Section 30.0 Visual Impact of the MDEP NRPA/Site Location of Development Combined Application

30.0 VISUAL IMPACT

30.1 VISUAL IMPACTS HAVE BEEN MINIMIZED

The current project design has been revised to significantly reduce impacts on visual and cultural resources. Specifically, by using a newly-available turbine model, Champlain was able to reduce the project size 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, as described in the Visual Impact Assessment conducted by Landworks (Exhibit 30A). Champlain also removed particular turbines to increase the distance of the nearest turbine to the closest scenic lake, Shaw Lake, to greater than three miles, thus reducing the scenic impact on that resource. 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 impacts.

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 shoreline of Sysladobsis Lake. 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 (Section 1, Appendix B).

Champlain has also consulted with the New England Forestry Foundation (NEFF), a non-profit land conservation organization that holds the conservation easement on 342,000 acres of land located to the south of the Project (the Sunrise Conservation Easement). NEFF provided a letter of support stating that the principal purpose of the easement is to protect the land from residential development and to allow the landowner to practice sustainable forest management activities, and that it had no objection to the siting of wind-generation facilities on the nearby land proposed for the Project (Section 1, Appendix B).

30.2 USER INTERCEPT SURVEYS SUPPORT THE PROJECT

Although they are not required, Champlain commissioned two user intercept studies to evaluate the potential effect of the Project on scenic quality and associated recreational uses of area lakes, and an expert report to evaluate the significance of these studies.

First, Kleinschmidt Associates, a company with substantial expertise and experience in evaluating recreational resources and uses, including specifically the Project area lakes, conducted intercept surveys and boat counts to evaluate the potential impact of the Project on scenic quality and recreational uses (Exhibit 30B-1). The results of their boat counts and intercept surveys demonstrated that the area lakes receive relatively low overall use. The predominant activity is fishing, and there was very limited evidence of guiding use or kayaking or paddling. The results of intercept surveys conducted on Pleasant, Scraggly and Junior lakes demonstrated that for the majority of users (55%), the Project would have no effect or a positive effect on their use and enjoyment, and the vast majority (80%) said the Project would have no effect on a decision to visit in the future or their likelihood to return. These results are consistent with other pre-construction surveys conducted in Maine.

Second, Kleinschmidt conducted an intercept survey on Baskahegan Lake, which is just beyond the Project area but shares many attributes with the Project area lakes (Exhibit 30B-2). The Stetson Project, an existing wind power project that includes 55 turbines, is visible from the majority of Baskahegan Lake. The purpose of the Kleinschmidt survey was to evaluate whether visibility of that project was impacting scenic quality or recreational use of the lake. The study is especially significant and relevant because it is the first post-construction survey conducted in Maine and as such evaluates actual perception and impact as opposed to anticipated impacts. The results of that survey were unequivocal and demonstrated the following:

- 81% of the respondents stated that the wind farm has no effect or a positive effect on scenic value
- 93% of respondents stated that the wind farm has no effect or a positive effect on the quality of their experience
- 93% said the wind farm has no impact on their likelihood to return.

The Baskahegan study demonstrates that significant visibility of wind turbines in the viewshed of a recreational lake does not significantly impact either scenic quality or, importantly, the experience of recreational users. Such visibility is, in essence, irrelevant to the recreational experience. The results of both the Bowers and Baskahegan surveys are consistent with the results of the 2011 user surveys conducted by Portland Research Group for the Bowers Project (Exhibit 30B-3).

Third, Champlain also commissioned Kevin J. Boyle, PhD., a recognized expert in the fields of survey methodology and in evaluating public preferences for Maine's natural resources, to review the Kleinschmidt reports and other surveys regarding the potential impact of wind turbines on scenic quality and recreational uses (Exhibit 30C). He evaluated the reliability of the survey methodology and data and concluded that the survey results indicate the impact of the Project would have minimal impact on the public's continued use and enjoyment of area lakes.

He described the Baskahegan results as "convincing evidence that the Stetson wind farm has not reduced scenic quality of nearby Baskahegan Lake, nor has it reduced the quality of recreation experience or recreation use. I would expect a similar pattern of results after the Bowers wind farm is constructed." (Exhibit 30C, page 2).

30.3 RADAR-ASSISTED MITIGATION TECHNOLOGY WILL MINIMIZE NIGHTTIME LIGHTING

The Federal Aviation Authority (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. The nighttime lighting plan currently approved by FAA for the Project is attached as Exhibit 30D. The plan calls for synchronized blinking lights to remain on at night to warn aircraft of the existence of the structures.

Some commercial sporting camp owners and guides, as well as camp owners on region lakes have voiced concerned about the potential effects of FAA lights at night. Champlain has taken extraordinary steps to minimize the effects of FAA required night lighting associated with the Project including, as discussed in Section 30.1 above, reducing the total number of turbines from 27 to 16 which minimizes the horizontal extent of their visibility. In addition, Champlain proposes to utilize an innovative radar-assisted lighting system to reduce the effects of nighttime lighting on stakeholders within view of the project.

This is the first project in Maine to propose this type of lighting system, and it is designed to essentially eliminate the effects of turbine nighttime lighting. The new nighttime lighting mitigation 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. In sum, 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.

Use of the systems described above for commercial wind projects has not yet been approved by the FAA. The FAA has drafted an Advisory Circular ("AC") that details the standards that such a system must meet in order to be used. The AC is undergoing internal review within the FAA, but is expected to be released for public comment during the fall of 2012 and may be finalized by the end of 2012. In anticipation of FAA's approval of such systems, Champlain has conducted extensive due diligence with vendors who currently have these systems available. 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, located on the project structures within the area of the project to be cleared for the civil design depicted in Exhibit 1A, 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. Champlain will install the technology as

soon as it obtains the necessary approvals from FAA and is able to contract with vendors for installation of the technology. Consistent with FAA safety requirements, Champlain will retain the ability to keep the turbine lighting on at night if the radar-assisted system malfunctions or is being maintained or repaired.

30.4 VISUAL IMPACT ASSESSMENT

Landworks conducted a Visual Impact Assessment to evaluate the impact on scenic resources of state or national significance. This assessment considered the candidate turbines with the tallest height, assuming up to 16 Vestas V112 3.0-MW turbines, with maximum height of 140 meters (459 feet). There are two types of scenic resource of state or national significance within eight miles of the Project: Great Ponds with Outstanding or Significant scenic value ("SRSNS lakes") and one property on the National Register of Historic Places.

The Project will not be visible from any national natural landmarks or federally designated wilderness areas or other comparable outstanding natural or cultural features; properties on the National Register of Historic Places; national or state parks; scenic rivers or streams; scenic viewpoints designed by the Maine Bureau of Parks and Lands; scenic turnouts on scenic highways designated by Maine Department of Transportation; or scenic viewpoints identified in the coast area[1].

Two of the designated lakes, Duck and Pleasant, would have visibility of the Project within three miles. The remaining seven lakes, Bottle, Junior, Keg, Pug, Scraggly, Shaw, and Lower Sysladobsis, will have visibility of the Project within eight miles. Five of the designated lakes, Horseshoe, Norway, Lombard, West Musquash, and Upper Sysladobsis, would not have any visibility of the Project within eight miles because of intervening vegetation and topography.

For each of the SRSNS lakes, the assessment examined the statutory criteria set forth in the Wind Energy Act[2]. This information was used to determine whether the Project would significantly compromise views from these resources such that it would have an unreasonable adverse effect on its scenic character or the existing uses related to its scenic character. The Visual Impact Assessment evaluated the scope of Project visibility on all SRSNS lakes using well-established methodologies, including visual and cartographic analyses, site inventory, photographic review, and visual simulations. LandWorks conducted site visits and undertook a comprehensive review of surveys (including those described above), polling data, guidebooks, publications and other sources of information to evaluate and understand the Project's potential impacts. The VIA constitutes a comprehensive and objective analysis of both the Project's visibility on SRSNS lakes and the impact of that visibility on scenic quality and recreational uses. The VIA concludes that the Project should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

[1] In determining whether a Project has the potential for significant adverse effects 35-A MRSA 3451.9 of the Wind Energy Act specifically defines a "scenic resource of state or national significance".
[2] Six criteria for evaluated potential impact are outlined in 35-A MRSA 3452.3 of the Wind Energy Act.

A review of associated facilities was also conducted as part of this assessment pursuant to the visual standard set forth in Maine's Wind Energy Act. Throughout most of the study area, topography, forest cover, and roadside vegetation constrain or block views of the Project's associated facilities, limiting any visual impact. There are no significant views of the associated facilities from any SRSNS lakes. Further, these facilities are not significantly visible from any local resources.

MDEP guidance directs applicants to consider potential cumulative impacts. There are three other existing, or as defined by MDEP, reasonably foreseeable wind projects in the region that were considered in the Visual Impact Assessment. Based on this analysis, none of the existing or proposed turbines associated with these other projects in the region will be visible from the SRSNS lakes, and therefore, there will be no cumulative impacts.

30.5 CONCLUSION

Based on the analysis in the Visual Impact Assessment, the Kleinschmidt intercept surveys, and the expert report by Kevin Boyle, Champlain has demonstrated that the Project will not have an unreasonable adverse effect on scenic character or existing uses related to scenic character of the Project area lakes.

Exhibit 30A: Visual Impact Assessment by LandWorks

VISUAL IMPACT ASSESSMENT

For the Proposed Bowers Wind Project

OCTOBER 2012

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EXHIBITS

Attached

Exhibit 1: Viewshed Map [topography only/from the tip]
Exhibit 2: Viewshed Map [topography only/from the hub]
Exhibit 3: Viewshed Map [topography and vegetation/from the tip]
Exhibit 4: Viewshed Map [topography and vegetation/from the hub]
Exhibit 5: Photo Inventory
Exhibit 6: Express Collector Viewshed Map [topography and vegetation]
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Exhibit 8: Meteorological Tower Viewshed Map [topography and vegetation]
Exhibit 9: Turbine Night Lighting Viewshed Map [topography and vegetation]
Exhibit 10: Annotated Visual Simulations (Night Lighting)
Exhibit 11: Bottle Lake Visual Simulation

EXHIBITS

Attached

Exhibit 12: Duck Lake Visual Simulation
Exhibit 13: Junior Lake Visual Simulation
Exhibit 14: Keg Lake Visual Simulation
Exhibit 15: Pleasant Lake Boat Launch Visual Simulation
Exhibit 16: Pleasant Lake West Visual Simulation
Exhibit 17: Pug Lake (West Grand Lake) Visual Simulation
Exhibit 18: Scraggly Lake Visual Simulation
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Exhibit 20 Sysladobsis Lake Visual Simulation
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1. EXECUTIVE SUMMARY

1.1 Overview

Champlain Wind, LLC ("Champlain") is proposing the Bowers Wind Project (Project), a utility-scale wind energy facility in Penobscot County and Washington County, Maine. The Project includes up to 16 wind turbines, associated access roads, a 34.5-kilovolt (kV) electrical collector system, an express collector line, an electrical collection substation, an Operations and Maintenance (O&M) building, and one permanent 90-meter meteorological (met) tower.

The Project will be constructed on two ridges in the project area: Bowers Mountain in Carroll Plantation and Dill Hill in Kossuth Township. Access roads will connect each turbine location and will provide construction and maintenance access from Route 6. The electrical collector system will connect each turbine location and then an express collector line will travel north for approximately 5 miles towards a proposed substation located adjacent to Line 56.

Within the eight-mile viewshed[1] (or study area), there are no national or state parks; national natural landmarks, federally designated wilderness areas or other comparable outstanding national or cultural features; scenic rivers or streams identified as having state or national significance; scenic viewpoints on state public reserve land, or on a trail that is used exclusively for pedestrian use designated by the Department of Conservation; Maine Department of Transportation scenic turnouts on scenic highways; or scenic viewpoints located in the coastal area. There is one National Historic Register site, Springfield Congregational Church, but the Project is not visible from this location. There are 14 great ponds identified within the Project viewshed having outstanding or significant scenic quality. Of those, only 2 will have potential visibility[2] of the Project within 3 miles and include the following:

1. *Duck Lake* – Up to 14 turbines may be visible within 8 miles primarily as middleground views, but the majority of views within 3 miles will be of less than 8 turbines, or portions thereof. The closest visible turbine is approximately 2.7 miles away.
2. *Pleasant Lake* - Up to 16 turbines may be visible within 8 miles primarily as middleground views. The closest visible turbine is approximately 2.4 miles away.

There are 7 other lakes of scenic significance in the study area that have potential visibility of the Project within 3-8 miles and include:

[1] A viewshed is generally defined as the geographic areas from which a project can be seen or has the potential to be seen. For the purposes of this project and the regulatory review requirements, the viewshed is all areas within an 8-mile radius of any of the project's turbine locations. The project viewshed is presented in *Exhibit 1: Viewshed Map*. See also Section 2.3.2 of this VIA.

[2] Potential visibility is based on *Exhibit 4: Viewshed Map [topography and vegetation/from the hub]*

1. *Bottle Lake* – Up to 10 turbines may be visible within 8 miles primarily as background views. The closest visible turbine is approximately 5.1 miles away. Views will be from a limited portion of the lake.
2. *Junior Lake* – Up to 13 turbines may be visible within 8 miles primarily as middleground views. The closest visible turbine is approximately 3.2 miles away.
3. *Keg Lake* – Up to 12 turbines may be visible within 8 miles primarily as middleground views. The closest visible turbine is approximately 3.7 miles away.
4. *Pug Lake* - Up to 6 turbines may be visible within 8 miles primarily as middleground, approaching background, views. The closest visible turbine is approximately 7.7 miles away.
5. *Scraggly Lake* - Up to 16 turbines may be visible within 8 miles primarily as middleground views. The closest visible turbine is approximately 4.1miles away.
6. *Shaw Lake* – Up to 14 turbines may be visible within 8 miles primarily as middleground views. The closest visible turbine is approximately 3.5 miles away.
7. *Sysladobsis Lake* – Up to 10 turbines may be visible within 8 miles as background views. The closest visible turbine is approximately 6.3 miles away.

