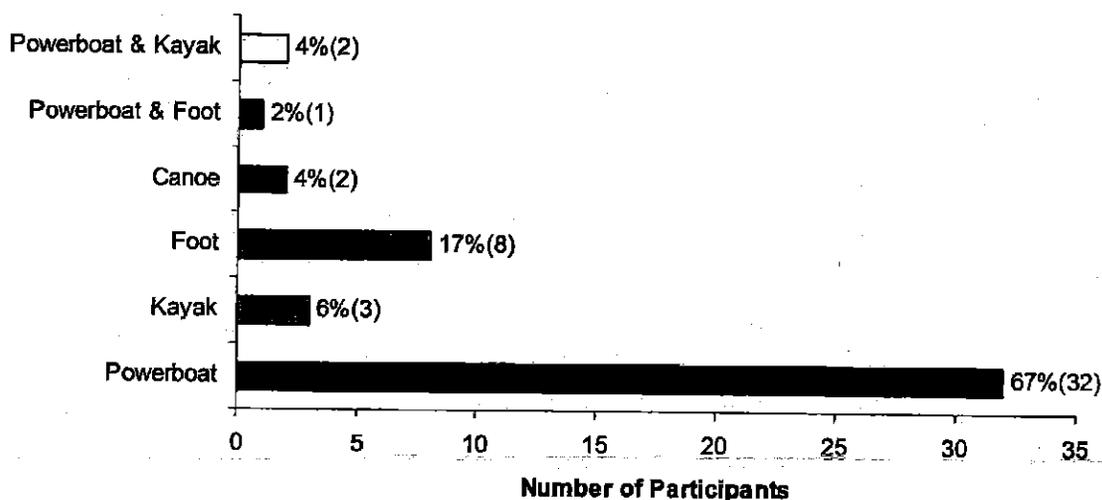


Figure 6. Proportion of participants who have previous experience on the watershed, N=48.

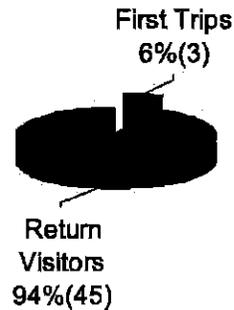


Table 3. Number of years visiting, N=47.

# Years Visiting	Frequency Percentage (# Participants)
First Trip	6% (3)
1-5yrs	25% (12)
6-10yrs	24% (11)
11-20yrs	15% (7)
21-30yrs	6% (3)
31-40yrs	11% (5)
41+yrs	13% (6)
<b>Total</b>	<b>100% (47)</b>
<b>Mean</b>	<b>19.34yrs</b>
<b>Median</b>	<b>10yrs</b>
<b>Range</b>	<b>0-72yrs</b>

Table 4. Number of groups observed, N=48.

# Groups	Frequency Percentage (# Participants)
0	50% (24)
1-5	31% (15)
6-10	9% (4)
11-15	4% (2)
16-20	6% (3)
<b>Total</b>	<b>100% (48)</b>
<b>Mean</b>	<b>3.2 groups</b>
<b>Mode</b>	<b>0 groups</b>

### Observations of groups on Baskahegan Lake

The Baskahegan Land Company provided a small boat for the student researchers to use over the survey season. When the students traveled by water, they monitored the number, type, and location of boats they observed on the water, and the group sizes when possible. To record boat traffic, a map was created that separated Baskahegan Lake into four zones (figure 7).

The expansiveness of the lake provides a sense of solitude on the water. Most often while traveling on the water there were no boats in sight. The groups that were observed on the water tended to be small (2-3 people) groups fishing from modest powerboats. Baskahegan Lake is prone to choppy water conditions even in modest wind, and the students were asked not to travel when the conditions were dangerous. Over the 16 days the students traveled on the water, 56 boats were observed. The greatest number of boats observed in one day was 9 (on August 14<sup>th</sup>). The majority (88%) of observed boats were powerboats, 7% were kayaks, and 5% were canoes. The mean number of people per boat on the water was 2.41, where groups ranged from 1-6 people and the most common number of people per boat was 3.

The majority (51%) of boats were observed in Zone D, the Southeast portion of the lake. The remaining boats were spread relatively equally throughout the other three zones (figure 8). Groups who were fishing on the water were most commonly seen along the South border of zones C and D, while groups who had landed for a picnic were most often seen in zones A and B, or in the Northern portion of zone D.

Figure 7. Lake zones.

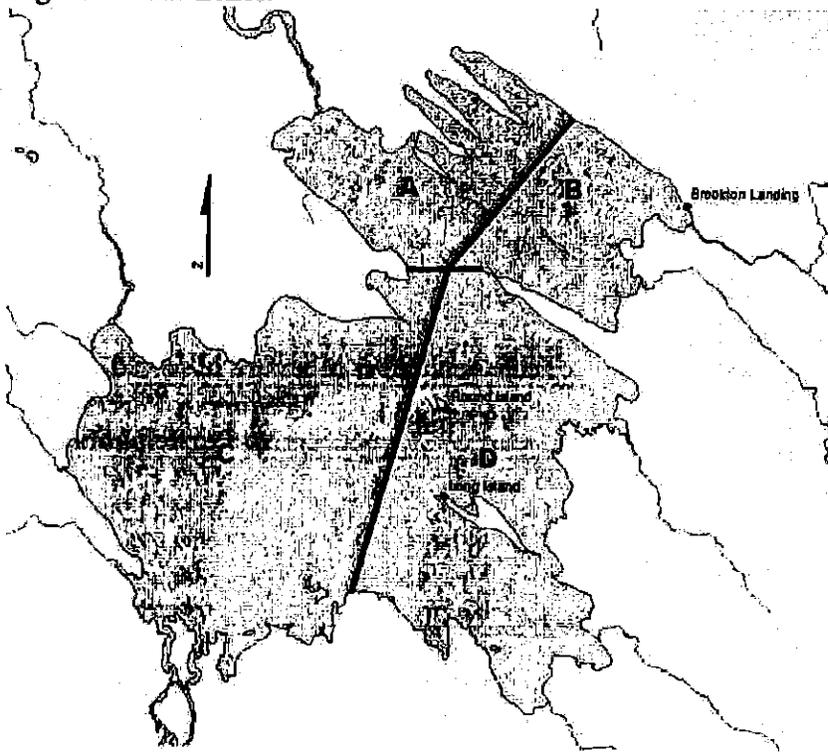
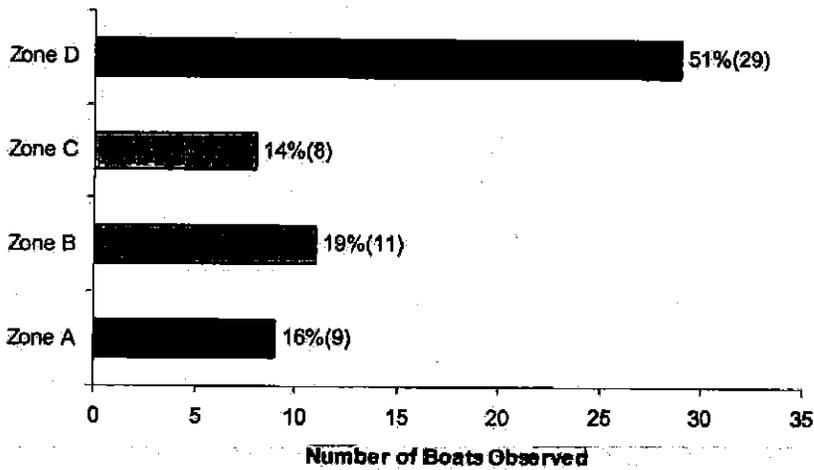


Figure 8. Boat observations per lake zone, N=57.



### **Vehicle counts at the Brookton and Danforth Boat Launches**

The quantity of parked vehicles at the Brookton and Danforth boat launches were monitored as an additional indication of recreational use on the watershed (see Appendix B). On their monitoring days, the student researchers recorded the total number of vehicles (noting in- and out-of-state license plates) as well as the number of new vehicles as regularly as possible at the Brookton launch (hourly or as often as they could around their other responsibilities). They traveled to the Danforth launch to check for vehicles at least once per monitoring day.

#### **Vehicle Monitoring at the Brookton Boat Launch**

Vehicles were counted an average of 4 times per day (ranging from 2-9 times per day) at the Brookton Boat Launch. At this location, observations were as follows:

- Number of vehicles at any monitoring count:
  - Range: 0-27 (busiest day was May 30<sup>th</sup>)
  - Mean number of vehicles: 6.13
- Total number of vehicles per day:
  - Range: 0-34
  - Mean number of vehicles per day: 9.29
- Total number of out-of-state vehicles per day:
  - Range: 0-3
  - Mean number of out-of-state vehicles per day: 0.63

The student researchers also noted the number of groups camped at the Brookton Boat Launch on monitoring days. They counted campers at the Brookton Launch 5 of the 24 monitoring mornings, and each time the campers were in one group.

#### **Vehicle Monitoring at the Danforth Boat Launch**

The students observed much less traffic at the Danforth Boat Launch. The average number of vehicles per day at the Danforth launch was 1.06, the most common number of vehicles at any count was 0, and the greatest number of vehicles observed at any point in time was 5. Three out-of-state vehicles were observed throughout the monitoring season.

### **Interviews with Long-Term & Frequent Visitors**

Interviews were conducted with frequent and long-term visitors to the watershed in order to learn more about typical use patterns on the lakes and streams, how use and conditions have changed over time, and about their suggestions for management actions and facility development. A list of twelve potential interview participants was obtained from the Forest Society of Maine and other partners. Six interviews were completed over the summer and fall of 2010. Reasons for not reaching the other six individuals on the list ranged from interview refusals (because they had not visited the watershed in a long period or time, or because of physical limitations which made an interview undesirable), to candidates being unreachable despite several attempts, or deceased. However, we are comfortable with the number of interviews conducted because there was a significant level of consensus among interviewees – many of the suggestions and comments were similar between individuals.

A series of multiple-component interview questions was developed (see appendix C). Interviewees were contacted by phone or at the Brookton landing. The purpose of the interviews was described to them, and they were asked for a few minutes of their time to complete an

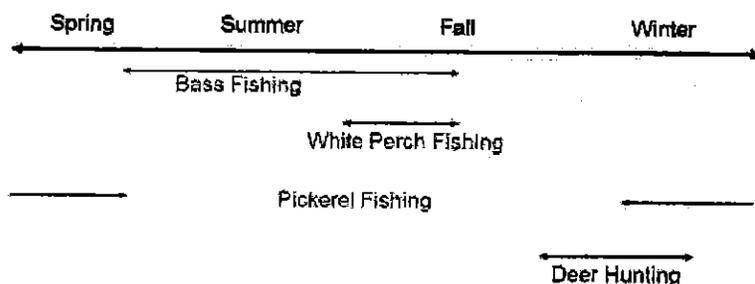
interview. The interviews were scheduled for a convenient time within the next couple of days, and a location was selected (usually their home or place of work). Two of the interviews were conducted over the phone at the request of the participants. The interviews were digitally recorded by the student researcher and were later transcribed by major point and selected quotations. The interviews ranged in length from 10-50 minutes.

Overall, the interviewees provided valuable insight regarding the use trends of the watershed and many helpful suggestions. All of the interviewees were eager to provide insight about the recreational use of the watershed and clearly appreciated and felt connected with the resource. Although it was not a specific interview question, the interviewees diverged in perspective over the use tolerance of the watershed. For example, one interviewee commented, "the lake already has quite a bit of pressure from use. I'm not sure if it's too much, but we might not want to make access so easy that use increases dramatically," while another stated, "it's a beautiful lake. I recommend that lots of people come to play on it." Some were concerned over the recreational carrying capacity of popular places within the watershed, while others felt the resource could withstand increasing use and the priority was to provide opportunity for fishing and recreation, and to support local businesses by increasing visitation in the local area. Interestingly, given these differences in perspective, many of the actual suggestions and observations provided throughout the interviews were similar among the group of interviewees. The following subsections outline the interview findings by content category.

#### ***Observations of seasonal use trends***

The interview participants had been visiting the watershed for at least 10 years and some more than 60 years. They all primarily used the lakes and streams for fishing, and two were guides. They described that summer and early fall fishing for bass and white perch are by far the current most prevalent uses of the watershed. Bass fishing generally begins in late May and white perch fishing is more dependent on warmer water. The interviewees discussed how off-season use is minimal around the watershed. Deer hunting is not overly productive (locals know of more optimal areas to hunt) and winter fishing is limited mostly to pickerel. Some locals occasionally take winter trips on the lakes for fishing and a cookout, but not often. Figure 9 outlines typical recreational activities on the watershed by season.

Figure 9. Recreational activities by season.



#### ***Qualities of the Baskahegan Lakes and Streams***

The interview participants were asked to describe the best qualities of the Baskahegan lakes and streams, and to discuss what brings people to the watershed for recreation. Their responses were all similar as outlined in table 5. The bass and white perch fishing was described as the major

reason people come to the watershed. The bass fishing is so fruitful that it is an ideal location for children and people who are inexperienced at fishing, because anyone can catch a (or multiple) fish. The bass fishing tends to be the major attraction for people from away, and the white perch tends to be the main focus of local regulars and avid fishers from within the region.

The majority of the interviewees mentioned the scenic quality as an important draw to the watershed. The beauty of the area is an important reason why people return year after year. Related to the simple beauty is the appearance of "wildness" or remoteness on the lakes and streams, as well as the opportunity to view wildlife. Several interviewees commented on the lack of development along the shoreline of the lakes as an important component of the scenery. They mentioned personally wishing they could lease a cabin but knowing that the development of more cabins would diminish the aesthetic quality of the resource. Quietness was also an important quality on the watershed. Several interviewees mentioned that the rockiness of the lake, although difficult to maneuver, maintains the opportunity for solitude on the lake. The rocks make the lake inappropriate for large power boats, jet-skis, and other speed-boating activities such as waterskiing. While some participants mentioned their desire for higher water to ease travel, others reflected on the benefits of rocks as obstacles for keeping an onslaught of diverse users away (and thus maintaining the special opportunity for fishing).

The opportunity to camp was also an important quality of the lakes. Interview participants mentioned the benefits of campsites for various reasons including contributing to the local economy and allowing visitors from away to thoroughly experience fishing on the lakes. Although several concerns about camping arose in the interviews (as discussed in subsequent sections), most participants mentioned that the opportunity to camp is an important component of the Baskahegan recreational experience.

Table 5. Major recreation qualities of the Baskahegan Watershed.

Fishing	Scenic Quality	Quietness	Opportunity for Camping
Excellent fishing for bass and perch	Beautiful scenery	Rockiness – keeps crowds away	Along shore & on islands
Great fishing for kids	"Wildness" and wildlife viewing	Expansive lakes disperse use	

#### *Users of the Lakes and/or Streams*

The interview participants described that a combination of locals, people from within the region, and people from Southern Maine and out-of-state form the users of the lakes and streams. The consensus was that a small number of locals tend to fish mostly for white perch, and that people come from all over to fish for bass. Nearby, people travel regularly from Houlton and Caribou because they do not have similar access to bass fishing locally. People from more afar come because they have either heard of the fishing through word-of-mouth or because they have come once with a guide and decided to return on their own. June tends to be the busiest month on the lake with guided groups (fishing for bass), and the majority of fishers tend to be day users, in groups ranging from 2-6 people.

### ***Changes in Use and Condition of the Lakes and/or Streams over Time***

The interviewees all described changes in patterns of resource use over time, however, they provided diverse perspectives over whether or not use of the lakes and streams has increased over time. Some participants felt the lake is being fished harder now, while others felt it has always been fished to the current extent. One person felt the fishing itself has recently slowed (in terms of quantity of catch), while another felt the fishing is as fruitful or even more so than ever – particularly abundant was the summer of 2009. Two participants thought there are currently more recreational boaters, while two other participants thought the quantity of recreational boating has not changed over the past 35 years.

Quantity aside, the interview participants provided valuable insight on the how the nature of use has changed over time on the lakes and streams. Five distinct changes in use were described (table 6). First, two interview participants described how one guide service who leased camps on the lake used to be the major user of the lake. At one point, this service had 14 customers on the water nearly every day. Now, a greater variety of guide services use the lake, however, Baskahegan tends to be one out of several lakes they use depending on customer goals and preferences. Second, the Loring Air Force Base at one time leased the lot behind the main launch area. At this time, large groups of people from the base would come and spend several days at a time at the lake. They had established a shelter and comfortable camp space, and were avid fishers of the lake. Now, a greater variety of people come to fish and stay for shorter periods at the launch area. Third, for years it was common to see several tents and campers parked at the launch area for several days or weeks at a time, or sometimes the whole season. Now, the lot is most often vacant and is occasionally used by a small number of tents who only stay for one or a few nights. Since the Baskahegan Land Company has posted signs and strategically placed large rocks at the launch area, visits are shorter and camping is limited to tents. Fourth, the participants described that use tended in the past to be spread evenly throughout the week (likely because many users were there for prolonged periods), and use now tends to be highest on weekends or holidays. Finally, in earlier part of the 20<sup>th</sup> century, deer hunting was the major attraction within the watershed. In 1939, bass from Big Lake were introduced to Baskahegan and soon replaced deer as the focal attraction.

Comments on changes in resource conditions also varied. Half of the participants felt that the condition of the islands and launch site has not really changed over time, while others felt that two islands in particular (Round Island and Long Island) have deteriorated in condition over recent years.

Table 6. Changes in recreational use over time.

Past Use	Current Use
One guide service was the primary user of the lake	A variety of guide services use the lake, but not every day
Loring Air Force Base was a major user	A greater variety of users
Many tents and campers at launch area for prolonged periods of time	A small number of tents at launch area (not regular)
Use was spread evenly throughout the week	Tends to be busier on weekends
Deer hunting was at one point the major attraction	Bass and white perch fishing are the main attractions

### ***Problems Related to Recreational Use on the Lakes and/or Streams***

Participants were asked to describe any problems associated with recreational use they have observed at the Baskahegan lakes and/or streams. While two out of the six interviewees responded that there were no problems, the other four provided valuable feedback. Once they had described the problems, the participants were asked to discuss potential solutions. Table 7 outlines the problems identified with the range of solutions mentioned by the interviewees.

Many of the comments pertained to the presence of human waste and trash at the launch area, as well as the lack of facilities at this site. The participants felt outhouses at the launch area would help along with other developments, so long as they are monitored and managed. They suggested that Baskahegan Land Company could hire someone local to manage the new facilities. Participants also voiced concern over the condition of Round and Long islands. One participant suggested implementing a registration system, however, most participants discussed the balance between implementing direct management and preserving visitor freedom. Other suggestions, such as signage that attempts to distribute use away from the current concentration on those islands, and signage with use regulations and/or minimal impact recommendations were mentioned. Several participants mentioned that rowdy groups, usually teenagers, partying at the launch sometimes cause problems when they vandalize and leave a mess. No specific solutions were mentioned other than for the Baskahegan Land Company and/or other partners to continue to clean afterwards.

The interviewees also discussed the current challenges with loading and landing at the launch – the site is so shallow that loading a boat onto a trailer can be difficult to impossible depending on size. Several suggestions were mentioned including a cement ramp and more frequent intervention using a front loader. One participant mentioned that the capacity of the parking lot could be increased as it becomes full on holidays, but others felt it best to keep capacity low to maintain the quiet character of the lake. Another participant discussed how the water level of the lake was at one time maintained by a roll dam at the lake outlet and wondered if it would be possible to re-implement the dam to ease lake navigation (around rocks). Finally, one of the interviewees discussed how he felt the streams could be better utilized by the general public and guided groups if take-out locations were better developed and campsites established. He

discussed the special character and opportunities on the streams for wildlife viewing and hunting, and felt that many people would travel the streams if their navigation were less difficult.

Table 7. Problems associated with recreational use and potential solutions.

Recreational Use Problems	Potential Solutions
Human waste at launch	<ul style="list-style-type: none"> <li>• Build outhouses at launch area</li> </ul>
Launch area has limited facilities	<ul style="list-style-type: none"> <li>• Provide picnic tables</li> <li>• Build a playground</li> <li>• Provide a source of drinking water</li> <li>• Fix the road into the launch</li> </ul>
Island campsites are in poor condition	<ul style="list-style-type: none"> <li>• Implement a registration system</li> <li>• Increase awareness of alternate campsites</li> <li>• Post a list of camping regulations</li> </ul>
Rowdy groups at launch leave a mess	
Launching and landing is difficult	<ul style="list-style-type: none"> <li>• Provide a dugout cement ramp in the water</li> <li>• Build a dock for day use</li> <li>• Use a front loader to increase slope of bottom</li> </ul>
Parking is restricted	<ul style="list-style-type: none"> <li>• Develop a larger parking lot</li> </ul>
Water level is too low	<ul style="list-style-type: none"> <li>• Re-implement the roll dam to raise water</li> </ul>
Streams are underutilized	<ul style="list-style-type: none"> <li>• Provide more information about paddling the streams</li> <li>• Improve launch location to facilitate half-day stream trips</li> <li>• Develop an easier take-out point at the Flowage</li> <li>• Develop campsites along the streams</li> </ul>

### **Section Summary & Conclusions**

Recreational use was monitored on the Baskahegan Lake over 24 days between May 30<sup>th</sup> and September 5<sup>th</sup> during the summer of 2010. Four methods were implemented to develop an understanding of use patterns on and around the lake: a visitor survey; observations of groups on Baskahegan Lake; vehicles counts at the Brookton and Danforth boat launches; and interviews with long-term and frequent visitors.

#### ***Visitor Survey Summary:***

The survey provided an indication of visitor travel patterns and use history. From the survey, we learned that lake visitors tended to be return visitors (94%) who traveled in small groups (2-3 people) of family or family and friends. Many (43%) of the groups included youth under age 16 and most (67%) visitors used the lake for day use. Most (67%) of the 33% of the respondents who camped stayed for 1 or 2 nights. Respondents were mostly (75%) from Maine, and they traveled the lake mostly (67%) by powerboat. Visitors found the lake to be fairly quiet, where 50% reported seeing no other groups on the water, and 31% saw only 1-5 other groups.

***Observations of groups on Baskahegan Lake Summary:***

The observations of boats provided a sense of the recreational experience on the lake in terms of quietness and travel preferences. The expansiveness of the lake provides a sense of solitude on the water. Most often while traveling on the water there were no boats in sight. The groups that were observed on the water tended to be small (2-3 people) groups fishing from modest powerboats. The greatest number of boats observed in one day was 9 (on August 14<sup>th</sup>). The majority (88%) of observed boats were powerboats, 7% were kayaks, and 5% were canoes. The mean number of people per boat on the water was 2.41, where groups ranged from 1-6 people and the most common number of people per boat was 3.

***Vehicle counts at the Brookton and Danforth Boat Launches Summary:***

Observing patterns of vehicles parked at the launch areas provided another perspective on use patterns on the lake and helped to identify visitor management challenges at the launch.

**At the Brookton boat launch:**

- Vehicle observations found:
  - Up to 34 vehicles per day, with a mean per day of 9.3.
  - Up to 27 vehicles at a time, with a mean of 6.13 at a time.
  - Up to 3 out-of-state vehicles per day, with a mean of 0.63 out-of-state vehicles per day.

**At the Danforth boat launch:**

- Fewer vehicle observations were conducted since the Brookton launch is the core use area within the watershed. Use patterns were low and did not present notable management problems. The vehicle counts found:
  - Up to 5 vehicles at a time, with a mean of 1.06 at a time.
  - The most common number of vehicles was 0.

***Interviews with Long-Term & Frequent Visitors Summary***

The interviews provided another indication of use patterns on the lakes and streams, and information about how recreational use and resource conditions have changed in the watershed over time, as well as suggestions of recreation related problems and for management and facility development in the future. The interviews found:

- The majority of recreation use is summer fishing for bass and white perch. Bass fishing is a family activity that attracts people from near and far, and white perch fishing is more specialized and attractive to long term visitors from Maine. There is little recreational activity in the watershed during winter and spring. Other than fishing, the major qualities visitors associate with the lakes and streams are the scenery, quietness, and the opportunity for camping.
- Recreational use of the watershed has changed over time in several ways. The major user groups have changed from one major guiding company and the Loring Air Force base, to a greater variety of visitors. Length of stay has decreased particularly at the Brookton boat launch and is now limited to tents. Use is now greater on weekends whereas it used to be more spread out throughout the week.

- The following suggestions for management actions and facility developments emerged from the interviewees' discussions over recreation-related problems at the watershed and their solutions:
  - Build outhouses at the launch and on some of the islands.
  - Build picnic tables at the launch.
  - Maintain the road into the launch.
  - Increase management presence for the island campsites – possibly integrating a registration system, campsite regulations, presence of staff, and impact monitoring.
  - Improve the ramp at the Brookton launch site
  - Reimplement roll dam to raise the water level of Baskahegan Lake
  - Increase access to and develop information about stream travel. Consider developing campsites along the streams.

### ***Section Conclusions:***

The following conclusions emerged from our recreational use monitoring:

- The lakes and streams provide a special place to fish attracting family groups for bass and white perch, as well as to enjoy the scenery, for the quietness, and for the opportunity to camp. Many current qualities of the resource are important to visitors and should be protected, such as the undeveloped shorelines, recreational access, and “wild” character of the resource.
- The most significant problem at the launch area is management of human waste. Outhouse facilities are needed to accommodate the quantity and combination of visitors (day use of the launch for swimming, boaters launching and landing, and camping groups) and to resolve the current sanitation and litter problem.
  - Several of the island and shoreline campsites also need systems for human waste management.
- The capacity of the parking lot is sufficient for nearly all days (except fair weather holidays). Expansion should not be a priority so long as increasing visitation to the lake is not an absolute goal.
- The parking lot design is functional with its loop. The main concern in terms of visitor access is the launch itself. On busier days it can be difficult for arriving parties to launch their boats if other groups are using the launch area for swimming, fishing, and sun-bathing (particularly when the groups spending time at the launch park their cars directly adjacent to the launch). It might be beneficial for land managers to direct parking away from the launch area and to consider posting a sign about launch etiquette.
- As it is, the boat launch area can be difficult for new visitors or people with larger boats given its gradual slope and shallow water. A possible improvement would be to excavate the shoreline to make launching and loading more conducive for a variety of users. However, this would likely require an environmental assessment.
- A decision will need to be made about the use of the open area west of the launch (currently leased to groups with trailers). If the area will not be leased to another group in the future, managers might consider making it a day-use park for beach goers and swimmers. This would leave the main launch area for people with boats (and alleviate launch congestion issues). Such a change would require a management presence to prevent unwanted uses and activities.

- While the islands are much appreciated for the camping opportunities they provide, they present some management issues. Lack of development and a sense of “wildness” is a major attraction of the area, but the recreational use of the islands over years without targeted management has led to compromised conditions. A more hands-on management presence is needed to preserve the undeveloped character. Approaches, based on our interview findings, might include more signage of camping regulations or minimum impact travel recommendations, the regular presence of managers (paid staff or volunteers), and a registration system for the islands requiring visitors to contact the Baskahegan Land Company and agree to terms before camping.
- The interviewees suggested user groups would take greater advantage of the streams if access and trip information were more available. This might also help to disperse use away from the Brookton boat launch and nearby islands. The streams are wild in character and exceptional for fishing and wildlife viewing. However, trips are difficult to plan because of long distances and wind vulnerabilities between access points and lack of campsites and convenient pullouts along the way. Managers might consider improving stream information on current maps such as the DeLorme Gazetteer, improving access roads to the existing launch sites on the flowage, and developing new launch sites and campsites along the streams.

## RECREATION RESOURCES

The focal recreation resources for this project were the Baskahegan Lake and Crooked Brook Flowage campsites, and the launch sites and recreation developments along the North and South Streams. This section of the report details our assessment of these resources and provides a discussion of our major conclusions.

### **Baskahegan Lake and Crooked Brook Flowage Campsites**

Nine current campsites were identified within the Baskahegan Stream Watershed. One of the campsites is composed of three camping cells and a second contains two cells, for a total of 12 tenting sites within the watershed. Seven of the campsites are located on Baskahegan Lake (figure 10), and two at the Crooked Brook Flowage (figure 11).

Figure 10. Location of campsites on Baskahegan Lake.

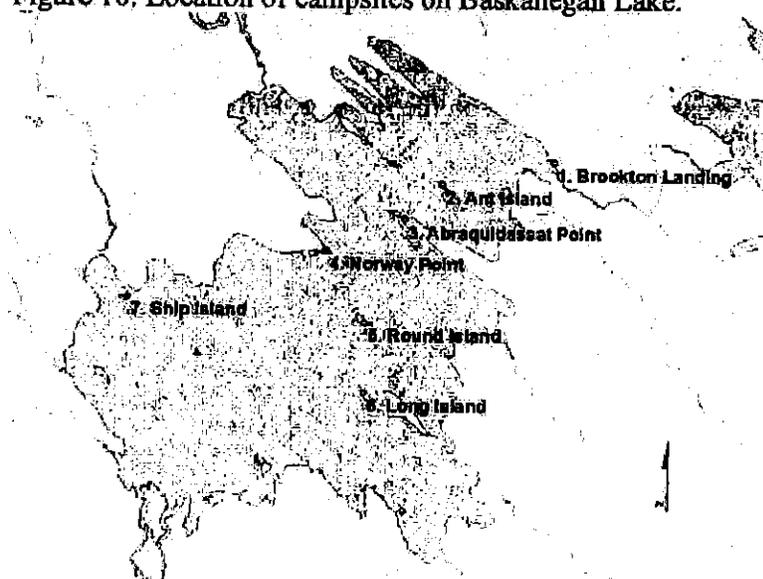
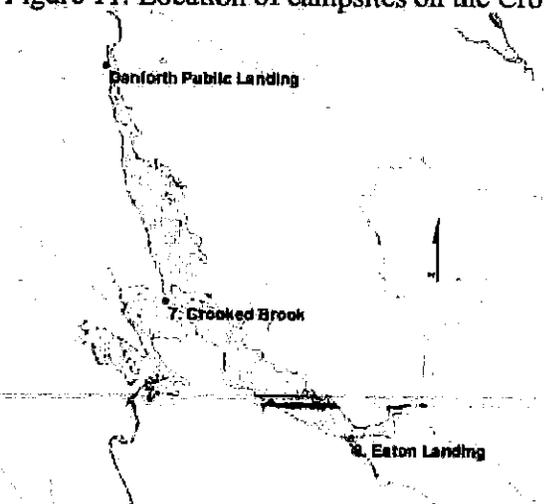


Figure 11. Location of campsites on the Crooked Brook Flowage.



### Campsite Assessments

A monitoring tool originally adapted for the Maine Coastal Islands was used to assess the condition of campsites. The goals of the monitoring tool are to identify the current size and condition of the site, to photo document the site for future comparison, and to note important characteristics and concerns associated with the sites. A combination of GPS and physical measurements were used to measure the tent sites, and a series of maps were created using ArcGIS 9.3.1 and Google Sketch-Up.

The following sections contain: general descriptions of each campsite (including tent sites and expanded use areas), maps showing site shape, size, and major characteristics; a selection of site photos; lists of site qualities and concerns; and suggestions for management actions. The more detailed monitoring sheets for each site are provided in appendix D. Appendix E provides the full compilation of campsite photos.

For each site, an overview is provided showing the site cells, prominent features, and use areas. GPS data were used to create these overview maps, which were developed using ArcGIS 9.3.1. An additional map is provided for each cell showing the cell transects (identifying campsite size) and entrance points. Physical measurements and Google Sketch-Up were used to create these maps because the accuracy of GPS data was less useful given the small cell sizes and at times thick tree cover. All entrances to campsites are color coded according to the condition class outlined in table 8.

Table 8. Condition class system for campsite entrances.

Condition Class	Color Code	Description
0		Trail barely distinguishable; no or minimal disturbance of vegetation or organic litter.
1		Trail distinguishable; slight loss of vegetative cover and/or minimal disturbance of organic litter.
2		Trail obvious; vegetative cover lost or disturbed.
3		Vegetative cover and organic litter lost in nearly all places, but little or no erosion.
4		Soil erosion or compaction in tread is beginning in some places.
5		Soil erosion or compaction is common: tread is obviously below ground surface.

### ***Campsite 1: Brookton Landing***

The Brookton Landing campsite is located directly adjacent to the parking lot and consists of two cells within a larger use area (figure 12 shows a site overview). Although the site does not experience overly frequent use (groups were observed 5 of the 24 monitoring days), the camping cells and side use areas show significant wear. These sites are among the most popular on the watershed due to their ease of access, which sometimes makes them a party destination for local groups. The campsite also tends to be used as a bathroom area for day-users since there are no facilities at the launch site.

Figure 12. Overview showing Brookton Landing campsite, the parking lot, docks and water's edge.

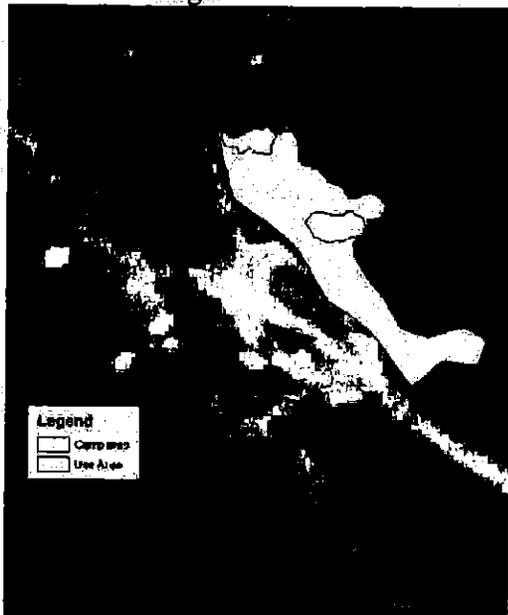


Figure 13. North cell transects with fire pit as center point.

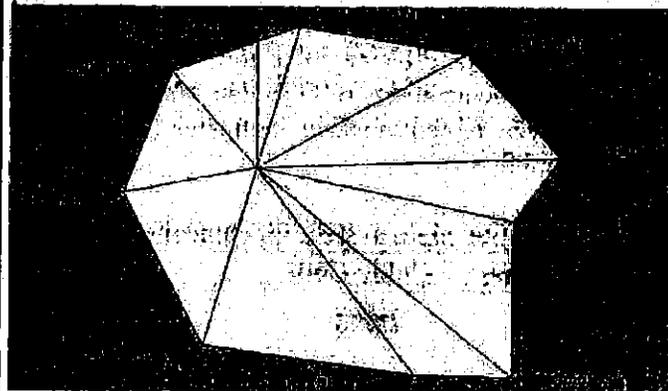


Figure 14. South cell transects with fire pit as center point.

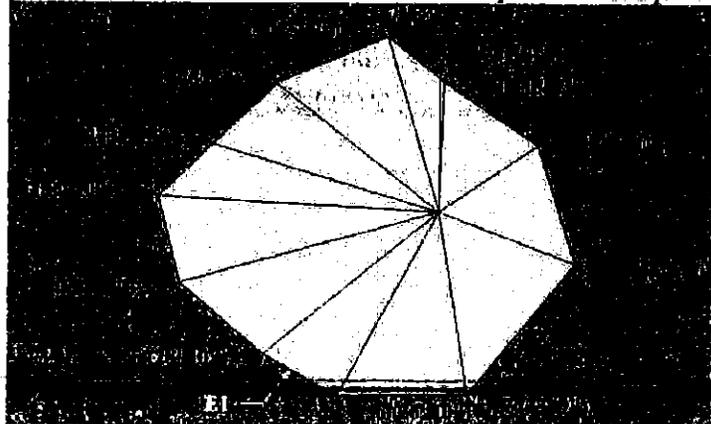




Photo taken from transect #10 of South Cell at the Brookton Launch



Photo showing main entrance of the South Cell at the Brookton Launch Campsite



Photo documenting fire pit of the North Cell at the Brookton Launch campsite.



Brookton launch site South Cell from the parking lot.

Table 9. Brookton Landing site qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Proximate to boat launch</li> </ul>	<ul style="list-style-type: none"> <li>• Frequent fire site despite posted fire restrictions</li> </ul>
<ul style="list-style-type: none"> <li>• Easy access for camping and day use</li> </ul>	<ul style="list-style-type: none"> <li>• Significant presence of human waste and toilet paper within the use area and surrounding areas</li> </ul>
<ul style="list-style-type: none"> <li>• Accessible in windy conditions (does not require water travel)</li> </ul>	<ul style="list-style-type: none"> <li>• Frequent presence of trash</li> </ul>
<ul style="list-style-type: none"> <li>• Multiple sites for large groups</li> </ul>	<ul style="list-style-type: none"> <li>• The ground vegetation cover on the South site is sparse and showing signs of erosion</li> </ul>
<ul style="list-style-type: none"> <li>• Camping use tends to be limited to 1-3 nights</li> </ul>	
<b>Management Recommendations</b>	
<ul style="list-style-type: none"> <li>• Develop outhouse facilities at the launch to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>• Increase management presence (by volunteers or increased presence of Baskahegan staff) at the launch as this is the main access point to the watershed. The purpose of management presence would be to maintain the site and to encourage visitors into more environmentally responsible behavior.</li> </ul>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Re-build fire rings to be more permanent and safe (and to discourage visitor-built additional rings).</li> </ul>	
<ul style="list-style-type: none"> <li>• Create natural barriers to limit use of side areas once outhouse facilities are in place. This will help clarify campsite boundaries and allow surrounding areas to recover.</li> </ul>	

### ***Campsite 2: Ant Island***

The Ant Island campsite is located close to the Brookton Launch in the Northeast portion of Baskahegan Lake. The island is easily accessible by boat and landing by the campsite is simple along the stone shore. The campsite is in a natural depression on the island, giving campers some additional shelter from the wind and a sense of privacy. Island visitors would experience a sense of remoteness even though this is the closest campsite to the Brookton Launch. The campsite is expanding to the North but the expansion areas are somewhat screened from the main tenting site by shrubs. There is an old, overgrown campsite with a fire ring on the North end of the island. There is significant damage to trees (ropes, nails, limbing) within and surrounding the campsite, and several large, dead trees have been cut down to use as firewood. The island contains large piles of trash (carpets, tents, furniture, etc.) concentrated toward the Southern tip.

Figure 15. Overview of Ant Island campsite. Figure 16. Ant Island campsite transects with fire ring as center point.

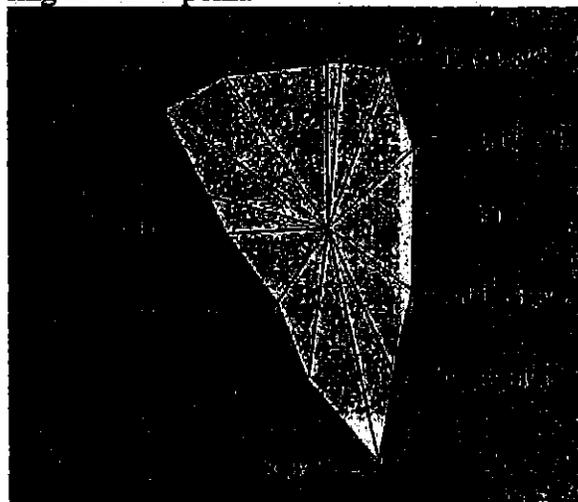
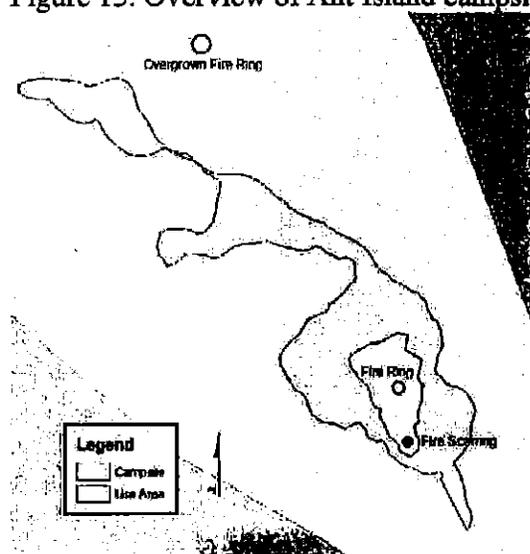




Photo taken from transect #8 showing fire scarring.

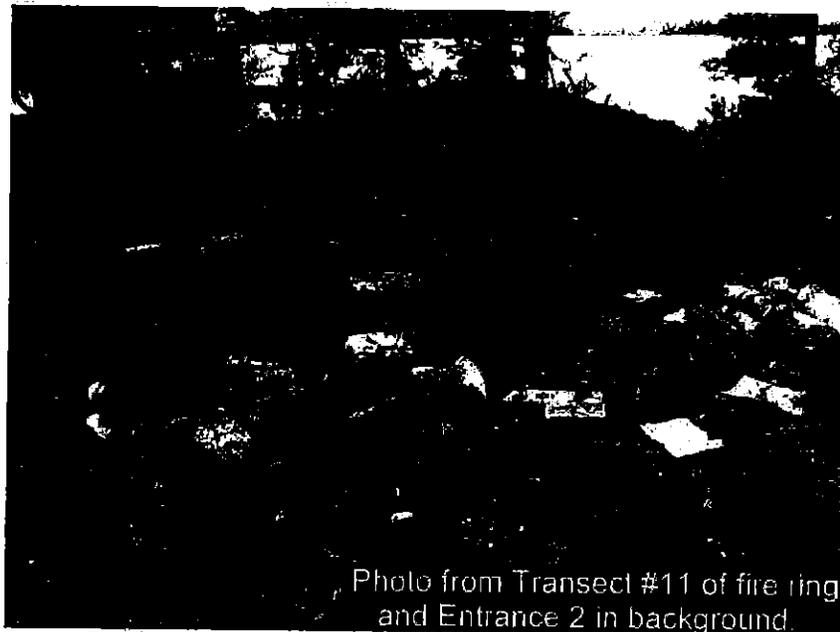


Photo from Transect #11 of fire ring and Entrance 2 in background.

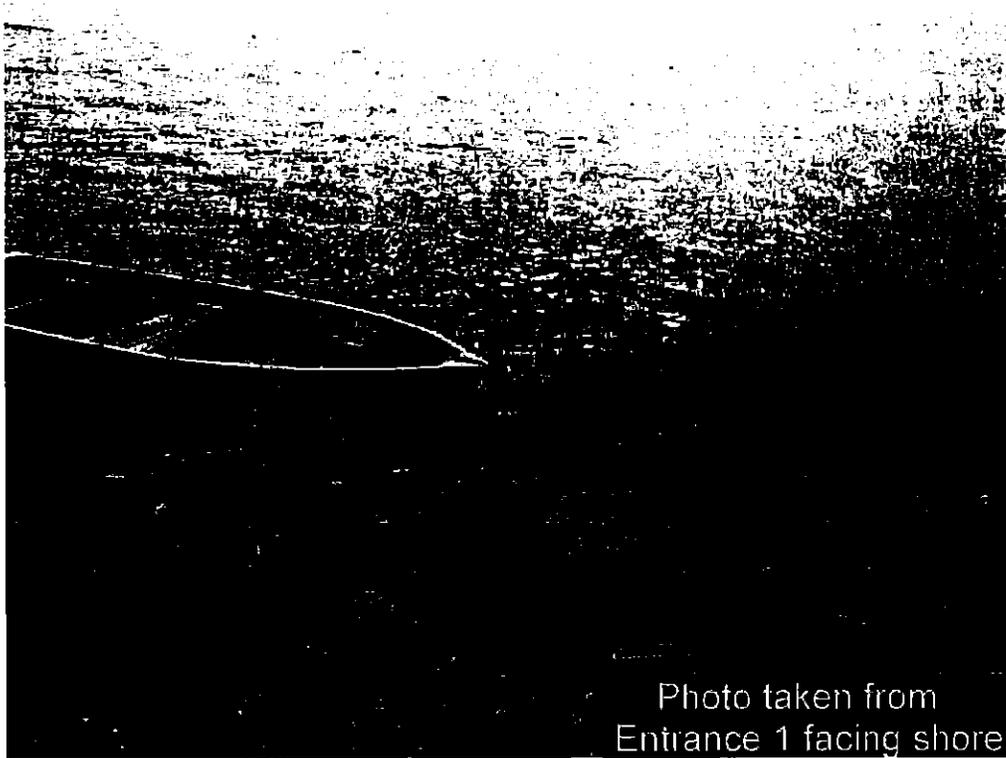


Table 10. Ant Island campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Closest Island campsite to Brookton Launch.</li> </ul>	<ul style="list-style-type: none"> <li>• Evidence of fires in campsite outside of fire ring.</li> </ul>
<ul style="list-style-type: none"> <li>• Located in sheltered portion of the lake, less vulnerable to the wind.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant presence of human waste and toilet paper within the use area and surrounding areas.</li> </ul>
<ul style="list-style-type: none"> <li>• Capacity for 2 to 3 tents.</li> </ul>	<ul style="list-style-type: none"> <li>• Frequent presence of trash inside and large trash piles outside of campsite.</li> </ul>
	<ul style="list-style-type: none"> <li>• Large trees cut for firewood. Expansion to the North of the campsite, site screened by shrubs.</li> </ul>
	<ul style="list-style-type: none"> <li>• Overgrown campsite with old fire ring on the north end of the island</li> </ul>
Management Recommendations	
<ul style="list-style-type: none"> <li>• Develop outhouse facilities to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>• Devise a plan for managing the outhouse facility and cleaning the island including the fire ring (this could be a group of volunteers or hired staff).</li> </ul>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Re-build fire ring to be more permanent and safe (and to discourage visitor-built additional rings).</li> </ul>	

### ***Campsite 3: Abraquidassat Point***

The campsite at Abraquidassat Point is small and private, and it is located at the end of a narrow peninsula in the Northeast quadrant of Baskahegan Lake. Although the site has been developed by campers with a table, tarp, and two fire rings, it feels more rugged and less impacted than other more popular campsites. Abraquidassat Point campsite is also very small in comparison to most other campsites, and it is tightly surrounded by healthy vegetation along the portion of its circumference that does not directly access the water. The campsite has direct water access to the North and via a very short trail to the South, both of which offer special places for swimming and facilitate launching and landing in various wind conditions. The extended use area in figure 17 depicts the area with heavy tree damage (from cutting for fire wood) which is somewhat wet and does not elicit heavy trampling damage or evidence of alternate tent sites.

Figure 17. Overview of Abraquidassat Point campsite.

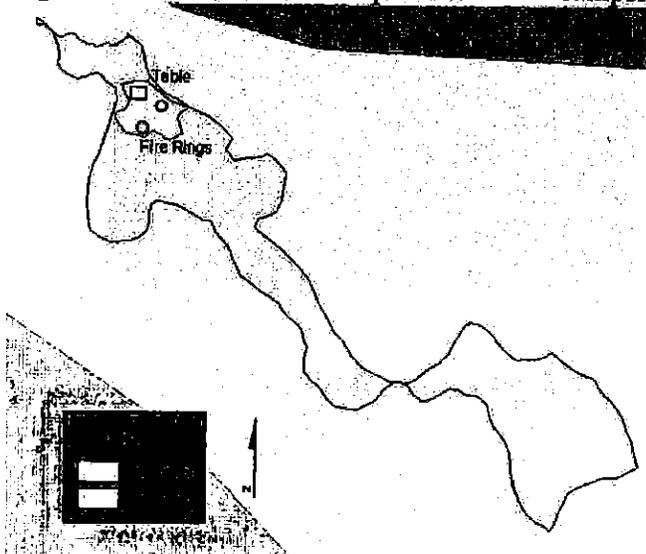
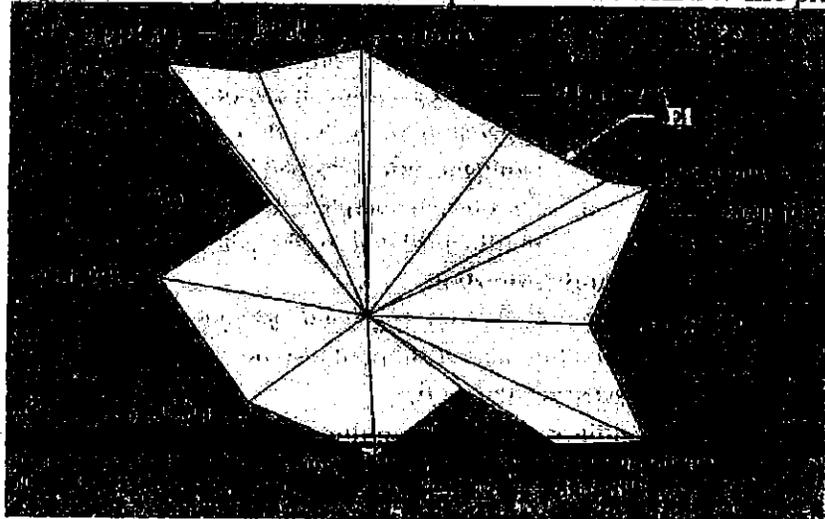


Figure 18. Abraquidassat Point campsite transects with SW fire pit as center point.



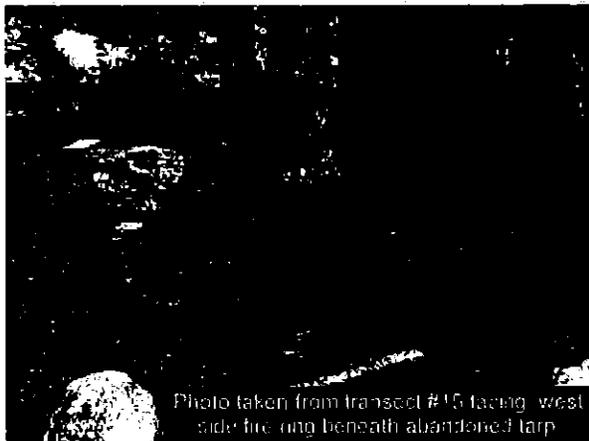




Table 11. Abraquidassat Point campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Small, private site.</li> </ul>	<ul style="list-style-type: none"> <li>• Campsite has two large fire pits (one on each side of the small site).</li> </ul>
<ul style="list-style-type: none"> <li>• Easily reachable by boat – access is sheltered from wind by the long, narrow peninsula.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant presence of human waste and toilet paper within the use area.</li> </ul>
<ul style="list-style-type: none"> <li>• Site is a popular stopover for lunch and other day uses.</li> </ul>	<ul style="list-style-type: none"> <li>• Large table takes up a lot of space in the small site but may also be preventing expansion to the North.</li> </ul>
	<ul style="list-style-type: none"> <li>• Significant tree damage with trees recently cut to expand the site to the North and South.</li> </ul>
<b>Management Recommendations</b>	
<ul style="list-style-type: none"> <li>• Develop outhouse facilities to reduce presence of human waste and associated litter in the use area to the South.</li> </ul>	
<ul style="list-style-type: none"> <li>• Devise a plan for managing the outhouse facility and cleaning the island including the fire rings (this could be a group of volunteers or hired staff).</li> </ul>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Remove one fire ring and re-build the other fire ring to be more permanent and safe. Clean out fire rings periodically to limit their size and discourage additional visitor built fire rings.</li> </ul>	
<ul style="list-style-type: none"> <li>• Create natural barriers to limit use of side areas once outhouse facilities are in place. This will help clarify campsite boundaries and allow surrounding areas to recover.</li> </ul>	

**Campsite 4: Norway Point**

The Norway Point campsite is located opposite Abraquidassat Point along the Northwest shore of Baskahegan Lake. The campsite has a small capacity (1 or 2 tents) because much of its flat area is covered by the fire ring and tables, and much of the remaining area is uneven or covered by trees and/or roots. The campsite sits adjacent to a sandy beach (to its North) which is ideal for landing and enjoying. The main use of the campsite appears to be for lunches and dinners. It is an attractive site except for the fire ring which has become very large and is expanding toward the middle of the site. The campsite floor has been reduced to mineral soil around the fire ring and tables, but is covered by a layer of forest duff and moss in other areas.

Figure 19. Overview of Norway Point campsite.

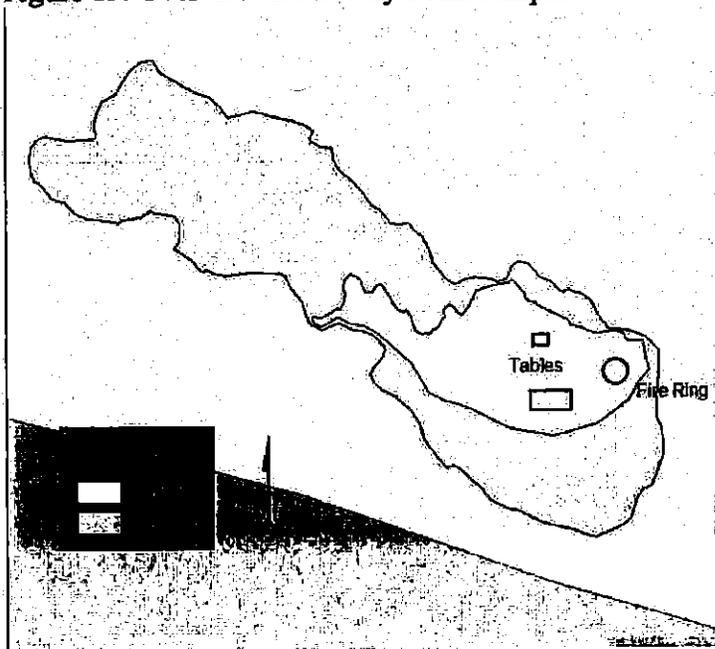


Figure 20. Norway Point campsite transects with fire ring as center point.

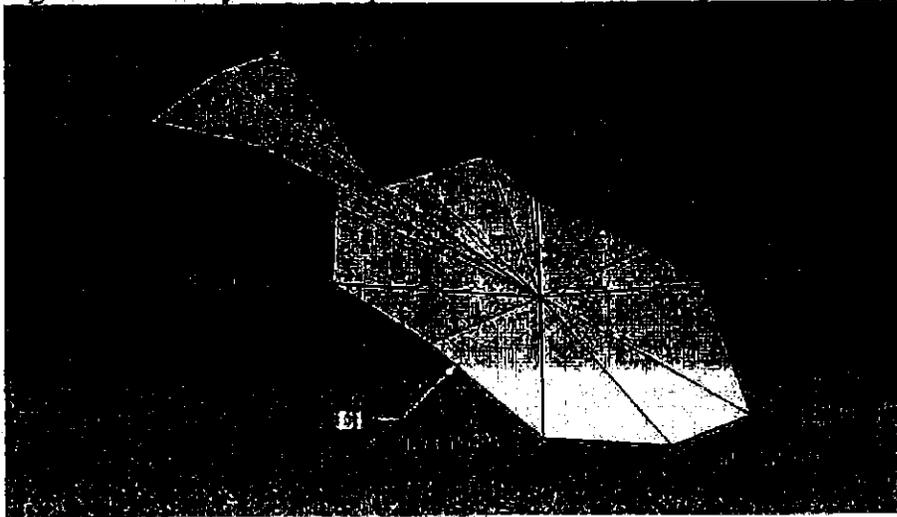






Photo taken from transect #2  
facing southeast.

Table 12. Norway Point campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>Central location on Baskahegan Lake with easy access for camping and day use.</li> </ul>	<ul style="list-style-type: none"> <li>Large, expanding fire ring. Fire scarring and coals spreading over large area of campsite.</li> </ul>
<ul style="list-style-type: none"> <li>Popular location for campsite cooking and shore meals.</li> </ul>	<ul style="list-style-type: none"> <li>Significant presence of human waste and toilet paper within the use area and surrounding areas.</li> </ul>
<ul style="list-style-type: none"> <li>Space for one tent back from and partially screened from main front area.</li> </ul>	<ul style="list-style-type: none"> <li>Frequent presence of trash.</li> </ul>
<ul style="list-style-type: none"> <li>Large beach at main entrance.</li> </ul>	<ul style="list-style-type: none"> <li>Trail over steep bank to the SW is eroding.</li> </ul>
	<ul style="list-style-type: none"> <li>Significant amount of old tree damage.</li> </ul>
Management Recommendations	
<ul style="list-style-type: none"> <li>Develop outhouse facilities to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>Devise a plan for managing the outhouse facility and cleaning the island including the fire ring (this could be a group of volunteers or hired staff).</li> </ul>	
<ul style="list-style-type: none"> <li>Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>Re-build the fire ring to be more permanent, smaller, and more safe (and to discourage visitor-built additional rings).</li> </ul>	
<ul style="list-style-type: none"> <li>Consider building steps on the SW trail. The trail is in a location where people will walk regardless of management intervention (to get to the back beach) so screening and re-directing is not a good option.</li> </ul>	

**Campsite 5: Round Island**

The campsite on Round Island consists of three tenting cells. This is the most popular of all island campsites on the lake likely due to its convenient location (in the Northern portion of zone D, a short distance by boat from the launch). The impact on the campsite seems to be more a result of occasional use by large groups with heavy footprints than from frequent use. The island and surrounding area are aesthetically beautiful, however, the impact from camping on this island is at a severity that has damaged the health of the island forest and that will appear unappealing to new visitors. Of the three tenting cells, the South and Center cells are most used and impacted, and the North cell is more separated and in slightly better condition.

Figure 21. Overview of the north tenting cell on Round Island.

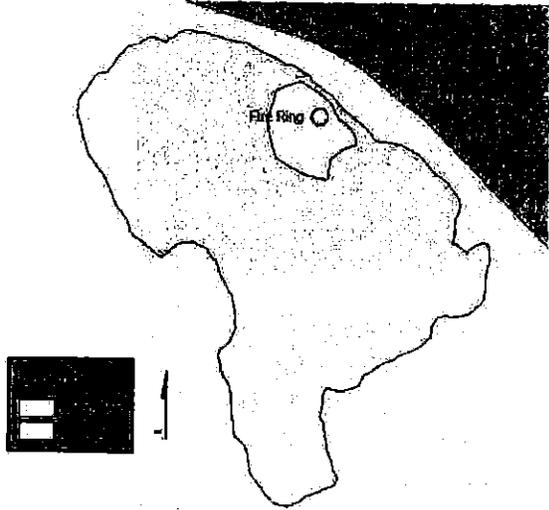


Figure 22. North cell transects with fire pit as center point.

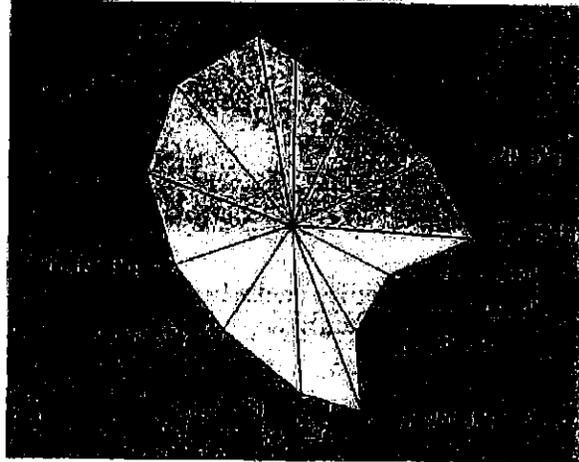


Figure 23. Overview of the center and south tenting cells on Round Island.

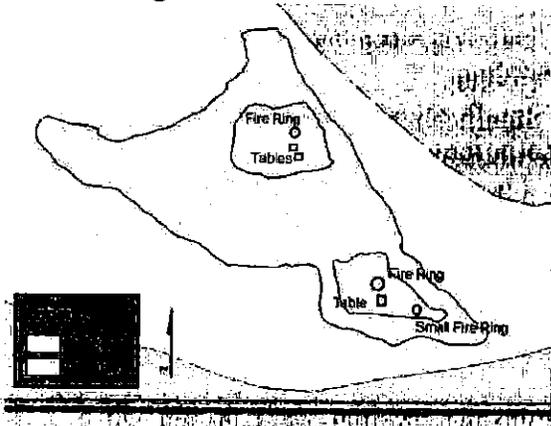


Figure 24. Center cell transects with fire pit as center point.

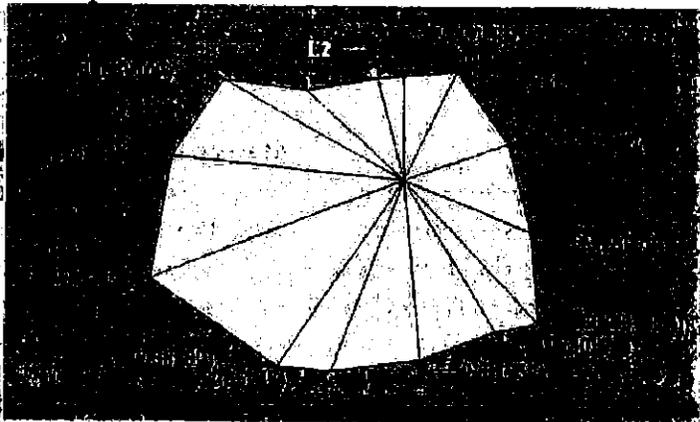


Figure 25. South cell transects with fire pit as center point.

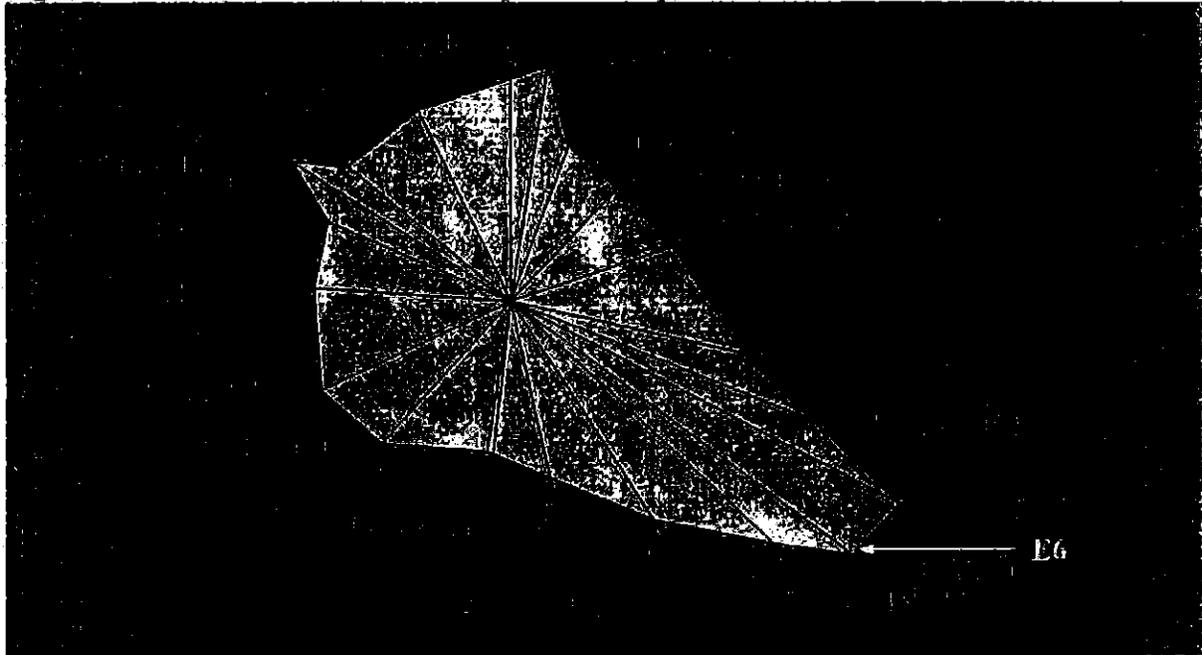
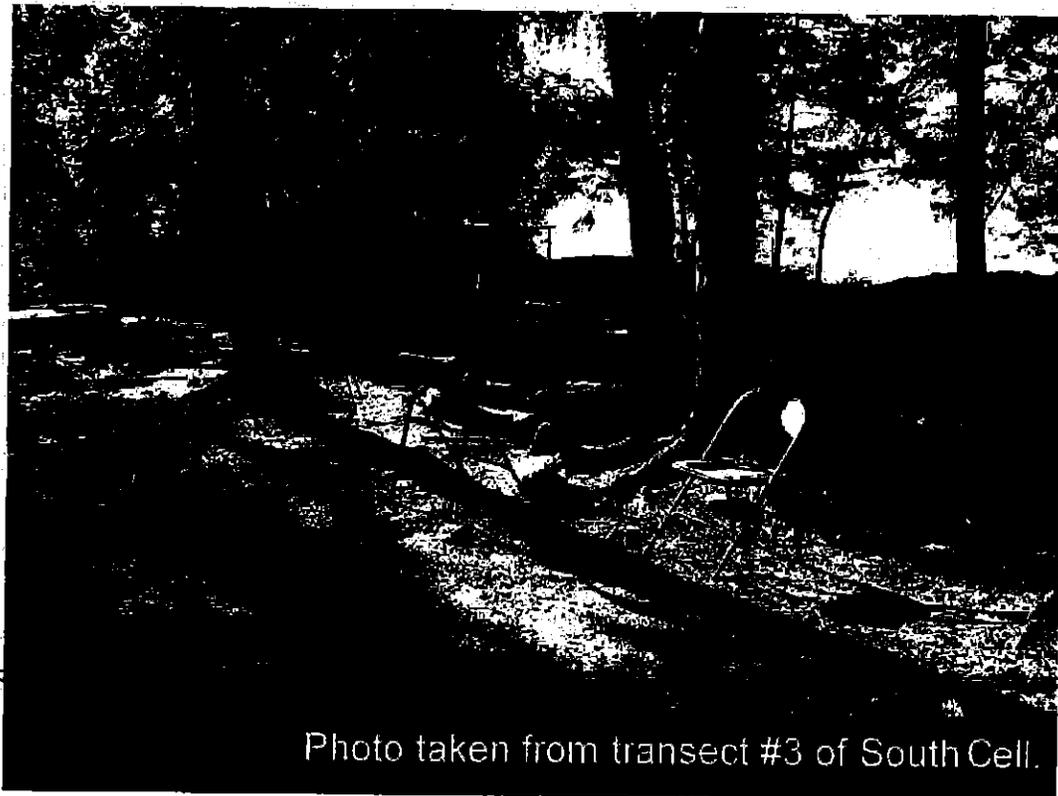
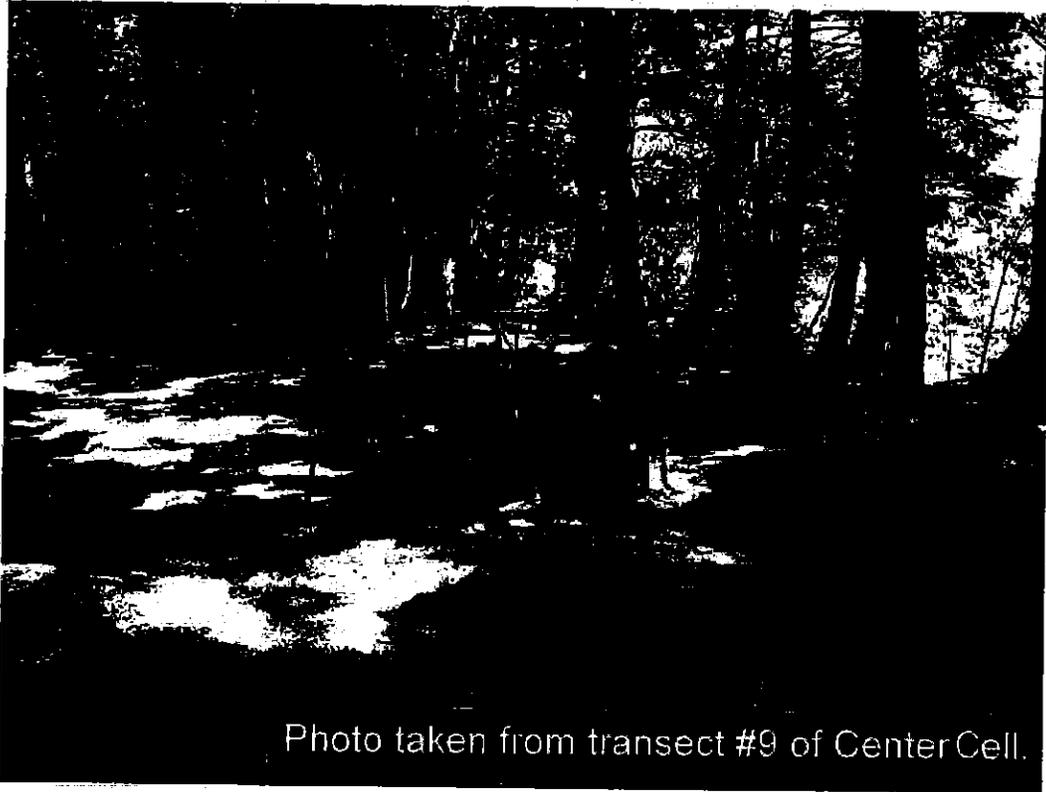


Photo taken from transect #8 of North Cell.





Groover site on West shore of South Cell.



Photo taken from Entrance 3 of Center Cell facing toward the South Cell.