Five additional lakes of state or national significance will have no Project visibility within eight miles. Viewshed mapping for West Musquash Lake indicates a small area of visibility, but the turbines that are visible are beyond 8-miles. Due to intervening topography, Horseshoe Lake, Lombard Lake, Norway Lake and Upper Sysladobsis Lake, will not have any visibility of the Project.

A review of associated facilities was also conducted as part of this assessment pursuant to the visual standard set forth in Maine's Wind Energy Act. Throughout most of the study area, topography, forest cover, and roadside vegetation constrain or block views of the Project's associated facilities, limiting visibility. There are no significant views of the associated facilities from any resources of state or national significance. Further, these facilities are not significantly visible from any local resources.

1.2 Conclusion

The VIA was prepared in accordance with the scenic impact assessment requirements of the Wind Energy Act (found at 35-A M.R.S.A.§ 3452, et seq.). As a result of our work, we have concluded that **the proposed Project conforms with the provisions of the Act, is well sited and designed and would not have an unreasonable adverse effect on the scenic character or existing uses related to the scenic character of any scenic resource of state or national significance.**

There is one National Historic Register site, Springfield Congregational Church, but the Project is not visible from this location. There are 14 great ponds identified within the Project viewshed having outstanding or significant scenic quality: 2 lakes will have potential visibility of the

Project within 3 miles; 7 lakes will have potential visibility of the Project within 3-8 miles; and 5 lakes will have no visibility of the Project within 8 miles.

Although the Project area is valued for its landscape qualities and recreational resources and is appealing to those who live in and travel to the area, these resources do not possess unique and highly sensitive qualities that preclude the addition of an array of wind turbines within their viewshed. This is not a pristine landscape, and has long been a working landscape that has been used and developed for its recreational, timber and water resources. It is a similar landscape to other nearby areas and lake-region landscapes elsewhere in Maine. Landscapes that are very scenic or outstanding and are more sensitive to visual change usually have prominent distinctions between landforms, such as a flat open field in combination with a steeply rising mountain, or have unique focal points and distinct, memorable profiles. Those types of features are not present here and, as a result, the landscape in the Project area is generally able to accommodate the presence of turbines without fundamentally changing the scenery or adversely impacting recreational uses of the lake resources.

In addition, there is a growing body of evidence that the presence of wind turbines in the viewshed of the types of resources present here will not unreasonably adversely impact either scenic quality or, importantly, the continued use and enjoyment of those resources. This evidence includes intercept surveys conducted in the study area and elsewhere in Maine, surveys of users of a lake where there is significant visibility of the Stetson project, studies done in New England and elsewhere on the impact of wind turbines on tourism in the area, public polling, and more anecdotal information gathered from people who live, work and recreate in the Project area.

2. INTRODUCTION

2.1 Background

LandWorks has developed a Visual Impact Assessment (VIA) of the Proposed Bowers Wind Project (Project) on behalf of Champlain Wind, LLC, the Project developer. This assessment is designed to be in conformance with and in response to the applicable guidelines and regulations promulgated by the State of Maine, and specifically follows the requirements set forth in 35-A M.R.S.A. § 3452. This report begins with an overview of the applicable regulations and the methodology employed by LandWorks in preparing the assessment. It includes a project description, presentation of existing conditions, an inventory of scenic resources of state or national significance, and an analysis and conclusion on the overall scenic impact on any potentially affected scenic resource taking into account each of the review criteria set forth under 35-A M.R.S.A. § 3452.3.

2.2 Regulatory Purview

The Legislature has identified areas suitable for expedited permitting of grid-scale wind energy development to help reduce disagreement over siting. As stated in the Wind Energy Act:

> ...it is in the public interest to reduce the potential for controversy regarding siting of grid-scale wind energy development by expediting development in places where it is most compatible with existing patterns of development and resource values when considered broadly at the landscape level. Accordingly, the Legislature finds that certain aspects of the State's regulatory process for determining the environmental acceptability of wind energy developments should be modified to encourage the siting of wind energy developments in these areas. 35-A M.R.S.A. §3402(2).

The Bowers Wind Project has been sited in an expedited area that has been determined from a landscape level to be compatible with the existing land use patterns and is therefore subject to review under the Legislature's enacted standards specific to wind power. The applicable criteria were enacted in 2008 as part of "An Act To Implement Recommendations of The Governor's Task Force on Wind Power Development" (the Act). In making its determination whether a project has an "unreasonable adverse effect on the scenic character and existing uses related to scenic character of a scenic resource of state or national significance," the Maine Department of Environmental Protection (DEP) must consider the following six criteria outlined in 35-A MRSA §3452.3:

A. The significance of the potentially affected scenic resource of state or national significance;
B. The existing character of the surrounding area;

C. The expectations of the typical viewer;
D. The project purpose and the context of the proposed activity;
E. The extent, nature and duration of potentially affected public uses of the scenic resource of state or national significance and the potential effect of the generating facilities' presence on the public's continued use and enjoyment of the scenic resource of state or national significance; and
F. The scope and scale of the potential effect of views of the generating facilities on the scenic resource of state or national significance, including but not limited to issues related to the number and extent of turbines visible from the scenic resource of state or national significance, the distance from the scenic resource of state or national significance and the effect of prominent features of the development on the landscape.

Because the impact of visibility diminishes with distance, a formal assessment of project visibility on scenic resources located more than 3 miles away is not automatically required. Nonetheless, this VIA extends to the full eight miles to ensure that visibility on all scenic resources of state or national significance within eight miles is fully assessed. In addition, this assessment evaluates visibility of the Project's associated facilities (i.e. access roads, express collector line, O&M building, etc.).

2.3 Methodology

Our assessment identifies scenic resources of state or national significance within an eight-mile study area as defined under 35-A MRSA §3451.9, and evaluates the visual impact of the Project on scenic character and existing uses related to scenic character of those designated resources. The methodology to determine potential effect includes visual and cartographic analyses, document and statutory research, and site inventory and photographic review. Our approach provides a comprehensive and analytical means by which to consider and assess the potential visual and aesthetic impacts that may result from a wind power project and its associated elements. This approach has been well established by visual resource and aesthetic experts and is an accepted means by which to assess the potential visual impacts that may result from the construction of wind energy generation facilities.

2.3.1 Viewshed Analysis

A viewshed analysis has been conducted using ArcMap GIS software to identify areas with potential visibility. It is based on the elevation values of the National Elevation Dataset (NED), the primary elevation data product of the USGS, at a resolution of 1/3 arc-second (about 10 meters). Four viewsheds were completed, which include:

1. Exhibit 1: Viewshed Map [topography only/from the tip] – this map identifies potential visibility from the blade tip (140 m) and does not account for the screening effects of vegetation, buildings and other structures that may block views.
2. Exhibit 2: Viewshed Map [topography only/from the hub] – this map identifies potential visibility from the turbine hub (84 m) and does not account for the screening effects of vegetation, buildings and other structures that may block views;
3. Exhibit 3: Viewshed Map [topography and vegetation/from the tip] – this map identifies potential visibility from the turbine tip (140 m) and accounts for the screening effects of three types of vegetation. Adding a standardized height of 40 feet to the three classes identified as forest (Classes 41, 42, and 43 of the USGS 2006 National Land Cover Database[3]) provides a more realistic yet still conservative representation of potential visibility; and,
4. Exhibit 4: Viewshed Map [topography and vegetation/from the hub] – this map identifies potential visibility from the turbine hub (84 m) and accounts for the screening effects of three types of vegetation. **This map represents the most reasonable approach to potential visibility, since turbine blades that rise above treeline are not typically visible or dominant.**

The viewshed maps prepared for this Project do not account for other factors such as buildings and structures, actual tree height and density, site specific vegetation and/or removal, variations in eyesight, and atmospheric and weather conditions. In particular, 40-foot tree height is very conservative for this area and can have a significant impact on potential visibility. Tree heights in this region are more characteristically 65 feet or higher, as was confirmed in a site visit conducted with Dr. James Palmer on May 18-19, 2011. Limiting vegetation to only the three forest classes is also conservative because other areas may have vegetation that screens views (e.g. wooded wetlands).

It is our experience that viewsheds generated from the hub provide a more realistic representation of potential visibility, since the view of a hub and rotor has a greater impact than turbine blades, and the difference in overall percent of visibility between hub and tip of the blade is usually insignificant. As such, the numbers of turbines visible and percent of visibility represented in this analysis are taken from viewsheds generated from the hub.

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[3] **FOREST** - *areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 6 meters tall); tree canopy accounts for 25% to 100% of the cover.*
41 **Deciduous Forest** - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
42 **Evergreen Forest** - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
43 **Mixed Forest** - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.

The viewshed maps also include visibility of any turbine, including those located greater than eight miles, as a conservative measure and to ensure that readers are not mislead. Although the presence of turbines located more than eight miles is deemed insignificant under Maine law, this approach is consistent with more typical viewshed analyses, which identify the visibility of all turbines from within an 8-mile radius, or area of potential effect, regardless of individual distance.

Viewshed analyses are used mainly as a point of departure for identifying areas with potential visibility. Due to the coarseness and uncertainty of the quality of the raster data, viewsheds cannot be relied upon to represent what will actually be seen on the ground from a specific location. While a viewshed can indicate how many observer points can be seen from each location (i.e. 3 of 16 turbines will be visible), it can not specify how much (just the tip of a blade or the entire turbine), which one (when there are multiple observation points), or perspective (how big or small it will appear in the landscape). Therefore, a viewshed analysis provides the first step in identifying what areas might have visibility. Additional visual studies (e.g. visual simulations, line-of-sight sections, 3-D modeling) are necessary to understand the details of a view from a specific location.

2.3.2 Field Investigations

Using the viewshed mapping as a point of departure, LandWorks conducted field studies on June 5, July 16, and July 17 of 2010, and May 18 and June 27 of 2011. We visited all scenic resources of state or national significance that would have potential views of the Project. The lakes were accessed by a guided motorboat and by canoe; the church was accessed by vehicle. Additionally, the routes to each of the areas, including sections of Route 6, Amazon Road, Bottle Lake Road, and some hiking trails and Class 4 roads to access the lakes, were evaluated to obtain a better understanding of the character of the area. LandWorks used viewshed maps, topographic maps, field guides, books, brochures, pamphlets, websites, local information sources and the Maine Atlas & Gazetteer to provide additional information regarding the use of the areas visited, access to the sites, and to orient and determine visibility in the field. Field notes were recorded from all locations visited.

Throughout the inventories, two types of digital photographs were taken: 1) to provide information on area context and to illustrate scenic views or intervening vegetation or structures, and, 2) for the purpose of developing visual simulations. For general photographs of the project area, LandWorks used a Canon PowerShot SD850 IS set at varying focal lengths to capture the intended image (See Exhibit 5. Photo Inventory). For visual simulations, LandWorks used a Canon EOS Digital Rebel XT with a 35 mm lens for the photography and the Earthmate PN-40 GPS to collect waypoint data.

2.3.3 Visual Simulations

Simulations were developed using the following methodology:

Step 1: Data Gathering

A. Site Visit

Site information for simulation viewpoint is recorded, including view location (GPS point), date, time and weather.

B. Site Photography

Site photographs are taken for use in simulation. Camera type, focal length (approx. 50-55mm), camera elevation, direction of view, and horizontal angle of view are noted.

Step 2: Model Creation

A. Base map & Terrain Model

A digital base map is created of the project and view areas. GIS data acquired from www.megis.maine.gov/catalog and the client; Aerial photographs and USGS maps used as needed. Utilizing the base map and GIS data, a 3D digital terrain model is created. Where forested, the terrain model is adjusted to account for the additional height contributed by trees (40').

B. Turbine Model

Using data and drawings obtained from the turbine manufacturer, a 3D digital model is created of the turbine. This model is then merged with the terrain model, placing the turbines at their appropriate proposed locations and elevations.

C. View Setting

The existing conditions photograph is imported into the terrain model. The data gathered from the site visit is then inputted into the modeling program (VectorWorks 2008), and a "camera view" matching the original site conditions is created. A digital image of this view is exported for use in the next step.

Step 3: Simulation Rendering

A. Conditions Overlay

Using a photo editing and rendering program (Photoshop CS5), the exported digital image of the perspective view is precisely overlaid and registered to the original existing conditions photograph. Simulations are typically composed of panorama photos (50% overlap on either side of center frame) in order to represent the way views are actually perceived given the normal range of eye and head motion.

B. Turbine Placement

High resolution images of the turbine model (from SketchUp Pro 7) are placed at proper locations, scale and perspective to match the exported view image.

C. Final Rendering

Turbines are adjusted to mimic quality of light, distance and detail in site photograph. Vegetation and other visual obstructions are accounted for. Visual impacts from

associated facilities (including access roads, collector lines and associated clearing) are rendered and reflected in all the visual simulations (using a perspective view created in 3D Analyst that models required project clearing).

Visual simulations provide a photo-realistic perspective view of proposed project elements in the landscape, thereby allowing people to clearly visualize how a project will look from a particular vantage point. Visual simulations are useful in terms of revealing the nature and extent of potential visibility of a project from key vantage points, providing more accurate and refined information than a viewshed analysis can provide. They often reveal how topography and vegetation can limit or block project views, sometimes in surprising ways. Visual simulations from each of the scenic resources with potential visibility were prepared for this Project.