Table 13. Round Island campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>Multiple sites and capacity for large groups.</li> </ul>	<ul style="list-style-type: none"> <li>Level of recreation impact is severe enough to dissuade new visitors from camping on the island.</li> </ul>
<ul style="list-style-type: none"> <li>Accessible, central location on the lake – short boat ride from the Brookton Launch.</li> </ul>	<ul style="list-style-type: none"> <li>Multiple fire rings in on the island, and two fire rings in the South cell.</li> </ul>
<ul style="list-style-type: none"> <li>Aesthetically pleasing island that offers feeling of remoteness without needing to travel far to reach.</li> </ul>	<ul style="list-style-type: none"> <li>Management of human waste is a problem – 4 abandoned thunder boxes and extensive evidence of dispersed human waste on the island.</li> </ul>
<ul style="list-style-type: none"> <li>Good beach for shore meals and landing boats.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive damage to trees and other vegetation.</li> </ul>
<ul style="list-style-type: none"> <li>Important opportunity for groups that return year after year.</li> </ul>	<ul style="list-style-type: none"> <li>Heavy presence of trash and abandoned camping equipment (grates, furniture, cookware, etc.)</li> </ul>
<b>Management Recommendations</b>	
<ul style="list-style-type: none"> <li>Develop an outhouse facility on the island to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>Devise a plan for managing the outhouse facility and cleaning the island including the fire rings (this could be a group of volunteers or hired staff).</li> </ul>	
<ul style="list-style-type: none"> <li>Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>Re-build fire rings to be more modest in size and permanent. Limit fire rings to one per tenting cell at maximum.</li> </ul>	
<ul style="list-style-type: none"> <li>Post signage describing the importance of letting spruce and fir saplings grow to help screen the tenting cells.</li> </ul>	
<ul style="list-style-type: none"> <li>Consider building stone steps into the center tenting cell to converge walking traffic and prevent further bank erosion.</li> </ul>	

### ***Campsite 6: Long Island***

Long Island is located in the Southeast quadrant of Baskahegan Lake. The campsite occupies much of the Western arm of the island and has the capacity for large groups. The use area is expanding toward the South as more trees are cut and de-limbed for use as fire wood. There is a relatively thick layer of pine needles and forest litter for ground cover within the campsite, but soil is exposed in areas around the fire pit and tables. The campsite contains a range of visitor-made developments, such as a large table and cooking platform, and one large and multiple smaller fire rings. There is also abundant camping equipment such as chairs, clotheslines, and cooking equipment. The presence of human waste is a major problem on this island, as it is spread throughout the use area.

Figure 26. Overview of Long Island campsite.

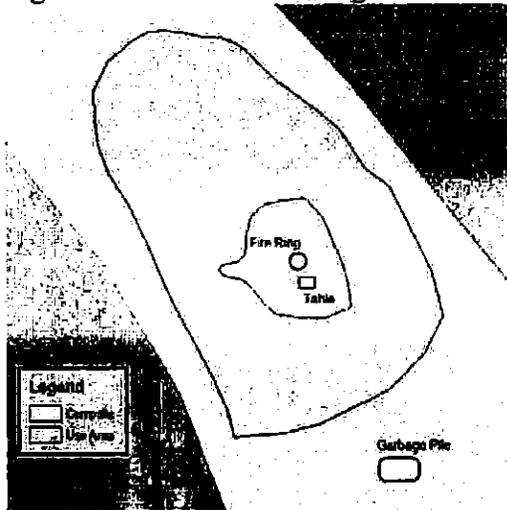


Figure 27. Long Island campsite transects with fire ring as center point.

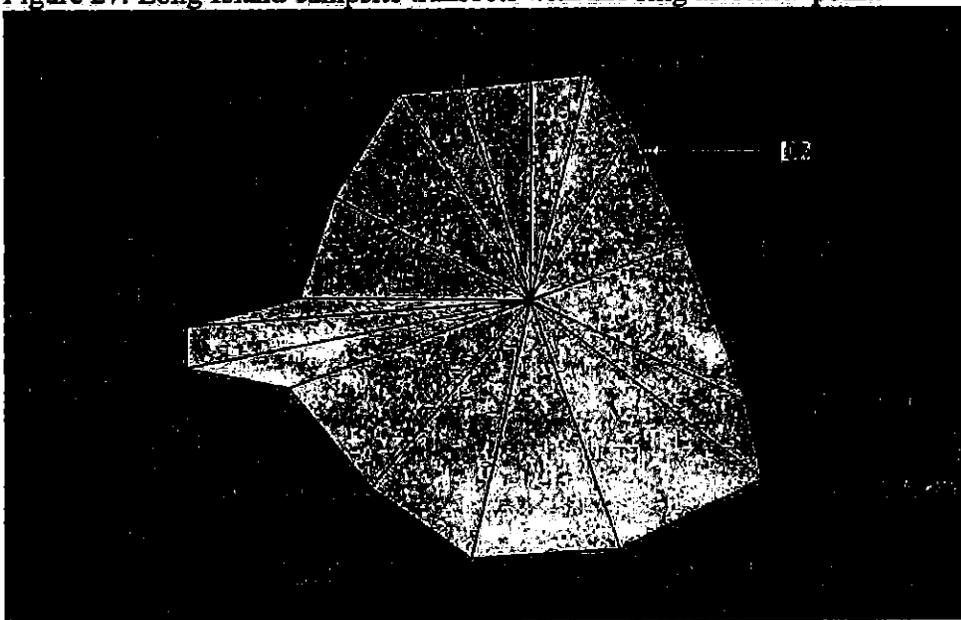




Photo showing steps from shore into campsite via Entrance 1.



Photo taken from transect #5 facing east

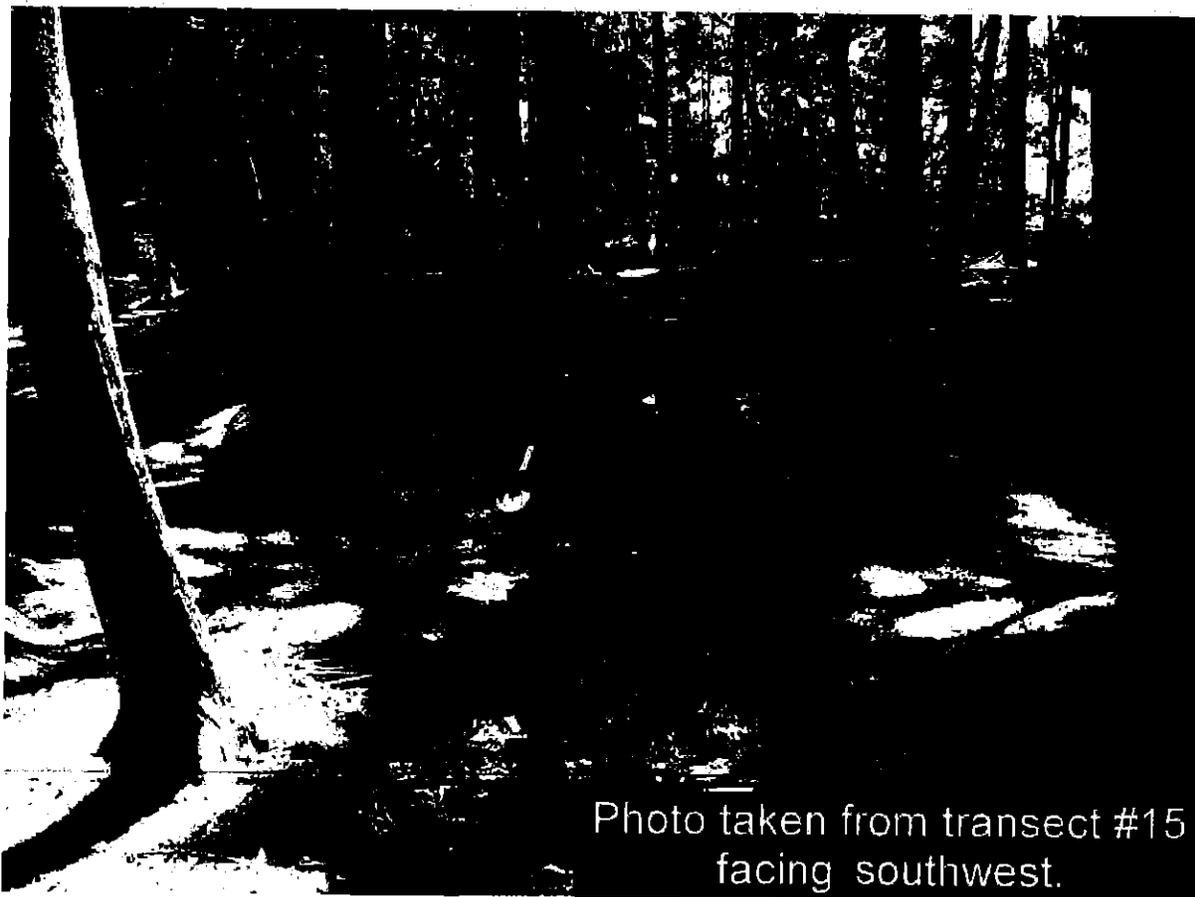


Photo taken from transect #15 facing southwest.



View of use area to the south  
taken from S edge of campsite.

Table 14. Long Island campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Remote, private location.</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple fire rings. Main fire ring is oversized and spreading.</li> </ul>
<ul style="list-style-type: none"> <li>• Able to accommodate large groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant presence of human waste and toilet paper within the use area and surrounding areas.</li> </ul>
<ul style="list-style-type: none"> <li>• Sheltered landing area.</li> </ul>	<ul style="list-style-type: none"> <li>• Large amount of trash both within and outside of the use area.</li> </ul>
	<ul style="list-style-type: none"> <li>• Significant tree damage (ropes, scars, nails, de-limbing, cutting).</li> </ul>
	<ul style="list-style-type: none"> <li>• Site expanding to the south.</li> </ul>
Management Recommendations	
<ul style="list-style-type: none"> <li>• Develop outhouse facilities at the launch to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>• Devise a plan for managing the outhouse facility and cleaning the island including the fire ring (this could be a group of volunteers or hired staff). Visitors to this island need to understand that heavy-impact behavior will change the character of the island.</li> </ul>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Re-build the main fire ring to be smaller, more permanent, and safe (and to discourage visitor-built additional rings).</li> </ul>	
<ul style="list-style-type: none"> <li>• Post signage restricting the cutting of trees. Consider posting signage at the Brookton Launch restricting the use of chainsaws on the islands.</li> </ul>	

**Campsite 7: Ship Island**

The campsite on Ship Island is located in the Southwest portion of Baskahegan Lake. Ship Island is very small in itself, and the campsite is a small flat area on the North end of the island surrounded by large boulders that line the shore. There are no major entrances to the campsite because of these boulders, and there is little risk of site expansion for the same reason. The island is difficult to reach by boat because it is surrounded by shallow water containing many granite boulders. The rocks also make landing difficult – the campsite is only accessible for small boats. The Ship Island campsite is marked in the Maine Gazetteer, yet it receives very little use compared to the campsites located closer and more accessible to the Brookton Launch. A relatively healthy layer of moss and forest duff cover the campsite floor, the surrounding trees have seen little damage, and there is no evidence of human waste or associated trash.

Figure 28. Overview of Ship Island campsite.

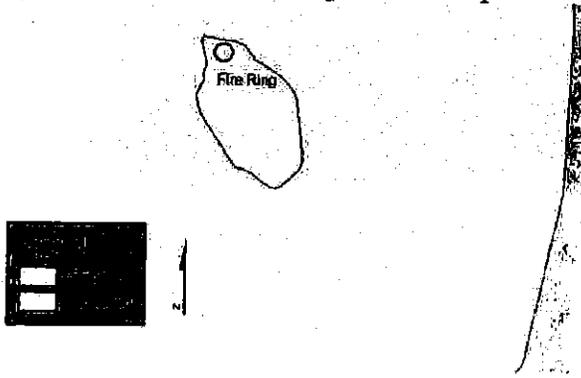


Figure 29. Ship Island campsite transects with W tip of large boulder as center point.

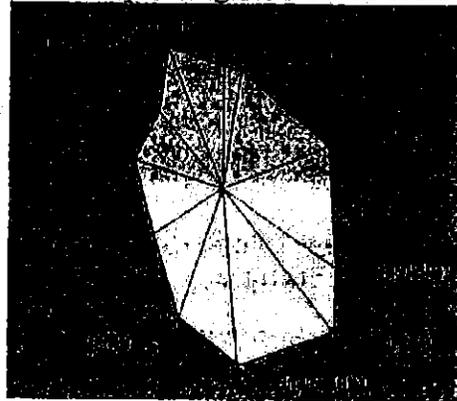


Photo taken from transect #5 facing west.



Photo taken from transect #10 facing southeast.

Table 15. Ship Island campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Small, private site.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no place on the island to build an outhouse, and rocks prevent the opportunity to dig a cat-hole.</li> </ul>
<ul style="list-style-type: none"> <li>• Difficult to reach by boat (rocky for motor boats and wind-exposed for paddlers).</li> </ul>	
<ul style="list-style-type: none"> <li>• Site is attractive and in healthy condition.</li> </ul>	
<ul style="list-style-type: none"> <li>• Located near productive fishing areas on the lake.</li> </ul>	
<b>Management Recommendations</b>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Re-build the fire ring into a more permanent, low-impact development.</li> </ul>	

### ***Campsite 8: Crooked Brook***

The Crooked Brook campsite is located along the Western shore of the Crooked Brook flowage. The campsite is in a good location to be a take-out point for groups who have paddled the Baskahegan stream South of the lake because it allows paddlers to avoid long crossings to the Eaton or Danforth take-out points. The Crooked Brook site is reachable by 4X4, but the road in to the campsite is at times barely passable and potentially dangerous as it includes two steep climbs. Currently, the majority of use at the campsite tends to be day use by locals or as an overnight party spot for local groups. The site is also a lunch stop for people who launched in Danforth or Eaton and are paddling the flowage for the day. The campsite itself is open from tree cover, fairly large, and relatively resilient to use by large groups with its grassy ground cover. The entire East side of the campsite is directly accessed by road or shore. The campsite is located at the edge of a grassy area, being open to the East and sheltered by trees to the North and West. The two entrances in Figure 31 show trails from the wooded side, while the entire East side is used to access the beach and road.

Figure 30. Overview of Crooked Brook campsite.

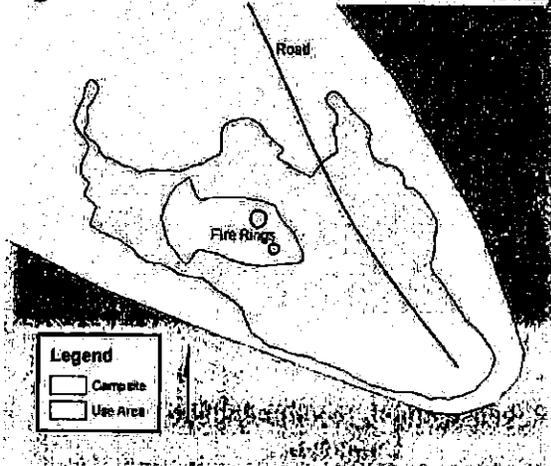
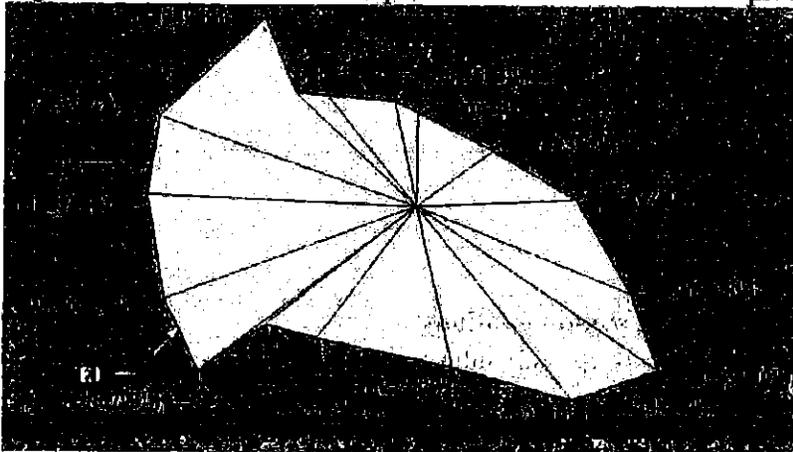
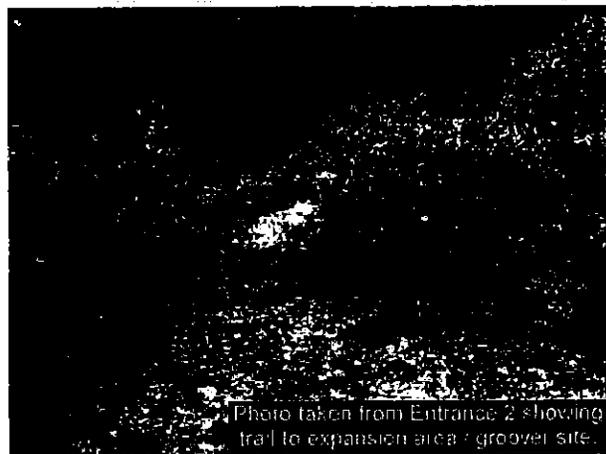
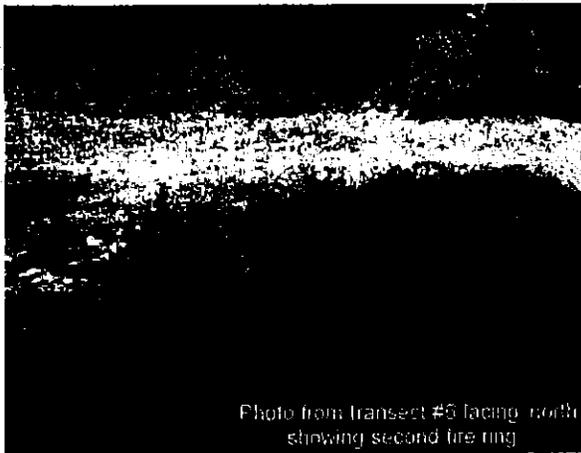
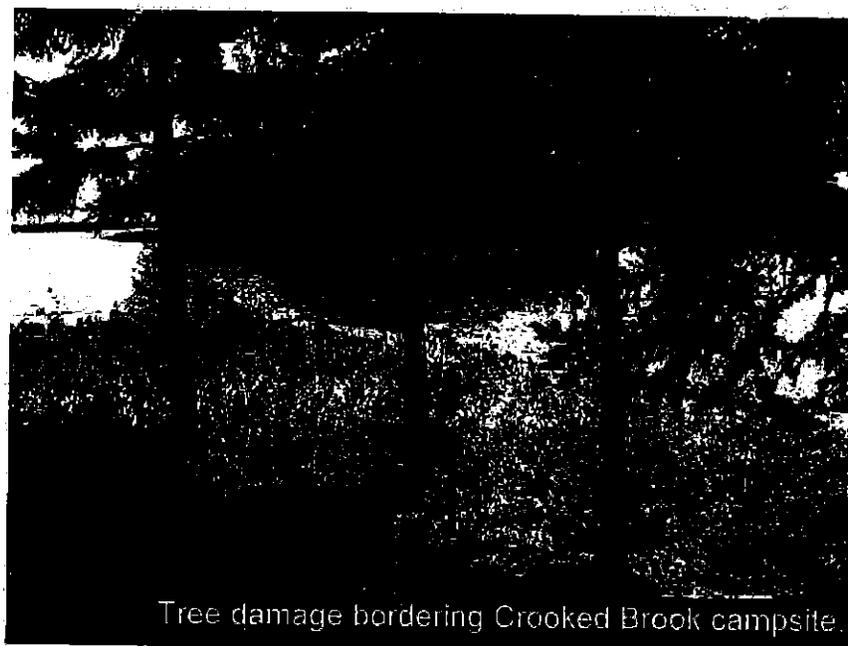


Figure 31. Crooked Brook campsite transects with north fire pit as center point.







Tree damage bordering Crooked Brook campsite.

Table 16. Crooked Brook campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Large beach area.</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle accessibility makes it a party spot.</li> </ul>
<ul style="list-style-type: none"> <li>• Early pull out after a stream canoe trip. Saves paddling against prevailing winds.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant presence of human waste and toilet paper within the use area and surrounding areas.</li> </ul>
<ul style="list-style-type: none"> <li>• Could accommodate a large group.</li> </ul>	<ul style="list-style-type: none"> <li>• Frequent presence of trash.</li> </ul>
<ul style="list-style-type: none"> <li>• Good lunch / break location for people paddling on the Flowage.</li> </ul>	<ul style="list-style-type: none"> <li>• Condition of the road into the site makes it only barely passable with a 4x4.</li> </ul>
<ul style="list-style-type: none"> <li>• Accessible by vehicle (4x4).</li> </ul>	<ul style="list-style-type: none"> <li>• Trail over the bank on the south side of the campsite is likely to erode.</li> </ul>
<b>Management Recommendations</b>	
<ul style="list-style-type: none"> <li>• Develop outhouse facilities to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>• Devise a plan for managing the outhouse facility and cleaning the campsite including the fire ring (this could be a group of volunteers or hired staff).</li> </ul>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring a permit and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Remove one fire ring and re-build the other fire ring to be more permanent and safe. Clean out fire ring periodically to limit their size and discourage additional visitor built fire rings.</li> </ul>	
<ul style="list-style-type: none"> <li>• Create natural barriers to limit use of side areas once outhouse facilities are in place. This will help clarify campsite boundaries and allow surrounding areas to recover.</li> </ul>	
<ul style="list-style-type: none"> <li>• Consider building stone steps on the trail at the South side of site to prevent further bank erosion. Alternatively, use natural screening to hide the South trail to encourage beach access via the East side of the campsite.</li> </ul>	

### ***Campsite 9: Eaton Landing***

The Eaton Landing campsite is located along the South shore of the Crooked Brook flowage. The campsite is at the end of a very narrow and rutty road, making it accessible by any vehicle with good clearance. The campsite is a fairly secluded, sheltered site that could accommodate several tents. The site appears to have been created within the last few years and shows signs of recent expansion. It does not appear to experience frequent use as multiple saplings are growing throughout, however, the use that does occur tends to be of high impact. The site is on a point with one side open to the road, and the other sits above the water with a short trail over the SW side. The shore adjacent to the campsite is steep and grassy, but there is an open grassy area on the point with a fire ring which has access to a larger beach more suitable for landing and recreation.

Figure 32. Overview of Eaton Landing campsite.

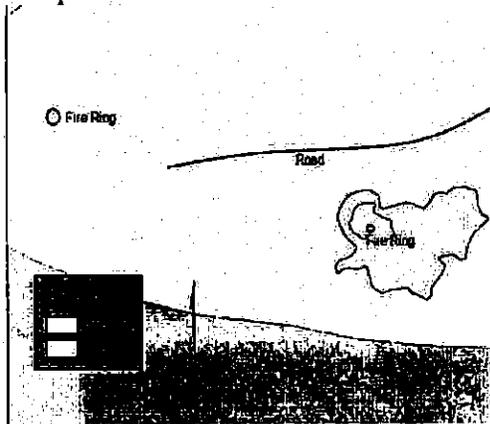


Figure 33. Eaton Landing campsite transects with fire ring as center point.

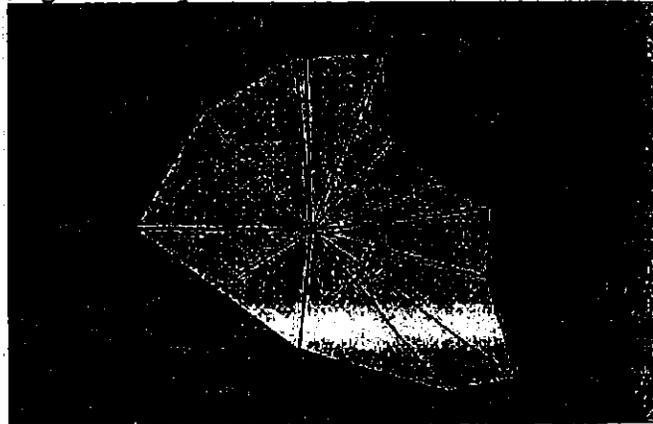


Photo showing fire ring at center point of the campsite.



Photo taken from transect #5 facing north

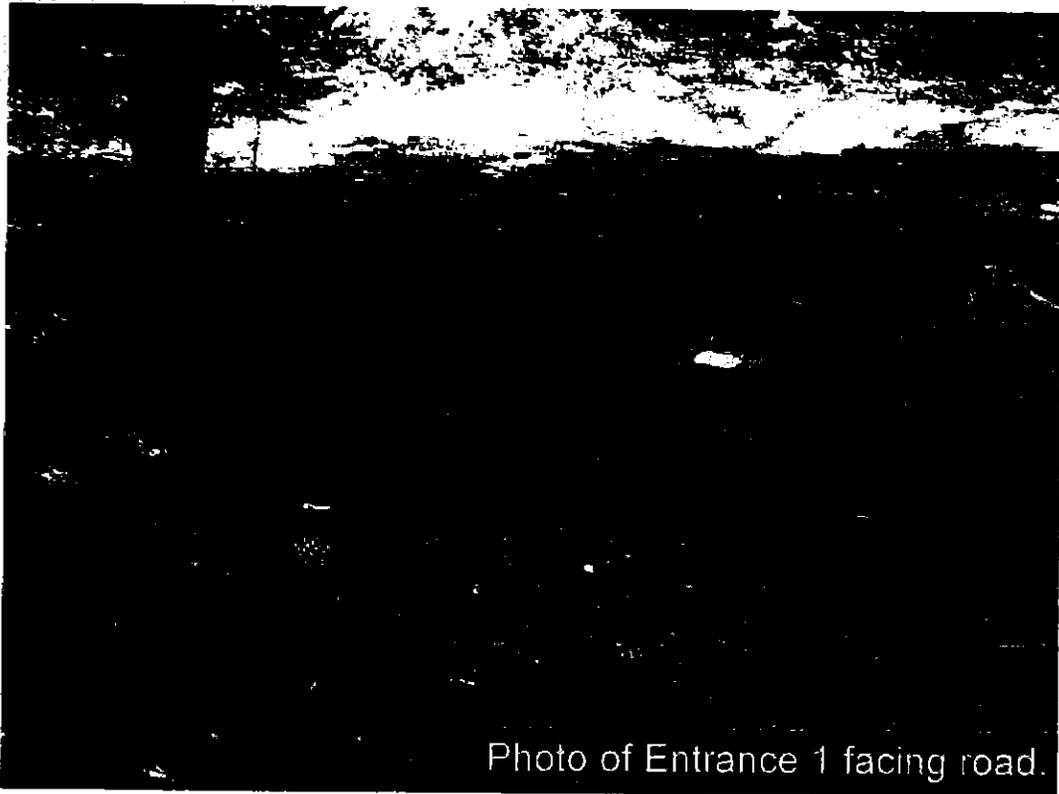


Photo of Entrance 1 facing road.



Entrance 3 showing trail to groover site.

Table 17. Eaton Landing campsite qualities, concerns, and management recommendations.

Site Features	Concerns
<ul style="list-style-type: none"> <li>• Quiet, secluded location.</li> </ul>	<ul style="list-style-type: none"> <li>• Road is deeply rutted and often has deep water near the campsite. Not trailer accessible</li> </ul>
<ul style="list-style-type: none"> <li>• Relatively recently developed campsite.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant presence of human waste and toilet paper within the use area and surrounding areas.</li> </ul>
<ul style="list-style-type: none"> <li>• Alternate access to the Flowage for windy conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Recent expansion to the East and West of campsite.</li> </ul>
<ul style="list-style-type: none"> <li>• Accessible by vehicle.</li> </ul>	<ul style="list-style-type: none"> <li>• Trail to the shore from the Southwest of the campsite is steep and is beginning to erode.</li> </ul>
<ul style="list-style-type: none"> <li>• Grassy area at point could accommodate additional visitors</li> </ul>	<ul style="list-style-type: none"> <li>• Large fire ring in the grassy area on the point West of the campsite.</li> </ul>
<b>Management Recommendations</b>	
<ul style="list-style-type: none"> <li>• Develop outhouse facilities at the launch to reduce presence of human waste and associated litter.</li> </ul>	
<ul style="list-style-type: none"> <li>• Devise a plan for managing the outhouse facility and cleaning the campsite including the fire ring (this could be a group of volunteers or hired staff).</li> </ul>	
<ul style="list-style-type: none"> <li>• Update signage about fires requiring permits and outlining minimal impact practices.</li> </ul>	
<ul style="list-style-type: none"> <li>• Re-build fire ring to be more permanent and safe (and to discourage visitor-built additional rings).</li> </ul>	
<ul style="list-style-type: none"> <li>• Create natural barriers to limit use of recently created expansion areas and other side areas once outhouse facilities are in place. This will help clarify campsite boundaries and allow surrounding areas to recover.</li> </ul>	
<ul style="list-style-type: none"> <li>• Consider building stone steps on the Entrance 2 trail to the shore to prevent bank erosion.</li> </ul>	

### **North and South Streams**

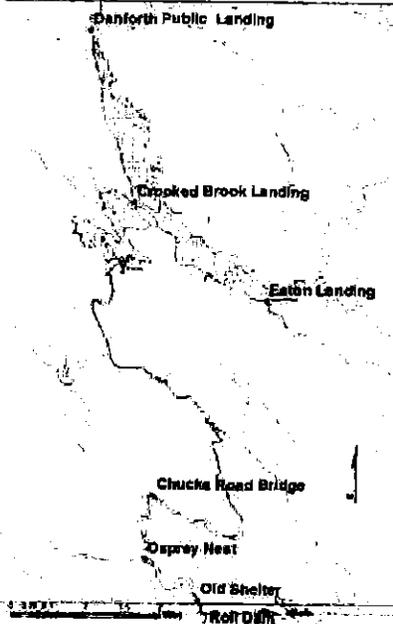
Our surveys of the streams found relatively few recreational developments. Our assessment of the North Stream was completed by paddling the stream and searching for campsites, trails, and other recreational developments or signs of use. Unfortunately, we were unable to travel the complete South Stream due to time constraints and the water level. As a result, we focused on finding commonly used access points to the stream and we traveled by foot in either direction from those access points to search for trails or campsites.

#### ***North Stream***

The North Stream is accessed from the north end of Baskahegan Lake, 3.5 miles west of the Brookton Landing by water. The stream travels north for 6.5 miles where it reaches the southeast end of the Crooked Brook Flowage. The closest take-out point on the flowage is the Crooked Brook Landing (same location as the Crooked Brook campsite), which is 1 mile north of the stream's inlet. However, road access to the Crooked Brook Landing is limited to 4X4 vehicles and difficult to impossible with a trailer due to rutty conditions and steep inclines with tight turns. The alternative take-out points on the flowage are the Danforth Town Landing, which is 3 miles north by water from the inlet, or the Eaton Landing, which is 3 miles east by water and requires high vehicle clearance.

Figure 34 shows the North Stream with its access points and recreation-related developments. From a recreation experience perspective, the stream offers a pleasant paddling trip with excellent fishing, abundant opportunity for wildlife viewing, and beautiful scenery. It is generally navigable throughout most of the summer season except in significantly dry conditions.

**Figure 34. Recreation access and developments along the North Stream.**



The stream is used recreationally for special events (such as the East Grand Adventure Race) and by a small number of guides and outfitters. However, our discussions with guides found that they

would paddle the stream more if greater access facilitated shorter trips and if campsites were developed along the stream to allow for multi-day stream trips. In its current condition, one bridge crosses the stream and is used as an access point. From land, the bridge landing is a 10 minute drive on Chuck's Road (a Baskahegan Land Company road). There is an obvious path beside the bridge (on the east side) where people launch and land, however, this path would be vulnerable to erosion if use were to increase. There is the opportunity to build a better trail to the water by moving the path further east to make its incline more gradual over the bank. There is an area adjacent to the path that would be a suitable campsite, but there is currently no evidence that groups have used it for camping in any numbers or in the near past. There is also an old trail to the water near the bridge (on the west side) that has been blocked-off to vehicle traffic. The only other developments observed along the stream were an abandoned (no longer standing) shelter located close to the Baskahegan Lake outlet, beaver dens, osprey nests, and game trails.

### ***South Stream***

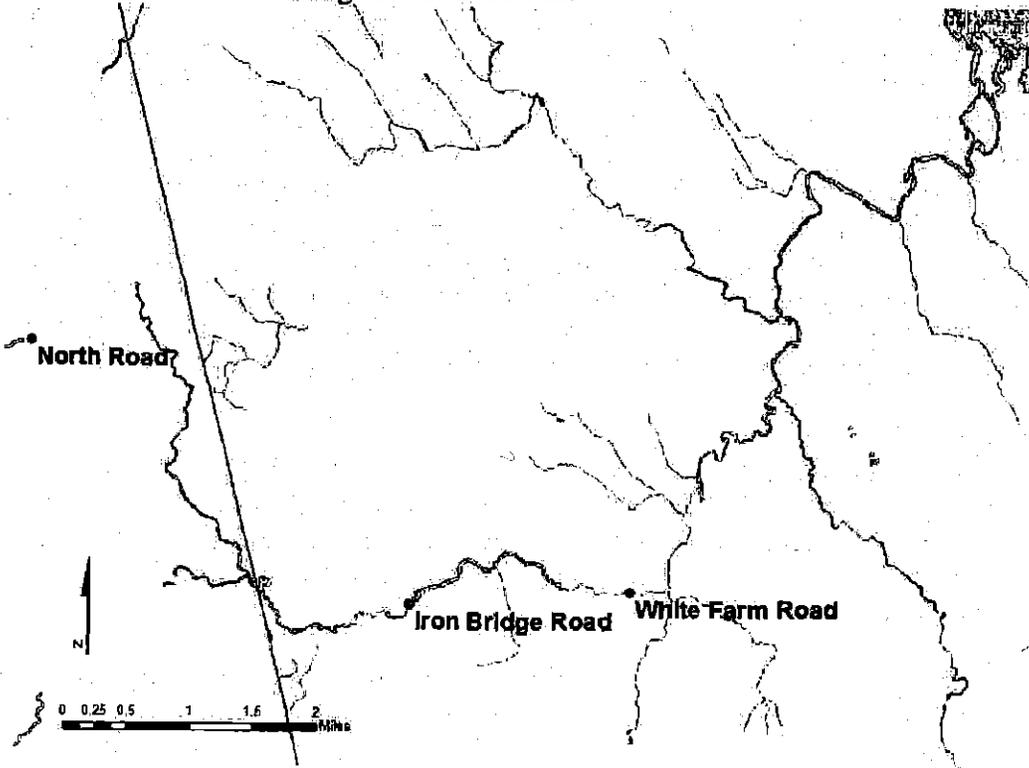
The South Stream (figure 35) is accessible via two roads (the Iron Bridge Road and the White Farm Road) that intersect the Route 6. The nearest road crossing to the west of the Iron Bridge Road is off the North Road, where the stream crosses under the road through a large culvert. In areas between the North and Iron Bridge roads, the stream contains little water and passage is difficult due to overhanging brush.

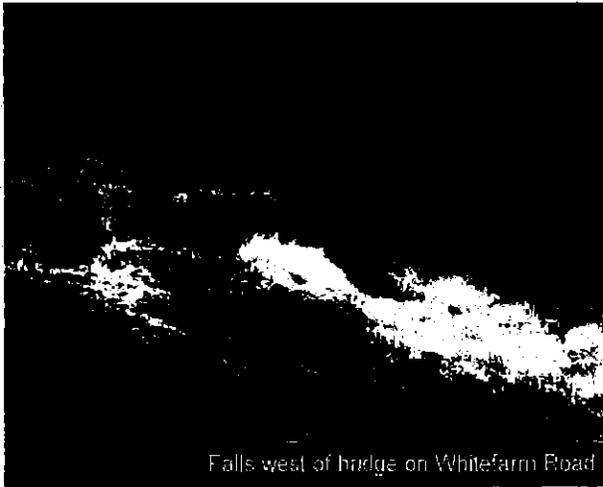
Access from the Iron Bridge Road is well-developed. There is parking off the road for 3 cars and additional space along the shoulder. There are two hand carry paths to the water behind the parking area, and a larger launch site on the west side of the bridge. The river section between the Iron Bridge and White Farm roads begins with a dead-water section and then drops into a series of rapids and a set of falls (which people paddle in the Spring) just west of the White Farm road.

At the White Farm Road, paddlers launch or land from either side of the bridge. There is parking space off the road for two cars on the north side of the bridge. The access on the north side is relatively steep and prone to erosion. The access on the south side is less defined but has the potential to be the better option both for visitor safety and trail stability. There is also an area adjacent to the south side of the bridge that could be developed into a campsite. The stream between White Farm Road and its inlet on Baskahegan Lake is gentle for paddling.

The distance between the access point on Iron Bridge Road and the inlet on Baskahegan Lake is approximately 6 miles. Once on the lake, there is a 5 mile (wind-prone) crossing to the Brookton Landing (the only take-out point). The trip (from Iron Bridge Road to the Brookton Landing) is discussed online on paddling forums (ex. the Northeast Paddlers Message-board at [www.npmb.com](http://www.npmb.com)) as a two- to three-day trip including one night of camping on a lake island (and possibly one along the stream).

Figure 35. Recreation access along the South Stream.

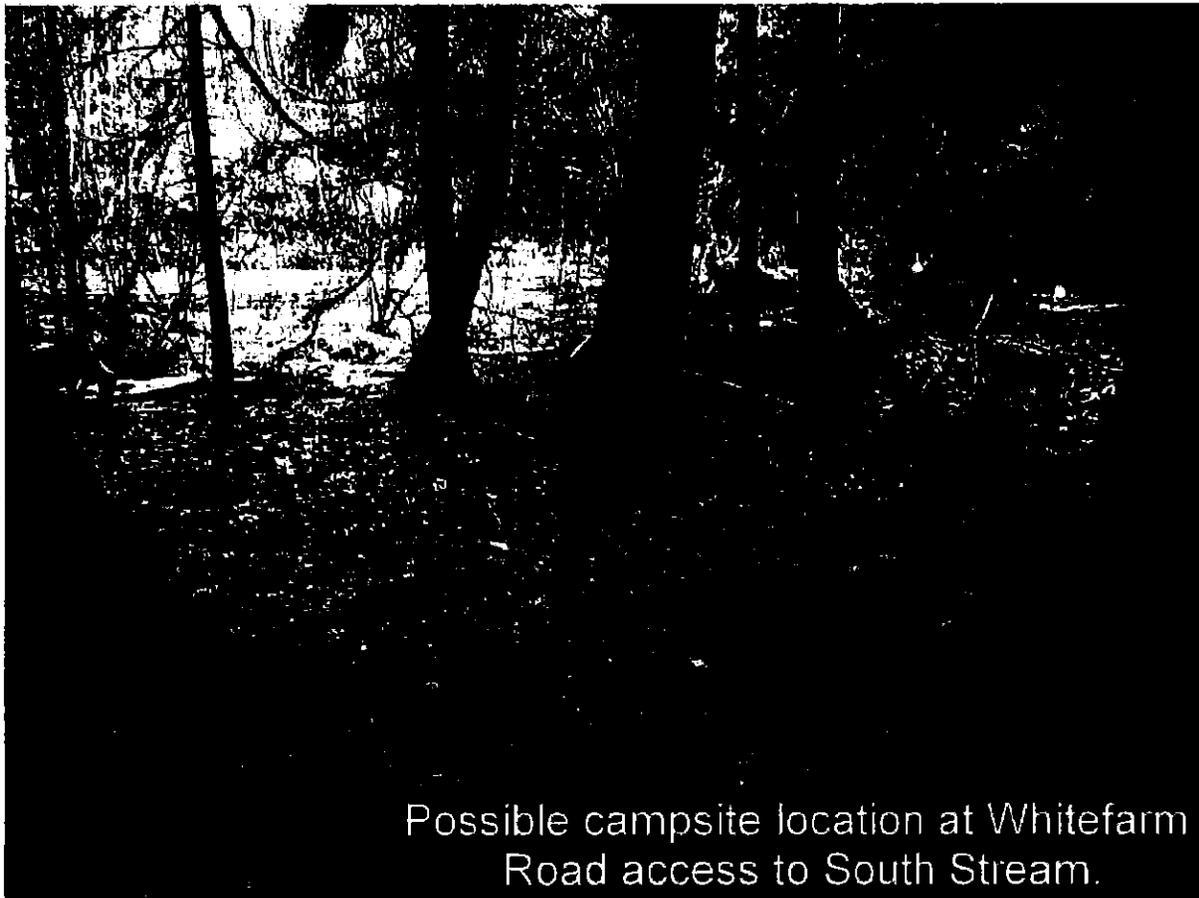




Falls west of bridge on Whitefarm Road



South Stream access by north side of bridge on Whitefarm Road



Possible campsite location at Whitefarm Road access to South Stream.

### **Section Summary and Conclusions**

Recreational resources were inventoried through campsite assessments, and by mapping launch sites and recreation developments along the North and South Streams. The data throughout this *Recreation Resources* portion of the report represents an overview of key findings and suggestions for each area of focus. Complete campsite assessments and photo documentation collections can be accessed on the accompanying CD.

#### ***Campsite Assessments Summary:***

Nine campsites were identified and inventoried in the watershed. Each campsite was measured using a combination of physical and GPS methods. They were photo-documented and assessed in terms of ground cover, entrance trail conditions, bank erosion, tree damage, presence and scarring of roots, and groover site conditions. For the report, tables were created that summarized notable features, concerns, and suggestions for management. Although there existed a wide range in campsite conditions, many of the sites contained similar features and management needs:

- Common campsite features:
  - Most campsites had capacity for large groups.
  - Most campsites were easily accessible from a launch area and/or road.
  - Many had access to a good beach for landing and recreating.
  - Many sites had visitor created developments (tables, chairs, camping equipment, etc.).
- Common campsite concerns:
  - Presence of human waste within and surrounding their use areas was a problem for most campsites.
  - Damage (cutting, de-limbing, nails, ropes) to trees was widespread in many campsites.
  - Shoreline bank erosion was either evident or threatening to develop at several campsites.
  - Presence of multiple fire rings, overly large fire rings, and sprawling fire rings were common among many of the campsites.
  - Presence of trash was a problem for some of the campsites.
  - Campsite and use area expansion (due most often to firewood collection) was evident for many campsites.
- Common management recommendations:
  - Develop outhouse/toilet facilities to contain human waste and associated litter.
  - Increase the management presence (staff, volunteers, signage, etc.) at the Brookton Landing and on some of the more highly-used islands.
  - Dismantle and/or replace fire rings to limit each site to one well-constructed, small, safe, and more permanent ring.
  - Update signage about fire restrictions, permits, and related minimum impact strategies.
  - Consider using natural barriers to dissuade campsite expansion (particularly once outhouses/toilet facilities are in place).
  - ~~Build steps in places where shoreline banks are being eroded or have high potential of erosion.~~

***Stream Assessments Summary:***

The North and South streams provide the unique opportunity for recreational experiences in a pristine and undeveloped setting. The streams are known for their high quality fishing, for the excellent opportunities they provide to view wildlife, and for a range of paddling experiences (from falls on the South Stream to beginner-appropriate navigation for most of the North Stream). Current use levels on the streams appear to be minimal, with no clearly evident campsites and limited vegetation impact at the access points. The current access points provide some opportunity for half-day trips, but most river travel options require at least a full day on the water. Discussions with local paddlers and internet searches suggest that use would increase if a wider variety of trip options existed as a result of better stream access. Our prediction is the increase would be evident, but not substantial or heavy enough to threaten the pristine quality of the resource.

***Section Conclusions:***

The following conclusions emerged from our recreation resource assessments:

- Managers should consider the recommendations listed in the site-by-site tables to address the specific concerns for each individual campsite.
- Large and accessible sites are clearly desirable for a subsection of recreation user groups. We suggest creating and protecting smaller, potentially more remote sites (similar to the Ship Island campsite) to divert some of the use (and impact) from the more popular sites and to offer a broader range of recreational experiences.
- Although some visitors appreciate developments (tables, tarps, chairs, camping equipment), others prefer a more undeveloped and “wild” experience. We recommend discouraging user-built improvements and suggest that management consider providing picnic tables at some of the more heavily used sites.
- Managers will need to decide whether increased use of the streams is desirable. Increased access to the streams would provide a greater range of recreation opportunities and it might disperse some use from popular areas on the lake. Based on current trends, we expect the quantity of use will remain low enough to have limited impact. If it is desirable, we suggest the following developments:
  - Improving the launch site on Chuck’s road to facilitate half-day trips on the North Stream.
  - Consider adding a campsite along the North Stream at or just beyond Chuck’s Road to open the possibilities for multi-day stream trips.
  - Improving the road to the Crooked Brook Landing to allow safer and easier use as an alternative pull-out.
  - Develop better trails for water access at the bridge on White Farm Road. Consider adding space for cars to park near the bridge.
  - Consider developing a campsite between White Farm Road and the south end of Baskahegan Lake to facilitate multi-day trips and to avoid requiring paddlers to cross the lake on windy days.

## SUGGESTIONS FOR FACILITY DEVELOPMENTS

Based on the recreation use and resource inventories, five main priorities have emerged for facility developments. Early in the process of this project, the possibility of a better designed parking lot at Brookton Landing was discussed, but our findings suggest priority should be given to smaller yet demonstrable improvements rather than a larger parking lot project at this point. Four out of the five priorities (all except for improving the boat ramp) we have identified reflect a direct need based on recreation management issues. However, in relation to the parking lot, a decision will need to be made in the near future as to what should be done with the currently leased (for trailers) space behind the main launch area. As mentioned in the *Recreation Use Monitoring* section of the report, that area might be suitable as a day-use park, but this would require a greater management presence and commitment for visitor management.

This section is focused on five facility development projects because they were identified as priorities for visitor management on the lakes and streams:

- Sanitary facilities (outhouses and pit toilets)
- Fire rings
- Ramp improvement
- Erosion control
- Signage

### **Outhouses & Pit Toilets**

We suggest building a composting or vault toilet at the Brookton Launch. With the current exception of Ship Island, the other island and shoreline campsites should be developed with pit toilets. Ship Island is an exception in our assessment because it does not demonstrate evidence of sufficient use to warrant the development, nor is there an ideal space on the island for a pit toilet facility. In the case of Ship Island and any similarly remote and/or small island campsites developed in the future, we recommend signage outlining minimum impact methods of disposing human waste (ie. digging a proper cathole).

It is important to have clear signage posted in effective locations to direct visitors to the toilets. Ideally, their design will cause them to blend well with the natural surroundings while still being easily visible.

### ***Suggestions for the composting or vault toilet***

Either a vault toilet or a composting toilet would be appropriate for Brookton Landing.

- Composting toilets use biological processes to break down waste material. Regular maintenance of a composting toilet involves cleaning and adding and mixing of organic material such as wood chips or peat moss. These materials could be added by managers on a weekly basis. Managers would also need to rake the waste material on a weekly basis.
- Vault toilets sit on top of a storage tanks that need to be pumped periodically. Regular maintenance involves cleaning and pumping depending on the storage tank capacity. Pumping is usually best somewhat frequently to minimize odor problems.

The following table published by the U.S. Forest Service's Technology & Development Program (2001) provides a detailed comparison between the two options:

<b>Vault Toilets</b>	<b>Composting Toilets</b>
<i>Employee Health and Safety</i>	<i>Employee Health and Safety</i>
<ul style="list-style-type: none"> <li>• Contact with feces is limited or nonexistent</li> <li>• Confined space is not an issue</li> </ul>	<ul style="list-style-type: none"> <li>• Close contact with raw feces is required</li> <li>• Confined space and safety are issues because of basement location</li> </ul>
<b>Maintenance Requirements</b>	<b>Maintenance Requirements</b>
Periodic pumping based on intensity of use	Weekly raking and material addition
<b>Climatic Conditions</b>	<b>Climatic Conditions</b>
Impervious, except to extreme cold	Biodegradation processes are very sensitive; easily upset by climatic variation
<b>Patron Satisfaction</b>	<b>Patron Satisfaction</b>
Can be impaired by odor	Very good, if functioning properly
<b>Installation Costs</b>	<b>Installation Costs</b>
Generally less than composters	Generally more than vault because of basement construction and cost of digester
<b>Residuals Disposal</b>	<b>Residuals Disposal</b>
Generally not difficult but can be problematic because of local regulations	Generally not problematic, subject to local regulations
<b>Capacity</b>	<b>Capacity</b>
Restricted by frequency of pumper truck visits	Restricted because of limitation on biological process of degradation
<b>Use Limitations</b>	<b>Use Limitations</b>
Limited to locations accessible by pumper truck or boat	Can serve all locations if construction is accessible and weekly maintenance is provided

A complete guide created for the U.S. Forest Service for building vault toilets including plans and maintenance information as well as a list of manufacturers is available online ([http://www.nps.gov/public\\_health/info/rms/rm83b2.pdf](http://www.nps.gov/public_health/info/rms/rm83b2.pdf)).

### ***Suggestions for pit toilets***

The remoteness of campsites other than the Brookton Landing sites will likely require developing pit toilets rather than a system that requires periodic pumping. Pit toilets are a primitive style of outhouse that are primarily a box or riser over a dug pit. Pit toilets can be designed with walls to maximize privacy or be in the open. Privacy screens or small low walls

can be constructed that would maintain privacy without having a large visual impact. Walled-in toilets may be preferred for larger sites that can host several and/or large groups such as Ant and Round Islands.

### **Fire Rings**

Many fire rings need to be reconstructed, relocated, or removed. An ongoing management presence is needed to ensure proper fire practices are being followed and to perform periodic maintenance such as cleaning out the fire rings. In many sites, fire rings are spreading in size or multiple have been built where there should only be one. A more permanent and safe design using material such as a concrete pad or blocks or a metal fire ring could be constructed to replace the current user built dry stack stone rings.

The Washington State Department of Natural Resources has published an online brochure with fire ring guidelines ([www.dnr.wa.gov/Publications/rp\\_fire\\_campfirebrochure.pdf](http://www.dnr.wa.gov/Publications/rp_fire_campfirebrochure.pdf)). According to their guidelines, fire rings should be no more than thirty six inches in diameter with sides not exceeding 18 inches. The ground beneath the ring should be dug out exposing mineral soil and filled with concrete a minimum of four inches thick. Surround the fire pit with gravel or sand extending an additional eighteen inches. The area surrounding the fire ring should be clear of combustibles for a radius of ten feet and to a height of ten feet. Fire rings should be cleaned out regularly to prevent ash and coals from spreading throughout the site.

### **Ramp Improvement**

Shallow water and a rough ramp area can make launching and loading boats difficult, especially for visitors with large boats. A concrete or other similarly surfaced boat ramp would provide easier access and could reduce the impact of vehicle traffic on the shoreline. Excavating the shoreline could increase the water depth along the ramp. The ramp should be constructed to provide a minimum of three feet of water.

A ramp twelve to sixteen feet wide would be large enough to accommodate the boats using Baskahegan Lake. A single lane for launching and loading would be adequate to accommodate the current volume of traffic. Having a single dedicated launch area would protect the surrounding shoreline from damage from vehicle traffic.

Concrete ramps can either be poured on site or built with precast concrete units. Pouring on site would require either the building of coffer dams around the ramp area during construction or the use of special concrete that will cure underwater. Precast ramp components can minimize construction time and the environmental impact of the project. Manufactured boat ramp components are widely available from many companies such as Precast Concrete Products of Maine Inc. and American Concrete Industries Inc.

The Maine Bureau of Parks and Lands administers the Boating Facilities Program which provides assistance through grants and technical advice for the creation of public boating facilities. Also, the Virginia Department of Game and Inland Fisheries provides detailed design considerations and ramp construction methods on their website (<http://www.dgif.virginia.gov/boating/building-boat-ramps.asp>).

### **Erosion Control**

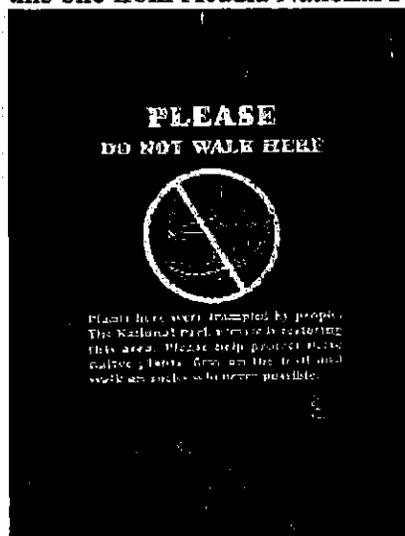
Trails into and out of campsites that were flagged in our assessments as affected by erosion could benefit from stair construction. This would help to direct traffic and prevent trail expansion or the development of multiple trails. It would also protect the banks from further erosion. Construction using locally sourced stone or logs is labor intensive but would have a minimal visual impact.

On steep sections, the intended route should be excavated and steps should be built from the bottom to the top of the slope. Boulders for stone steps should be set in place, backfilled with gravel and compacted before placing subsequent steps. Log steps can be held in place with rebar driven in to the ground and backfilled. Tread depths are at least 12 inches or more.

Short, low sloped entrances may not need steps but can be reinforced with stone rip rap to prevent erosion and to converge foot traffic to a single entrance. Under the right guidance, volunteer groups can be helpful in building stone steps and hardening site entrances such as school or college groups, or the Maine Conservation Corps.

### **Signage**

Signage should be uniform throughout the watershed and should focus on the basic information needs such as campsite use recommendations, the location of toilet facilities, and regulations related to fire building. While a small quantity of clear and concise signs can be very effective, posting too many can have the opposite effect. Also, the signs should be designed to be noticeable yet they should not be overly distracting to visitor experiences. Many organizations who manage recreation resources can provide design examples for uniform signs (the BPL for State Parks, NPS, USFS, etc.). Some signs are very simple and center around a picture, such as this one from Acadia National Park:



Other organizations such as the Maine Island Trail Association post more comprehensive minimal impact travel guidelines at each site (see example on next page).

## HELL'S HALF ACRE ISLAND

*Welcome to this public island!*

Hell's Half Acre Island is yours to protect and enjoy. It is state-owned and managed by the Maine Island Trail Association for low impact recreation. By following the guidelines listed below you will help to protect the natural integrity of the island and preserve a high quality experience for others.

**Length of Stay:** 2 nights maximum  
**Island Capacity:** 14 overnight campers maximum

**Organized Groups:** Maine state law requires that individuals leading trips for compensation hold the appropriate license from the Maine Department of Inland Fisheries and Wildlife (207-287-8000).

*Note: If conditions make it unsafe to follow these guidelines, please do not place yourself or others at risk to adhere to them. Also, please respect the rights of private landowners and access only the islands for which you have been given permission.*

### LEAVE NO TRACE GUIDELINES FOR LOW IMPACT USE

#### Travel & camp on durable surfaces

**Walking:** Travel on sand, stone, resilient grass and established trails. Avoid vegetation, dirt banks, boggy areas, mosses and lichens.

**Cooking:** Cook on rugged surfaces such as sand, gravel, or ledges below the high tide line.

**Camping:** Tent only in designated campsites; **please do not expand existing campsites or establish new ones.** In an emergency, try to squeeze in or bivouac on durable surfaces.

#### Dispose of waste properly

**Human waste:** Please carry off all solid human waste and toilet paper and dispose of it properly on the mainland. Do not bury waste or leave it in the woods or intertidal zone.

**Trash:** Pack out all personal trash and remove flotsam from the island when you can.

#### Respect wildlife

**Keep wildlife wild:** Store food securely, observe wildlife from a distance, and leave pets at home. If you bring a pet ashore, keep it on a leash and carry off all solid waste. Never feed wildlife!

#### Be considerate of others

**Island Etiquette:** Preserve the peace and quiet of the island and be respectful of those who live and work in the local area. Set up camp on the day of your overnight, not in advance. Break camp in the morning of your departure day.

#### Minimize campfire impacts

**Fire hazard!** Always carry a stove; it is often better than a campfire due to weather, safety considerations and fuel supply.

**Safe campfires:** MITA recommends no fires. If you do plan to kindle a fire, you must first obtain a permit from the Maine Forest Service (1-800-750-9777). A safe, low impact fire is built below the high tide line in a fire pan or on sand or gravel. Use only driftwood gathered from below the high tide line or wood you brought, and burn all wood to a fine ash and douse with sea water. Please do not cut tree limbs or collect downed wood from the island. Please do not create new fire rings. *In an emergency use VHF channel 16 or call 1-888-900-FIRE.*

#### Leave what you find

**Allow others a sense of discovery:** Please leave all rocks, plants, archaeological artifacts, and other natural objects where you found them.

#### Plan ahead & prepare

**For your next trip:** Familiarize yourself with the regulations, guidelines, potential hazards, and use levels of the islands you intend to visit. Plan for safety and alternative destinations.

*Thank you for cooperating with these user-developed, voluntary guidelines. For more information on Leave No Trace, please call 1-800-332-4100 or visit [www.LNT.org](http://www.LNT.org).*

ME Bureau of Parks & Lands  
 22 State House Station  
 Augusta, ME 04333  
[www.state.me.us/doc/parks](http://www.state.me.us/doc/parks)  
 (207) 287-3821



Maine Island Trail Association  
 58 Fore St, Bldg 30, 3rd Floor  
 Portland, ME 04101  
[www.mita.org](http://www.mita.org)  
 (207) 761-8225

*The goal of the Maine Island Trail Association is to establish a model of thoughtful use and volunteer stewardship for the Maine islands that will assure their conservation in a natural state while providing an exceptional recreational asset that is maintained and cared for by the people who use it.*

An information kiosk at the Brookton Landing would give first time visitors an overview of the area and could be a central outlet for distributing maps, communicating rules and regulations, as well as outlining minimum impact camping and recreation practices. The kiosk could be as simple as a protected backboard with a brochure box attached, or it could be more complex such as a three-walled structure with a roof. Specific design and pricing options can be obtained from the Bureau of Parks and Lands or the U.S. Fish & Wildlife Service.

## OVERALL RECOMMENDATIONS

This project used a combination of methods to gain a baseline understanding of recreational use and resource conditions within the Baskahegan Stream Watershed. We have learned about many unique experiences that the lakes and streams offer visitors from near and far. Our Recreational Use Monitoring and Recreation Resources section outlined very specific suggestions for management, and our facilities development section offered our considerations with regard to site improvements. This section outlines more general and broad suggestions for management and future research that we feel could benefit the recreation community and the resource.

### Management Recommendations

- *Increase the management presence at the lakes and streams.*

In our assessment, the benefits of providing recreational opportunities on the lakes and streams clearly outweigh the current environmental cost. Recreation resource impacts tend to be on a small scale compared to the overall health of the forest landscape. However, current use patterns are causing impacts that can not only effect visitor experiences but that can create unnecessary harm. In order to change the current use culture and patterns, a greater management presence is needed to set the tone. Several of the interview participants suggested hiring a local resident as staff – which we agree would work given the right person. As an alternative (or in combination), we suggest developing a network of community volunteers and building a stewardship group for the resource. This model has been used in many other settings, and tends to motivate a sense of concern and ownership for the resource that is contagious.

- *Maintain regular communication with local guides and outfitters.*

Our interviewees described how use has evolved on the watershed over time. However, the presence of guides and outfitters has been a constant – even if their specific patterns have changed. In many ways, regular guides have the capacity to be significant stewards of the resource. Maintaining open communication lines with the guides and outfitters will allow land owners to align recreation developments with their needs, while also gaining regular reports of the conditions of the lake, current recreational conflicts and challenges, and an understanding of any changes in general use patterns.

- *Use community events to build management / visitor relationships.*

Hosting an annual community event could be an effective way to better connect with regular recreational resource users. It could provide a forum for managers to inform the community about use recommendations, restrictions and concerns, while simultaneously making visitors feel they are being heard and appreciated. A simple event, such as an annual summer barbeque at the Brookton Landing or a fire works night (as was suggested by an interviewee) might develop a community connection that would benefit the health of the resource.

- *Make any implemented visitor restrictions uniform throughout the resource.*

Visitor use policies, such as those for fire building and rules of the launch sites, would be most effective if they were uniform throughout the watershed. This is particularly important in a setting such as the Baskahegan lakes and streams where return visitation is the norm and many visitors become accustomed to their regular habits and use patterns. Signage could be

standardized for all sites. This would allow visitors to recognize the signs at a glance without requiring time and thought to follow.

### **Research Recommendations**

- *Complete the campsite assessments again within 5 years.*

The campsite descriptions and data we have collected should serve as a baseline record. To fully understand the impact of recreational use on these sites, change in condition needs to be monitored. This would also allow managers to track the effectiveness of any new developments or initiatives to reduce the recreational footprint on the resource (such as outhouses, improving fire rings).

- *Conduct a more comprehensive visitor survey to detail experience quality and recreation preferences.*

The visitor survey conducted in our research served only to provide a baseline understanding of use patterns on the lakes. We suggest that a more detailed survey could inform managers about how the specific site attributes are shared among users, and about their preferences for resource conditions and facilities. There is a well-documented connection between user preferences and behavioral choices. Managers would benefit from understanding preferences as they could implement strategies that lead to better compliance with use recommendations and regulations.

- *Closely monitor the effect of outhouse / pit toilet facilities.*

The presence of human waste at launch sites and campsites is arguably the greatest current challenge. A study implemented to monitor the effect of new outhouse / pit toilet developments could serve to guide decisions about additional developments. It could also serve as an important outreach tool – documenting and making public the positive effect of the facilities could motivate future visitors into adhering to use recommendations.

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**Appendix A: Visitor Survey Instrument**

Interviewer Name: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Location: \_\_\_\_\_

1. What was your access point to the water?  
\_\_\_\_\_

2. Are you staying overnight on this trip?  Y  N  
If so, for how many nights? \_\_\_\_\_

3. How many people are here with you today? \_\_\_\_\_  
How many in your group are under age 16? \_\_\_\_\_

4. What state or province do you live in? \_\_\_\_\_

5. What kind of group are you with?  
 Friends       Family & friends  
 Family       Guided group  
 Alone       Other: \_\_\_\_\_

6. What is your mode of travel?

Powerboat     Sailboat     Canoe

Kayak         Foot

Other: \_\_\_\_\_

7. Is this your first trip to the Baskahegan Stream watershed?  Yes  No

If not, for how many years have you been visiting? \_\_\_\_\_

8. How many other groups have you seen while you've been out here? \_\_\_\_\_

What were their approximate sizes and do you remember where you saw them? (record location from map key and size of group).  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank You!

**Baskahegan Stream Watershed Visitor Survey, 2010**

Your participation in this survey is voluntary. Since each interviewed person will represent many others who will not be surveyed, your cooperation is extremely important. The answers you provide will be confidential. We will not ask you for your name or for contact information. We do not anticipate any risks to you from participating in the study. Although we believe the information collected for this study will ultimately help maintain the quality of recreation opportunities in the watershed, we cannot assure you of any direct benefits from participation in the study.

*Thank you for your help!*

**Appendix B: Vehicle Observations in Parking Lots**

May 30, 2010	9:00 AM	23	34	0	1
	10:30	27			1
	12:00	12			1
	2:00	17			1
	4:00	8			1
	6:00	6			1
May-31	7:00 AM	5	8	0	1
	9:00	8			1
	11:00	6			1
	1:30	5			1
Jun-11	9:00 AM	5	7	0	
	10:30	5			
	12:00	7			1
Jun-12	10:00 AM	8	13	0	
	11:00	9			
	1:30	11			
	3:00	8			
	4:00	5			
	5:00	2			
Jun-15	11:00 AM	0	1	0	
	1:00	0			
	3:00	0			
	5:00	0			
	7:00	1			
Jun-16	7:00 AM	0	7	1	
	9:00	6			
	11:00	5			
	1:30	6			
Jun-20	9:30 AM	7	10	0	
	10:00	7			
	11:00	8			
	12:00	8			
	12:30	9			
	1:30	8			
	2:00	7			
	3:00	7			
	4:00	8			
Jun-21	9:00 AM	6	10	3	

	10:00	9			
	11:00	6			
	12:30	6			
	4:00	4			
	4:30	2			
4-Jul	9:30	5	12	1	
	10:30	9			
	11:30	9			
	12:30	9			
	1:30	7			
5-Jul	7:00	3	8	0	1
	9:00	3			1
	11:00	6			
	1:00	6			
6-Jul	10:00	5	11	2	
	12:00	4			
	2:00	3			
	4:00	8			
7-Jul	7:00	4	5	1	
	9:00	5			
	11:00	5			
	3:00	4			
12-Jul	9:00	2	3	1	
	11:00	3			
	1:00	1			
23-Jul	10:30	4	5	0	
	12:30	4			
	4:30	4			
24-Jul	7:00	7	15	0	1
	10:00	13			
	12:30	12			
	3:00	12			
27-Jul	10:00	0	0	0	
	11:00	0			
	12:00	0			
	2:00	0			
	3:00	0			
28-Jul	10:30	8	13	2	
	11:30	7			
	3:00	12			
13-Aug	11:00	8	21	1	

	12:00	8		
	1:00	10		
	2:00	8		
	5:00	10		
	7:00	12		
14-Aug	6:30	7	16	1
	7:30	11		
	9:30	12		
	10:45	15		
	12:30	12		
17-Aug	11:00	6	7	0
	12:00	6		
	2:00	5		
	3:00	5		
	4:30	3		
	6:00	0		
18-Aug	6:00	1	6	1
	9:30	4		
	11:00	5		
	12:00	5		
22-Aug	11:00	6	8	1
	2:30	6		
	3:30	4		
23-Aug	10:00	1	1	0
	11:00	1		
	12:00	0		
5-Sep	10:00	2	2	0
	11:30	2		

DATE	TIME	ATTENDEES	ATTENDEES (BY)	ATTENDEES (BY) (BY)	ATTENDEES (BY) (BY)
May-30	9:30 AM	2	5	1	
	2:30	2		1	
	4:30	1			
May-31	11:30	0	0		
Jun-11	9:45 AM	1	1		
Jun-15	2:30	1	1	1	
Jun-16	10:00 AM	0	0		
Jun-20	1:30 PM	1	1		

	3:30	0			
4-Jul	2:30	2	2		
5-Jul	1:30	2	2		
6-Jul	12:30	1	1		
	2:30	1			
12-Jul	9:30	1	2		
	1:30	1			
23-Jul	5:30	2	2		
24-Jul	10:30	0	0		
28-Jul	2:30	0	0		
13-Aug	6:30	1	1		
14-Aug	9:00	0	0		
17-Aug	12:00	1	1	1	
	5:30	0			
22-Aug	11:00	0	0		
	2:00	0			
5-Sep	11:00	0	0		

**Appendix C: Interview Questions**

**Baskahegan Stream Watershed  
Managing for Recreational Use  
Interview Questions**

Date:

Location:

Length of Interview:

1. How do you use the Baskahegan lakes and/or streams?
  - a. How long have you been going to the lakes/streams?
  - b. How often do you go?
  - c. Are there seasonal activities that you do at different times of the year?
    - i. How often / how much are you on the lakes in other seasons?
2. What are the best qualities of the Baskahegan lakes and streams? (fishing late in summer, number of other users, scenery, close to home, etc...)
3. From your perspective, who uses the lakes and/or streams?
  - a. How do they use them? (length of trip, group size, etc.)
  - b. What about at different times of the year?
4. Do you think use of the lakes and/or streams has changed over time?
  - a. If so... how? (what about fishing, camping, etc.)
5. From your perspective, are there problems at the lakes and/or streams related to recreational use?
6. How would you like to see recreation opportunities developed and/or managed in the lakes/streams?
  - a. Do you have specific thoughts about the Brookton launch?
7. Anything else you would like to share or comment on related to recreation use?

**Appendix D: Campsite Assessment Form**

**Baskahegan Stream Watershed Campsite Evaluations  
Summer 2010**

**General information about campsite:**

Date	
Island name	
Campsite name	
Direction site is facing	
Site cover type	
Number of visible campsites	
Maximum recommended party size	
Distance to closest site on same island	
Recent weather conditions	
Coded by	
Concerns	
Observations about wildlife	
Notable campsite attributes	

**Campsite Center Point:** (use center of use area, eg. center of an obvious kitchen space)

Center point GPS coordinates: Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

Photo describing where center point is: Photo #: \_\_\_\_\_

Written description of where center is:

**Campsite measurements:**

Flag #	Bearing	Distance	Photo#(s)	Comments (describe notable attributes in a photo or explain if multiple photos per flag).
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

**Campsite Entrances:**

Flag #	Bearing	Distance	Photo#(s)	Comments (describe notable attributes in a photo or explain if multiple photos per flag).
E1				
E2				
E3				
E4				
E5				

**Classification of entrances** (from campsite boundary to 3m out) using this condition class measure:

- Condition class 0: Trail barely distinguishable; no or minimal disturbance of vegetation or organic litter.
- Condition Class 1: Trail distinguishable; slight loss of vegetative cover and/or minimal disturbance of organic litter. Includes shrubby overgrown trails with obvious tread of bare soil that can no longer be seen because the shrub cover has overgrown the trail.
- Condition Class 2: Trail obvious; vegetative cover lost or disturbed.
- Condition Class 3: Vegetative cover and organic litter lost in nearly all places, but little or no erosion.
- Condition Class 4: Soil erosion or compaction in tread is beginning in some places.
- Condition Class 5: Soil erosion or compaction is common: tread is obviously below ground surface.