The simulations typically represent a point within an area identified by the viewshed analysis that has the highest range of turbines potentially visible **that are within 8 miles**. Because maximum number of turbines visible does not necessarily translate into highest impact, other factors affecting scenic impact were taken into consideration, including the nature of view, distance and context as well as proximity to areas of higher use (i.e. boat launches).

The weather and atmospheric conditions presented in the visual simulations depict a range of conditions experienced during our site visits. Due to the highly variable and changing weather of the northeast, not all photos depict sunny, blue-sky conditions. However, the visual simulations depict a range of weather and light conditions that are typical of the area. In some instances where the color of the sky as captured by the photograph was too light to allow the turbines to be seen in the simulation, the turbines were artificially darkened. If artificial darkening is used there is a note on the simulation to that effect. Turbines in the simulations thus may appear more visible than they would actually appear under certain light and atmospheric conditions. In addition, rotors are typically depicted from a broad view in simulations, whereas their visual presence could be less in reality, depending on wind direction and orientation. See Exhibit 24: Visual Simulation and Post-Construction Photos.

In order to mimic the perceived scale of the views in the field, the recommended viewing distance for the simulations is approximately 19". The simulations represent the central angle of view, which occurs within 40-60 degrees, and is the area that most highly influences human perception of a scene given a fixed viewing direction.[4]

[4] The viewing distance was calculated using the method described in "Visual Simulation: A User's Guide for Architects, Engineers and Planners," by Stephen R. J. Sheppard. Based on a single image (7.8" high x 11.52" wide) formatted on an 11x17 sheet. With a horizontal angle of view of approximately 35 degrees for a single image, three images were typically merged in order to widen the field of view to be approximately 45 degrees. These calculations apply to every simulation that utilize photos taken by LandWorks. The simulations for Keg Lake, Sysladobsis Lake and Pug Lake utilize photos taken by others, but they have been adjusted in their presentation to be consistent with the others in terms of viewing distance.

2.3.4 Research and Publications

Information used to develop this report was derived from a multitude of sources such as background polling, user surveys, studies, guidebooks, publications, online media, anecdotal and interview sources, as well as general field observations and professional expertise. Collectively, the different data sources provide a more comprehensive understanding of the scenic resources to be evaluated, and the potential effect the Project may have on users of those resources. The information assembled from this multitude of resources yielded similar results that we believe directly inform and further substantiate our understanding of the scenic resources in the study area, and the Project's impact on those resources. The following provides a summary of sources gathered and general results. Additional analysis gleaned from this information is provided in subsequent sections of this report.

A. Guide Services

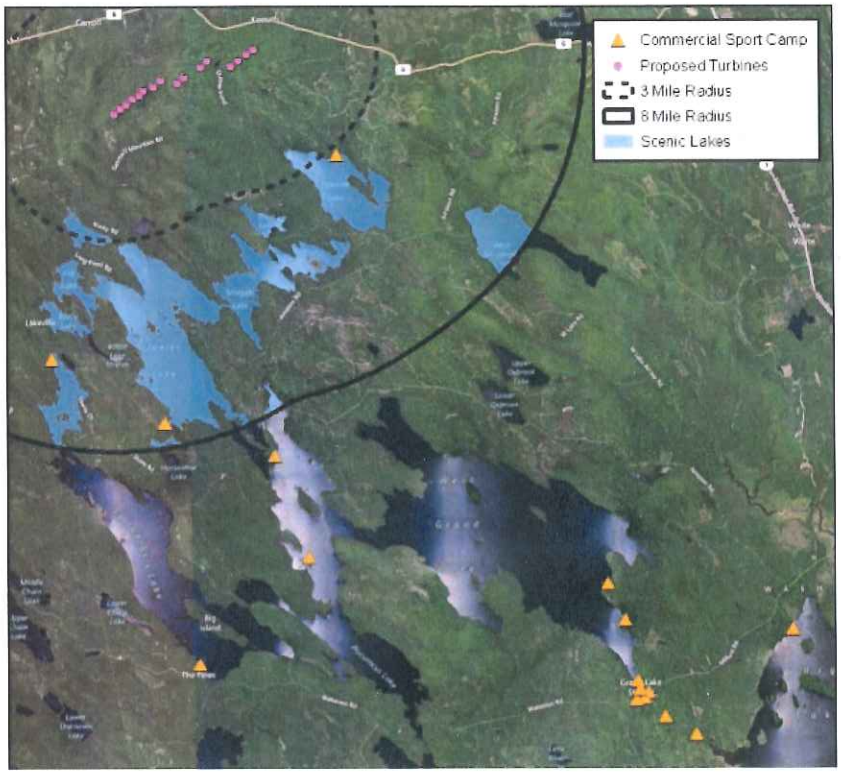
Guide services that offer trips within the study area were reviewed. The results of this search indicated that fishing and hunting are the primary activities for which guide services are procured. Research also indicates that the lakes located within the study area are not key destinations. Testimony of the Guides during review of the previous Bowers project suggest that they heavily use the Project area lakes. However, in our extended research and review of guide services online, only one referred to any of the lakes in the study area—custom guided canoe trips in the "Junior Lakes Region" by Wilderness Inquiry. Rather, the Grand Lake Stream area, which is located more than 18 miles from the nearest turbine, and at least an hour's drive from Springfield, is most commonly identified as the central location for activities.

1. The Maine Professional Guides Association Online (www.maineguides.com)
2. Grand Lake Stream Guides Association (www.grandlakestreamguides.com)
3. Sunrise International (www.sunriseexpeditions.com, www.mainecanoe.com, www.sunriselocations.com)
4. The Maine Hunting Guide (www.themainehuntingguide.com)
5. Almanac Mountain Outfitters (Springfield, ME)
6. Blue Moose Hideaway Guide Service (www.bluemoosehideaway.com)
7. Denny's River Guide Service (www.dennysriverguide.com)
8. Hawkeye Hunting (www.hawkeyehank.com)
9. Outdoors with Ed (www.sites.google.com/site/outdoorswithed)
10. Runaway Heath Guide Service (www.runawayheathguides.com)
11. Weatherby's (www.weatherbys.com/registered-maine-guides)
12. Wilderness Inquiry (www.wildernessinquiry.org/destinations/index.php?dest=juniorlakes)

B. Sporting Camps and Lodging

In addition to guide services, sporting camps and lodging within the Downeast Lakes area were compiled and reviewed, primarily based on the Maine Sporting Camps Association website

(www.mainesportingcamps.com). Several commercial sporting camps expressed concern about the Project in their testimony from the previous Bowers filing. Only three commercial camps are located within the study area. The one closest to the Project, Maine Wilderness Camps on Pleasant Lake, expressed support for the Project. A second, Wild Fox Cabins on Junior Lake, appears not to be currently operating. The third, Spruce Lodge Campground, is located 6 miles from the nearest turbine. Most other camps are located 15 miles and beyond from the Project. Of the 21 camps reviewed that are located outside the 8-mile Project radius, only two specifically mention at least one of the study area lakes on their websites.



Map of commercial sporting camps in the region – 16 of the 24 listed here are shown.

1. Canalside Cabins (www.canalsidecabins.com)
2. Chet's Camps (www.chetscamps.com)
3. Colonial Sportsmen's Lodge (no website)
4. Darrow Wilderness Camps (www.darrowcamping.com)
5. Down River Camps (www.downrivercamps.com)
6. Eagle Lodge and Camps (www.eaglelodgemaine.com)
7. Grand Lake Lodge (www.grandlakelodgemaine.com)
8. Grand Lake Stream Camps (no website)
9. Grand Lake Wilderness Retreat (www.grandlakewildernessretreat.com)
10. Great Pond Wilderness Lodge and Sporting Camps (www.greatpondwildernesslodge.com)
11. Greenland Cove Cabins (www.greenlandcovecabins.com)
12. Hazelwoods Cottages (www.hazelwoodsofmaine.com)
13. Indian Rock Camps (www.indianrockcamps.com)
14. Leens Lodge (www.leenslodge.com)
15. Maine Wilderness Camps (www.mainewildernesscamps.com)
16. Nicatous Lodge and Camps (www.nicatouslodge.com)
17. The Pines Lodge and Camps (www.thepineslodge.com)
18. Rideout's Lakeside Lodges & Cottages (www.rideouts.com)
19. Robinson's Cottages (www.robinsonscottages.com)
20. Shoreline Camps (www.shorelinecamps.com)

21. Spruce Lodge Campground (no website)
22. Weatherby's Resort (www.weatherbys.com)
23. Wheaton's Lodge and Camps (www.wheatonslodge.com)
24. Worster's Wild Fox Cabins (www.wildfoxcabins.com)

C. Guidebooks

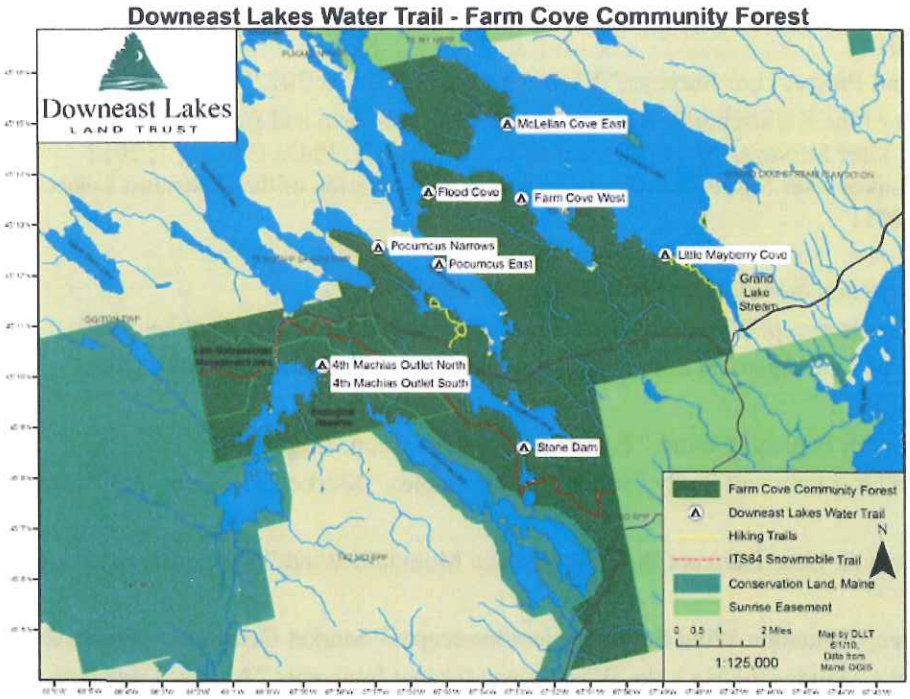
We evaluated several guidebooks that provided further information about fishing and recreational opportunities in this area of Maine. This information offered additional insight into the activities that occur on these lakes, as well as the popularity and significance of the lakes within the study area. Results again confirm that fishing is the most popular activity in the area and that the most popular spots identified are primarily located outside the project study area (e.g. West Grand Lake, Big, Pocumcus, Wabassus). The AMC Quiet Water Guide does describe a paddling trip that begins roughly 15 miles away from the Project, and loops through some of the study area lakes. This trip is further described in Section 4.6.

1. *AMC River Guide*, Maine
2. *An Explorer's Guide to Maine 16th Ed.* By Christina Tree & Nancy English
3. *Quiet Water Maine: Canoe and Kayak Guide* (Appalachian Mountain Club) by Alex Wilson and John Hayes
4. *Fishing Maine* by Tom Seymour
5. *Fishing Maine, 2nd: An Angler's Guide to More than 80 Fresh- and Saltwater Fishing Spots* by Tom Seymour
6. *A Fisherman's Guide to Maine* by Kevin Tracewski

D. Other Websites

In addition to the specific guidebooks, sporting camps and guide services described above, several other tourism and recreational websites were reviewed that provided further information about potential activities within the study area. Although little information was available about specific activities on specific lakes, the information on these websites was consistent with the findings from the guide services, sporting camps and guidebooks referenced above – that fishing and hunting are the primary activities for this area, and that the lakes within the study area were not usually mentioned.

1. Maine Office of Tourism (www.visitmaine.com): no mention of lakes or activities within project area
2. Maine Tourism Association (www.mainetourism.com/content/4030/DownEast__Acadia/): no mention of lakes or activities within the project area
3. Grand Lake Stream Area Chamber of Commerce (www.grandlakestream.org): no mention of lakes or activities within project area
4. Downeast Lakes Land Trust (www.downeastlakes.org): no mention of lakes or activities within project area



This map, available on the Downeast Lakes Land Trust website, does not extend to any lakes in the Bowers study area

5. Trails.com: features Junior Lake on map of Downeast Maine fishing locations (www.trails.com/activity.aspx?area=15042)
6. GoingOutside.com: reviews of Junior Lake (www.goingoutside.com/lake/104/1041944_Junior_Lake_Maine.html) and Sysladobsis Lake (www.goingoutside.com/lake/104/1043677_Sysladobsis_Lake_Maine.html)
7. Orvis Fishing Report (http://www.orvis.com/fishing_report.aspx?locationid=7408): mentions Junior and Sysladobsis in its Downeast Lakes description

E. Books, Surveys and Reports Related to Wind

We reviewed over thirty various books, surveys, and reports that have been prepared in relation to wind power and people's attitudes toward wind. Collectively, the results point to similar conclusions: 1) that views of wind projects have minimal or no impact on use and/or enjoyment by the majority of users, and 2) that a wind project in view has minimal or no affect on respondents' likelihood to return.

Surveys for Bowers Project

1. "First Wind Outdoor Activities Users Research," Portland Research Group, January 2011
2. "First Wind Stetson Snowmobiler Survey," Portland Research Group, February 2011

3. Results of informal telephone interviews conducted by LandWorks, September and December 2010
4. "Bowers Wind Project User Surveys," Kleinschmidt, September 2012
5. "Assessment of the Kleinschmidt Bowers Mountain Wind-Farm and Baskahegan Lake Recreational User Surveys," Expert Report of Kevin J. Boyle, PhD., October 1, 2012
6. "Downeast Lakes User Survey," Partnership for the Preservation of the Downeast Lakes Watershed, 2011

Other Pre-Construction Surveys for Wind Projects in Maine

7. "Bull Hill User Intercept Survey for Blue Sky East," Market Decisions, October 2010
8. "Little Bigelow User Intercept Survey for Highland Wind," Portland Research Group, Summer/Fall 2010
9. "Hikers Study for Highland Wind," Portland Research Group, August 2010
10. "Mount Blue User Intercept Study for Patriot Renewables," Market Decisions, September 2010
11. "Spruce Mountain User Intercept Study for Spruce Mountain Wind," Market Decisions, May 2010
12. "Passadumkeag Mountain Wind Power Project Intercepts," Market Decisions, October 2011
13. "Pleasant Lake/Mattawamkeag Lake Wind Power Project Intercepts," Market Decisions Research, October 2011

Post-Construction Studies at Wind Projects in New England

14. "Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-Construction," Clinton Solutions, December 1997
15. "Baskahegan Lake User Surveys Report," Kleinschmidt, September 2012

Other Wind/Tourism Studies throughout New England and Internationally

Of the twenty-two studies reviewed below, only two indicated that the impact on the likelihood to return would be high. The NFO study (number 32 in the list below) indicated that 25% of respondents were least likely to or would not return. Additionally, the "Hot Air…" study (number 36 in the list below) indicated that 70% of respondents would not return. This must be qualified, however, with the fact that the survey only included 100 renters by cottage owners.

16. "Critical Insights on Maine Tracking Survey: Residents' Views on Politics, the Economy & Issues Facing the State of Maine," Critical Insights, November 2009
17. "Critical Insights: Maine Voter Preference Survey," Critical Insights, March 2011
18. "Report to MREA: Highlights of Survey Findings," Pan Atlantic SMS Group, May 2010
19. Vermont Department of Public Service website on Vermont's Energy Future - http://www.vermontsenergyfuture.info/Final
20. "Baskahegan Stream Watershed Recreation Use & Resource Analysis," Ednie, Andrea, Everett, C., and Daigle, J., University of Maine, Summer 2010
21. "Wind Energy Report: Views of Residents of PEI and Visitors to PEI," Tourism Research Centre at University of PEI School of Business, September 4, 2008

22. *1998 Recreation Study and 2008 Relicensing Report* conducted by Domtar for the West Grand Lake Watershed
23. *Wind Power in View* by Pasqualetti, Gipe, et al., (San Diego: Academic Press, 2002)
24. "Wind Turbines in Tourism Landscapes," Frantal and Kunc, *Annals of Tourism Research*, Vol. 38, No. 2, at 499-519 (April 2011)
25. "Do Wind Farms Affect Tourism?" Réseau de Veille en Tourisme (Quebec Tourism Intelligence Network, UQAM), December 9, 2009
26. "Economic Research Findings: The Economic Impacts of Wind Farms on Scottish Tourism," The Scottish Government, March 2008
27. "Cornwall Holiday Survey," Cornwall Tourist Board, 2000
28. "Delabole Wind Farm," Nicholas Pearson Associates, May 1996
29. "Wind Farm Public Attitudes and Tourism Studies in Scotland," A. Hinton, Natural Power Consultants, for Fred Olsen Renewables, October 2006
30. "Fullabrook Wind Farm Proposal, North Devon—evidence gathering of the impact of wind farms on visitor numbers and tourist experience," Aitchison, University of the West of England, 2004
31. "North Cornwall Tourists Survey," Robertson Bell Associates, September 1996
32. "Martin's Hill Tourism Survey," Center for Sustainable Energy, 2002
33. "A Study into the Attitude of Visitors, Tourists and Tourism Organisations towards Wind farms on the Boundaries of the Lake District National Park," V. Campey et al., Star Consultants, Leeds Metropolitan University, October 2003
34. "Investigation into the potential Impact of Wind Farms on Tourism in Wales," NFO for Wales Tourist Board, 2003
35. "Appraising renewable energy developments in remote communities: the case of the North Assynt Estate," N. Hanley and C. Niven, *Scotland Energy Policy*, 1999
36. "Investigation into the Potential Impact of Wind Farms on Tourism in Scotland," NFO System Three, for Visit Scotland, 2002
37. "Tourist Attitudes Towards Wind Farms," research study conducted for Scottish Renewables Forum and British Wind Energy Association, MORI Scotland, 2002
38. "Wind Energy Policy, Planning and Management Practice in the UK: Hot Air or a Gathering Storm?" Peter A. Strachan and David Lal, *Regional Studies* 38(5): 549-569, November 2005

F. Other Studies and Reports

A number of additional studies and reports were reviewed or used as reference in this report, which helped inform the development of indicators used in the evaluation of the statutory criteria, and include:

1. The National Forest's Handbook on Scenery Management
2. "Review of the Spruce Mountain Wind Project Visual Impact Assessment," James Palmer, June, 2010

3. *Scenic Lakes Character Evaluation in Maine's Unorganized Towns*, Maine State Planning Office, December 1986
4. "Visual Screening Potential of Forest Vegetation" in Urban Ecology 4, Robert Brush, Julius Fabos, and Dennis Williamson, 1979
5. *Landscape Aesthetics* A Handbook for Scenery Management, United States Forest Service Agriculture Handbook Number 701, pp. 1-15 - 1-18
6. *Development of Obstruction Lighting Standards for Wind Turbine Farms*, James W. Patterson Jr., (For the Federal Aviation Administration, 2005)
7. *Maine Wildlands Lake Assessment.* Maine Department of Conservation, Land Use Regulation Commission, 1987
8. *Maine's Finest Lakes: Results of the Maine Lakes Study*. State Planning Office, Maine Critical Areas Program, 1989
9. Maine State Comprehensive Outdoor Recreation Plan 2009 – 2014
10. Comprehensive Land Use Plan for Areas Within the Jurisdiction of the Maine Land Use Regulation Commission, 2010
11. *Landscape and Images* by John R. Stilgoe (Charlottesville: University of Virginia Press, 2005)

3. Project Description

3.1 Wind Turbines

Multiple turbine models are being considered for the civil and electrical design described in the permit application. For purposes of this Visual Impact Assessment, the tallest turbine model was incorporated using the Vestas 3.0 MW turbine model, which is 275'-6" (84 m) to the center of the hub, and a total of 459'-3" (140 m) to the tip of a fully extended blade. Fourteen of the turbines will be located in Carroll Plantation, while the remaining two will be in Kossuth Township. The turbines will span from Bowers Mountain across to Dill Hill. The turbine rotors and towers will be a light or white color, which is the best choice for enabling the structures to blend into background sky and atmospheric conditions. Following construction, the grading and disturbed areas around each turbine pad will be allowed to revegetate.

3.2 Access roads

The primary access road for the Project, beginning at Route 6, is 24 feet in width. Between turbines, portions of the access roads will be 35 feet in width to accommodate the crane during construction. Many of the proposed turbine sites and portions of the Project area have been or are being used for commercial forestry operations and the Project area contains logging roads that will be upgraded and used, where appropriate, to minimize new construction, clearing and wetland impacts. Roads are sited to work with the existing topography and therefore minimize cut and fill. In most instances, existing mature trees will screen views of the roads. Access roads and clearing are accounted for in the visual simulations. Additional visibility analysis of associated facilities is provided in Section 5.0.

3.3 Electrical Collection System / Substation

Power from the turbines will be collected in an overhead 34.5-kV "mountaintop" collector line between turbines and delivered north across Route 6 along an "express" collector route to a proposed substation located adjacent to the existing Line 56 transmission line in Carroll Plantation. The poles for the electrical collection lines between turbines will range from 35 to 60 feet high, and require up to approximately 80 feet of clearing in areas between turbine locations. The poles for the "express" collector will range from 40 to 80 feet and general corridor clearing of up to 100 feet (150' at corners). Clearing for the mountaintop collector and express collector is accounted for in the visual simulations. The collector will run north of the ridgeline and primarily north of Route 6 to a proposed substation typical in size to many throughout Maine. Additional visibility analysis of associated facilities is provided in Section 5.0 (see Exhibit 6: Express Collector Viewshed Map and Exhibit 7: O&M and Substation Viewshed Map).

3.4 Operations and Maintenance Facility

An O&M building of up to approximately 7,000 square feet is planned for a location north of Route 6. This single-story building will be painted a neutral color to blend with its surroundings. Additional visibility analysis of associated facilities is provided in Section 5.0 (see Exhibit 7: O&M and Substation Viewshed Map).

3.5 Meteorological Towers

There will be one permanent meteorological tower. The permanent tower will be up to 90-meters high (295 feet) by approximately 18" wide. Due to its narrow profile and light color, its visibility is relatively minimal. Additional visibility analysis of associated facilities is provided in Section 5.0 (see Exhibit 8: Meteorological Tower Viewshed Map).

3.6 Project Lighting

The wind turbines and permanent met tower will be illuminated in accordance with FAA recommendations for turbine lighting in order to address aviation safety. Based on the Lighting Plan (see Applicant's Exhibit 30D), the met tower and approximately 50% of the turbines will be lit at night. As shown on Exhibit 9: Turbine Night Lighting Viewshed Map, turbines 1, 3, 6, 8, 10, 12, 13, and 16 will have red aviation warning lights that will be lit at night. The plan calls for red lights on the met tower and turbines that will flash simultaneously with a rapid discharge strobe (slow-on, slow-off profile), which will remain on at night to warn aircraft of the existence of the structures. According to the governing FAA standard[5], lights typically used in these types of applications are omni-directional, L-864 Red Flashing Lights (incandescent or rapid discharge [strobe]) with a minimum 750 candela with a 3-degree vertical beam spread. An evaluation of where lit turbines will be visible from scenic resources of state or national significance has been conducted and described in Section 4.4 of this report. See also Exhibit 10, which includes annotated visual simulations with an arrow identifying which turbines will be lit.

Although the impact of the required nighttime lighting is minimized through use of a limited vertical beam spread and other mitigating factors, Champlain has proposed use of radar-assisted lighting system to reduce the effects of nighttime lighting. Although not yet approved by the FAA for use on wind turbines in the United States, the new nighttime lighting mitigation 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

[5] U.S. Department of Transportation Federal Aviation Administration. Obstruction Marking and Lighting Chapter 13, February 2007. (FAA AC 70/7460-1K)

wind projects. Champlain proposes to install the technology as soon as it obtains the necessary approvals from FAA and is able to contract with vendors for installation of the technology. This mitigation technology will essentially eliminate the impacts of nighttime lighting on potential recreational users of the Project area lakes.

3.7 Project Area

The proposed Project is part of two hills ranging in elevation from about 760 to 1120 feet above sea level and consist of moderately steep to gentle sloping sides. The relief as viewed from lakes in the area is not dramatic or unique. All of these rolling hills are located directly south of Route 6 and cross the town boundary from Carroll to Kossuth. Together they form a divide between stream drainages to the Baskahegan Stream in the north, and to streams flowing to lakes and ponds in the south. This area is identified as the Eastern Lowlands biophysical region[6], which is primarily dominated by a regenerating Beech-Birch-Maple forest.

Much of the land in the study area is privately owned and has been heavily harvested, showing evidence of extensive historic and recent forest management activity. There are also a number of publicly and privately conserved lands in the 8-mile study area, which includes nearly 31,500 acres of the Sunrise Conservation Easement, and the 890-acre lot owned by the Bureau of Parks and Lands (BPL) situated between Keg and Duck Lakes. As discussed below, the Sunrise Conservation Easement is part of a larger conservation effort to support the continued use of the area as a working forestry, to conserve and enhance wildlife habitat, to maintain an undeveloped shoreline, and to protect historic public recreation. It is owned by Typhoon, LLC and managed by Wagner Forest Management, primarily for commercial timber operations. The BPL land is currently managed primarily for forestry and wildlife related uses. In addition, there are two Native American lands within the study area – the Passamaquoddy in Pukakon Township and the Penobscot in Lakeville. Specifically, the Passamaquoddy Tribe holds significant lands along the shores of Junior, Scraggly, Shaw and Sysladobsis lakes. The Penobscot Tribe holds significant lands along the shore of Sysladobsis lake.

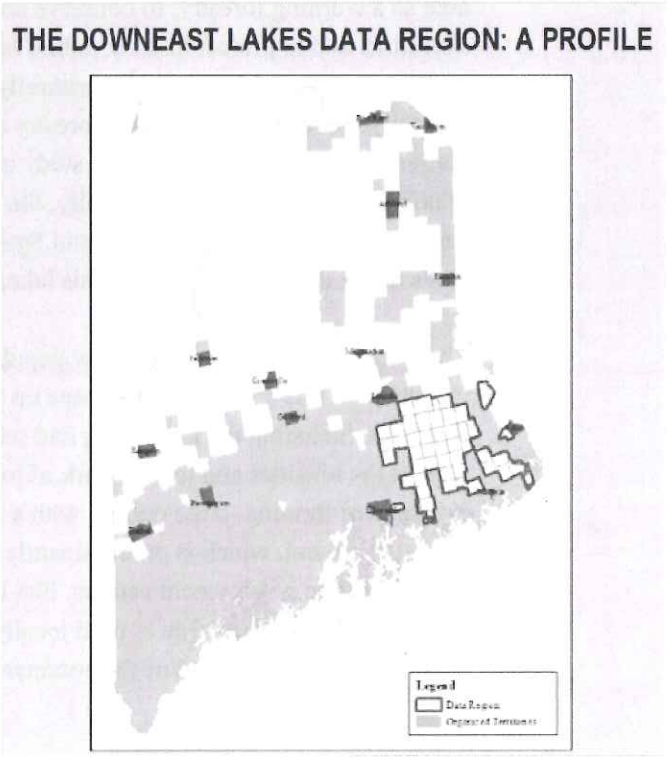
The 8-mile study area has very low population, undeveloped areas, wildlife habitat and vast woodlands. It is a working landscape on which the region's residents have depended for centuries, including the harvesting and processing of forest products, evidence of which can be seen in the hillsides and the network of logging roads throughout the area. There is also some evidence of farming in the region, with a few open fields found along Route 6. Likewise, most of the development, which is predominantly residential, is located along this key road. All of the region's major employment centers, like Lincoln, are more than 25 miles away. The immediate area around the Project Site is used locally but is not a popular destination area for tourism (see Section 4.2.3). Thus, most of the commercial and retail activity is found outside the study area.