Entrance #1 (E1)

Use:

Condition Class:

Comments:

Entrance #2 (E2)

Use:

Condition Class:

Comments:

**Entrance #3 (E3)**

Use:

Condition Class:

Comments:

**Entrance #4 (E4)**

Use:

Condition Class:

Comments:

**Entrance #5 (E5)**

Use:

Condition Class:

Comments:

**Entrance #6 (E6)**

Use:

Condition Class:

Comments:

Please record use, condition class & comments for any additional entrances on separate sheet.

**Hand-sketch of the campsite:** All entrances marked with entrance number (E1, E2...), areas at risk of expansion marked (EXP), groover sites marked (G), and nearby areas outside of the campsite showing impacts of recreational use marked (S.U.)

**Narrative/description of campsite, including:**

- General description of campsite attributes
- Descriptions of areas at risk of expansion and outside areas showing signs of use
- Description of anything unique that was not captured in the hand-sketch
- Description of impact distribution (ex. NW corner appears to be kitchen area and has the majority of exposed mineral soil and roots).

**Vegetation Cover:**

A) Describe the ground cover. This includes grass, moss, sand, shell, forest duff... anything covering the ground in the campsite:

B) Percentage-Class (amount) Vegetation Cover over complete site. Includes all live vegetation forming the surface of the ground. (circle one)

1 = 95-100%    2 = 75-94%    3 = 50-74%    4 = 25-49%    5 = 0-24%

C) Type of live vegetation cover at campsite (grass, moss, shrubs, etc. – subset into percent categories):

(Example: 50% grass, 10% moss, 20% more diverse plants)

---



---

D) Type of vegetation (estimated) on an adjacent or non-campsite comparable area

---



---

E) Comments about the live vegetation:

---



---

F) If campsite contains forest duff, please comment on its area and thickness:

---



---

**Soil Exposure: (Bare Ground not including entrance areas)**

A) Percentage-Class of soil exposure over complete site: (circle one)

1 = 0-5%    2 = 6-25%    3 = 26-50%    4 = 51-75%    5 = 76-100%

B) Type of soil and/or comments about the soil:

---



---

**Root Exposure: Percent of square meters in each of the three categories (L, M, S):**

L = Limited / minimum to no root exposure with little effect on most use of the campsite  
 M = A moderate amount of root exposure where it is beginning to effect use of the campsite  
 S = Severe root exposure where campsite uses are significantly effected

L	M	S
--%	%	%

Sum of percent in categories M and S: \_\_\_\_\_

**Tree Damage: (trees within and bordering campsite)**

A) Percentage-class of trees damaged: (circle one)

1 = 0-5%      2 = 6-25%      3 = 26-50%      4 = 51-75%      5 = 76-100%

B) Percentage of trees with L, M, or S damage:

L = Light aesthetic/visual impact or no impact  
 M = Moderate aesthetic/visual impact  
 S = profound aesthetic/visual impact and/or damage that potentially affects the health of trees

L	M	S
%	%	%

Sum of percent in categories M and S: \_\_\_\_\_

C) Describe any recent tree damage:

---



---

D) Comments on / description of tree damage:

---



---

**Groover Site / Honey Pits: (any obvious human waste sites)**

Comments on condition and quantity:

---

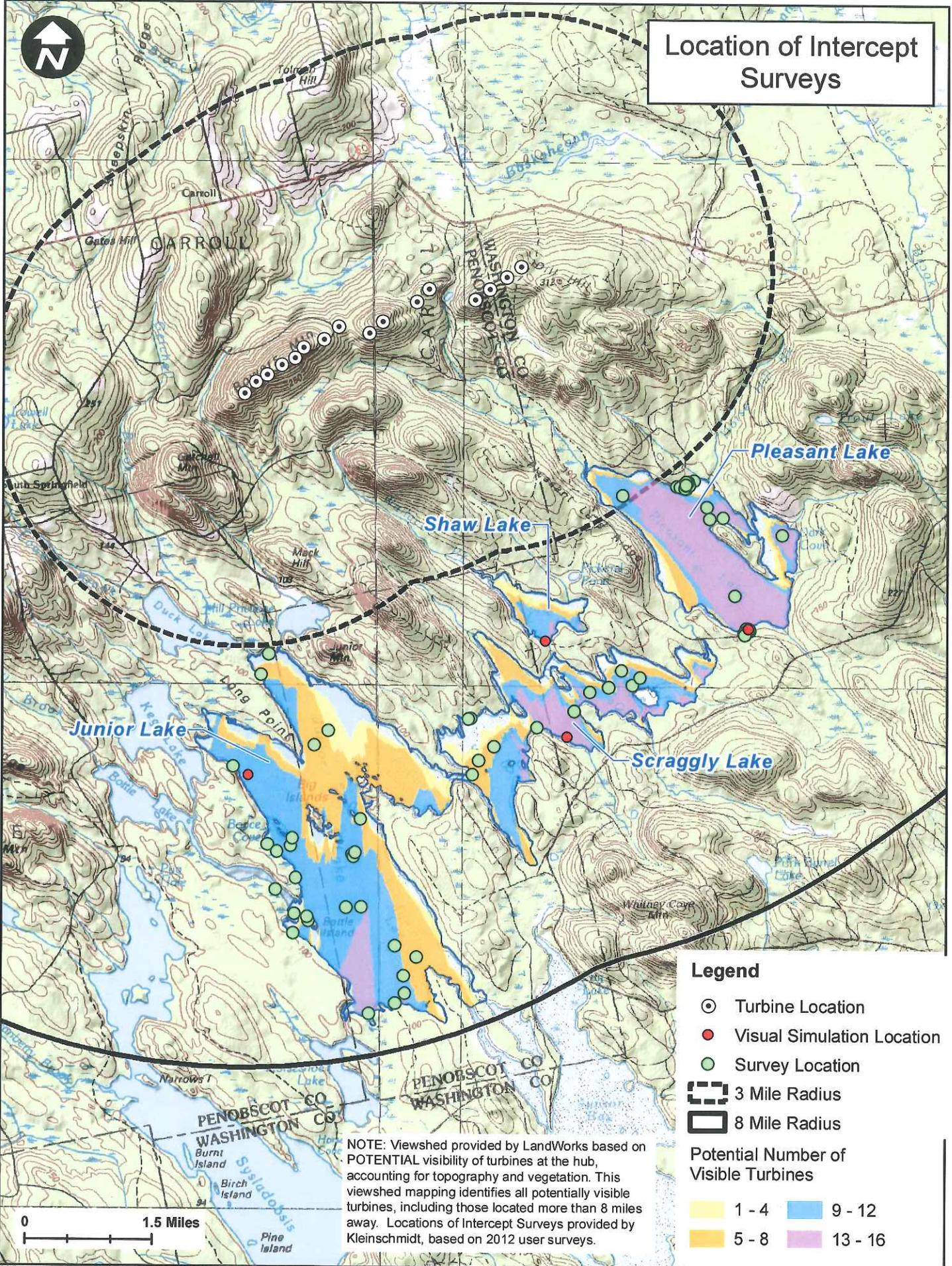


---

**Shoreline / Bank at Campsite Entrances:**

Description of angle and condition of banks where people enter the campsite:

# Location of Intercept Surveys



### Legend

- ⊙ Turbine Location
- Visual Simulation Location
- Survey Location
- ⊞ 3 Mile Radius
- ⊞ 8 Mile Radius

### Potential Number of Visible Turbines

1 - 4	9 - 12
5 - 8	13 - 16

NOTE: Viewshed provided by LandWorks based on POTENTIAL visibility of turbines at the hub, accounting for topography and vegetation. This viewshed mapping identifies all potentially visible turbines, including those located more than 8 miles away. Locations of Intercept Surveys provided by Kleinschmidt, based on 2012 user surveys.

0 1.5 Miles

Pre-Filed Rebuttal Testimony of Kevin J. Boyle on behalf of Champlain  
Wind, LLC

STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

CHAMPLAIN WIND, LLC	)	Pre-Filed Rebuttal Testimony of
CARROLL PLT./KOSSUTH TWP.	)	Kevin J. Boyle on behalf of
PENOBSCOT/WASHINGTON COUNTY	)	Champlain Wind, LLC
#L-25800-24-A-N/#L-25800-TE-B-N	)	

**Responses to Selected Testimony by Gary A. Campbell**

- p. 27 – Mr. Campbell states: *“The local game warden reported that Fridays and Saturdays were the busiest days on the lakes and so the survey was only administered on those days.”*

This statement does not convey all information used to come to the decision to survey on Fridays and Saturdays. I and Ms. Phillips each have over 25 years experience studying lake recreation in Maine, and Ms. Phillips has local experience from hydro-relicensing projects in the region. In addition, both of us have been recreating on Maine lakes since we were children. This professional and personal experience supports the game Warden’s local knowledge that most recreation occurs on Friday and Saturdays.

In addition to the intercept survey, Kleinschmidt conducted user and boat counts on weekdays and weekends. A calendar of survey dates with user observations is presented in Exhibit 1. These data show that there was an average of 3.5 users per day observed Monday-Thursday and an average of 14.3 users observed per day on Fridays and Saturdays. Thus, local data from 2012 supports the knowledge of the game warden, me and Ms. Phillips.

- p. 27 – Mr. Campbell goes on to assert: *“This results in a ‘convenience sample’ of only those people who enjoy using the lakes, or who are willing to use the lakes, when they are the busiest.”*

Mr. Campbell does not understand the term sample of convenience. A convenience sample occurs when survey participants are selected because of their convenient accessibility the researcher. This was not the case. Kleinschmidt used roving interviewers to conduct the survey. Thus, all users on the selected dates had a probability of being surveyed and one individual from each party was randomly selected to complete the survey. A convenience sample would have occurred, for example, if Kleinschmidt only sampled at one access point on the lake only conducted interviews with people who noticed the interviewers and volunteered to participate in the survey. This was not the case.

Conducting surveys on Fridays and Saturdays is the reported sample frame from which respondents were selected. This is not a sample of convenience.

Cost is an important factor in conducting any survey. On Monday-Thursday there was an average of 3.5 users per day and an average of two parties per day. With one person being sampled per party, this would result in two interviews per day. While these data are just for one area of Junior Lake, they denote the low usage on weekdays and bring into questions the cost effectiveness of conducting surveys on weekdays versus Friday-Saturday interview days.

- p. 27 – Mr. Campbell continues: *“It could be argued that (people who recreate on Monday-Thursday) are exactly the days that professional guides and those who live on the lakes are most likely not to use the lakes.”*

First, Mr. Campbell is simply hypothesizing and has not provided any evidence to support this hypothesis. Second, the data from Kleinschmidt’s (2012b) Bowers survey shows that the people who own or rent camps on lakes were surveyed on Fridays and Saturdays. Table 1 shows that 45% of the respondents to the Bowers survey own or rented a camp on one of the three lakes where surveys were conducted, which indicates that lake use by these individuals is not restricted to Monday-Thursday.

**Table 1. Respondents who Own/Rent Property**

Lake on which Property is Owned/Rented	Number	Percent
Junior Lake	14	45%
Pleasant Lake	15	48%
Scraggly Lake	2	6%
Total who Own/Rent	31	45%
Total Respondents	69	100%

While guides may take clients out on Monday-Thursday, simple logic suggests that they also do business and take clients out on the heaviest use days as well, the weekends.

There is an implicit argument that Mr. Campbell seems to be making that those who use the lakes on Monday-Thursday may be more sensitive to the presence of a wind farm. My professional experience suggests that those who visit on Monday-Thursday may be more sensitive to encountering other people on the water, but there are no data to jump to the conclusion that these users would be more sensitive to a wind farm or some other anthropocentric structure in the view shed.

- p. 27 – Mr. Campbell concludes this paragraph stating: *“By only surveying users on Thursdays and Fridays, the randomness of the sample is diminished.”*

Just as Mr. Campbell misunderstands the survey concept of sample of convenience, he also misunderstands the survey and statistical concept of randomness. Randomness of the survey was ensured through the roving interviewers, which meant all users of the lakes had a probability of being selected, and randomly selecting one person from each party to participate in the survey.

- p. 27 – In the next paragraph Mr. Campbell states: *“While there is good reason not to survey all the passengers in a boat due to cross influencing, it is unfortunate that this limited the overall sample size. Seventy individuals is not a large sample. As a result, the sample is a ‘convenience sample’ that represents the opinions of only those who took the survey, not the total population of users using the lakes on those days.”*

Unfortunately Mr. Campbell does not understand the concept of randomness and therefore, sample representiveness. Since one person from each party was randomly selected to complete the survey, each person in the parties had an equal probability of being selected to complete the survey. This ensures randomness and that the survey is representative of the user population surveyed.

Again, this is not a sample of convenience and he is misusing a term that has a very specific meaning in the survey-research literature.

In a representative sample each respondent’s answers are confidential and not influenced by the responses of others. Due to the need to conduct intercept surveys to represent the user population, confidentiality of responses from other members of the group could not be enforced. Therefore, surveys of subsequent members of the group would be confounded by answers of the first individual surveyed and answers to the survey by subsequent members of each group would not be objective data.

- p. 29 – Mr. Campbell states: *“Question 2 asked respondents if they ‘have a home or camp on this lake’, and Question 25 asked whether they ‘own or rent’ property on the three lakes being studied: Pleasant, Scraggly and Junior. These questions are critical since they feed into the issue of the impact on current use of the SRSNS per the statutory scenic impact evaluation. The survey results show that 61% of those surveyed said they were likely to return to the lakes if the project were built. Yet ownership of property on the lakes would skew these results.”*

When one looks at the data, the results are not skewed. Fifty-five percent of those who own/rent are very likely to visit in the future and the figure for those who do not own/rent is 53% (Table 2). For a summary of other survey statistics by own/rent versus visitors please see Exhibit 2.

**Table 2. Likelihood of Returning under Simulated Conditions**

	Total who Own/Rent on Junior, Pleasant, or Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake	
	Number	Percent	Number	Percent
1 Very Unlikely	6	19%	3	8%
2	2	6%	0	0%
3	1	3%	2	5%
4 Neither Likely Nor Unlikely	5	16%	8	21%
5	0	0%	2	5%
6	0	0%	3	8%
7 Very Likely	17	55%	20	53%
Total	31	100%	38	100%

p. 30 – Mr. Campbell asserts that Question 20 in the Bowers survey was confusing.

I have already responded to this critique in the February 17, 2013 response to Dr. Palmer's comments. In that response I explained:

*"Moreover, Question 20, as phrased in the Bowers Survey, employs a standard Likert scale format that is well established in the social science literature where one side of the scale is negative ("unlikely" to return), the middle is neutral ("no effect"), and the other side is positive ("likely" to return). There is no reason to think this response scale results in biased responses or confusion on the part of respondents. In comparison, the framing of the Saddleback Ridge project survey question (reference in #11 above) does contain an implicit bias in the way the response scale is presented and the response categories are not consistent with standard Likert scale design for this type of question in the general social science literature. Note, response categories on both sides of the Saddleback Ridge "no effect" (neutral) category imply that the respondent is "likely" to return. Respondents cannot say that they are "unlikely" to return, just "more" or "less" likely. Thus, the Bowers return visitation question is more appropriate because the response categories follow the standard Likert scale format and clearly allows respondents to respond that they are unlikely to return if the wind farm were built." (p. 7)*

p. 31 – Mr. Campbell states: *“The PPDW User Survey applied a ‘piped’ approach. By segregating those who owned property in the area from those who are only visiting, we were able to direct this question only to visitors.”*

In my expert report I explained that the PPDW internet survey does not satisfy basic conditions for credible scientific information. Their internet survey was administered to a sample convenience as I defined above. In addition, the American Association for Public Opinion Research provides best practices for survey design, conduct, data analyses and reporting ([http://www.aapor.org/Best\\_Practices1.htm](http://www.aapor.org/Best_Practices1.htm)). A careful review of these best practices reveals that the PPDW internet survey fails on multiple items.

The Best Practices are:

1. *Have specific goals.*
2. *Consider alternatives.*
3. *Select samples that well represent the population to be studied. (This practice was not met because PPDW could not ensure or confirm who responded to their survey.)*
4. *Use designs that balance costs with errors.*
5. *Take great care in matching question wording to the concepts being measured and the population studied.*
6. *Pretest questionnaires and procedures. (There is not documentation that any pretesting was conducted.)*
7. *Train interviewers carefully on interviewing techniques and the subject matter of the survey.*
8. *Check quality at each stage.*
9. *Maximize cooperation or response rates within the limits of ethical treatment of human subjects. (The sample of convenience precludes any computation of a response rate.)*
10. *Use appropriate statistical analytic and reporting techniques.*
11. *Develop and fulfill pledges of confidentiality given to respondents.*
12. *Disclose all methods of the survey to allow for evaluation and replication. (This was not done in the PPDW documentation of the survey.)*

Examples of violations are noted in parentheses after certain best practices.

p. 31 – Mr. Campbell states that the results of the PPDW User Survey suggest that *“a large portion of those who responded to the Kleinschmidt survey that under the simulated conditions they are still “very likely to return” may be property owners who feel they have no choice.”*

First, as noted above, the PPDW User Survey does not provide data from which scientifically credible conclusions can be drawn. Second, as also discussed above, Question 20 in the Bowers Survey gauged the impact turbine visibility would have on the likelihood of return visitation. Third, the breakdown between those who own/rent and those who do not own/rent show similar responses (55% for those who own/rent are very likely to return

and 53% of those who do not own/rent are very likely to return). See Table 2 above. The data do not support Mr. Campbell's supposition.

- p. 32 – Mr. Campbell states: *"On Page 24, the survey states that 'it is notable that most lakeshore development identified is outside of the viewshed of the proposed project.'"*

This is not a quote from the Bowers survey and this is not a statement that was conveyed to survey respondents.

- p. 33-34 – Junior, Pleasant and Scraggly Lake comments.

Here Mr. Campbell chooses to look at individual statistics rather than considering the weight of the collective evidence. The overall survey results indicate the 44% of respondents indicate that the wind farm might reduce the enjoyment of future trips, while 55% indicate no effect or a positive effect. Further, 20% indicate that they are unlikely to visit in the future if the wind farm is constructed, while 80% indicate no effect or they would be more likely to visit.

Here Mr. Campbell choose to overlook the fact that users of Baskahegan lake have been visitors for about 20 years on average and continue to visit this lake after the Stetson wind farm was constructed. This is *ex post* observations, not pre-construction projections, that the construction of a wind farm will not cause long-terms users to stop visiting a lake. This is information I have addressed in my expert report, in the responses to Dr. Palmer's comments and in my prefiled testimony.

- p. 35 – Mr. Campbell sates: *"In this case, "some" is 45%. Many American presidents have been elected with just "some" votes."*

This implies that presidents have been elected with less than 50% of the vote, which is possible with more than two candidates. Here there are two alternatives, build the wind farm or not, and a 44% negative vote would not be sufficient to stop the construction of the wind farm if it were a vote to build or not.

- p. 35 – Baskahegan Surveys comments

These comments are also issues I have addressed in my expert report, in the responses to Dr. Palmer's comments and in my prefiled testimony.

Given that users have been visiting for a very long period of time, approximately 20 years, and visited the wind farm for many years before the wind farm was constructed, this is not a selected group who choose to recreate where a wind farm is located. The wind farm came to them, they did not move to where the wind farm is located. In addition, since

there were two years between the implementation of the two surveys in 2010 and 2012, and the average years of visitation increased by two years over this period, there is no evidence of attrition due to the presence of the wind farm. If the wind farm caused users to stop visiting the lake and new users to start visiting the lake, it is expected that the average years of use would be only a few years.

Again, Mr. Campbell misuses the survey research term “self selected”.

While the boat launch at Baskahegan Lake is more than 8 miles from the Stetson wind farm, Figure 2 in Kleinschmidt’s (2012a) Baskahegan report indicates much of the lake is within 8 miles of this wind farm. The survey was conducted as people were leaving visits on the lake. Thus, their view of the Stetson wind farm was not restricted to the boat launch.

#### **Responses to Selected Testimony by Michael Lawrence**

**p. 50 – Exhibit N to Campbell Testimony (Lawrence Report).**

In his critique of the Visual Impact Assessment, Mr. Lawrence mischaracterizes or misinterprets the Bowers Survey responses. First, he states that 88% of the survey respondents “expect a scenic experience that is high or very high”, but does not give a citation for this statistic in the Kleinschmidt report. This statistic does not exist in the Kleinschmidt report. Question 10 in Kleinschmidt’s Bowers survey asked:

“On a scale of 1 to 7, where a 1 is very low quality, a 7 is very high quality, and a 4 is neither high nor low quality, what was the overall quality of experience you expected on your visit to \_\_\_\_ Lake today?” (Bowers Survey, 4.4.1, p. 27; Attachment A, p. 4).

The survey did not ask users of the Bowers Project lakes to report the scenic quality they “expected”.

**p. 50-51 – Exhibit N to Campbell Testimony (Lawrence Report).**

Mr. Lawrence also states that, after viewing the project simulations, 54% of respondents were likely or very likely to visit in the future (as compared to 94% who were very likely to return in the future based on the existing conditions). Here again he does not present correct statistics from the Kleinschmidt’s Bowers survey results (2012 B); neither the 54% nor the 94% figures are correct. In fact, 54% of respondents were very likely to visit with simulated conditions and an additional 7 % were likely to return. Thus the correct number is 61% (Table 17, last column, p. 34). Importantly, an additional 19% said the wind farm would have no impact on their likelihood to return visitation. Thus, the relevant figure, which Mr. Lawrence ignores, is 80% of the respondents said the wind farm would have no impact or they were likely to return, as compared to 99% of respondents who respondents

who were likely to return based on current conditions. This is a change of 19%, not the 39% claimed by Mr. Lawrence. Mr. Lawrence grossly overstates the potential impact of the Bowers project on lake visitation by using incorrect numbers from Kleinschmidt's report.

### References

Champlain Wind, LLC. February 17, 2013 "Response to Questions about Bowers and Baskahegan User Surveys and Kevin Boyle's Expert Report."

Ednie, A., C. Everett, and J. Daigle. 2010. "Baskahegan Stream Watershed Recreation Use & Resource Analysis." Report to Washington County TIF & Stetson Mountain Fund Committee.

Kleinschmidt. 2012a. "Baskahegan Lake User Surveys." Report to First Wind.

Kleinschmidt. 2012b. "Bowers Wind Project User Surveys." Report to First Wind.

Partnership for the Preservation of the Downeast Lakes Watershed. 2012. "Downeast Lakes Users Survey."

Boyle Pre-Filed Rebuttal Testimony Exhibits

- Exhibit 1      Calendar and Data On People and Boat Counts
- Exhibit 2      Tables Comparing Responses of Respondents Based on Whether They Own/Rent  
Property

**Bowers Wind Project  
People and Boats Observed by Date during Boat Counts at Junior Stream and Roving Surveys  
May 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

27	28	29	30	24	25	26
Junior Stream # People=36 # Boats=13	Junior Stream # People=7 # Boats=3	Junior Stream # People=0 # Boats=0	Junior Stream # People=9 # Boats=5		Junior Stream # People=0 # Boats=0 Pleasant Lake # People=10 # Boats=0 Shaw Lake # People=0 # Boats=0	Junior Stream # People=23 # Boats=10 Junior Lake # People=7 # Boats=4

June 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7 Junior Stream # People=8 # Boats=4	8 Junior Stream # People=14 # Boats=6  Pleasant Lake # People=20 # Boats=3 Shaw Lake # People=0 # Boats=0	9 Junior Lake # People=18 # Boats=6 Scraggly Lake # People=3 # Boats=0
10	11 Junior Stream # People=2 # Boats=1	12 Junior Stream # People=0 # Boats=0	13 Junior Stream # People=3 # Boats=1	14 Junior Stream # People=2 # Boats=2	15 Junior Stream # People=14 # Boats=7	16 Junior Stream # People=17 # Boats=8
17	18	19	20	21 Junior Stream # People=0 # Boats=0	22 Junior Stream # People=3 # Boats=1	23 Junior Stream # People=6 # Boats=4
24	25	26	27	28	29 Junior Stream # People=9 # Boats=3 Pleasant Lake # People=32 # Boats=8 Shaw Lake # People=0 # Boats=0	30 Junior Stream # People=0 # Boats=0 Junior Lake # People=51 # Boats=20 Scraggly Lake # People=45 # Boats=10

July 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6 Junior Stream # People=47 # Boats=25 Junior Lake # People=43 # Boats=16 Scraggly Lake # People=22 # Boats=6	7 Junior Stream # People=16 # Boats=5 Pleasant Lake # People=71 # Boats=7 Junior Lake # People=7 # Boats=3 Scraggly Lake # People=11 # Boats=2
8	9	10	11	12	13	14
15	16	17	18	19 Junior Stream # People=0 # Boats=0	20 Junior Stream # People=18 # Boats=8 Junior Lake # People=21 # Boats=12 Scraggly Lake # People=1 # Boats=1	21 Junior Stream # People=40 # Boats=14 Pleasant Lake # People=74 # Boats=12 Junior Lake # People=3 # Boats=2 Scraggly Lake # People=8 # Boats=3
22	23	24	25	26	27	28
29	30	31				

August 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9 Junior Stream # People=8 # Boats=3	10 Junior Stream # People=4 # Boats=1 Pleasant Lake # People=31 # Boats=3 Junior Lake # People=5 # Boats=1	11 Junior Lake # People=3 # Boats=2 Scraggly Lake # People=0 # Boats=2* *Two boats were recorded during rough weather but the number of people aboard could not be observed.
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Respondents who Own/Rent Property on Junior, Pleasant, or Scraggly Lake

Lake on which Property is Owned/Rented	Number	Percent
Junior Lake	14	45%
Pleasant Lake	15	48%
Scraggly Lake	2	6%
Total who Own/Rent	31	
Total Respondents	69	

Rating of Overall Quality of the Experience Expected on Trip  
Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Junior Lake		Pleasant Lake		Scraggly Lake		Lake on which Property is Owned/Rented		Total who Own/Rent on Junior, Pleasant, or Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
1 Very Low Quality	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
2	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
3	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
4 Neither High Nor Low Quality	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
5	3	21%	0	0%	0	0%	0	0%	3	10%	4	11%	7
6	1	7%	5	33%	0	0%	0	0%	6	19%	6	16%	12
7 Very High Quality	10	71%	10	67%	2	100%	2	100%	22	71%	28	74%	50
Total	14	100%	15	100%	2	100%	2	100%	31	100%	38	100%	69

Scenic Value Ratings under Current Conditions  
Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Junior Lake		Pleasant Lake		Scraggly Lake		Lake on which Property is Owned/Rented		Total who Own/Rent on Junior, Pleasant, or Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
1 Lowest Scenic Value	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
2	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
3	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
4 Typical Scenic Value	2	14%	0	0%	0	0%	0	0%	2	6%	5	13%	7
5	3	21%	2	13%	0	0%	0	0%	5	16%	11	29%	16
6	6	43%	4	27%	0	0%	0	0%	10	32%	10	26%	20
7 Highest Scenic Value	3	21%	9	60%	2	100%	2	100%	14	45%	12	32%	26
Total	14	100%	15	100%	2	100%	2	100%	31	100%	38	100%	69

Scenic Value Ratings under Simulated Conditions  
 Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Lake on which Property is Owned/Rented						Total who Own/Rent on Junior, Pleasant, or Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake		Total
	Junior Lake		Pleasant Lake		Scraggly Lake		Number	Percent	Number	Percent	
	Number	Percent	Number	Percent	Number	Percent					
1 Lowest Scenic Value	8	57%	4	27%	1	50%	13	42%	14	37%	27
2	1	7%	1	7%	0	0%	2	6%	2	5%	4
3	1	7%	0	0%	0	0%	1	3%	8	21%	9
4 Typical Scenic Value	0	0%	2	13%	1	50%	3	10%	3	8%	6
5	1	7%	2	13%	0	0%	3	10%	4	11%	7
6	1	7%	1	7%	0	0%	2	6%	3	8%	5
7 Highest Scenic Value	2	14%	5	33%	0	0%	7	23%	4	11%	11
Total	14	100%	15	100%	2	100%	31	100%	38	100%	69

Effect of Proposed Development on Enjoyment of Visit  
 Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Lake on which Property is Owned/Rented						Total who Own/Rent on Junior, Pleasant, or Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake		Total
	Junior Lake		Pleasant Lake		Scraggly Lake		Number	Percent	Number	Percent	
	Number	Percent	Number	Percent	Number	Percent					
1 Very Negative Effect	9	64%	3	20%	0	0%	12	40%	9	24%	21
2	1	7%	0	0%	0	0%	1	3%	2	5%	3
3	0	0%	1	7%	0	0%	1	3%	5	14%	6
4 No Effect	2	14%	9	60%	1	100%	12	40%	12	32%	24
5	1	7%	0	0%	0	0%	1	3%	3	8%	4
6	0	0%	1	7%	0	0%	1	3%	2	5%	3
7 Very Positive Effect	1	7%	1	7%	0	0%	2	7%	4	11%	6
Total	14	100%	15	100%	1	100%	30	100%	37	100%	67

Likelihood of Returning under Current Conditions  
 Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Lake on which Property is Owned/Rented						Total	
	Junior Lake		Pleasant Lake		Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1 Very Unlikely To Visit	0	0%	0	0%	0	0%	1	3%
2	0	0%	0	0%	0	0%	0	0%
3	0	0%	0	0%	0	0%	0	0%
4 Neither Likely Nor Unlikely/No Effect	0	0%	0	0%	0	0%	0	0%
5	0	0%	0	0%	0	0%	1	3%
6	0	0%	1	7%	0	0%	2	5%
7 Very Likely To Visit	14	100%	14	93%	2	100%	34	89%
Total	14	100%	15	100%	2	100%	38	100%

Likelihood of Returning under Simulated Conditions  
 Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Lake on which Property is Owned/Rented						Total	
	Junior Lake		Pleasant Lake		Scraggly Lake		Do Not Own/Rent on Junior, Pleasant, or Scraggly Lake	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1 Very Unlikely To Visit	5	36%	1	7%	0	0%	3	8%
2	0	0%	2	13%	0	0%	0	0%
3	1	7%	0	0%	0	0%	2	5%
4 Neither Likely Nor Unlikely/No Effect	2	14%	3	20%	0	0%	8	21%
5	0	0%	0	0%	0	0%	2	5%
6	0	0%	0	0%	0	0%	3	8%
7 Very Likely To Visit	6	43%	9	60%	2	100%	20	53%
Total	14	100%	15	100%	2	100%	38	100%

Rating of the Important of Wind Power in Maine  
 Respondents who Own/Rent Property on Lake vs. Respondents who do not Own/Rent Property

	Lake on which Property is Owned/Rented						Total				
	Junior Lake		Pleasant Lake		Scragsly Lake		Do Not Own/Rent on Junior, Pleasant, or Scragsly Lake				
	Number	Percent	Number	Percent	Number	Percent	Number	Percent			
1 Very Unimportant	5	36%	2	13%	2	100%	9	29%	7	21%	16
2	0	0%	1	7%	0	0%	1	3%	2	6%	3
3	2	14%	2	13%	0	0%	4	13%	4	12%	8
4 Neither Important Nor Unimportant	1	7%	3	20%	0	0%	4	13%	4	12%	8
5	4	29%	1	7%	0	0%	5	16%	7	21%	12
6	0	0%	1	7%	0	0%	1	3%	2	6%	3
7 Very Important	2	14%	5	33%	0	0%	7	23%	7	21%	14
Total	14	100%	15	100%	2	100%	31	100%	33	100%	64

Pre-Filed Direct Testimony of Matt Kearns, Neil Kiely and Dave Cowan on behalf of Champlain Wind, LLC

STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

CHAMPLAIN WIND, LLC	)	Pre-Filed Direct Testimony of
CARROLL PLT./KOSSUTH TWP.	)	Matt Kearns, Neil Kiely
PENOBSCOT/WASHINGTON COUNTY	)	and Dave Cowan on behalf of
#L-25800-24-A-N/#L- 25800-TE-B-N	)	Champlain Wind, LLC

On behalf of the applicant Champlain Wind, LLC (“Champlain Wind”), Matt Kearns, Neil Kiely and Dave Cowan are submitting this pre-filed direct testimony in support of the Bowers Wind Project.

**I. QUALIFICATIONS AND BACKGROUND**

**A. Matt Kearns**

I started my career at First Wind Holdings, LLC (“First Wind”) in 2006, and I initially held the title of Director of Development as project developer of the Stetson Wind project before moving to my current role as Vice President of Business Development for the northeast region. As Vice President of Business Development, I manage the Northeast development team as they bring projects – including Bowers - from concept and due diligence through permitting and into construction and operations. To date, I have overseen the successful development and permitting of wind projects totalling 382 MW of new wind generation and have brought 232 MW into construction in Maine, Vermont, and New York. I am a graduate of Colby College and have eighteen years of experience in environmental and energy project permitting and development. My bio is attached as Exhibit 1.

**B. Neil Kiely**

I hold the title of Director, Development - New England for First Wind and have served in that position since 2009. As lead developer for the Bowers Wind Project, I am responsible for all aspects of project development, including initial site identification, site acquisition, community engagement and permitting. In addition to being lead developer for the Bowers Wind Project, I am also the lead developer of other projects in various stages of development. I am a graduate of Boston College and Emory University School of Law. My bio is attached as Exhibit 2.

**C. Dave Cowan**

I am Vice President of Environmental Affairs at First Wind and have served in that capacity since 2004. I am responsible for all aspects of environmental permitting and compliance for projects throughout the United States, and oversee permit compliance for more than 900 MW of installed wind energy generation. I am a Certified Wildlife Biologist, accredited by the Wildlife Society, an organization of professional wildlife biologists and ecologists. I have more than 30 years experience, including work in non-profit, academic, and environmental consulting. In 2006 I oversaw the approval of the first Habitat Conservation Plan to benefit endangered species for a wind energy project in the United States (Hawaii), and have since overseen the approval of HCPs for three additional Hawaii projects. Closer to home, my team and I including Bob Roy and Josh Bagnato coordinated the first research project into the effectiveness of bat curtailment in New England at our Sheffield Wind Farm in Vermont, in cooperation with Bat Conservation International, USFWS, Vermont ANR and Texas Tech University. I joined First Wind in its Portland office in 2004 after over 20 years in the environmental assessment profession and continue to operate out of Portland. My bio is attached as Exhibit 3.

## II. FIRST WIND OVERVIEW

First Wind ([www.firstwind.com](http://www.firstwind.com)) is an independent North American wind energy company focused on the development, financing, construction, ownership and operation of utility scale wind projects in the United States. First Wind currently operates 16 wind energy projects across the country, with a total generating capacity of 980 MW.<sup>1</sup> Champlain Wind is a wholly owned subsidiary of First Wind Maine Holdings, LLC, which in turn is a wholly owned subsidiary of First Wind Holdings, LLC (“First Wind”). The conventions of project financing require that a project be owned by a single purpose entity. Paul Gaynor is the President or Chief Executive Officer of all three companies.