[6] Maine State Planning Office, 1993.

In general, residential development is very low density, scattered amongst open fields and roadside clearings. For example, the population for Carroll Plantation from the 2010 Census was 153, with a population density of only 3.45 people per square mile. This compares to the Penobscot County average of about 43.29 people per square mile. The only area of somewhat concentrated density is in the settled area of Springfield, approximately 5 miles from the closest turbine, where there is a church, school and grocery. There is also an approved 66-lot subdivision on nearly 3,150 acres of land in Carroll Plantation immediately southeast of Bowers Mountain, which includes 17.5 miles of interior roadway.

Much of the region, however, is characterized by seasonal camps scattered throughout the area (see Diagram 2). Bottle Lake features the highest number of camps and homes along the water's edge, with additional residential development located along the shores of the other lakes in the area including Keg, Lombard, Sysladobsis, Upper Sysladobsis, Junior and Duck. Many seasonal camps are occupied for limited periods of time, primarily for hunting and fishing. In fact, the most identifiable activities for this area, aside from forestry, include snowmobiling, hunting, boating and fishing. In the 8-mile study area there are several boat launches, a number of primitive campsites, and a network of snowmobile and ATV trails including access to Maine's Interconnected Trail System.

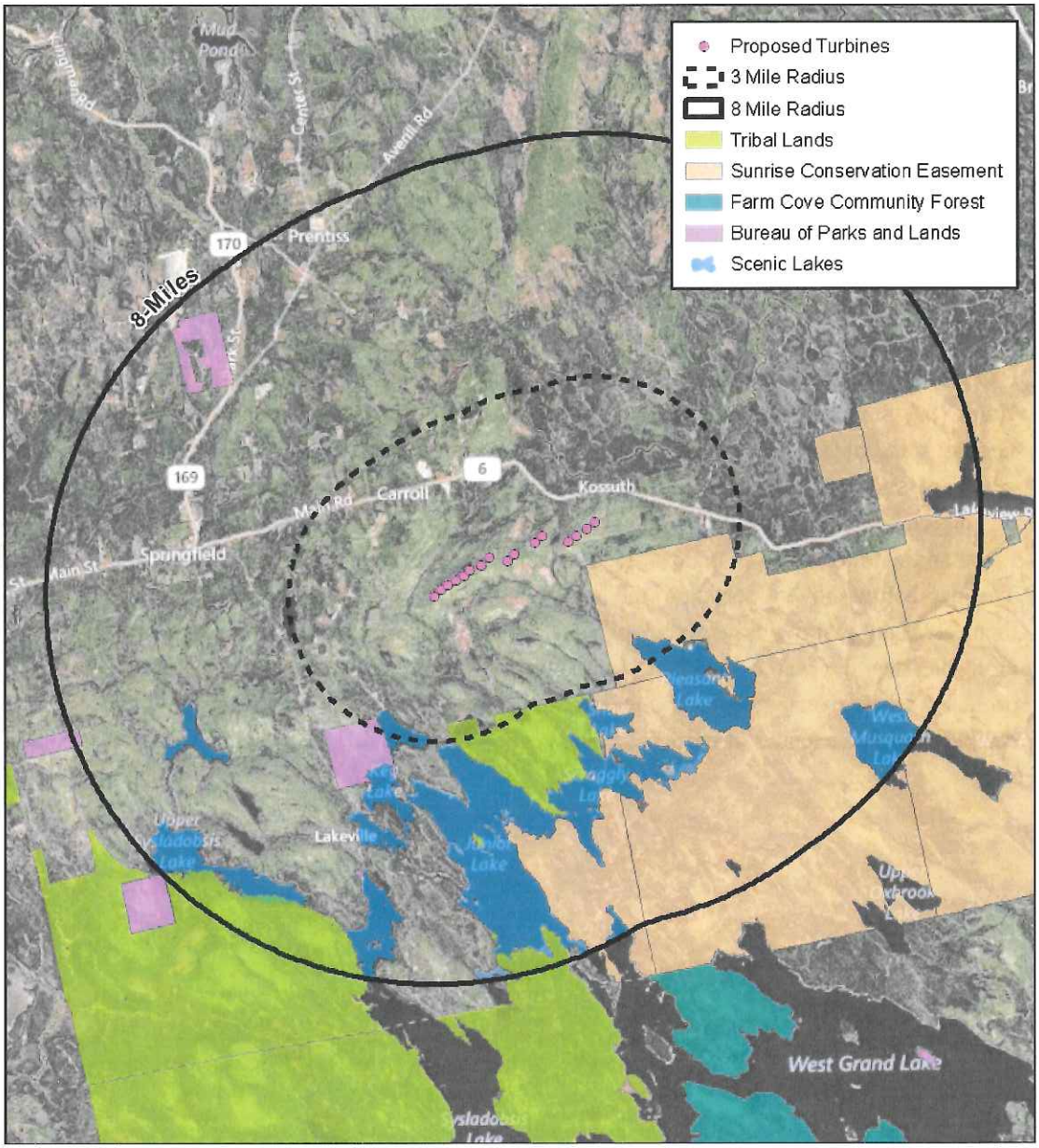
Compared to other regions of the state, this area has a minor road network and traffic volumes remain very low. The area's primary roads include Route 6, which runs east-west just north of the Project Site, Routes 170/169, which head north from Springfield, and a network of unimproved logging and other access roads. In fact, most of the activity along these roads is for forestry related purposes, and carry much of the logging truck traffic. The majority of roads are set within the surrounding topography, trees, and vegetation, which constrain views of the Project and provide limited long distance views of the regional landscape.



Source: 2010 CLUP, page 54

Although the Project area is not itself a tourist destination, it is located at the northern edge of the Downeast Lakes Data Region. The Downeast Lakes Data Region is one of seven regions identified in the 2010 Comprehensive Land Use Plan (CLUP) and consists of 1,169,000 acres or 11% of the Jurisdiction. It extends from Route 1 on the south and east, to Route 6 on the north, and

Interstate 95 to the West. Route 9 traverses the area. See CLUP at 54. The CLUP recognizes the Downeast Lakes Region for its natural features, including lakes and forests, and acknowledges the importance of the traditional forestry and fishing uses that occur therein and the communities they support. The region also includes significant conservation lands – most notably the Downeast Lakes Forestry Partnership's conservation project, which encompasses nearly 25% of Washington County (see map that follows). The project includes a mixture of easements, fee acquisitions, management plans, and other protective measures, ultimately conserving nearly 400,000 acres of forestland, a 500-foot-wide corridor along fifty miles of Spednic Lake and the St. Croix River (this corridor is now owned by the State of Maine), a 312,000-acre working forest conservation easement extending over lands south and east of the Bowers Project (the "Sunrise Easement"), and more than 33,000 acres of fee purchases owned by Down East Lakes Land Trust. The Sunrise Easement is located at the northern edge of the Downeast Lakes Region and lies just south of the Project area. The easement is primarily a working forest conservation easement, and it guarantees that the affected land will forever remain available for use as a commercial working forest with the perpetual ability to produce forest products, while conserving forest and wildlife habitats, undeveloped shoreline, and historic public recreation opportunities. The map below shows a portion of the lands within the Downeast Lakes Forestry Project, which themselves are part of a larger block of more than 1.3 million contiguous acres of protected lands along and near the Maine-New Brunswick border. The Project area sits outside of this area of protected lakes, rivers, streams and forests, and the 8-mile study area includes only the very periphery of this expanse of conserved land.

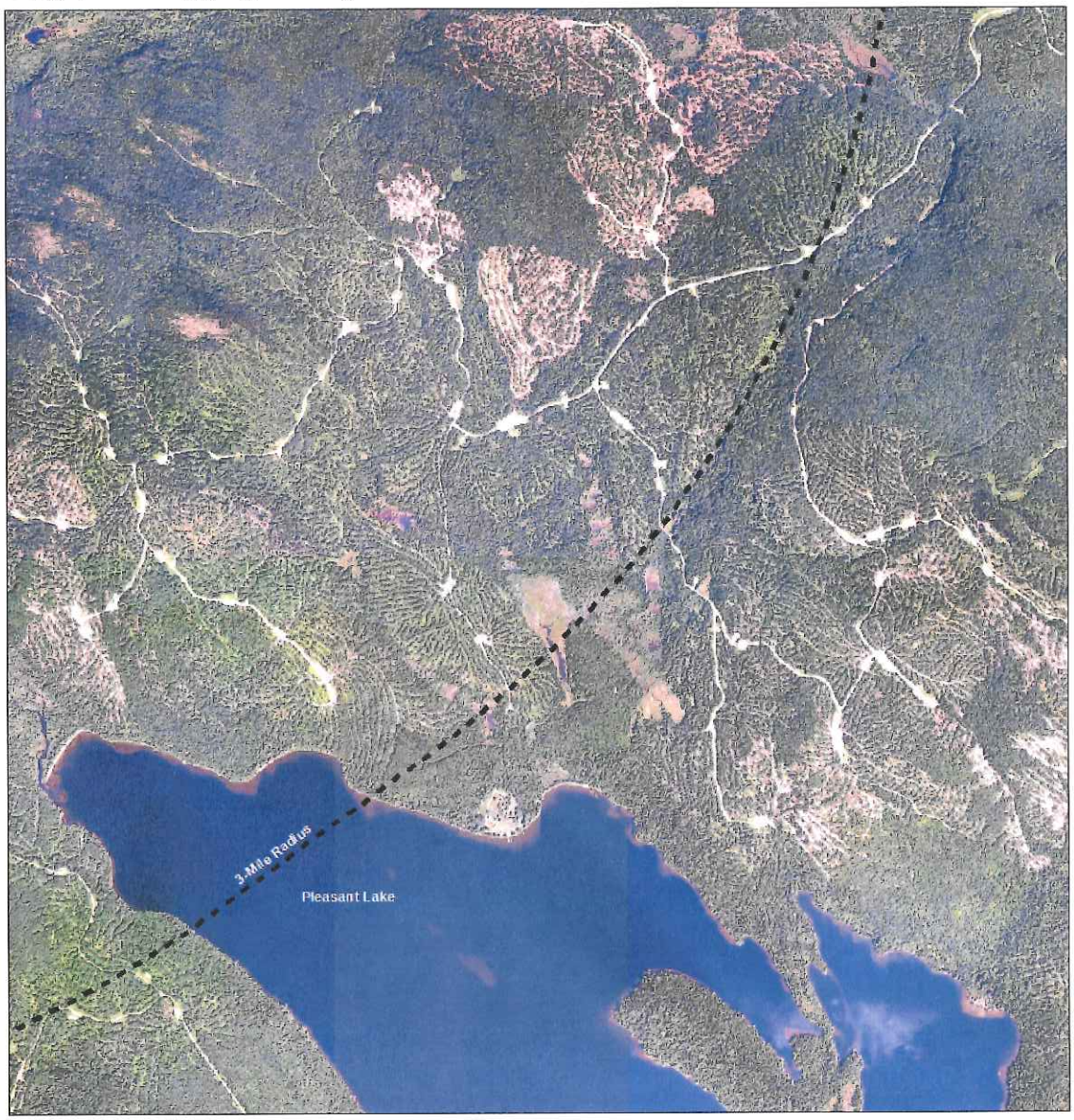


The CLUP also notes the unique community in and around Grand Lake Stream Plantation. CLUP at 54. This area, which is surrounded by the Downeast Lakes Forestry Partnership conservation lands, is host to a number of commercial sporting camps and guiding activity. See map on page 11. This area is located more than 18 miles from the Project and was specifically excluded from the expedited wind permitting area at the time of designation. In contrast, the Project area is part

of the expedited wind permitting area and as such was specifically determined to be appropriate for siting wind power.[7]

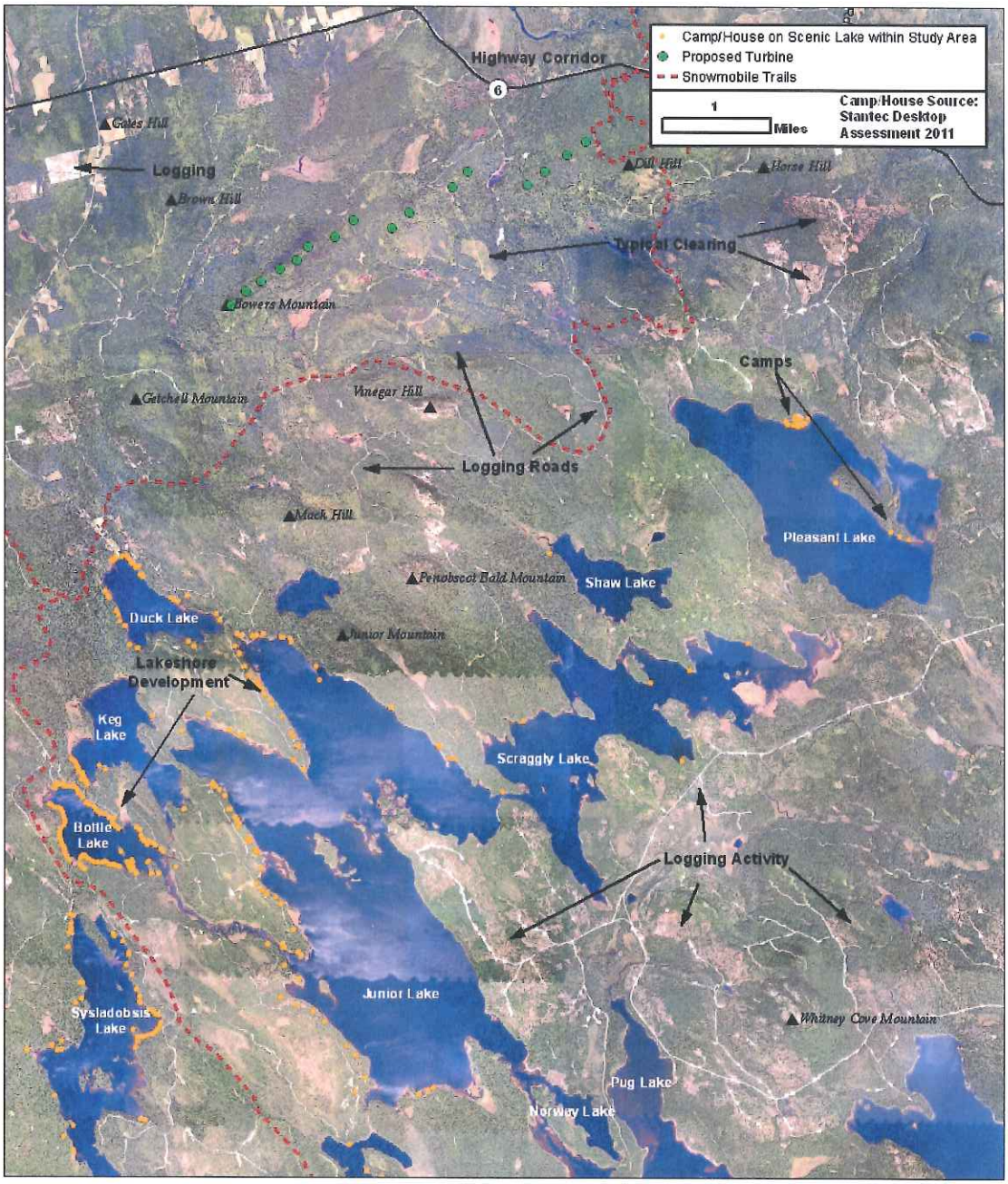
[7] The portion of the Project located in Carroll Plantation was determined by the Legislature to be appropriate for wind power when it enacted the Wind Energy Act. The portion of the Project located in Kossuth was subsequently added to the expedited permitting area by the Commission, when it determined that the proposed addition: 1) involved a logical geographic extension of the currently designated expedited area; 2) was important to meeting the State's goals for wind energy development; and 3) would not compromise the principal values and goals of the CLUP. Maine Land Use Regulation Commission Guidelines for the Review of Petitions for the Addition of Lands to the Expedited Permitting Area for Windpower Development at 4 (March 3, 2010, Revised April 6, 2011).

Diagram 1. Logging Activity



This aerial photo illustrates the extensive logging and associated clearing and access roads seen throughout the region. Logging activities are clearly visible from Pleasant Lake and several other lakes in the study area.

Diagram 2. Existing Land Use



4. The Visual Impact Assessment

4.1 Visual Impacts on Resources of State or National Significance

In determining whether a Project has the potential for significant adverse effects, 35-A MRSA §3451.9 specifically defines what constitutes a "scenic resource of state or national significance":

> "Scenic resource of state or national significance" means an area or place owned by the public or to which the public has a legal right of access that is:
>
> A. A national natural landmark, federally designated wilderness area or other comparable outstanding natural and cultural feature, such as the Orono Bog or Meddybemps Heath;
>
> B. A property listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, including, but not limited to, the Rockland Breakwater Light and Fort Knox;
>
> C. A national or state park;
>
> D. A great pond that is:
>
> (1) One of the 66 great ponds located in the State's organized area identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study published by the Executive Department, State Planning Office in October 1989; or
>
> (2) One of the 280 great ponds in the State's unorganized or deorganized areas designated as outstanding or significant from a scenic perspective in the "Maine Wildlands Lakes Assessment" published by the Maine Land Use Regulation Commission in June 1987;
>
> E. A segment of a scenic river or stream identified as having unique or outstanding scenic attributes listed in Appendix G of the "Maine Rivers Study" published by the Department of Conservation in 1982;
>
> F. A scenic viewpoint located on state public reserved land or on a trail that is used exclusively for pedestrian use, such as the Appalachian Trail, that the Department of Conservation designates by rule adopted in accordance with section 3457;
>
> G. A scenic turnout constructed by the Department of Transportation pursuant to Title 23, section 954 on a public road that has been designated by the Commissioner of Transportation pursuant to Title 23, section 4206, subsection 1, paragraph G as a scenic highway; or
>
> H. Scenic viewpoints located in the coastal area, as defined by Title 38, section 1802, subsection 1, that are ranked as having state or national significance in terms of scenic quality in: (1) One of the scenic inventories prepared for and published by the Executive Department, State Planning Office: "Method for Coastal Scenic Landscape Assessment with Field Results for Kittery to Scarborough and Cape Elizabeth to South Thomaston," Dominie, et al., October 1987; "Scenic Inventory Mainland Sites of Penobscot Bay," Dewan and Associates, et al., August 1990; or "Scenic Inventory: Islesboro, Vinalhaven, North Haven and Associated Offshore Islands," Dewan and Associates, June 1992; or (2)

> A scenic inventory developed by or prepared for the Executive Department, State Planning Office in accordance with section 3457.

A summary of scenic resources of state or national significance that are located within an eight-mile radius of the generating facilities is provided in Table 1 below. Detailed descriptions and evaluations for each resource follow. Note that visibility is based on viewshed analysis from the hub and accounting for topography and 40-foot vegetation[8]. Viewshed analyses are used mainly as a point of departure for identifying areas that may have potential visibility. Viewsheds cannot be relied upon to represent what will actually be seen on the ground from a specific location. Not all turbines, or all parts of turbines, will be seen from every location.

Table 1. Summary of Resources of State or National Significance Within 8 Miles

	Town	Status [Significant (S), Outstanding (O)]	Nearest Visible Turbine	Distance to Nearest Visible Turbine[1]	# of Turbines Potentially Visible within 8 Miles[1] (16 total)
GREAT PONDS					
Within 3 miles of the Project					
Duck Lake[2]	Lakeville	State (S)	T 1	2.7 mi.	0-14
Pleasant Lake[3]	Kossuth Twp & T6 R1 NBPP	State (O)	T 13	2.4 mi.	0-16
Within 3-8 miles of the Project					
Bottle Lake	Lakeville	State (S)	T 1	5.1 mi.	0-10
Horseshoe Lake	Lakeville	State (S)	No Project Visibility within 8 Miles		
Junior Lake	Lakeville & Pukakon Twp	State (S)	T 1	3.2 mi.	0-13
Keg Lake	Lakeville	State (S)	T 1	3.7 mi.	0-12
Lombard Lake	Lakeville	State (O)	No Project Visibility within 8 Miles		
West Musquash Lake	Talmadge & T6 R1 NBPP	State (O)	No Project Visibility within 8 Miles		
Norway Lake	Pukakon Twp	State (S)	No Project Visibility within 8 Miles		
Pug Lake, West Grand Lake	Pukakon Twp	State (O)	T 1	7.7 mi.	0-6
Scraggly Lake	Pukakon Twp & T6 R1 NBPP	State (S)	T 1	4.1 mi.	0-16
Shaw Lake	Pukakon Twp & T6 R1 NBPP	State (S)	T 13	3.5 mi.	0-14
Sysladobsis Lake	Lakeville	State (S)	T 1	6.3 mi.	0-10
Upper Sysladobsis Lake	Lakeville	State (S)	No Project Visibility within 8 Miles		

[8] 40-foot tree height is very conservative for this area and can have a significant impact on potential visibility. Tree heights in this region are more characteristically 65 feet or higher.

	Town	Status [Significant (S), Outstanding (O)]	Nearest Visible Turbine	Distance to Nearest Visible Turbine[1]	# of Turbines Potentially Visible within 8 Miles[1] (16 total)
NATIONAL REGISTER OF HISTORIC PLACES					
	Town		**Project Visibility**		
Springfield Congregational Church	Springfield		None		

[1]Based on visibility from the hub and accounting for topography and 40-foot vegetation.
[2]About 3/4 of the lake is within the 3-mile radius.
[3]About 1/4 of the lake is within the 3-mile radius.

4.1.1 National Natural Landmarks

There are no national natural landmarks, federally designated wilderness areas or other comparable outstanding natural or cultural features such as the Orono Bog or Meddybemps Heath within 8-miles of the Project.

4.1.2 National Register of Historic Places

There is one property within the 8-mile radius of the Project that is listed on the National Register of Historic Places: Springfield Congregational Church. The gothic revival church, built in 1852, is located along Route 6 in Springfield, more than 5 miles from the nearest turbine. There will be no visibility of the Project from this location due to intervening topography and surrounding vegetation.

4.1.3 National or State Park

There are no national or state parks within 8-miles of the Project.

4.1.4 Segment of River or Stream

There are no segments of a scenic river or stream of state or national significance within 8-miles of the Project.

4.1.5 Scenic Viewpoint

There is state land on shores of other scenic resources of state or national significance, but there are no scenic viewpoints located on state public reserved land or on a trail that is used exclusively for pedestrian use designated by the Department of Conservation within 8-miles of the Project.

4.1.6 Scenic Turnout

There are no scenic turnouts constructed by the Department of Transportation on public roads designated as scenic highways within 8-miles of the Project.

4.1.7 Scenic Viewpoints in Coastal Areas

There are no scenic viewpoints in coastal areas, as defined by Title 38, section 1802, subsection 1, within 8-miles of the Project.

4.1.8 Great Ponds with Outstanding or Significant Scenic Quality

There are two great ponds located within 3-miles of the Project, and twelve within 3-8 miles that are listed in one of the two designated state inventories ("Maine's Finest Lakes" study or "Maine Wildlands Lakes Assessment") as having outstanding or significant scenic quality. Five of these lakes do not have any visibility of any turbine within eight miles and include Horseshoe, Lombard, West Musquash, Norway and Upper Sysladobsis Lakes. An evaluation of the potential impact to the other 9 lakes with visibility of the generating facilities within 8 miles was conducted using the six criteria outlined in 35-A MRSA §3452.3, and as identified in Section 2.2 of this report. The detailed analysis is provided in Section 4.3 that follows.

4.2 Considerations for Evaluating Scenic Impact

4.2.1 Methodology for Evaluating the Statutory Criteria

LandWorks has outlined the methods and indicators used in this analysis that were used to evaluate each of the criteria set forth in the Act. The indicators, taken collectively, help determine each criterion's contribution to or potential effect on scenic impact.

Based on the evaluation of the indicators, each criterion is given a rating of Low, Medium or High (i.e. if the significance of a resource [criterion A.] is found to be Low, then that criterion's potential effect on scenic impact is also Low). Likewise, one criterion can affect the interpretation of another criterion (e.g. the character of the surrounding area [criterion B.] can influence viewer expectations [criterion C.]). For example, a pristine lake with a unique and diverse landscape would have a greater effect on viewers' expectations of scenic quality than a highly developed lake with discordant intrusions.

The factors considered for each of the statutory criterion include:

A. *Significance of the Scenic Resource* – The assessment of this criterion is based on official state documentation of the resources, field observations and subsequent analysis, surveys conducted for the project, and research of recreational and tourism guides/websites. Indicators include but are not limited to:
   - resource ratings as designated or defined in the Maine Wildlands Lake Assessment ("Assessment"), Scenic Lakes Character Evaluation in Maine's Unorganized Town's[9] ("Evaluation"), Maine's Finest Lakes, The Results of the Maine Lakes

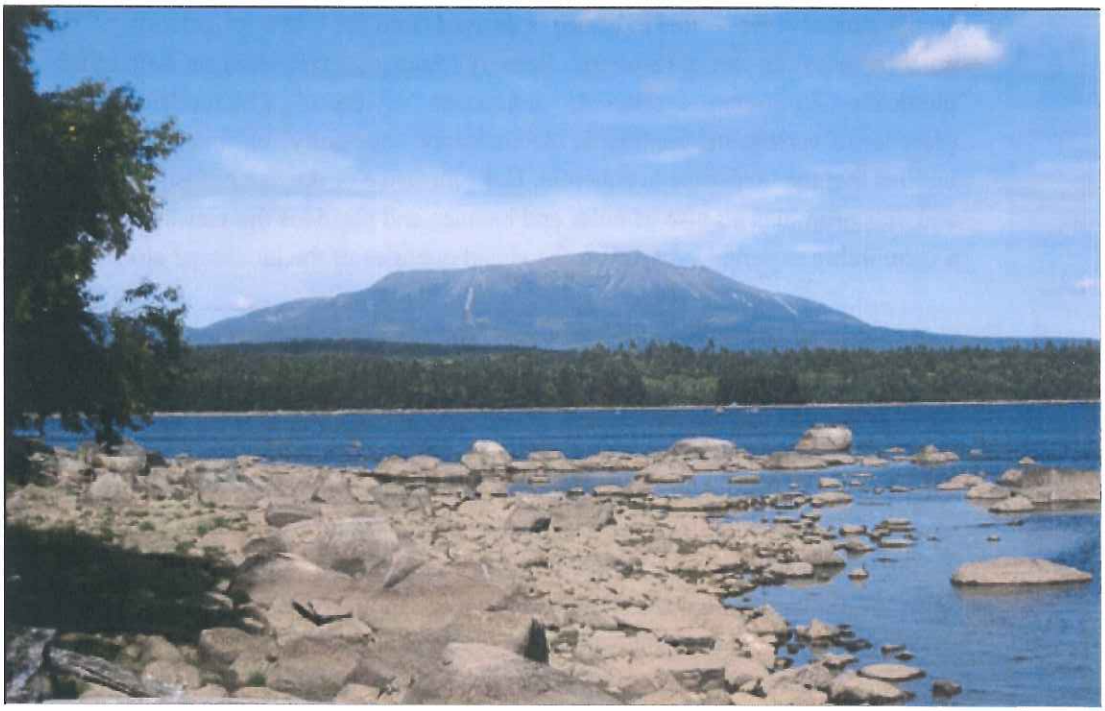
[9] Findings from this report were used to identify which lakes were ranked as "Outstanding" or "Significant" in the Maine Wildlands Lake Assessment using a scoring and rating system. Specific rating numbers are only provided for lakes characterized as "Outstanding". Lakes that are ranked "Significant" or "Scenic" are given ratings of High, Medium, Low or None in the appendices. Scores for individual criteria are therefore assumed for "Significant" lakes based on the methodology in the study that defines the range of points for Low, Medium, and High, which include:
- Relief: High=30, Medium=20, Low=10
- Physical Features: High=25 points, 4 of 7 features, Medium= 15 points, 2-3 of 7 features, Low= 10 points, 1 of 7 features. Additional points were given if a single feature was dominant or if the density and distribution of islands was high.