First Wind has extensive experience in developing, financing, constructing and operating wind energy projects in Maine. First Wind developed, owns and operates the Mars Hill project in Aroostook County, the Stetson Wind I and II projects in Washington County, the Rollins project in Penobscot County, and the Bull Hill project in Hancock County. Operational since March 2007, Mars Hill consists of 28 turbines with an installed capacity of 42 MW was Maine’s first utility-scale wind energy project. Stetson Wind I consists of 38 turbines with an installed capacity of 57 MW and became fully operational in January 2009. Stetson Wind II consists of 17 turbines with an installed capacity of 25.5 MW and became fully operational in March 2010. The Rollins project consists of 40 turbines with an installed capacity of 60 MW and became fully operational in July 2011. Bull Hill consists of 19 turbines with an installed capacity of 34 MW and became fully operational in October 2012. In the aggregate, these Maine projects generated 425,990 MW/hours in 2012, enough to power 68,136 average Maine homes. Attached as Exhibit 4 is a map depicting First Wind’s operating assets in Maine.

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<sup>1</sup> The Application states 13 operating projects with a total generating capacity of 771 MW, and three more under construction. See Section 3.2.1 of the Application. The three projects under construction at the time have since been completed and are now operating.

First Wind has assets of approximately \$2.2 billion. Since 2004, First Wind has raised or financed over \$7.0 billion, including project debt financings, tax equity, corporate financings and government grants. First Wind, through an affiliate company, successfully financed the Mars Hill project 2006, the Stetson I project in 2008, and the Stetson II project in 2009. In 2010, financings included \$98 million for the Rollins Wind project in Penobscot County, Maine and \$76 million for the Sheffield Wind project in Vermont. In 2011, financings included \$210.8 million for projects in Washington State, and in 2012, financings included \$76.1 million for the Bull Hill project in Hancock County, Maine. A complete discussion of First Wind's financial capacity is described in Section 3 of the Application.

The assembled Project team has a wealth of experience in project design and wind project development. First Wind's extensive team of employees has broad experience in all aspects of wind project development and operation, including generator lead line development, meteorology, engineering, permitting, construction, finance, law, asset management, maintenance, and operations. As noted above, First Wind has successfully permitted six projects in Maine before the Maine Department of Environmental Protection and the former Land Use Regulation Commission: Mars Hill, Stetson Wind I, Stetson Wind II, Rollins, Bull Hill, and Oakfield. Five of those six projects have been constructed and are now operating.

First Wind's successful track record building these projects reflects the company's financial strength and its commitment to minimizing potential impacts to environmental resources and ensuring that projects are built in accordance with the terms and conditions of applicable regulatory approvals.

### **III. PROJECT DESCRIPTION**

The Bowers Wind Project (or “Project”) is a 16-turbine 48 MW expedited wind energy development located south of Route 6 in Carroll Plantation, Penobscot County, and Kossuth Township, Washington County. Both communities are rural, undeveloped areas with very low populations. The closest area of somewhat concentrated density is Springfield, located five miles from the closest turbine, where there is a church, school and grocery store. The region’s major employment center, Lincoln, is located more than 25 miles away. As is true for much of the unorganized areas of the State, the predominant land use in the Project area is forest management activity. Attached as Exhibit 5 is a figure depicting the Project and its location.

The Project has been reduced significantly from its original design, which consisted of 27 turbines and, as discussed further below and in the testimony of other witnesses, incorporates a number of measures to minimize ecological and human impacts. The siting considerations are discussed in Section IV below, while the energy, environmental and economic benefits are discussed in Section V.

The turbines will be constructed on two ridges in the Project area: Bowers Mountain in Carroll Plantation and portions of Dill Hill in Kossuth Township. Two turbine models are being considered: Siemens SWT-3.0-113, with a maximum height of 446 feet (136 meters) and Vestas V112 3.0 MW, with a maximum height of 459 feet (140 meters). The Application evaluates the greatest impact aspects of the two candidate turbine models, providing an analysis of the tallest turbines when considering visual impacts, safety setbacks, and shadow flicker, the highest sound output model for the sound assessment, and the turbine with the largest footprint when evaluating clearing and other construction related impacts.

Power from the turbines will be collected by a 34.5 kV electrical collector line along the summit. The summit collector will then travel north along an “express collector” line for 5.2

miles from the Project site to a proposed substation located adjacent to an existing 115 kV generator lead (Line 56). The express collector is typical of distribution lines that are present throughout the rural landscape in Maine. The substation will step up the power to 115 kV for interconnection with Line 56. The proximity of Line 56 to the Project eliminates the need for construction of a lengthy generator lead.

The Project is located in an area that is harvested or managed for timber. Existing roads will require some upgrades to accommodate construction vehicles. In addition, there will be 3.0 miles of new 24-foot access roads and 4.0 miles of new 35-foot crane paths. The new access roads will be similar to logging roads seen throughout actively managed commercial timber lands. The crane paths and other project roads have been sited to work with the existing topography and therefore minimize cut and fill.

There will also be one permanent 90-meter meteorological (met) tower, and up to two temporary met towers. The permanent met tower is used to measure the wind resource over the life of the Project, and the temporary met towers correlate the wind resource to certain turbine locations for performance measurements. The temporary met towers would be installed at or near turbine locations prior to construction and then removed prior to completion of construction. The Project also requires construction of an operations and maintenance building (O&M building), which will be a single story building constructed of metal or other suitable material that will be painted a neutral color to blend in with its surroundings. The O&M building will be located just to the north of Route 6 and screened from view by trees in an area near a former automotive building and used vehicle storage area.

First Wind has extensive experience in and beyond Maine constructing each of these project elements and has fine-tuned construction measures and techniques to ensure a safe and

efficient construction process that minimizes resource impacts. Additionally, Champlain is working with engineers and contractors with experience designing and building numerous projects in and beyond Maine, including in terrain and conditions much more challenging than presented by this gentle, low elevation site.

#### **IV. SITING CONSIDERATIONS**

Development of a viable wind energy project depends on fundamental factors such as the characteristics of the wind resource, access to transmission, and landowner interest. In selecting sites for wind energy development, First Wind also actively seeks to identify locations where impacts to human and ecological resources can be avoided or minimized. To that end, the Project is located within the expedited permitting area in a location where the Legislature has encouraged wind energy development. While no project is without impacts, the Bowers Project site allows for development of a significant wind energy resource with attendant environmental, economic and energy benefits, while minimizing potential impacts to human and ecological resources.

##### **1. Potential to Generate Significant Energy**

The Maine legislature has established the following goals for wind energy development in the State: at least 2,000 MW of installed capacity by 2015; at least 3,000 MW of installed capacity by 2020, including 300 MW or more from off-shore wind facilities, and at least 8,000 MW of installed capacity by 2030, including 5,000 MW or more from off-shore facilities. 35-A M.R.S. § 3404(2). Currently, there is just under 400 MW of installed wind energy development in the State, and an additional 216 MW of permitted but not constructed capacity. At 48 MW, the Bowers Project will help Maine move toward its wind energy development goals and their attendant energy, environmental and economic benefits.

Although proposed for a relatively low elevation site, the Bowers Project has the capacity to generate significant energy at the proposed location. Specifically, the average wind speed projected for the Bowers Project is 7.5 meters per second, which is between a Class IV and Class V wind resource, and the Project is expected to produce approximately 160,000 MW hours of energy per year. The economic, energy, and environmental benefits associated with development of this wind resource are discussed in Section V below.

## **2. Proximity to Transmission and Existing Infrastructure**

The Project site is located proximate to an existing 115 kV generator lead, thereby eliminating the need to construct lengthy new transmission infrastructure. Specifically Line 56, which was constructed by First Wind for the Stetson project, is located just over five miles from the Project site. Output from the Project will be conveyed from the turbines to Line 56 via a 5.2 mile express collector line. The line will be 34.5 kV and as such has a smaller footprint and will require a narrower right-of-way than the larger and more typical 115 kV generator lead lines. Line 56 can accommodate the power from the Project without the need for a capacity increase.

The Project is also located proximate to Route 6, which allows for ready access by construction and other vehicles. Additionally, there is an established network of logging roads that Champlain will utilize for the Project. The proximity to existing infrastructure minimizes the need for new construction and facilitates efficient construction and operational access to the site.

## **3. Compatibility with Existing Landowner Uses**

The Project is located in an area of timber management and/or harvesting, which is compatible with wind energy development. Specifically, the permanent footprint of the wind energy development is small (approximately 34 acres of permanent clearing) and following construction the landowners may continue with forest management activities. The improvements to existing logging roads and construction of new access roads likewise benefit the landowners and facilitate harvesting activities. Finally, the revenue stream to the landowners provides an important alternative source of income as value from timber harvesting continues to decline. A recent report on the future of forests in Maine described wind turbines as “[c]apital intensive to build but have no fuel costs, meaning that leasing space for them can bring major benefits to landowners. Like carbon storage but in a more tangible way, windpower creates additional value for landowners and helps preserve the larger forest economy.”<sup>2</sup>

#### **4. Ecological Impacts**

Development of the Bowers Project will have minimal adverse impact on ecological values. Champlain has undertaken the full suite of environmental surveys to assess the natural resources in the vicinity of the Project. Those surveys are discussed in detail in the accompanying pre-filed direct testimony of Stantec. Importantly, they document that the site does not host unique ecological resources that would be adversely impacted by construction and operation of the Project.

- The location is a relatively low-elevation area (700 to 1,200 feet) and therefore does not affect the resources such as subalpine communities and other rare natural communities that are often present at higher elevation sites.
- The site is located outside of any Critical Habitat for any federally listed species, including the Atlantic Salmon and the Canada Lynx.

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<sup>2</sup> Keeping Maine’s Forests: A Study of the Future of Maine’s Forests, November 2009. Coordinated and managed by the Center for Research on Sustainable Forests, University of Maine.

- With the exception of minimal clearing ( 0.14 acres) of upland Inland Wading Bird and Waterfowl Habitat (IWWH), there will not be any impacts to any Significant Wildlife Habitat including Deer Wintering Areas, Significant Vernal Pools, or habitat for rare, threatened or endangered species, including the Northern Bog Lemming, the Roaring Brook Mayfly, or the Spring Salamander.
- All permanent wetland fill has been eliminated.
- There are no bald eagle nests located within four miles of any turbine location, and the closest known nest is over five miles from a turbine.
- Results of pre-construction avian and bat surveys are consistent with surveys of other operating projects in the area and, as such, the risks to birds and bats are minimal and in line with other project sites in Maine with documented low mortality.

The Bowers site also comports well with data developed by AMC that assesses the relationship between potential ridgeline sites in Maine and resource values implicated by build out of wind power in the State.<sup>3</sup> In its report, AMC identified the following resource values: extent above 2,700 and 3,500 feet in elevation; rare plant, animal and natural community occurrences; Beginning with Habitat Focus Areas; priority summit ecosystems identified by The Nature Conservancy; large roadless areas; potential Bicknell's thrush habitat; steep slopes; ridgeline ponds; hiking trails; Appalachian Trail viewshed; and statutorily defined resources within three miles. The Bowers Project is sited in a manner consistent with these criteria and, importantly, the Project avoids the habitat and ecological impacts of concern to AMC in its report.

## 5. Human Impacts

The Project has also been sited to minimize conflicts with existing human uses. First, as noted above, wind energy is not only compatible with but benefits commercial timber management practices, which are the predominant land use in the Project and surrounding area. As discussed in the accompanying pre-filed direct testimony of Jeffrey Selser, the Project is also

<sup>3</sup> Ridgeline Windpower Development in Maine: An Analysis of Potential Natural Resource Conflicts, AMC Technical Report at 19 (2011).

compatible with other surrounding privately-owned working forests, including the conservation easements associated with those working forests.

Second, the site avoids sound and shadow flicker conflicts that can arise in more densely settled areas. Specifically, the closest residence or camp subject to sound and shadow flicker limits is located more than 3,600 feet from the closest turbine, and there are only seven such camps or residences within a mile of the Project. Moreover, the Project will meet the new more stringent sound limits, specifically the nighttime limit of 42 dBA, at all regulated protected locations. See Section 5.0 of the Application. Likewise, there are not any expected shadow flicker impacts beyond the Project boundary. See Section 26 of the Application.

Third, recreational opportunities within the immediate Project area are limited and will not be adversely impacted by the Project. There is a network of former logging trails in the Project area that may be used by local residents for hunting, snowmobiling and in certain areas ATV riding. These activities are expected to continue with landowner permission and as discussed in greater detail in the accompanying pre-filed direct testimony of David Raphael, wind power is compatible with such activities.

Fourth, although the Project will be visible from a number of scenic lakes located to the south, as discussed in the pre-filed direct testimony of David Raphael and Kevin Boyle, the visibility of turbines on these lakes will not have an unreasonable adverse impact on the scenic character or uses related to scenic character of those lakes. This conclusion is supported by intercept surveys conducted by Champlain on several of the Project lakes, as well as the first post-construction survey done in Maine to evaluate the impact of visibility of a wind power project on scenic values and recreational use and enjoyment of a lake with significant visibility of wind turbines. These surveys and other data show that while some people may fear the

potential impact that Project visibility will have on recreational use and enjoyment, the Bowers Project will not have an unreasonable adverse impact on recreational use and enjoyment of the scenic lakes located within eight miles of the Project.

Finally, local support is an important siting consideration for First Wind. When evaluating human impacts it is critical to balance the interests of project opponents who recreate on lakes to the south and who are both organized and motivated to testify in public, with the interests of the residents in the host communities, who support the Project and are most directly affected by the Project, but are typically less likely to testify in public hearings. Carroll Plantation and Kossuth Township, the host communities, both support the Project. The attached letter from Anita Duerr, the Clerk of Carroll Plantation, describes the support for the Project that exists in the host community and its interest in seeing the Project built. Attached to her letter is a Petition of Support that has the signatures of 69 full-time residents as well as 46 non-resident landowners. As she notes, they consider it a good year to get 30 people to their annual meeting, so the Petition represents a significant show of support in the community for the Project. While they may not be part of an organized group, the people in Carroll and Kossuth who are familiar with wind turbines based on their proximity to the Stetson project and who want the Bowers Project to proceed must not be forgotten. As Anita says, “we are telling you and anyone else that will listen that we want to see this project go forward.”<sup>4</sup>

#### **6. Mitigation of Potential Project Impacts**

The design of the Bowers Project incorporates a number of key measures to minimize potential impacts. First, the Project has been revised significantly to minimize the project footprint and reduce impacts on visual and cultural resources. The initial project consisted of 27 turbines. By using a newly-available turbine model, Champlain was able to reduce the project

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<sup>4</sup> Ms. Duerr’s letter and the Petition are attached as Exhibit 6.

from 27 turbines to 16 turbines, a forty percent reduction. This will substantially reduce the footprint of the Project as well as the visual impacts. Champlain also removed particular turbines to increase the distance of the nearest turbine to Shaw Lake to greater than three miles, thus reducing visibility on that resource. Shaw Lake is one of the closer lakes and has a more isolated feel due to lack of ready access and virtually no shoreline development. In addition, five turbines previously located on the eastern portion of Dill Hill have been removed, thereby narrowing the turbine array and the angle of view where turbines are seen from scenic lakes, further minimizing visual impacts. Attached as Exhibit 7 is a figure that compares the original 27-turbine design with the current 16-turbine project.

Second, the Project is the first in Maine to propose use of radar-assisted lighting technology to minimize adverse impacts of nighttime lighting. The Federal Aviation Administration (FAA) requires a certain number of the turbines and meteorological towers that exceed 200 feet to be lit at night to warn aircraft of the presence of the structures. Concerns have been expressed about the potential effects of nighttime lighting particularly by some guides and commercial sporting camp owners. Although First Wind does not believe the lights create an undue adverse impact under the regulatory criteria for a number of reasons, we respect the concerns and are willing to make a substantial financial investment to resolve them. The radar-assisted systems utilize radar mounted on the turbines or in close proximity to the turbines to detect aircraft when they are approaching the structure at night and automatically turn on the FAA lights. The lights then automatically turn off once the aircraft has left the airspace in proximity to the wind farm. These systems permit wind turbine obstruction lights to remain off at all times unless an aircraft is operating in the vicinity of the wind farm, thus greatly reducing nighttime lighting at these wind projects.

The FAA has drafted an Advisory Circular (“AC”) that details the standards that such a system must meet in order to be used, and which is currently undergoing internal review within the FAA. In anticipation of FAA’s approval of such systems, Champlain has conducted extensive due diligence with vendors who currently have these systems available and has confirmed the suitability of the site for these systems. Once FAA finalizes the standards and approves the use of these systems for use on commercial wind projects, Champlain will select a vendor and seek FAA approval to use such a system at the Bowers site. Following FAA approval, and assuming commercial availability, Champlain will install a radar-assisted lighting system that will allow the required nighttime lighting for turbines and permanent met towers to remain off except when aircraft are in the vicinity of the project per the FAA standards.

Third, Champlain is proposing curtailment to reduce potential threats to bat species. Curtailment consists of altering (delaying) the operation of a wind turbine so that it begins generating energy at a wind speed greater than its normal “cut-in” speed (for example, under bat curtailment the turbine blades will begin spinning and the generator will begin producing electricity once wind speeds reach 5.0 m/sec rather than the normal 3.0 or 3.5 m/sec). First Wind has been a leader in the Northeast in understanding the value of curtailment in reducing bat fatalities. In 2007, First Wind agreed to curtailment at its Sheffield Wind Project in Vermont, which was the first agreement of its kind at that time. Since then, First Wind has worked cooperatively with MDIFW on curtailment agreements at its recently operational Bull Hill Project, recently permitted Oakfield Project, and this Project. In addition, First Wind, in cooperation with the U.S. Fish and Wildlife Service (USFWS) and the VT Agency of Natural Resources, has recently completed the first of two years of an intensive curtailment assessment

study conducted by Bat Conservation International and Texas Tech University at its Sheffield Project and intends to conduct a similar study at Bull Hill.

First Wind has seven years' worth of fatality monitoring data from four operating wind projects in Maine between 2007 and 2012; Mars Hill (2 years), Stetson I (2 years), Stetson II (2 years), and Rollins (1 year), as well as four years' worth of fatality data from other projects in the Northeast between 2009 and 2012. There have been no significant mortality events at those projects. As discussed in the accompanying Pre-Filed Direct Testimony of Adam Gravel, et al., the post-construction monitoring results from operating projects in Maine and New England, coupled with the pre-construction surveys here, demonstrate that the Bowers site is not expected to adversely impact bat species. Importantly, the post-construction studies also document that the vast majority of bat fatalities in Maine (and elsewhere) occur between June 11 and September 30. Although the data indicate that the site does not present any unique risks to bats, including migrating bats, Champlain is proposing to curtail wind turbines during conditions when previous studies have shown bats are active and when existing Maine-based post-construction fatality data indicates the potential for bat mortality is greatest. Specifically, Champlain proposes to curtail operation of the turbines between June 1 and September 30, from 30 minutes before sunset to sunrise, and when air temperatures at the hub height are above 49 degrees Fahrenheit. Thus, although the risks to bats are low to begin with, curtailment will further reduce potential risks to bats, including migrating bats. A summary of the key siting considerations is provided in Table 1 below.

#### **TABLE 1-KEY SITING CONSIDERATIONS**

Category	Siting Considerations for Bowers Wind Project	Comment
Wind and Permitting	Wind Resource	On-site met tower data indicates prevailing wind speed is west-northwest and average wind speed is 7.5 m/s.
	Proximity to Transmission	Project is 5.2 miles from an existing 115-kV generator lead.
	Expedited Permitting Area	Project is fully within the expedited wind permitting area.
Natural Resources	Federally-listed species	Project is outside Critical Habitat for Canada Lynx and Atlantic Salmon, and there are no bald eagle nests within four miles of the project.
	Birds	Surveys indicated similar results to Stetson, where post-construction surveys demonstrated low risk.
	Bats	Surveys indicated similar results to Stetson, where post-construction surveys demonstrated low risk.
	Wetlands	Wetlands were fully delineated throughout project area and the design avoids any permanent wetland fill and limits wetland clearing to 2.58 acres.
	Significant Wildlife Habitat	Only one SVP was documented and the design avoids all impacts. There are no impacts to DWA. The design minimizes impacts to 0.14 acres of upland clearing near an IWWH.
	Unusual Natural Areas	The design avoids any impact to rare plants.
Cultural Resources	Scenic Resources	Only one type of scenic resource - Great Ponds with scenic quality - are located within 8 miles of turbines and will have visibility of the Project. Four will have visibility within three miles and four will have visibility within 3-8 miles. The results of intercept surveys done on the Project lakes and the post-construction intercept survey done at Baskahegan Lake demonstrate that Project visibility will not have an unreasonable adverse impact on scenic character or existing scenic uses.
	Historic and Archaeological	Only one historic structure within 8 miles and which will have no visibility. Surveys indicated no evidence of archaeological resources
	Shadow Flicker	No hours of shadow flicker impacts beyond the Project boundary.
	Public Safety	Turbines are located more than 1,490 feet from the nearest parcel line, structure, or public road, thereby meeting all public safety setbacks.
	Sound	The closest regulated protected location is 3,600 feet away and there are only seven camps or residences within one mile of the Project. The Project will meet the new more stringent nighttime sound limit of 42 dBA at all protected locations.

## V. STAKEHOLDER OUTREACH AND SUPPORT

Community and stakeholder outreach is a critical component of First Wind's development process. This extends to the communities most affected by a project, as well as groups that may have concerns with or be opposed to a project. Champlain has conducted significant community outreach in Carroll, Kossuth, and neighboring communities and with significant area landowners. Informal town meetings were supplemented with formal public meetings on different topics with individual invitations mailed to every town resident or landowner. In addition, the Project Developer, Neil Kiely, has regularly attended Monday night office hours at the Carroll Town Offices (the only time it is open) and went door to door in Kossuth to answer questions about the project. As a result, the community has had full access to and is familiar with the Project, and Champlain has had an opportunity to learn about and address concerns. In addition to the meetings and publicity that occurred in connection with the review by the then Land Use Regulation Commission for the original project, Champlain has undertaken the following formal outreach:

### Public Meetings for Bowers Wind

- February 8, 2010: Introductory Meeting at Carroll Plantation Town Offices. Notice letters sent to every landowner listed on the tax records.
- May 22, 2010: Meeting on potential tax impacts held at Carroll Plantation Town Offices followed by general Q&A on the project. Notice letters sent to every landowner listed on the tax records.
- July 23, 2010: Open house meeting staffed with internal and external subject matter experts held at Lee Academy in Lee, Maine. Notice letters sent to every landowner listed on the Lakeville tax records which included direct contact information for Neil Kiely. Postcards sent to every landowner listed on the tax records for Carroll Plantation and Kossuth Township. Advertisements placed in the Lincoln News and posters posted at the Smith General Store, the Lakeville Town Offices and the Lakeville Transfer Station.

- February 23, 2011: Open house meeting staffed with internal and external subject matter experts held at Carroll Town Hall, Carroll Plantation, Maine. Notice letters sent to every landowner listed on the Carroll and Kossuth tax records.
- September 20, 2012: MDEP Public Informational Meeting held at Carroll Town Hall. Notice published and mailed to project abutters and invitations sent to every landowner in Carroll and Kossuth.

As a result of these efforts, as well as numerous informal conversations, residents in the communities that host and are most proximate to the Project were able to make an informed decision to support the Project. In Carroll Plantation, the support was demonstrated by a town vote to formally support the project in 2011 and to approve a Community Benefit Agreement negotiated by a committee formed for that purpose. In Washington County, the County Commissioners had the County Manager speak in support of the Project. More recently, a Petition in support of the project has been circulating in Carroll and Kossuth, and landowners and residents in those communities have indicated their support for the Project.

Champlain has also consulted with the Passamaquoddy and Penobscot Tribes, two of the largest landowners in the Project area. Specifically, the Passamaquoddy Tribe holds significant lands along the shoreline of Junior, Scraggly, Shaw, and Sysladobsis lakes, and the Penobscot Tribe holds significant lands along the shore of Sysladobsis Lake. A Map depicting Tribal Interests is attached as Exhibit 8. In the case of the Passamaquoddy Tribe, Champlain engaged in an intensive and lengthy consultation process that enabled Champlain to successfully resolve concerns previously expressed by the Passamaquoddy Tribe. Specifically, Champlain has agreed that upon two weeks prior written notice from the Passamaquoddy Tribe, Champlain will suspend operation of the Project for up to four hours on up to four days per calendar year during observance of cultural ceremonies of the Tribe. The Passamaquoddy have indicated that they do not believe visibility of the Project will negatively impact their traditional uses of the lakes,

including for fishing, hunting, snowmobiling, camping and hiking, nor will it interfere with their cultural ceremonies. To the contrary, it is an appropriate new use that can co-exist with existing uses in the area. A copy of the Letter from the Tribal Chiefs is attached as Exhibit 9.

Champlain also met with local community groups, including snowmobile clubs, ATV clubs, the Vinegar Hill Subdivision Association and conservation groups such as the Downeast Lakes Land Trust, the Natural Resources Council of Maine, the Nature Conservancy, Maine Audubon, Maine Sierra Club, Environment Maine, the Penobscot County Wildlife Association, the New England Forestry Foundation as well as the Bureau for Public Lands. First Wind has also met with local business leaders and governmental entities including the Washington County Commissioners, Penobscot County Commissioners, the Passamaquoddy Full Tribal Council, Representatives of the Grand Lake Stream Community, including public officials, Grand Lake Stream Guide Association, and the Maine State Professional Guides Association. We have been encouraged by the scope and extent of support from individuals and organizations.

## **VI. TANGIBLE BENEFITS**

The Bowers Project represents a significant economic opportunity for Maine residents and, in accordance with the requirements of the Wind Energy Act, will provide tangible benefits to Carroll Plantation, Kossuth Township, Washington County, and throughout the entire State of Maine. Tangible benefits are defined as environmental or economic improvements or benefits to residents of the State attributable to the construction, operation, and maintenance of the Project. They include, but are not limited to the following: property tax payments resulting from the development; other payments to a host community, including, but not limited to, payments under a community benefits agreement; construction-related employment; local purchase of materials; employment in operations and maintenance; reduced property taxes; reduced electrical rates;

land or natural resource conservation; performance of construction, operations, and maintenance activities by trained, qualified and licensed workers; and other comparable benefits.<sup>5</sup>

Tangible benefits from the Project will extend from the communities in the Project area, to businesses and contractors throughout the State, to ratepayers in the State and region. Locally, the benefits manifest in the form of new landowner income, a community benefit agreement, supplemental energy funds, a watershed recreational tourism and conservation fund and seed funding to establish a snowmobile trail linking Maine wind projects. Regionally, economic development will result from the significant portion of total capital investment – estimated at \$100 million – dedicated to Maine-based contractors and supply chain. Finally, ratepayers across the State and the region realize the benefit of added wind energy capacity in the form of predictable, long-term wholesale contracts delinked from volatile markets and demand for fossil fuels, and the downward pressure on rates resulting from introduction of new renewable energy sources.

These benefits are summarized in the following table and discussed in greater detail below.

<b>SUMMARY OF TANGIBLE BENEFITS FROM BOWERS WIND</b>	
<b>\$100+ million</b>	Total Capital Investment
<b>\$40 million</b>	Est. Construction/Supply Chain Spending
<b>\$10 million</b>	Est. Construction/Supply Chain Wages
<b>100 FTE</b>	Est. Direct, Full-time Construction Jobs
<b>95 companies</b>	Est. Maine-based firms First Wind will utilize to build Bowers, based on supply chain of First Wind’s previous Maine wind farms

<sup>5</sup> 35-A M.R.S.A. § 3451(10).

<b>\$303,291</b>	Average Property Taxes Paid Annually
<b>\$2.8 million</b>	Community Benefits Package <b>Equivalent to \$8,875 per turbine per year</b>
<b>\$300,000</b>	Watershed Recreational Tourism and Conservation Fund
<b>\$25,000</b>	Maine Wind Farm Snowmobile Trail Fund
<b>66,000 tons</b>	Annually avoided CO <sub>2</sub> from approx. 160,000 MWh of clean wind energy

#### **A. Environmental and Energy Benefits**

Electricity generated from wind energy projects produces zero air or water pollution and displaces generation from more costly and polluting sources. The environmental benefits of wind energy, including avoided air pollution, waste disposal problems and hazards to human health from emissions, waste and by-products, are well documented. Specifically, when wind energy is produced and fed into the electrical grid, it displaces energy that would have been produced by another generator. Based on 2012 EPA data used to determine avoided emissions, First Wind's projects operating in Maine have resulted in annual displacement of 176, 349 tons of CO<sub>2</sub>, 178.9 tons of NO<sub>x</sub>, and 605.6 tons of SO<sub>2</sub>. The Bowers Project is expected to avoid an additional 66,000 tons of CO<sub>2</sub>, 70 tons of NO<sub>x</sub>, and 190 tons of SO<sub>2</sub> on an annual basis over the life of the project.

The Bowers Project will also exert a downward pressure on electricity prices, increase energy diversity and reduce price volatility in Maine. In its review of the Bowers Project, the Maine Public Utilities Commission (PUC) agreed, and stated further that "wind projects tend to reduce prices in the wholesale markets and contribute to energy diversity and price stability."<sup>6</sup> The December 3, 2012 Review Comments of the Maine PUC are attached as Exhibit 10. Thus,

<sup>6</sup> December 3, 2012 Maine Public Utilities Commission Review Comments.

although concerns have been expressed that renewable energy projects have the potential to increase electricity rates in Maine, the Maine PUC and the Independent System Operator of New England (ISO-NE) have concluded that is not the case. Specifically, in studies evaluating integration of renewable energy resources, ISO-NE concluded that “[a]nnual wholesale electric energy prices are generally lower in cases that add renewable resources with low energy costs, such as the higher wind penetration cases. . . .”<sup>7</sup> ISO-NE’s conclusions are in accord with the Maine PUC’s comments on the Bowers Project. Moreover, the benefits to Maine ratepayers accrue even if the power is sold out-of-state but into the ISO-NE grid. In such instances, the economic, energy and other benefits of the Project will accrue to Maine, but without the potential seen by some for increased rates to Maine ratepayers.

## **B. Economic Benefits**

The economic benefits of wind energy development in Maine are well documented and include new income streams to landowners, property and other taxes, community benefits packages to the host communities, and the direct and indirect jobs, wages and spending resulting from construction and operation of such facilities.

### 1. Revenue Stream for Landowners

The Bowers Project and other operating wind projects provide an important revenue stream for landowners. This is particularly important for the forest products industry, as landowners seek alternative revenue streams during periods of low and volatile wood prices. While residential and commercial development is often incompatible with forestry, recreation and ecological values, wind energy provides a much needed financial boost to forest landowners with minimal impact on these values. The income from wind development supplements – not displaces – what landowners typically earn from logging and other traditional uses of their

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<sup>7</sup> ISO-NE, New England 2030 Power System Study, February 2010, at 3.

property. Amid broader and uncertain economic and market conditions, the stable, diversified income stream for landowners can help preserve forestry, recreational, and other traditional uses. This is particularly important because, as recognized by Roger Milliken in his prior testimony, the win-win alignment of allowing public recreational use on privately-owned lands is unique in the nation. It depends, however, on the ability of private landowners to produce revenue from their holdings.<sup>8</sup> A copy of Mr. Milliken's pre-filed direct testimony and transcript of his hearing testimony from DP 4889 is attached as Exhibit 11. Wind projects increase the likelihood that landowners will be able to continue to own and manage their lands in a way that perpetuates benefits to wildlife, the environment, and the outdoor enthusiasts who recreate on such lands.

## 2. Property Taxes

The large investment in a wind power project can result in a dramatic increase in real property value, and typically has the corresponding effect of substantially increasing the local property tax base, thereby reducing taxes overall for all taxpayers, residential and commercial alike. First Wind expects to pay approximately \$2.5 million in property taxes to various taxing jurisdictions throughout the State of Maine for calendar year 2012.

The on-site capital investments for the Bowers Project will significantly increase the tax base without creating a corresponding increase in demand for local services, resulting in a meaningful net tax benefit for the County and a huge tax benefit for Carroll Plantation. Champlain expects that the Project will result in estimated average annual tax payments of approximately \$15,933 to Kossuth Township, Washington County after adjusting for the tax reimbursements the company will receive under its Credit Enhancement Agreement with the County. In Carroll Plantation, however, where the bulk of the turbines will be located,

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<sup>8</sup> Pre-Filed Direct Testimony of Roger Milliken, Jr. in DP 4889; Hearing transcript of Public Hearing Concerning DP 4889, June 28, 2011, at 25-27.

Champlain estimates that the development of the Project will result in the company paying an estimated twenty-year average annual payment of \$287,358 to Carroll Plantation, Penobscot County. The Company further estimates that the Bower's Project will result in a *tripling* of the Plantation's total taxable value, which is estimated to go from approximately \$23.9 million to approximately \$82.1 million in the first year of the Bowers Project. This dramatic increase in taxable value will have a correspondingly dramatic impact on Carroll Plantation's tax rate. The financial modeling developed to examine the impact on the Plantation's tax rate shows an estimated seventy percent (70%) drop in the tax rate during the first year of the Bower's Project. The tax rate is expected to rebound some during the following three years of the Project because the valuation number used to calculate state subsidies (aid for education and municipal revenue sharing) and the County tax rate lags behind the actual value for up to three years. Once the full impact of the new value is recognized in all funding and taxing formulas, Champlain estimates that Carroll Plantation's tax rate will still be approximately forty-three percent (43%) lower than it would be without the Bowers Project. For the average homeowner in Carroll Plantation, this significantly lower property tax rate will mean hundreds of dollars of annual savings on property taxes. As discussed below, both communities will also benefit economically from the proposed Community Benefits Packages.

### 3. Community Benefits Packages

Carroll Plantation is a rural community with an older and economically challenged population. With no commercial activity in the Plantation, the community is caught between fixed incomes and rising taxes. It is also a community that is familiar with wind power and its economic benefits. Carroll Plantation lies less than eight miles southeast of First Wind's Stetson wind farms. Accordingly, Carroll residents are very familiar with seeing wind turbines and thus

are in a unique position to make an informed decision of what it will mean to have a wind farm in their community. In addition, approximately four miles of the 38-mile Line 56 Generator Lead that connects the Stetson wind farms to the grid pass through Carroll, and residents saw firsthand how the increase in taxable value from those four miles alone had a substantial and positive impact on the Plantation's property tax rates.