Study ("Study"), and LURC's (now LUPC) 2010 Comprehensive Land Use Plan[10] ("CLUP"). Much has changed since the Maine Wildlands Lake Assessment and Maine's Finest Lakes reports were completed more than twenty years ago. Lakeshores have been developed, access roads have been cleared and people's perceptions have changed. Accepted methodologies for determining scenic quality and significance have also been clearly defined and adopted. While these important studies identify which lakes need to be evaluated under the Act, the studies are not the only indicator of significance.

- frequency of use – in some instances but not necessarily all a well-used resource could indicate a higher value or significance ascribed to that resource, if the high use is due to the resource's exceptional or one-of-a-kind feature(s).
- the unique, distinctive or exceptional character of the scenic resource as it exists today – is the resource typical of the region, or does it have special, memorable qualities unlike any other in the area? This indicator considers the physical character of the resource (i.e. landform, vegetation, shoreline configuration, and other special features), and the integrity and condition of the landscape. It takes into account what is established by the reports in bullet point 1, and applies those criteria to the resource, as it exists today. This indicator is informed by data research, relevant reports (i.e. 2010 CLUP), accepted methodologies, and most importantly, field study. Often, the greater the physical diversity and intactness of a landscape, the higher its scenic quality and significance. Landscapes that are very scenic or outstanding usually have intact, prominent distinctions between landforms, such as open water in combination with a steeply rising mountain, or have unique focal points and distinct, memorable profiles. The striking view of Mount Katahdin from the Penadumcook Lakes is a good example of a unique and memorable feature, as compared to the undifferentiated profile of Bowers Mountain from Pleasant Lake (see photos that follow); and,

- Shoreline Configuration: High= 15 points, Medium= 10 points, Low= 5 points
- Vegetation Diversity: High=15 points, 3 or more vegetation communities, Medium=10 points, 2 vegetation communities and superstory trees, Low=5 points, 2 vegetation communities
- Special Features: High=15 points, Medium= 10 points
- Inharmonious Development: -20 points=Lakes with drastic fluctuation in water level. -10 points for "high" dominance of inharmonious feature, -5 points for "moderate" features, no points subtracted for inharmonious development rated "Low or None".

[10] CLUP Appendix C – Lake Management Program provides "Management Class" ratings for each of the lakes, which are defined as:
2 Esp high value, accessible, undeveloped
3 Potentially suitable for development
4 High valued, developed lakes
5 Heavily developed lakes
7 All lakes not otherwise designated



View of Mount Katahdin from Penadumcook Lake

View of Bowers Mountain from Pleasant Lake

- scenic attractiveness – this indicator is derived from the USFS articulation of "scenic attractiveness" as part of its overall Scenery Management System set forth in the publication *Landscape Aesthetics*.[11] It assesses "vividness", which relates to the presence of variety and contrast in the landscape and "unity" or "intactness" which implies that the landscape is coherent, lacks intrusive or uncharacteristic elements and thus promotes a sense of order and balance and provides the viewer or user with a memorable experience based on the visual qualities of the landscape alone.

B. *Existing Character of the Surrounding Area* – The assessment of this criterion is based primarily on field observations and analysis of aerial photography as well as document research. Indicators include but are not limited to:

- the overall landscape of the scenic resource and its surrounding environs – what is the natural character of the surrounding area in terms of geology/hydrology, forest cover, topography, etc.? Are there diverse vegetation types, distinct geological formations, water bodies, etc. within the immediate area? Observing the character of the surrounding area helps to inform our understanding of the scenic qualities and sensitivity of the landscape to change.
- the types of land uses and activities that occur in the vicinity of the resource, which include not only what you see from the resource, but what you see as you approach the resource or what is present in the area of the resource but not necessarily visible (i.e. chainsaws, gravel extraction, ATV's) – does one travel through a remote, pristine wilderness as they approach the resource, or are there other land use activities and development that would affect the perceived character of the resource (i.e. power lines, logging roads, residential development, etc.). Observing the character of the surrounding area helps to inform our understanding of the scenic qualities and sensitivity of the landscape to change.

[11] *Landscape Aesthetics* A Handbook for Scenery Management, United States Forest Service Agriculture Handbook Number 701, pp. 1-15 - 1-18.

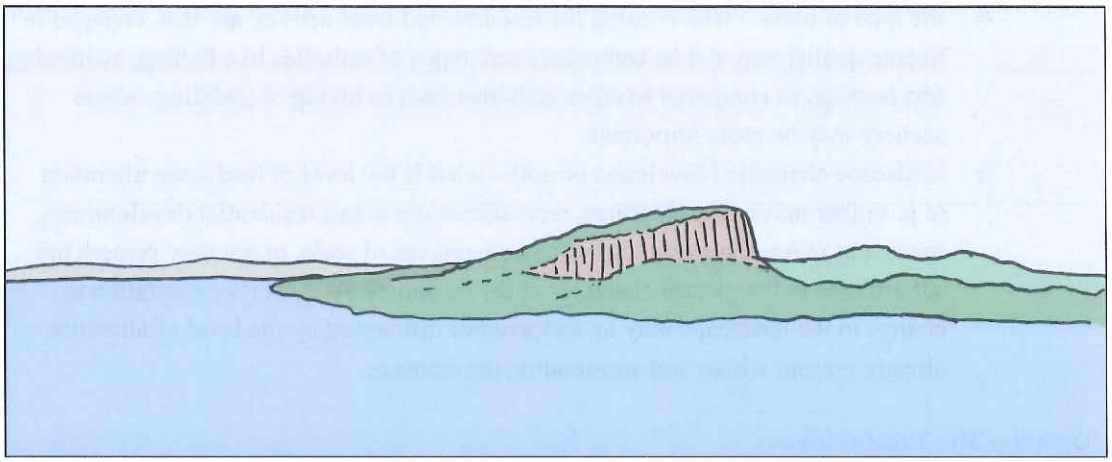


Diagram 3. Example of a distinct landscape with unique or singular scenic qualities due to the geology and geomorphology of the terrain.

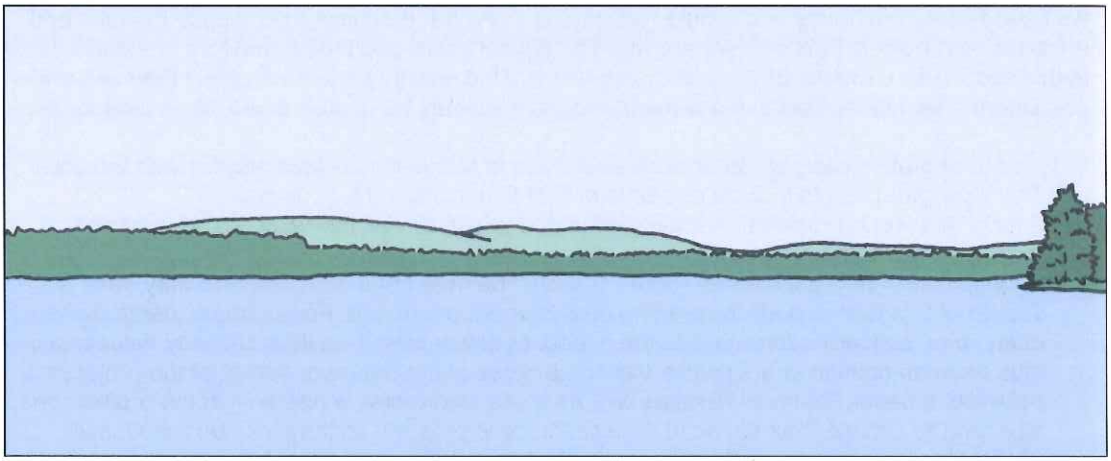


Diagram 4. Typical character of the landscape and terrain as viewed from lakes within the vicinity of the Project Site. Note the subtle, rolling terrain with low ridges and hills that lack unique scenic values or qualities and do not include distinctive geomorphological characteristics.

C. *Typical Viewer Expectations* – The assessment of this criterion is based on a multitude of sources such as background polling, user surveys, studies, guide books, publications, online media, anecdotal and interview sources, as well as general field observations and professional expertise. These sources are all listed in section 2.3.4 of this report and provide an objective and comprehensive body of evidence. As such, this assessment requires a judgment informed by both quantitative *and* qualitative data. Indicators include but are not limited to:

- demographics of the user – this includes: age, which can influence a person's attitude (i.e. younger people are generally more acceptable to change); location – a local resident or property owner can have an inherent bias (i.e. they have a vested interest or emotional tie), as compared to a tourist or visitor who may not;

- the type of users – who is using the resource and what activity are they engaged in? Scenic quality may not be central to some types of activities like fishing, swimming, and boating, as compared to other activities such as hiking or paddling, where scenery may be more important.
- landscape character (developed or not) – what is the level of landscape alteration (e.g. timber harvesting clearings, recreational use areas, residential development, roads, etc.)? Are the alterations dominant and out of scale, or are they present but subordinate to the overall character of the resource? A viewer's expectation to change in the landscape may be tempered or influenced by the level of alteration already present within and surrounding the resource.

Defining The Typical Viewer

The wind energy statute relies on the assessment of potential effects on the Typical Viewer (or User). There are potentially many facets to the typical user, and for the purposes of this analysis, we have focused on those who would typically be using the resource, in this case the lake and environs, and what is their primary activity. The typical users and their behaviors are summarized in this section as a means of understanding how a wind energy project will affect their use and enjoyment. The typical user in the Bowers Project area may be broken down into 4 categories:

1. An out-of-state visitor, or visitor from elsewhere in Maine who is less familiar with the area. This user group could include one-time or first-time camp renters as well.
2. A local year-round resident, normally expected to use or visit the resource as a primary recreation destination.
3. A camp owner or regular camp renter. It should be noted that camp owners may have a vested or financial interest in resisting development or change. For example, camp owners often voice concern with regard to the impact of development on their property values, and thus have an opinion or subjective view regardless of the nature or extent of the project's potential impacts. Camp owners, as well as those who recreate primarily in the project area, also tend to elevate their sense of the scenic value present, as they may be emotionally attached to the location, and less able to objectively balance the local scenic resource values in comparison to other more highly prized scenic resources found elsewhere.
4. Tribal users - The Passamaquoddy Tribe has significant land holdings along the shores of Junior, Scraggly, Shaw and Sysladobsis lakes, and have used the area lakes for many years. They 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.

For the Bowers Project area, the typical users identified include anglers, paddlers (canoe and kayak), motorboat enthusiasts, campers, ice fishermen, hunters, snowmobilers and ATV riders. Additionally, individuals come to the lakes in the project area for picnicking, wildlife viewing and to find relaxation. This review addresses the primary winter and summer users.

Anglers

Anglers come to the region for both warm and cold water fishing and may fish from shore, from a non-motorized boat or a power boat. Years of observation have yielded the conclusion that most anglers tend to fish along shorelines or in coves, rather than out in the broad lake areas, where rougher waters and boat traffic can affect fishing. Additionally, there is some evidence that scenic quality is less important to people engaged in fishing and motor boating as opposed to hiking and paddling. Guided fishing appears to be limited in the project area due, in part, to its distance from the locus of the guide services in the Grand Lake Stream area.

Paddlers

Paddlers include those using canoes and kayaks, or in some instances rowboats. Canoes are flat-water boats (unless motorized, and even at that are not amenable to larger waves or wind that can be regularly found in the lakes of the project area). Canoes are commonly used for short distance paddling, with the key exception of canoe camping trips. Although paddlers tend to be more interested in scenery, their focus is not on one fixed object over long periods of time – it is almost impossible when on a water body for the eye to remain fixated on one object. In fact the proximity to the water and the shore, where paddling for the most part occurs except when going from point to point across a waterbody, is what draws the paddlers interest, attention and focus. Wildlife is more likely to be observed close into shore. Nesting birds, waterfowl, otters, moose, for example, and the interest of the shoreline is what adds substantially to paddler's enjoyment. That is not to say that paddlers do not enjoy and take in longer distant scenic views – they do. Their focus though is on the breadth of views, not a single object for long periods of time. Each of the lakes in the project area has 360° views of hills, shorelines, islands, camps, etc. and these are elements that draw the paddler's eye. In fact, field study has led to a conclusion that once a paddler takes in a wind energy project and acknowledges it's presence, other elements and views do draw the eye, and the prominence or presence of the turbines diminish in a focus.