Kossuth Township is an unorganized township to the east of Carroll Plantation. Because it is unorganized and sparsely populated with less than 20-25 full-time and seasonal residents, administration of the Township is provided by Washington County. Washington County bears the distinction of being one of the poorest counties in Maine, with one of the highest unemployment rates and the lowest median income.

In addition to the substantial property tax payments, Champlain has established community benefits packages and energy rebate programs that collectively exceed the statutory requirement of \$4,000 per turbine per year. First, Champlain has entered into Community Benefit Agreement with Carroll Plantation that provides for an annual payment of \$92,000 for a period of 20 years.<sup>9</sup> The funds under that agreement may be used at the Plantation's discretion to either lower tax rates or make long-delayed investments in local roads or other community priorities. Second, Champlain has agreed to make an annual payment of \$10,000 for 20 years to Washington County to be used in the Kossuth Township area.<sup>10</sup>

Third, because Carroll Plantation and Kossuth Township are in the service territory of Eastern Maine Electric Cooperative (EMEC), which is not directly connected to the rest of the New England electrical grid, it is difficult to evaluate the impact the Project might have on electricity rates in the host communities. However, Champlain has established Energy Rebate

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<sup>9</sup> A copy of the Community Benefit Agreement is attached as Exhibit 12.

<sup>10</sup> A copy of the October 17, 2012 letter from Washington County Manager Betsy Fitzgerald to DEP Commissioner Patricia Aho is attached as Exhibit 13.

Funds for the residents of Carroll and Kossuth that will offset electricity costs to the host communities. The Energy Rebate Fund for Carroll will be funded in an amount of \$25,000 per year to be divided evenly among the full time resident households. Based on a current estimate of 70 full-time households, each would receive an annual payment of \$300-350, or more than 1/3 of the estimated average household electrical bill of \$990 for the area. The Energy Rebate Fund for Kossuth will be funded in an amount of \$15,000 annually to be divided evenly among approximately 15 full-time resident households, which will result in an annual payment of almost \$1,000 and exceeds the estimated average annual household electrical bill of \$990.

<b>COMMUNITY BENEFITS PACKAGE</b>				
<b>ENTITY</b>	<b>BENEFIT</b>	<b>20-YEAR ANNUALIZED AMOUNT</b>	<b>20-YEAR TOTAL</b>	<b>PER TURBINE/YEAR (20-YEAR)</b>
Carroll Plantation	\$92,000 per year	\$92,000	\$1,840,000	
Washington County	\$10,000 per year	\$10,000	\$200,000	
Carroll Plantation Energy Rebate Fund Administration (Sunrise County Economic Council)	\$25,000 per year	\$25,000	\$500,000	
Kossuth Energy Rebate Fund Administration (Sunrise County Economic Council)	\$15,000 per year	\$15,000	\$300,000	
<b>TOTALS</b>		<b>\$142,000</b>	<b>\$2,840,00</b>	<b>\$8,875.00</b>

The Project is required to provide a community benefits package valued at no less than an average of \$4,000 per turbine, per year or \$64,000 annually.<sup>11</sup> The Bowers Project's combined average annual community benefits package equals \$142,000 annually or an average of \$8,875.00 per turbine, per year, more than double the statutory minimum. This is in addition to the other significant benefits resulting from construction and operation of the Project.

<sup>11</sup> 35-A M.R.S.A. § 3454(2).

#### 4. Construction and Employment Related Economic Benefits

A significant portion of the estimated \$100 million Project cost will be spent on supplies, engineering and construction-related activities, many of which are provided by local or Maine-based businesses, contractors and suppliers. Research by Charles Colgan, PhD, at the Maine Center for Business and Economic Research at the University of Southern Maine, estimates the direct in-state economic impacts of wind energy development and construction to be \$863,813 per MW of capacity installed.<sup>12</sup> Of that total, \$681,813 is attributed to Maine-based goods, supplies and services. The remainder, \$182,000 per MW, is attributed to wages paid to Maine-based labor. If similar levels of in-state investment are achieved, the Project will result in a \$40 million opportunity for Maine-based contractors, suppliers, and labor during the construction phase alone.

The Maine-based general contractor is expected to subcontract with local businesses for activities like concrete supply, civil and electrical work, and tree-clearing. The construction activity will provide an economic boost to ancillary businesses in the Project area that support construction such as lodging, restaurants, and fuel stations. New income for local subcontractors, suppliers and workers will also be a source of “multiplier” spending in the region during construction.

Construction-related jobs are a major component of the Project’s potential economic benefits. In total, more than 1,000 Maine-based workers have worked on First Wind projects at Mars Hill, Stetson, Stetson II, Rollins and Bull Hill. The Project will hire locally whenever possible, providing construction, operations, and maintenance employment opportunities to residents in the area. Based on First Wind’s experience developing and constructing similar

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<sup>12</sup> *The Employment Impacts of Wind Power Development in Maine 2003-2010*; Charles Colgan, PhD; Maine Center for Business and Economic Research; University of Southern Maine.

projects in Maine, development and construction of the proposed Project is estimated to require the direct labor of approximately 150 individuals (or 100 full-time equivalent jobs). The cumulative wages paid in Maine for Project labor will approach \$10 million.<sup>13</sup> Following the construction phase, Champlain anticipates a staffing plan of three to five permanent employees to operate and maintain the facility, including on-site staff of the turbine manufacturer. Finally, First Wind directly and continuously employs over 20 Maine-based employees at Maine offices to support ongoing development, project management and operations of both operating and proposed wind facilities.

The cumulative effect of the above impacts is enhanced economic stability for the local, regional, and statewide economy. Although the exact amounts of direct and indirect economic benefits of the Project may be difficult to predict, the historical spending and investment associated with the development and construction of First Wind's other Maine projects are evidence of the tangible economic benefits that can be expected from this Project. To date, First Wind has spent over \$150 million with Maine-based businesses and organizations, and employed over 1,000 workers to build our operating projects. Contractors throughout the state from Fryeburg to Presque Isle, consultants with offices throughout the state, and local businesses in the Lincoln and Danforth area all benefited from these projects. Notably, in addition to working on wind projects in Maine, a number of companies are leveraging their Maine experience and expertise to win and perform wind farm related contracts out of state, which is a significant achievement for this growing Maine industry.

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<sup>13</sup> \$182,000 per MW; *The Employment Impacts of Wind Power Development in Maine 2003-2010*; Charles Colgan, PhD; Maine Center for Business and Economic Research; University of Southern Maine.

##### 5. Other Community and Resource Based Tangible Benefits

Based on feedback from area stakeholders, Champlain elected to establish and contribute \$300,000 to a Watershed Recreational Tourism and Conservation Fund to benefit the watershed area from Bowers Mountain extending south to Grand Lake Stream (the "Fund"). Hosted by SCEC, the Fund will be guided by an Advisory Panel drawn from stakeholders representing the various interests of the watershed, including sporting camp owners, guides, conservation interests, landowners, hunters, snowmobilers, fishermen and other recreational users. The primary priorities of the fund will be to promote recreational tourism in the area, improve recreational facilities and to conserve natural resources, including enhancing the deer population. Guidance for use of these funds has been developed and is attached as Exhibit 14. \$100,000 of the Fund will fund initiatives that promote recreational tourism businesses located within the watershed boundaries or located outside the watershed but which provide the majority of their services to customers recreating within the boundaries. \$50,000 of the Fund will be targeted towards initiatives that promote the long-term recovery of the deer population within the watershed. The remaining \$150,000 will be available for initiatives that enhance recreational resources or further conservation aims within the watershed or contiguous to the watershed if it assists in delivering desired benefits within the watershed.

The Advisory Panel will be empowered to identify and prioritize the targets, amounts and pace of funding for these initiatives. It is currently anticipated that all funds would be disbursed within three years of the Commercial Operation Date of the Bowers Project. Although a significant portion of the Fund will be used for resource conservation, which could be included in calculation of the Project's community benefits package, because the Fund is not solely

dedicated to land or natural resource conservation, Champlain has not included the \$300,000 in its Community Benefits Package calculations.

The Fund is modeled after the Stetson Mountain Fund which was established by First Wind to benefit the Baskahegan Watershed. The Stetson Mountain Fund is administered by the Forest Society of Maine and is guided by an advisory board of local stakeholders including landowners, guides, economic developers and local citizens. The Stetson Mountain Fund completed an initial study to identify how the watershed is used and potential enhancements. Based on that study, the Stetson Mountain Fund engaged local students and others to clean up and restore campgrounds. The example of the Stetson Mountain Fund demonstrates that local input and control over identifying and prioritizing worthy projects yields the maximum benefit for the use of funds.

First Wind receives consistent feedback from the snowmobiling community that wind farms have become a preferred destination for snowmobile riders. Local clubs report that the first three questions from new riders in the area of a wind farm are “Where is the food? Where is the gas? And how do we get to the wind farm?” This interest in visiting wind farms is also evidenced by the popularity of the Stetson Wind Farm Annual Snowmobile Ride-In, an event requested by local clubs that regularly draws over 150 riders from the surrounding area to the Wind Farm for a cookout. In an effort to build on this demonstrated interest to promote regional tourism, Champlain has proposed the creation of a trail linking all the wind farms in the State. Champlain has conducted the preliminary mapping of the “Ride the Wind” Trail using existing routes and the map indicates that up to 8 current wind farms can be linked at a total distance of approximately 590 miles. A map depicting the trail is attached as Exhibit 15. The intent is to attract in-state and out-of-state riders to ride each of the links over multiple trips, thereby

drawing increased tourism and business to local restaurants, lodging, convenience stores and other businesses in the economically challenged rural areas. Snowmobilers have enthusiastically supported the concept and, as is reflected in the attached letters from the Lincoln Snowhounds Snowmobile Club, the Backcountry Snowmobile Club, Lee Mogul Pounders Snowmobile Club, the Quad County Snowmobile Club, and Aroostook County Tourism, the presence of farms is a significant recreational draw. The letters are attached as Exhibit 16. Additionally, almost 300 people signed a petition supporting creation of the Ride the Wind trail and the business and recreational opportunities it will create. The petition is attached as Exhibit 17.

In addition to working with local clubs and coordinating with other wind farm projects, Champlain will provide \$25,000 in seed money to be utilized to finalize the routes, create marketing materials and promote the trail.

Finally, as an operating project, Carroll Plantation and Kossuth also will be eligible for First Wind's traditional community outreach programs and support, including:

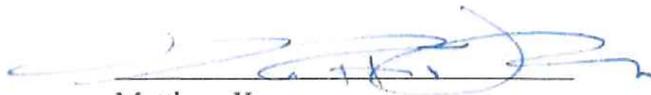
- **Direct support:** All First Wind operating projects have a budget to be responsive to charitable needs and requests from the immediate community.
- **Sponsorships of community events:** First Wind provides sponsorships for local civic organizations, environmental groups and events.
- **Corporate scholarship program:** College-bound high school students living in the vicinity of First Wind operating projects are eligible to apply for our corporate scholarship program. One student from each project operating area is selected for a one-time \$3,500 scholarship; and one student from the entire applicant pool is selected for a 4-year, \$5,000 scholarship (\$20,000 total). Since the program began in 2010, First Wind has issued \$85,000 in student awards.
- **Outreach to local schools:** First Wind has a strong track record of participating in local science and technology curriculum, and making projects available for tours (subject to operating schedules and constraints).

In summary, the Bowers Project will result in significant economic benefits to the host and surrounding communities, and will provide more than double the statutory requirement for a

Community Benefits Package. The Project will also result in the significant energy and environmental benefits sought to be realized when the Legislature took steps to encourage development of wind energy resources in Maine.

We look forward to discussing this Project further with during the course of the hearing and answering questions raised by the Presiding Officer, Department staff, and the parties to this proceeding.

Date: 3/15/2013

  
Matthew Kearns

STATE OF MAINE  
County of Cumberland

Date: 3/15/13

Personally appeared before me the above named Matthew Kearns, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.

Before me,



Notary Public Maine

My commission expires: 6/9/17

Date: March 13, 2013

*Dave Cowan*  
Dave Cowan

STATE OF HAWAII  
County of Honolulu <sup>ss.</sup>

Date: 3/14/13

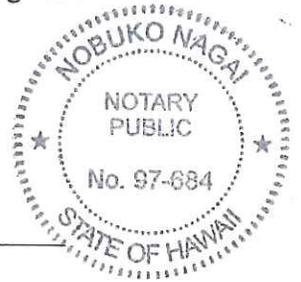
Personally appeared before me the above named Dave Cowan, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.

Before me,

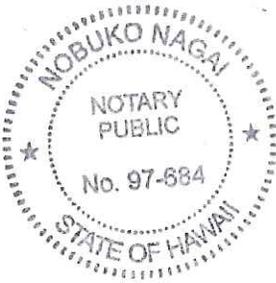
*Nobuko Nagai*

Notary Public

My commission expires: 12/16/2013



Document Date: 3/13/2013 # Pages: 1  
Nobuko Nagai <sup>First Circuit</sup>  
Document Description: Verification  
of Dave Cowan's signature  
Nobuko Nagai 3/14/2013  
Notary Public <sup>Date</sup>  
My Commission Expires: 12/16/2013



Kearns, Kiely and Cowan Pre-Filed Direct Testimony Exhibits

- Exhibit 1 Kearns Bio
- Exhibit 2 Kiely Bio
- Exhibit 3 Cowan Bio
- Exhibit 4 Map of First Wind's Operating Projects in Maine
- Exhibit 5 Figure Depicting Project Area
- Exhibit 6 November 19, 2012 Letter from A. Duerr to P. Aho and Petition of Support
- Exhibit 7 Figure Comparing Original 27-Turbine Design with Current Project
- Exhibit 8 Map Depicting Tribal Interests
- Exhibit 9 September 14, 2012 Letter from the Tribal Chiefs
- Exhibit 10 December 3, 2012 Review Comments of the Maine PUC
- Exhibit 11 Roger Milliken Pre-Filed Direct Testimony and Transcript from DP 4889
- Exhibit 12 Community Benefit Agreement with Carroll Plantation
- Exhibit 13 October 17, 2012 Letter from B. Fitzgerald to P. Aho
- Exhibit 14 Guidance for use of Watershed Recreational Tourism Conservation Fund
- Exhibit 15 Map Depicting the "Ride the Wind" Trail
- Exhibit 16 Snowmobile Clubs Support Letters
- Exhibit 17 Petition Supporting Creation of the Ride the Wind Trail

**Matt Kearns**  
First Wind  
129 Middle Street  
3<sup>rd</sup> Floor  
Portland, ME 04101

1792



Matt Kearns is First Wind's Vice President of Business Development for the northeast region. He manages a team of project developers in the region and has been with First Wind since 2006. During that time Mr. Kearns has overseen the development and permitting of 380 MW of new wind generation and brought 232 MW in Maine, Vermont, and New York into construction. The Stetson I & 2 Projects (83 MW) in Maine are currently in operation. The Sheffield Project (40 MW) in Vermont is the State's first modern, utility scale wind farm.

Mr. Kearns worked in business development for Tetra Tech, FW prior to joining First Wind and prior to that spent five years with FPL Energy (now NextEra Energy) in their environmental permitting group.

## **EDUCATION**

B.A. English and Environmental Studies, Colby College, 1993

Neil Kiely  
First Wind  
129 Middle Street  
3<sup>rd</sup> Floor  
Portland, ME 04101



Neil Kiely is Director, Development--New England at First Wind in Portland, Maine. At First Wind, Neil coordinates an internal team and external consultants on all aspects of development on individual wind energy projects including site identification, real estate acquisition, civil design, permitting and pre-construction planning.

Prior to joining First Wind, Neil practiced as an attorney with the Firm of King and Spalding in Washington D.C. and served as General Counsel to a firm in Portland, Maine. More recently, Neil served as a Director at Corporate Finance Associates, a commercial financing firm, where his responsibilities included business development and transaction management. In addition, Neil has founded and operated his own companies in the areas of real estate development and commercial financing.

Neil is a graduate of Boston College and Emory University School of Law.



**Dave Cowan**  
**Vice President,**  
**Environmental Affairs**

### Executive Summary

Dave Cowan oversees environmental assessment, permitting, and compliance for the development and operation of First Wind's utility-scale wind energy development projects throughout North America.

### Career Highlights

Mr. Cowan has over 25 years of experience in project management, environmental assessment, regulatory, permitting, and mitigation services for major utility, transportation, and renewable energy projects throughout the U.S.

His previous experience includes Project Manager and Senior Scientist positions with Devine, Tarbell & Associates; Duke Engineering & Services; and Normandeau Associates offices in Maine and New Hampshire. Prior to entering the environmental consulting field, he was a Research Associate with the Cornell University Lab of Ornithology.

Among his wind energy career highlights, Mr. Cowan served as Senior Scientist on the team that successfully permitted the first utility-scale wind energy project in New England in 1994—the 640-turbine New England Wind Energy Station in Maine's Western Boundary Mountains. More recently he was the Project Manager for permitting of Evergreen Wind Power's 50 MW Mars Hill wind farm project in Northern Maine.

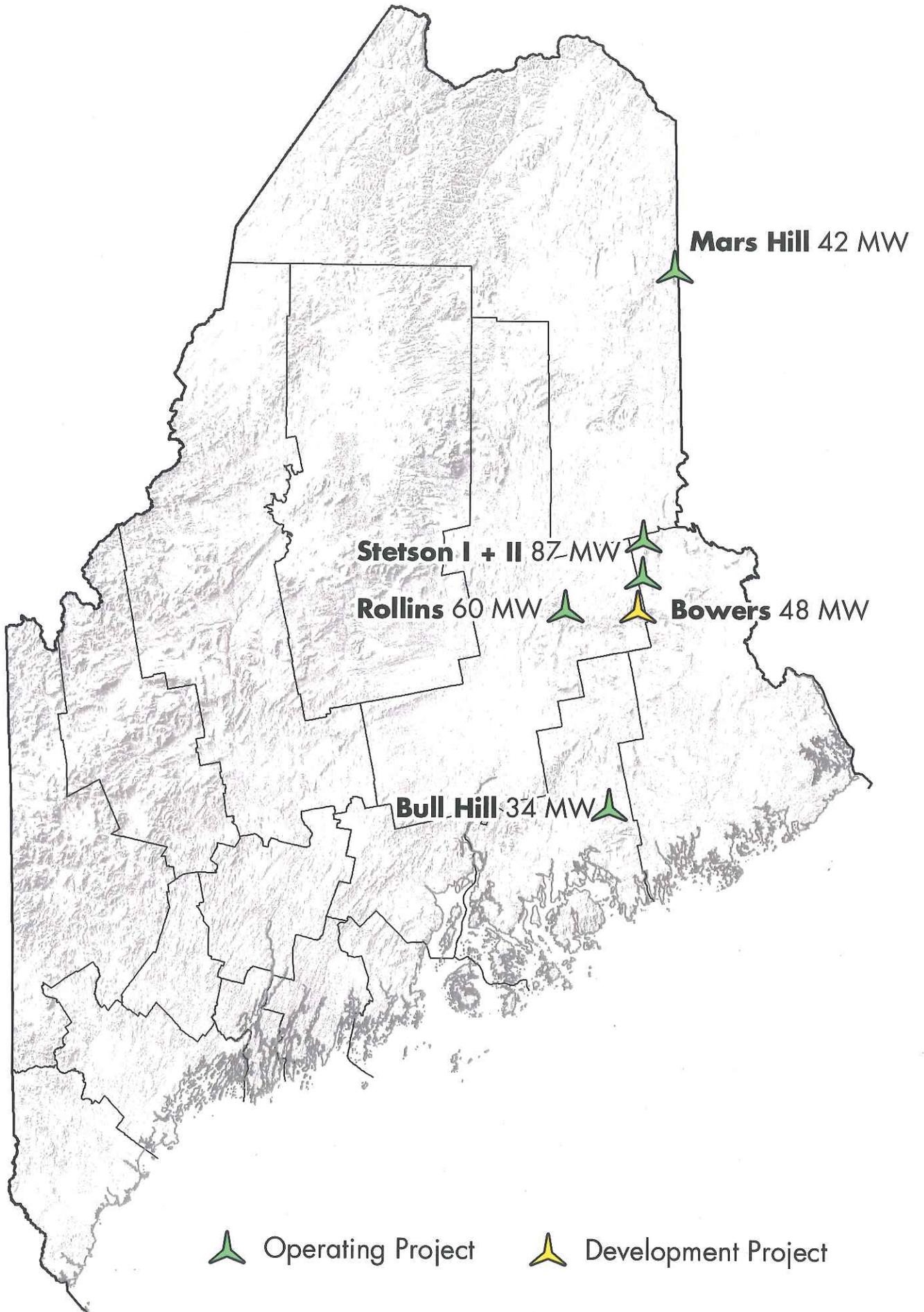
In addition, Mr. Cowan led the development of the first Habitat Conservation Plan (HCP) for a wind energy project in the U.S. (Maui's Kaheawa Wind project) and oversaw environmental permitting for the Sheffield Wind project in Vermont.

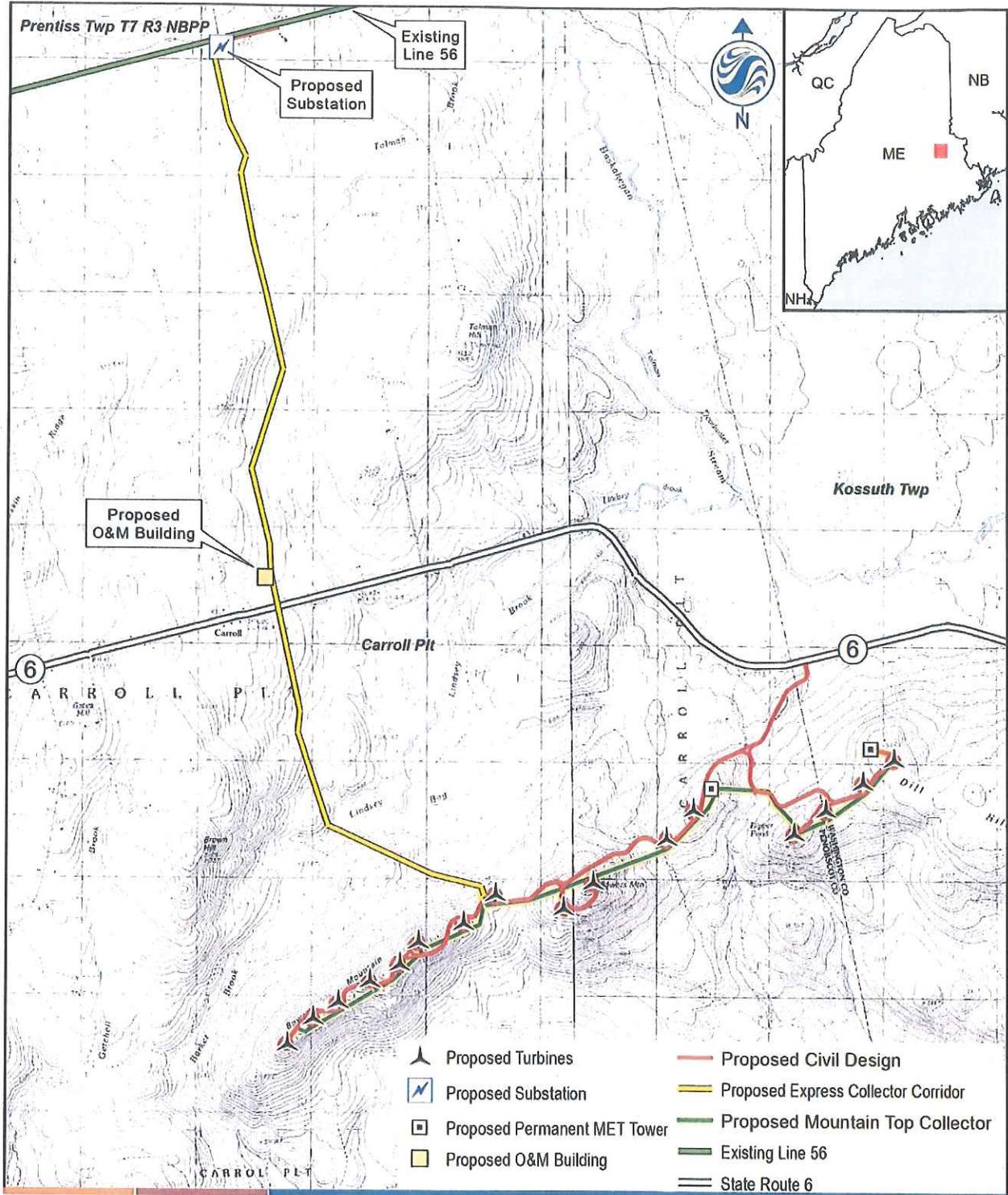
As Vice President of Environmental Affairs, Mr. Cowan and his team are involved in projects from their earliest inception, screening for feasibility and flaws, identifying potential environmental concerns, and developing plans to avoid or minimize adverse environmental impacts, often in cooperation with regulatory resource agencies and project stakeholders. In addition, he advises the President and CEO on each project's potential permitting risks/opportunities and secures the necessary documentation for financing.

Mr. Cowan represents First Wind before environmental and energy siting boards, and participates in regional and national environmental forums on behalf of the industry, actively shaping environmental regulations and wind power policy.

### Education and Credentials

- Master of Science, Marine Biology, SUNY Stony Brook, Marine Sciences Research Center
- Bachelor of Science, Wildlife Biology, SUNY Syracuse College of Environmental Science and Forestry
- Certified Wildlife Biologist and Professional Wetland Scientist





**Stantec Consulting Services Inc.**  
 30 Park Drive  
 Topsham, ME USA  
 04086  
 Phone (207) 729-1199  
 Fax: (207) 729-2715  
 www.stantec.com



**Client/Project**  
 Champlain Wind, LLC  
 Bowers Mountain Wind Project  
 Carroll Pit. and Kossuth Twp., Maine

Figure No.  
 1

Title  
**Site Location Map**

9/19/2012

306 Osgood Rd.  
Carroll Plantation ME 04487  
November 19, 2012

Ms. Patricia Aho  
Commissioner  
Maine Department of Environmental Protection  
17 State House Station  
28 Tyson Drive  
Augusta, ME 04333

Dear Commissioner Aho,

I am writing to let you know that Carroll Plantation wants to see the Bowers Mountain Wind Farm go through. I have attached a Petition that has the signatures of 69 full time residents as well as 46 non-resident landowners. We consider it a good year if we get 30 people to our Annual Meeting each year, this is a huge show of support for the wind farm.

We took the time to get this petition signed because of our bad experience in the LURC process. I went to the hearings and it was clear that LURC was far more concerned about out of state camp owners who come to Maine for a few weeks each summer than they were about how this project could help folks in Carroll Plantation many of whom have been here of generations. In all the discussions that I listened to, there was not a single comment from a commissioner about Carroll Plantation. I am hoping that the DEP process will be different. I understand you will have meetings also, but given the hostility of the meetings for those of us who were there, I don't expect a lot of residents will show up for more meetings. I wanted you to know about Carroll Plantation and hope you will consider us and our interests in this project.

Let me tell you some thing about the Plantation:

Some of the families are living on land that their ancestors owned before the Plantation was incorporated. The Flynn's are living on an original Land Grant given to the Bishop family, of which Mrs. Flynn is one. The Bates are living on land that belonged to the Steven's family, who were founding fathers. Mrs. Bates was a Stevens. I am living on land that belonged to my grandfather. He came here in 1907. I raised my children there. Many of us grew up together and went to a one or two room school. The Plantation office is located in one of those schools. We all try to take care of each other but it is getting harder and harder to do given our financial situation.

At one time we were a thriving community with farms and 7 schools, but the Great Depression hit and never left. World War II took a lot of people off the farms and they never returned. Then in the 1960's changing government regulations eventually drove all the dairy farms out of business. We had 4 working dairy farms. Now we don't have a single business left in town.

Now the community is mainly retired folks like myself and either worked in the mills, schools or the logging industry. Nobody has a lot of money and many people are struggling to just get by.

Our biggest challenge is roads and education. We have 12 miles of dirt road and 2 miles of paved, which we have tried to band-aid to the best of our ability. The 2 miles of paved road is in sad shape. It is estimated it will take \$250,000 to put it in shape. We now spend about \$35,000 and it is never enough. Snow Removal on our roads cost \$69,000. Education subsided dropped from \$117,000 to \$34,000 this year, because of the transmission lines valuation. The statute that governs TIF rules left out plantations. Here we are on the losing end again.

Tree Growth Tax Law has only hurt the Plantation. More and more people are taking advantage of it and that puts the burden on the rest of us. In 2009 our mil rate was \$23 per thousand. That year the Transmission Lines saved us because there are 4 miles of lines from the Stetson Project. We pinned a copy of the check to the wall in the office. It felt like a windfall. Of course, now we are paying the price. This year's mil rate will go right back up.

Most of us are on a fixed income and the math simply does not work when taxes go up. Some people have to choose between medicine and taxes.

We know what we are getting into with a wind farm. Stetson is to the east of us and Rawlins is to the west. In fact, both can be seen from Route 6. I would be surprised if there is anyone who has not made the trip to see the turbines up close. Most people actually like seeing them because they are interested in what they are doing on different days. The rest of the people have simply stopped noticing them and are not bothered at all. Visitors from "away" always ask to be shown the turbines. I understand some may be afraid of what the turbines will look like, but our actual experience is that they have no impact on our daily lives. That is why some many residents and major landowners in town have signed the petition, we are getting economic benefits that are sorely needed and we have no problem with the view.

The State must have passed the law in favor of wind farms for a reason and they must have known you would be able to see these turbines once they were built. We, along with Kossuth, are the host communities and are telling you and anyone else that will listen that we want to see this project go forward.

Sincerely,



Anita Duerr, Clerk

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>James O. Thompson</i>	James O. Thompson	Both	56 Oliver Road	Aug. 24, 2012
<i>Clarence Thompson</i>	Clarence Thompson	Both	56 Oliver Rd.	Aug. 27, 2012
<i>Candace White</i>	Wanda White	Both	153 North Road	August 28, 2012
<i>John White</i>	John White	Both	153 North Road	August 28, 2012
<i>George P. Smith</i>	George P. Smith	Both	202 North Road	Aug. 29, 2012
<i>Leah Smith</i>	Leah Smith	Both	202 North Road	Aug 29 2012

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Matthew Corbin</i>	MATTHEW CORBIN	Resident	1355 Main Rd	6/20/12
<i>Robin O. Corbin</i>	Robin O. Corbin	Landowner	1355 Main Rd	6/20/12
<i>Virginia Osgood</i>	Virginia Osgood	Resident	1367 Main Rd.	6/20-12
<i>Don Breed</i>	Don Breed	Landowner	Lot 5/54	9-22-12
<i>David Brewer</i>	DAVID BREWER	Landowner	Lot 5/54	9/22/12
<i>Dwaine R. Aldridge</i>	Dwaine R. Aldridge	Landowner	Lot 43	9/22/12

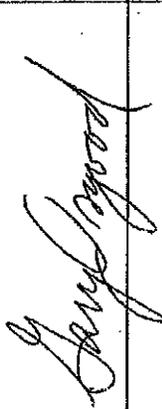
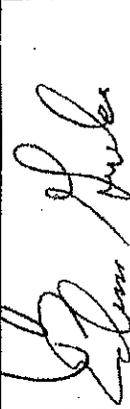
We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Eleanor M. Campbell</i>	Eleanor M. Campbell	Resident	895 Osgood Rd	8-25-12
<i>Vince Campbell</i>	Vince Campbell	Resident	895 Osgood Rd	8-28-12
<i>Kimberly Rose</i>	Kimberly Rose	Resident	705 Osgood Rd	8-25-12
<i>Robert MacArthur</i>	Robert MacArthur	Resident	705 Osgood Rd	8-25-12
<i>Barbara Sibley</i>	Barbara Sibley	Resident	643 Osgood Rd	8/25/12
<i>Donna J. Cay Sibley</i>	Donna SIBLEY	Resident	643 Osgood Rd.	8/25/12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>James W. White</i>	James White	Resident	167 North Rd. Carroll Plt. Me. 04487	5-21-12
<i>Steven O. Bates</i>	Steven O. Bates	Both	1627 main Rd	5/21/12
<i>Annie White</i>	ANNIE WHITE	BOTH	167 North Rd. Carroll Me 04487	5-21-12
<i>Thomas Shaw</i>	THOMAS SHAW	BOTH	265 North Rd Carroll Plt.	5/24/12
<i>Christine Shaw</i>	CHRISTINE SHAW	Both	265 North Rd Carroll Plt.	5/21/12
<i>Roger Severance</i>	Roger Severance	BOTH	264 North Rd Carroll Plt	5-21-12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	Gary Osgood	Resident Landowner	1381 Main Rd	5/28/12
	Sherri White	Both	265 Brown Rd.	5/28/12
	Debra McLaughlin	Both	549 Osgood Rd	5/29/12
	Megan Flaisted	Both	437 Brown Rd	5/29/12
	Edwin Greenlow	Landowner	62 FRIENDSHIP LN	5/19/12
	Eus Long	Both	2220 <del>MARSH</del> Rd	6/1/12

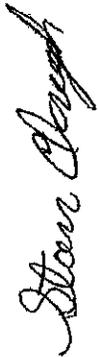
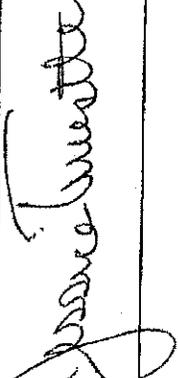
We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Hubert Oliver</i>	Hubert Oliver	Both	1733 Main Road Carroll ME	5-26-2008
<i>Charles Burrill</i>	Charles	Both	Carroll Pt ME	5-27-12
<i>See Good Jr.</i>	See Osgood Jr.	Both	60 Felicity Farm Ln. Carroll, ME	5-27-12
<i>Dani Osgood</i>	Danielle Osgood	Both	60 Felicity Farm Ln Carroll, ME	5-27-12
<i>Angel Burrill</i>	Angel Burrill	Both	236 Lowell Rd Carroll Pt ME	5-27-12
<i>Gary Martin</i>	Gary L. Martin	Land owner	Springfield ME 04487	5-27-12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
Dale Clough	DALE Clough	Resident	237 Brown Rd Carroll PkT.	5-25-12
Aileen Clough	Aileen Clough	Both	237 Brown Rd Carroll PkT.	5-25-12
Janet Burrill	Janet Burrill	Both	221 Brown Rd Carroll PkT.	5-25-12
David Burrill	David Burrill	Resident	221 Brown Rd Carroll PkT.	5-25-12
Daniel Burrill	Daniel Burrill	Resident	62 Brown Rd Carroll PkT.	5-25-12
* to	STUART SMITH	Landowner <del>RESIDENT</del>	Springfield.	5-25-12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	STEVE CLOUGH	Both	81 Brown Road Carroll, ME	5-21-12
	PETER BURRELL	Both	81 Brown Rd Carroll ME	5-25-12
	April Lang	Resident	283 Brown Rd. Carroll	5-25-12
	Joseph C Kethell	Resident	283 Brown Rd Carroll	5/25/12
	Rex Burrell	Resident	293 Brown Rd Carroll ME	5/25/12
	Jessica Turcotte	Resident	293 Brown Rd Carroll ME	5/25/12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Cathy Severance</i>	<i>Cathy Severance</i>	<i>Resident</i>	<i>585 Osgood Rd Carroll P.H. 04487</i>	<i>9/1/12</i>
<i>Fattie Cleveland</i>	<i>Fattie Cleveland</i>	<i>Resident Landowner</i>	<i>585 Osgood Rd. Carroll P.H. 04487</i>	<i>9/1/12</i>
<i>Carol Greenlaw</i>	<i>Carol Greenlaw</i>	<i>LAND OWNER</i>	<i>62 FRIENDSHIP CARROLL PLT 04487</i>	<i>9/2/12</i>
<i>John White Jr</i>	<i>John White Jr</i>	<i>Resident</i>	<i>161 NORFOLK RD CARROLL PLT 04487</i>	<i>9/3/12</i>
<i>Roger Sooliere</i>	<i>ROGER SOOLIERE</i>	<i>LANDOWNER</i>	<i>LOT 38, 39</i>	<i>9-22-12</i>
<i>Mark Cutler</i>	<i>MARK CUTLER</i>	<i>LANDOWNER</i>	<i>LOT 19 CARROLL PLT.</i>	<i>9-22-12</i>

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Monica Severance</i>	Monica Severance	Both	462 North Rd	6-12-2012
<i>Edward Dwert</i>	Edward Dwert	Both	306 Osgood Rd.	6/12/2012
<i>Wendy Gidden</i>	Wendy Gidden	Resident	2035 Moore Rd.	6-12-2012
<i>Travis Worster</i>	Travis Worster	Both	377 North Rd	6-12-2012
<i>Holly Worster</i>	Holly Worster	Both	377 North Rd	6-12-2012

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Earle Bates</i>	Earle Bates Jr	RESIDENT	Carroll Main Rd	Aug 27 2012
<i>Patricia L. Bates</i>	Patricia L. Bates	resident	Carroll Main Rd	Aug 27, 2012
<i>Amber L. Duvall</i>	Amber L. Duvall	Resident	Carroll Main Rd	Aug 27, 2012
<i>Herbert E. Worster</i>	HERBERT E. WORSTER	RESIDENT	1704 MAIN RD CARROLL PIT	9/6/12
<i>Evelyn S. Dow</i>	EVELYN STEVENS DOW	LANDOWNER	1653 Main Rd Carroll PIT.	9/10/12

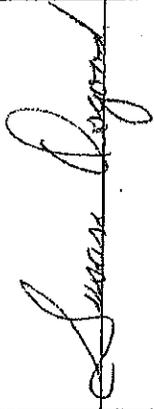
We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	Linda Burrill	Both	243 Brown Rd Carroll, Pkt. Me.	8-20-12
	HERBERT HAYNES JR.	LANDOWNER	CARROLL	8-21/12
	Harry Worster	Landowner	Carroll	8-21-12
	HERBERT E WORSTER	Both	1704 main Rd	8/21/12
	Richard SABRA	Landowner Both	27 Rocky Rd Springfield	8-29-12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Daniel Lane</i>	Daniel Lane	Landowner	Danforth Rd Carroll Pk, Me	5/16/12
<i>Anita Duerr</i>	Anita Duerr	Resident / Landowner	306 Osgood Rd Carroll Co ME 04487	5/17/12
<i>Stephanie Fanning</i>	Stephanie Fanning	Resident / Landowner	1 Harper Lane PO Box 34 Carroll ME 04487	5/17/12
<i>Paul Fanning</i>	Paul Fanning	RESIDENT / LANDOWNER	212 SHAW RIDGE RD. CARROLL PT. MAINE 04487	5/17/12
<i>Neidi Soule</i>	Neidi Soule	Landowner	Lot 38-39 CARROLL Plantation	5/17/12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	Michael Deane	Resident	2200 Main Rd	6-1-12
	Steven H. Twist	Landowner	CARROLL	6-1-12
	Susan Osgood	resident	1381 Main Rd. Carroll Pkt.	6/1/12
	Michael Corbin	resident land owner	1355 Main Rd. Carroll Pkt	6/20/12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	Janis Hewes	✓	324 Osage Rd.	8/25/12
 	Nicoletta Sherrey Arthur Hewes	✓	328 Osage Rd. 306 Osage	8/25/12 8/25/12
	Ronald Martin	✓	Lot 43	9/22/12
	RANDY DAVIS	✓	Lot 43	9/22/12
	Jeremy Aldrich	✓	Lot 43	9/22/12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>E. J. Johnson</i>	L. KACIK	YES	223 DAMFOOTH RD	8/25/12
<i>J. Johnson</i>	J. Johnson	YES	"	"

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Gail A. Artegaian</i>	Gail A. Artegaian			8/29/2012
<i>Gail Artegaian</i>	GAIL A. ARTEGIAN			8/29/2012

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>Tom Graybeal</i>	TOM GRAYBEAL	RESIDENT	548 BROWN RD CARROLL PVT ME	8-20-12
<i>Carol Graybeal</i>	CAROL GRAYBEAL	RESIDENT	548 BROWN RD CARROLL PVT ME	8-20-12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
<i>John W. Bice</i>	<i>John W. Bice</i>	<i>Bath</i>	<i>2126 Main Rd Carroll Pky. Mo 04487</i>	<i>8-20-12</i>

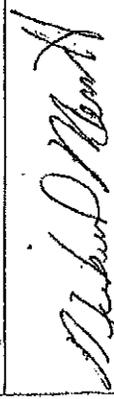
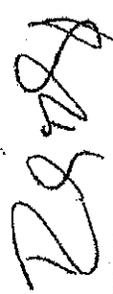
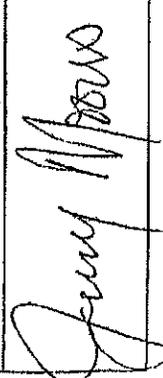
We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
Buffy J. Breed	Buffy J. Breed	Landowner	Carroll Plantation Vinegar Hill development lots 53 + 54	Oct. 13, 2012
Edith C. Breed	Edith C. Breed	Landowner	Carroll Plantation Vinegar Hill development lots 53 + 54	Oct. 13, 2012

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	John Miller	Resident	2025 Main Rd CARROLL PL 04487	20 <sup>TH</sup> September
	Suzanne Belanger	Resident	2088 Main Rd. Carroll, Pkts.	Sept. 20 <sup>TH</sup>

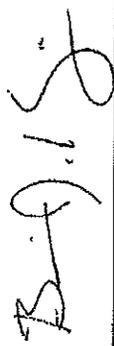
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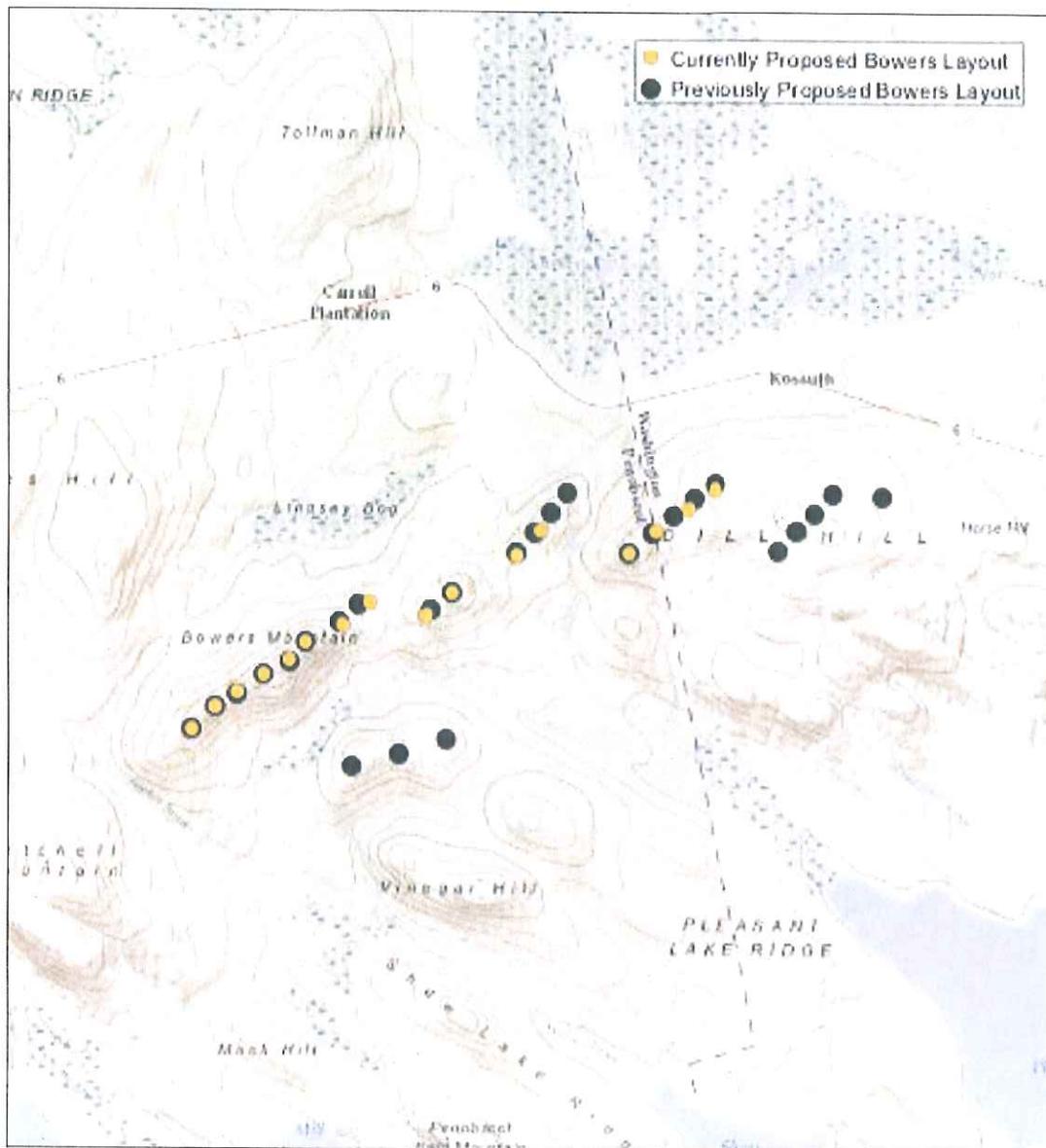
Signature	Name	Resident / Landowner	Address of Property	Date
Marilyn Berrill	Marilyn Berrill	Landowner	62 Brown Rd	9/12/12
Benjamin Berrill	Benjamin Berrill	Landowner	62 Brown Rd	9/12/12
	George P. Lloyd	LAND OWNER	LOT # 22	10/9/12
	Michael Merritt	Landowner	Lot 23	10/9/12
	Sibley, Randy D.	resident	645 Osgood Rd Carroll Pkt	20121005
	MOORE'S JERRY	LANDOWNER	LOT	10/5/12

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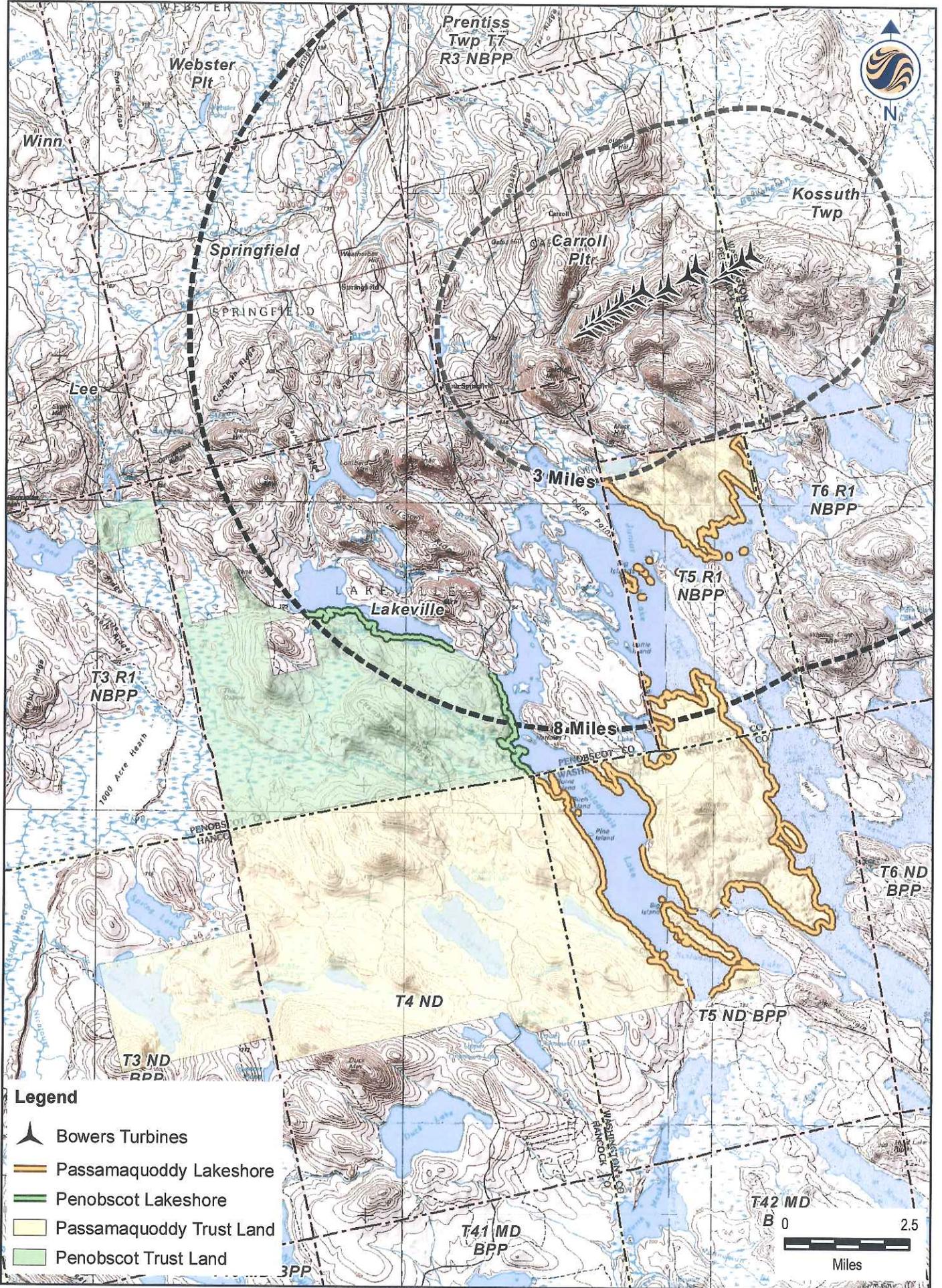
Signature	Name	Resident / Landowner	Address of Property	Date
	Colin Hall Jr	Landowner	Mill Pond	10/5/12
	Rick McKenzie	Landowner	2137 MAIN RD. CARROLL 2137 MAIN RD CARROLL AHE	10/5/12
	Ernest Wallace	Landowner	# Getchell Mountain	10/5/12
	Douglas Coffey	Landowner	650 OSGOOD RD	10 6 12
	Cheryl Cotton	Landowner	650 Osgood Rd	10.07.12
	Jennifer Sargent	Landowner	2225 Main Rd	10/9/12

We, the undersigned support the revised Bowers Mountain Wind Farm, encourage the expeditious approval of the project and welcome the tangible benefits to Carroll Plantation and Kossuth Township that the Wind Farm will deliver.

Signature	Name	Resident / Landowner	Address of Property	Date
	Brian J. King	Landowner	Lot 25 Vinger Hill Carroll Plantation, ME 04477	10/10/12
	Frank Dion	Landowner	Lot 25 Vinger Hill Carroll Plantation, ME 04477	10/12/12
	GARY BICKFORD	LAND OWNER	<del>37 BULL</del> 45 STEVENS RD CARROLL, ME	10/14/12
	Richard Bickford	LANDOWNER	45 Stevens Rd Carroll	10/14/12
	Gerald Chubbuck Jr	Landowner	166 Brown Rd Carroll Me.	10-16-12
	Tom Luper	Landowner	Carroll	10-25-12

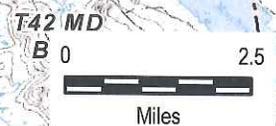


**Figure 2: Comparison of 27-turbine project design with current 16-turbien project design**



**Legend**

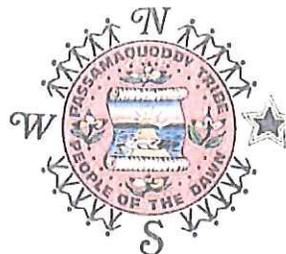
-  Bowers Turbines
-  Passamaquoddy Lakeshore
-  Penobscot Lakeshore
-  Passamaquoddy Trust Land
-  Penobscot Trust Land





Passamaquoddy Tribe  
Joint Tribal Council

Motahkmikuk (207) 796-2301  
Sipayik (207) 853-2600



September 14, 2012

Patricia W. Aho, Commissioner  
Maine Department of Environmental Protection  
17 State House Station  
28 Tyson Drive  
Augusta, Maine 04333-0017

**Re: First Wind, LLC Permit Application**

Dear Commissioner Aho:

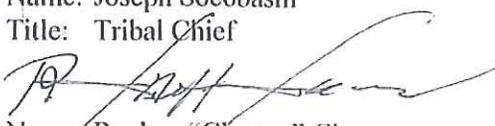
We are writing to inform you that the original concerns and opposition we addressed with the Department regarding First Wind, LLC's wind power project have been addressed to our satisfaction. As you may recall, we raised several serious issues about ceremonial, traditional and cultural impacts this project had on our land.

The Passamaquoddy Tribe has a long tradition of environmental stewardship and we care deeply about the land. We have continuously used the lands in this region and have always balanced our needs with those of the plants and animals and other inhabitants and users of the resources. We expect no less from any other developers of the land.

First Wind, LLC responded strongly and favorably to the Tribe's concerns and the Tribe now stands in support of the project it once opposed. We do not believe that the visibility of the turbines in the reconfigured Project will negatively impact our traditional uses of our lands and the lakes they surround including the recreational uses of fishing, hunting, snowmobiling, camping and hiking. More importantly, we do not believe it will interfere with our cultural ceremonies. We believe that this project is an appropriate new use that can co-exist with the existing uses in this area.

Sincerely,

  
Name: Joseph Socobasin  
Title: Tribal Chief

  
Name: Reuben "Clayton" Cleaves  
Title: Tribal Chief

**MAINE PUBLIC UTILITIES COMMISSION**

**Review Comments**  
Bowers Wind Project  
December 3, 2012

**Introduction**

The Department of Environmental Protection (DEP) has requested that the Public Utilities Commission (PUC) provide review comments with respect to Champlain Wind, LLC's (Champlain) proposed Bowers Wind Project. The Bowers Wind Project is a 48 MW, 16 turbine project located in Carroll Plantation, Penobscot County, and Kossuth Township, Washington County.

An Act to Implement Recommendations of the Governor's Task Force on Wind Power Development (Act) requires DEP to determine whether the Bowers Wind Project will provide "significant tangible benefits."<sup>1</sup> As defined by statute, tangible benefits" mean:

environmental or economic improvements or benefits to residents of this State attributable to the construction, operation and maintenance of an expedited wind energy development, including but not limited to: property tax payments resulting from the development; other payments to a host community, including but not limited to, payments under a community benefit agreement; construction-related employment; local purchase of materials; employment in operations and maintenance; reduced property taxes; reduced electrical rates; natural resource conservation; performance of construction, operations and maintenance activities by trained, qualified and licensed workers in accordance with Title 32, chapter 17 and other applicable laws; or other comparable benefits, with particular attention to assurance of such benefits to the host community or communities to the extent practicable and affected neighboring communities.<sup>2</sup>

The Act specifies that the siting authority shall presume the general energy and emissions-related benefits stated in statute (e.g. reduced reliance on fossil fuels, reduced emissions and energy security) and make additional findings regarding other tangible benefits.<sup>3</sup> The provision also states that the PUC

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<sup>1</sup> P.L. 2007, ch. 661, section C-4 (codified at 12 M.R.S.A. § 685-B(4-B)).

<sup>2</sup> 35-A M.R.S.A. § 3451(10).

<sup>3</sup> 35-A M.R.S.A. §§ 3402(1), 3454.

(among other agencies) shall submit review comments at the request of the siting authority.<sup>4</sup>

The PUC is pleased to provide review comments within its areas of expertise. Thus, we comment on tangible benefit issues involving the electricity market and pricing.

### Discussion

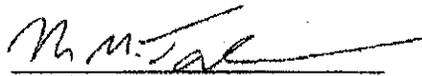
In its application for the Bowers Wind Project, Champlain states that the Project will provide tangible benefits in that it will exert downward pressure on electricity prices, increase energy diversity and reduce price volatility in Maine.

The PUC agrees that wind projects tend to reduce prices in the wholesale markets and contribute to energy diversity and price stability. Under the statute, additional benefits should be considered by DEP in its evaluation of significant tangible benefits because the Act specifies that the general energy and environmental benefits of an expedited wind energy development should be presumed and DEP should consider additional "tangible benefits" for purposes of satisfying the significant tangible benefits requirement.

It is important to note that the Act does not require that a wind project provide tangible benefits from each of the categories listed in statute to meet the significant tangible benefits requirement. The project could offer no electricity pricing tangible benefits and still satisfy the requirement if there are enough benefits from the other categories listed in the statutory definition of tangible benefits. The determination of whether the overall package of benefits satisfies the significant tangible benefit requirement is for the "primary siting authority," in this case the DEP.<sup>5</sup>

The PUC appreciates the opportunity to provide these comments.

DATED: December 3, 2012

  
\_\_\_\_\_  
Mitchell M. Tannenbaum  
Deputy General Counsel  
Maine Public Utilities Commission  
State House Station # 18  
Augusta, Maine 04333-0018

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<sup>4</sup> 35-A M.R.S.A. § 3454.

<sup>5</sup> 35-A M.R.S.A. § 3454.

STATE OF MAINE  
LAND USE REGULATION COMMISSION

IN THE MATTER OF DEVELOPMENT	)	Pre-Filed Direct Testimony of
APPLICATION DP 4889	)	Roger Milliken, Jr. on behalf
CHAMPLAIN WIND, LLC	)	of Champlain Wind, LLC
BOWERS WIND PROJECT	)	

On behalf of applicant Champlain Wind, LLC ("Champlain Wind"), Roger Milliken, Jr. is submitting this pre-filed direct testimony in support of DP 4889 (the "Bowers Wind Project" or "Bowers").

**I. QUALIFICATIONS AND BACKGROUND**

My name is Roger Milliken, Jr., and I am president of the Baskahegan Company. Baskahegan is a ninety-year-old family company that owns nearly 100,000 acres of forestland in northern Washington County, including some of the area proposed for development in this proceeding. I represent the third generation to care for this land, and we are now engaging leaders of the fourth generation in its stewardship. Since 2004, Baskahegan Company's forests have been green certified by the Forest Stewardship Council as being sustainably managed.

Let me begin by saying how much I appreciate the largely thankless task in which you are engaged. Many people are now arguing for the abolition or diminishment of LURC, but the deliberations in which you are currently engaged demonstrate the benefit of citizens who dedicate themselves to sorting through competing values in order to assure the continuance of values that define the Maine woods. Maine needs a clear process and guidelines to make decisions, and nowhere is this more evident than when it comes to supplying energy for Maine people and businesses. I applaud your thoughtfulness, dedication and hard work both today and throughout the year.

Let me give you a little sense of the background I bring to the issue before you today. I have been involved with forestry issues and land conservation efforts for nearly thirty years. From 1986 to 1996, I was a director of the Maine Forest Products Council ("MFPC"), which represents all facets of Maine's forest industry—loggers, truckers, landowners, sawmills and paper mills. During my tenure at MFPC, I worked hard to build an understanding between Maine's forestry and environmental communities, and I was a leader in the effort that led to the bipartisan passage of Maine's landmark Forest Practices Act.

From 1994 to 1999, I co-founded and chaired the Maine Forest Biodiversity Project ("MFBP"), a 100+ person collaborative with representatives from the forest industry, academic community, environmental activists, state agencies, sportsmen, conservationists and small landowners. The MFBP helped define ecologically sensitive forest practices and supported successful legislation to establish 100,000 acres of ecological reserve on state lands.

I am presently a trustee of the Maine Chapter of The Nature Conservancy (TNC), a position I also held from 1996-2005. I co-chaired TNC's successful For Maine Forever Campaign, which featured the protection of 185,000 acres along the St. John River. I also co-chaired the Katahdin Forest Campaign, which protected 295,000 acres.

I have served on The Nature Conservancy's global Board of Directors since 2000 and have been the Chairman of that Board since 2008.

From 1995 to 2004, I served on the board of the Land for Maine's Future program, during which time I chaired the program's appraisal review committee.

## II. THE IMPORTANCE OF RENEWABLE ENERGY

In August of 2010, I traveled to West Virginia. Its hills and hollows give rise to an amazingly vibrant forest. Springs feed streams, which ripple through groves of tall trees. New species are being discovered in these mountains every year. I was appalled to witness first-hand how, driven by our pursuit of cheap energy, miners are literally reducing to rubble the oldest mountains in the U.S. and filling with waste rock the verdant hollows that support the nation's most biologically diverse hardwood forests. This beauty and bounty are destroyed—forever. Five hundred mountains and over a million acres have been impacted by surface mining for coal. Further, the adverse environmental and health effects of the emissions from coal-fired power plants are well documented. In contrast, power generated from wind energy facilities produce no air or water pollution, and displaces energy generated from coal and other non-renewable sources. And while wind turbines do alter the appearance of ridgelines, they leave the land, itself, intact. To talk of wind turbines destroying mountaintops is hyperbole. It changes their appearance, yes, but let's be fair—unlike coal mining in central Appalachia—the production of wind energy in Maine does not “destroy” any mountain.

I applaud the State of Maine for its efforts to facilitate the production of renewable energy and believe we all have an obligation to do what we can to reduce our reliance on fossil fuels. Wind power alone is not going to solve our energy crisis, but it is a part of the solution.

There is no perfect source of energy. Each one has its impacts. Some are local, others, especially those associated with fossil fuels, have local, regional and global impacts. Whether it is the need to send American troops to the Middle East to defend access to oil supplies, risks to globally productive ecosystems like the Gulf of Mexico or Prince William Sound, the demolition

of mountains in Appalachia, or risk to water supplies from hydro-fracturing—the full costs of fossils fuels to our environment and quality of life are enormous.

Alternative energy has its own risks: we need only to remember Chernobyl, Three Mile Island or the recent Fukushima disaster to know that nuclear fission is no silver bullet. Ethanol production displaces food crops from increasingly limited agricultural land. Commercial solar power has a huge footprint in desert areas. Offshore wind presents potential conflicts with navigation and fishing. And wind projects like those you are reviewing today affect flying birds and mammals, and change the views, often in areas that feel like wilderness.

Over the last 30 years, my work at Baskahegan has imbedded me in the beauty and richness of this part of Maine. I have spent many pleasurable hours on the waters of Baskahegan Lake, Maine's 24th largest. Paddling ten minutes out from the landing, as you turn south and slide behind the trees on Abriquidasset Point, the view opens up to thousands of acres of open water and an undeveloped shoreline framed by low ridges. It feels like wilderness. When I learned several years ago that First Wind was proposing to develop eight miles of ridge-top directly to the west of Baskahegan I was disturbed. My head argued for the carbon-free, local, renewable production of wind power, but my heart was troubled by the potential impact on the experience of solitude, isolation and freedom.

Of course, Baskahegan Lake is not a wilderness. I know that every tree I see from my canoe is part of a working forest. The sound of chain saws or logging equipment can usually be detected—even by my aging ears. And no matter what the time of day or night, I can hear the sound of jake brakes on logging trucks as they decelerate down the hills along Route Six to the south or Route One to the east.



Today I can count 38 turbines from Baskahegan Landing. My experience of the Lake has changed, but when I round the point I still enjoy the peace and solitude of that large expanse of water. I look up at those elegant turbines and I think—these are part of the solution. No soldier died defending them. No carbon is being added to the atmosphere by these slowly spinning blades.

### **III. SUPPORT FOR FOREST PRODUCTS INDUSTRY**

Presently, Maine's forest products industry is struggling. As president of a large forest landowning company, I can attest to the need for landowners to find alternative revenue streams during periods of low and volatile wood prices. The recent loss of the Millinocket mills are the latest cause of downward price pressure in our industry. While residential and commercial development is often incompatible with forestry, recreation, and ecological values, wind energy provides a much-needed financial boost to forest landowners while at the same time having little to no impact on forest management or wildlife values.

Because wind farms ultimately occupy very little land area and are often situated in less desirable locations for forestry operations, they are compatible with commercial timber harvesting. This is consistent with the values and goals in the Comprehensive Land Use Plan and will reduce the risk of piecemeal development and the forest fragmentation that results from it.

Further, the existence of wind turbines has no effect on neighboring forestry operations, and conflicts of use are virtually non-existent. If properly sited – as I believe this project is – impacts to recreational uses are also minimal and reasonable.

For more than 100 years, Maine citizens have enjoyed the ability to recreate on private forest lands. This win-win alignment of public benefit provided by private landowners is unique in the nation. But it depends on the ability of landowners to produce revenues from their

holdings. Steady payments to a company like Baskahegan whenever the wind is blowing, will smooth out revenue volatility and increase the likelihood that our family will be able to continue to own and manage our 100,000 acres in a way that perpetuates benefits to wildlife and people.

As a Mainer, and a forest manager, what I am most concerned about over the long term is changes to the climate. The geological record tells us that over the last 12,000 years, spruce has moved into—and out—of Maine in response to temperature changes. Rising temperatures mean diminished vigor and fewer spruce trees, the backbone of our industry. Reducing carbon emissions is the best action we can take to protect Maine's spruce, and stabilize our increasingly volatile weather.

#### **IV. CONSERVATION AND RECREATIONAL VALUES AND USES IN THE REGION**

When I think about the largest impacts on my recreational experience in Maine during the fishing season, it has been weather like that we have been experiencing this month—days of heat, humidity and high haze. We did not have stretches of thick, hazy air like this when I was a boy. They are caused by the combustion of carbon to the south and west of us—coal fired plants in the Midwest, gas-powered automobiles along the urban corridor.

I would like to be able to experience the north woods of Maine without this headache-causing, lung-constricting smog. I would like more days of the clear blue skies that exemplify what I think of as “a real Maine day.” Do I wish that I could reduce smog without changing my view? Yes. But to trade wind turbines on the horizon for clearer air and a more stable climate strikes me as a bargain.

No one likes change. I often wonder what the regulatory hearing would be like if the lobster industry was newly created and they were proposing to “destroy” Maine's oceans with tens of thousands of day-glo plastic buoys, littering the view, putting spinning propellers at risk,

causing the sea gull population to burgeon. As we all know, these man-made features of the Maine coast are now seen to be part of its charm, its attraction.

Change involves tradeoffs, and you are assessing those tradeoffs today. You have heard my views. But I am here to tell you that I am not alone. Last summer, the Forest Society of Maine hired professors from the University of Maine to perform a recreational assessment of the Baskahegan watershed, which extends for 180° from the Stetson Wind development. The point of the study had nothing to do with assessing responses to wind power—we as the major landowner in the area, along with other interested parties, were simply interested in better understanding who was using the area's waters.

There were two surveys performed to gather data about recreational use patterns and site conditions around the Baskahegan watershed. Forty-seven interviews took place on the shores of Baskahegan Lake, and additional, in-depth interviews were carried out with folks who have been visiting the area for at least ten years. Some of these folks have been fishing on Baskahegan Lake for more than 60 years. They were asked open ended questions about how long they had been coming to Baskahegan Lake, how they use the lakes and streams, and what they felt were the best qualities of the region. They were asked specifically about scenery, if the use of the lakes or streams had changed over time, and if there were any developing problems related to their recreational use. Interestingly, *not one* respondent even mentioned the 38 towers on Stetson Ridge that have changed the view across the lake. This tells me that we are far more adaptable creatures than we give ourselves credit for. Yes, we can hear jake brakes and we can see wind turbines, but the heart of the experience remains. The fish still bite. The loons still call. The eagles soar and dive. Our blood pressure still drops with the rhythm of the waves and the casting

of the line. I have to assume that, despite the understandable fear of change, the impact on the experience of those fishing in the West Grand watershed will be no different.

Let me also say that I was a supporter of the Sunrise Conservation easement, which consists of a 312,000-acre working forest conservation easement (held by the New England Forestry Foundation) and lies immediately south of the Bowers Wind Project. The primary goals of this project were—and remain—to support the continued use of the area as a working forest, to conserve and enhance wildlife habitats, to maintain an undeveloped shoreline, and to protect historic public recreation. I was involved in that conservation effort and believe that the Bowers Project, which is located at the developed edge of the conserved lands, is consistent with and will not undermine the Sunrise Conservation easement or related conservation priorities in the region.

Given this, is the change to my view a worthy tradeoff for more dependable revenue streams for landowners, for a more stable climate for spruce and other residents of the forest, for cleaner air, for fewer soldiers dying, for keeping the mountains and hollows of the middle Appalachians intact? As I experienced when my head was arguing with my heart two years ago, it is not a simple decision. But having lived for two years with turbines in my watershed, I can unequivocally respond YES to that question today.

The Bowers Wind Farm is an extension of an existing development of more than 50 wind turbines. Surely, clustering wind development in the same area is good policy. No new energy transmission lines will be required. As I hope I have demonstrated, siting additional wind development on Bowers Mountain is consistent with the Comprehensive Land Use Plan. It supports traditional uses like forest management and the range of ecological and recreational benefits that flow to the public from a working forest. Based on my many years of experience in the region, both as a landowner and a businessman, and as someone closely connected with and

who cares deeply about conservation and nature-based recreation, I do not believe that the Bowers Project will have an unreasonable adverse impact on recreational interests in the region. I believe quite the opposite, that it will help Maine's people work together to build a state that can sustain its forests, its livelihoods, and its special values.

Thank you for your consideration of these comments and again, for the work you are doing to assure the values that are at the heart of the Maine woods.

Date: 10 June 2011

Roger Milliken  
Roger Milliken

STATE OF MAINE  
County of Cumberland

Date: 6/10/11

Personally appeared before me the above named Roger Milliken, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.



Before me,

Lisa Stuart

Notary Public

My commission expires: 10/10/17