Campers

Most of the tent sites on these lakes are set in wooded locations and will not have full on or extensive views of the project turbines. Campers are typically engaged in food preparation, reading and relaxation, perhaps swimming and fishing once their paddling or boating activity for the day is over. The highlight of many camping adventures is the time spent around the campfire and in the evening hours after a day's adventure.

Given that the tent sites are not directly in the project's viewshed, and that the activities are typically focused around the campsite itself, the camping experience will not be significantly affected by a wind energy project. Night lighting of selected turbines might be a factor for stargazing – but only as a distraction, not as an element that will directly affect night sky clarity or visibility. As stated elsewhere in this assessment, it is planned that the project will employ lighting that is only triggered when aircraft are in the vicinity – and thus in that case there will be negligible, if any impact to campers from the Project at night. As stated, campers are also using the lake for swimming and other water related activities. There is evidence in other surveys and analyses that impacts to this user group are not unacceptable.

Snowmobilers/ATV users

There is specific evidence and information that those who recreate with motorized vehicles are less sensitive to wind energy development, and, in fact, embrace it. These recreationists enjoy the thrill of traveling through the landscape and are not typically fixated on scenery nor do they typically require peace and tranquility and unfettered views as a key component of their experience.

The letter of support from the Maine Snowmobile Association submitted to the LURC and dated 7-20-2011, is evidence that this user group does not object to visibility of turbines and specifically finds this project compatible with their recreational uses and interests.

Ice Fishing

Ice fishing enthusiasts typically cluster in areas where the fishing is best. Ice fishing is conducted both inside and outside of ice fishing shacks that commonly appear in season. There is not extensive documentation about how this group views scenic resources, but generally speaking, anglers are focused on the fishing – not the view – and enjoy the camaraderie of fellow anglers.

D. *Purpose and Context of the Proposed Activity* – indicators include:

- This criterion directs the agency to take into account the purpose of the project, which is to generate clean renewable energy, and the context of the project, which is part of a broader policy to encourage the siting and development of wind energy projects within the expedited permitting area. This criterion is not site-specific, but is a more general requirement that the agency consider state policy to encourage the siting of wind energy projects within the expedited permitting area when determining the reasonableness of the visual impacts. 35-A M.R.S.A. §3402(2). Because it is not a resource-specific factor, this is not included in the lake-by-lake discussion. For consistency with evaluation practices prepared for other projects, we have included it in Table 2.

E1. *Extent, Nature and Duration of Public Use of the Scenic Resource* – The assessment of this criterion is based on a multitude of sources such as background polling, user surveys, studies, guide books, publications, online media, anecdotal and interview sources, as well as general field observations and professional expertise. These sources are all listed in section 2.3.4 of this report and provide an objective and comprehensive body of evidence. As such, this assessment requires a judgment informed by both quantitative *and* qualitative data. Note that this criterion does not assess impact to scenic quality, but simply what is the use and how frequently is it used and by whom. This criterion then provides the information necessary to assess viewer expectations and effect on continued use and enjoyment of the resource.[12] Indicators include but are not limited to:

- the type of users – who is using the resource and what activity are they engaged in?
- frequency and duration of use – this indicator asks the question, how many people use the resource, how often, and for how long? A resource that receives low use could but does not always indicate a resource of lower significance. Low use does indicate that fewer people would be affected. Do people fish from a particular shore location or is most fishing from boats at numerous locations throughout the lake? Are there typical patterns of boat travel?
- ease of access – resources that are more difficult to access are typically less visited and therefore experience lower overall use.
- extent and types of facilities – resources with available and attractive facilities such as campgrounds, boat launches, picnic areas or beaches, tend to draw in more users.

[12] Note that a resource that receives low use (and subsequently a low rating for E1) but has high scenic quality, such as a remote pond, could still receive a high overall scenic impact rating based on contributions from other criteria. Likewise, a resource that has a high use (and subsequently a high rating for E1) but has low scenic quality due to shoreline development or other considerations could still receive a low overall scenic impact rating based on contributions from other criteria.

E2. *The Project's Effect on Continued Use and Enjoyment of the Scenic Resource* – The assessment of this criterion is based on a multitude of sources such as background polling, user surveys, studies, guide books, publications, online media, anecdotal and interview sources, as well as general field observations and professional expertise. These sources are all listed in section 2.3.4 of this report and provide an objective and comprehensive body of evidence. As such, this assessment requires a judgment informed by both quantitative *and* qualitative data. Indicators include but are not limited to:

- a number of factors can inform this indicator, including the viewer's association with the resource (e.g. landowner), attitude towards wind, the type of activity the viewer is engaged in, the nature and extent of visibility, and whether there are options for experiencing the resource without viewing the Project, if visibility of the Project is considered undesirable by the user. In effect, this is the key issue in terms of impact to users of the resource – will they come back? This criterion is analyzed by synthesizing all the information reviewed under the other criteria as well as through the application of user surveys and other available data.

F. *Scope and Scale of Visibility from the Scenic Resource* – The assessment of this criterion is based primarily on desktop analysis of project visibility using a variety of tools (e.g. viewshed analysis, visual simulations, spatial analysis), in concert with field observations and professional expertise. This analysis helps reveal both the qualitative nature of the project and the quantitative aspect of potential project visibility. Indicators include but are not limited to:

- the number and extent of turbines visible - this category accounts for the number of turbines visible and the extent of that visibility i.e. how much of the individual structures and rotors are visible, such as 1) most of or a portion of the tower and all of the nacelle and blades, 2) just the nacelle and blades, or 3) just portions of the blades. Visibility in the landscape does not automatically translate to an adverse or high scenic impact.
- proximity or distance of turbines - aesthetic experts agree that the visual impact of wind turbines diminishes over distance. They employ techniques that assess background, middleground and foreground views. The *National Forest's Handbook on Scenery Management*, which is based on years of research and work in the National Forest, and is relied on as a basis for visual assessment by professional and regulatory review bodies, identifies the fact that visual impact is based, in part, on the "degree of discernible detail" and that the background of a view has less detail, insofar as "texture has disappeared and color has flattened." The Handbook also sets forth the use of distance zones and indicates that with increased distance the "concern" level for visual impact or impacts to overall scenic integrity lessens. As such, the use of distance zones is used in this Visual Impact Assessment as one methodology for helping to determine the impact of the Project's visibility. This

analysis uses the following classes, which are derived by the work of the Forest Service, but are refined and based on our own experience with wind projects:

- **Foreground: 0 to 2 miles**[13]
  This is the distance from which details can be perceived, such as color, texture, and form. Turbines may appear very large and can dominate the view.
- **Middleground: 2 to 5 miles**
  Individual forms are still distinguishable, such as trees or large boulders, but are generally viewed as a mass or part of the broader landscape. Color, texture, and other details become subordinate to the greater whole. With increasing distance, turbines will appear smaller and smaller. At 5 miles, turbines will be visible, but will not typically dominate the view since they are viewed as a part of the overall landscape. However, visual impact must be determined on a case-by-case basis to account for distance, context, landform, human activities, and other contributing features.
- **Background: Beyond 5 miles**
  Texture is no longer distinguishable and color is invariable. Ridgelines and horizon lines are the prevailing visual characteristics. Intervening and/or nearby visual conditions, development and landscape elements reduce the eye's tendency to focus on more distant objects in the background. Atmospheric conditions have an increasing affect on visibility of forms and details in the background zone, in particular on cloudy or haze days common in Maine. The visibility of individual blades, which are usually around 6 feet plus or minus at their widest point, and the entire rotor assembly, is diminished with distance. The perceived size of turbines in this zone is greatly reduced, rendering them less prominent and often insignificant in the overall view. Beyond 7 miles there is widespread agreement among aesthetic experts that the "visual presence" of wind turbines diminishes sufficiently so as to render the project's visual impact insignificant.[14] The Act has determined that the visual impact of wind turbines beyond 8 miles is insignificant.

- angle of view – a turbine array that occupies a narrow angle of view typically has less visual impact than one that occupies a wide angle of view. Numerous factors can affect the angle of view from a given vantage point, including number of visible turbines, distance, and location of viewer in relation to the turbine array alignment (i.e. broad view vs. head-on view down a line of turbines). The human field of view for stereoscopic vision is approximately 120 degrees, while our peripheral vision extends to approximately 180 degrees. The central angle of view occurs within 40-60 degrees and is the area that most highly influences human perception of a scene,

[13] Because turbines are larger than other elements normally viewed in the landscape, and the details of which can be perceived beyond the ½ mile limit established by the Forest Service distance zone criteria, foreground distance in this assessment has been extended out to 2 miles.

[14] *Wind Energy and Vermont's Scenic Landscape: A Discussion Based on the Woodbury Stakeholder Workshops* by Jean Vissering, Landscape Architect

given a fixed viewing direction. The simulations prepared for this report depict this central angle of view. Vantage points within open areas such as lakes typically allow for 360-degree views, and in such cases a proposed project may occupy a limited portion of this overall view (See Exhibit 23: Pleasant Lake 360 Degree Panorama). The accompanying diagram presents the effect of distance on angle of view. When observing a project on hilly terrain, however, the angle of view from a closer vantage point can sometimes be reduced as some turbines become obscured by intervening topography and/or vegetation.

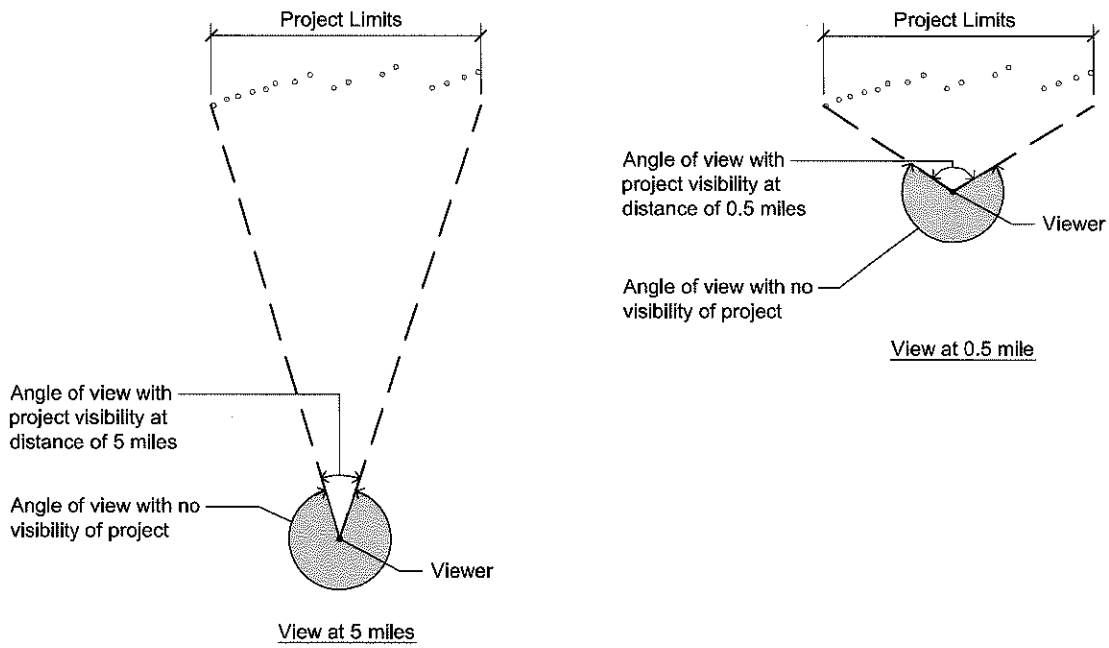


Diagram 5. Effect of Distance on View Angle

- duration of view – this indicator is based on whether a user will have a fixed and involuntary view of a project (higher potential for impact) or if the user will have a more limited exposure to the view (lower potential for impact) either due to the limited extent of visibility from the resource or because the context and nature of the user's activity allows for other unaffected views. For example, a scenic pull-off with static, unchanging views focused entirely on a project site would have a higher potential impact, even though a visitor may only stay at the site for 5 to 10 minutes. This would compare to a fisherman on a lake who may have continuous views of a project, but those views would be tempered by the activity (i.e. focusing on the water and not the extended view), shifting location and altering context and viewpoint, and access to 360° views. In this situation, the potential for impact lessens, because, although views would be present, they would be ever-changing and mitigated by the activity.

- visual absorption – the Forest Service employs a concept called visual absorption capability (VAC) as a tool to assess a landscape's susceptibility to visual change caused by man's activities. In other words, it is a measure of a land's ability to absorb alteration, yet retain its visual integrity. The concept of visual absorption helps us understand the significance of visibility and is also helpful in understanding how the Project fits into the landscape more generally. A landscape defined by numerous rolling hills is more able to visually absorb a wind project than one that is located on a sole hill surrounded by a flat landscape. Landscape Aesthetics: A Handbook for Scenery Management, a key reference document in the field of aesthetic assessment, lists a number of factors affecting VAC, including:
  - Variety or diversity of landscape pattern- particularly the amount and extent provided by landform, rockform, waterform, or vegetative cover-affects visual absorption capability.
  - Tall vegetation, such as trees, screen and break up the visual continuity of landscape alteration. Short vegetation, such as grasses and low shrubs, does not.
  - Heavily patterned and diverse, dense vegetative cover, especially if mixed with waterforms like lakes, rivers or streams, break up the perceived continuity of landscape alterations. Homogeneous vegetative cover and lack of waterforms does not.

Example of landscape with LOW visual absorption capability: Big Spencer Mountain as seen from Lazy Tom Bog in Kokadjo, Maine, is a prominent feature in the landscape surrounded by relatively flat bog land and patches of woodland, with minimal topography and tree cover to limit views in the surrounding area.

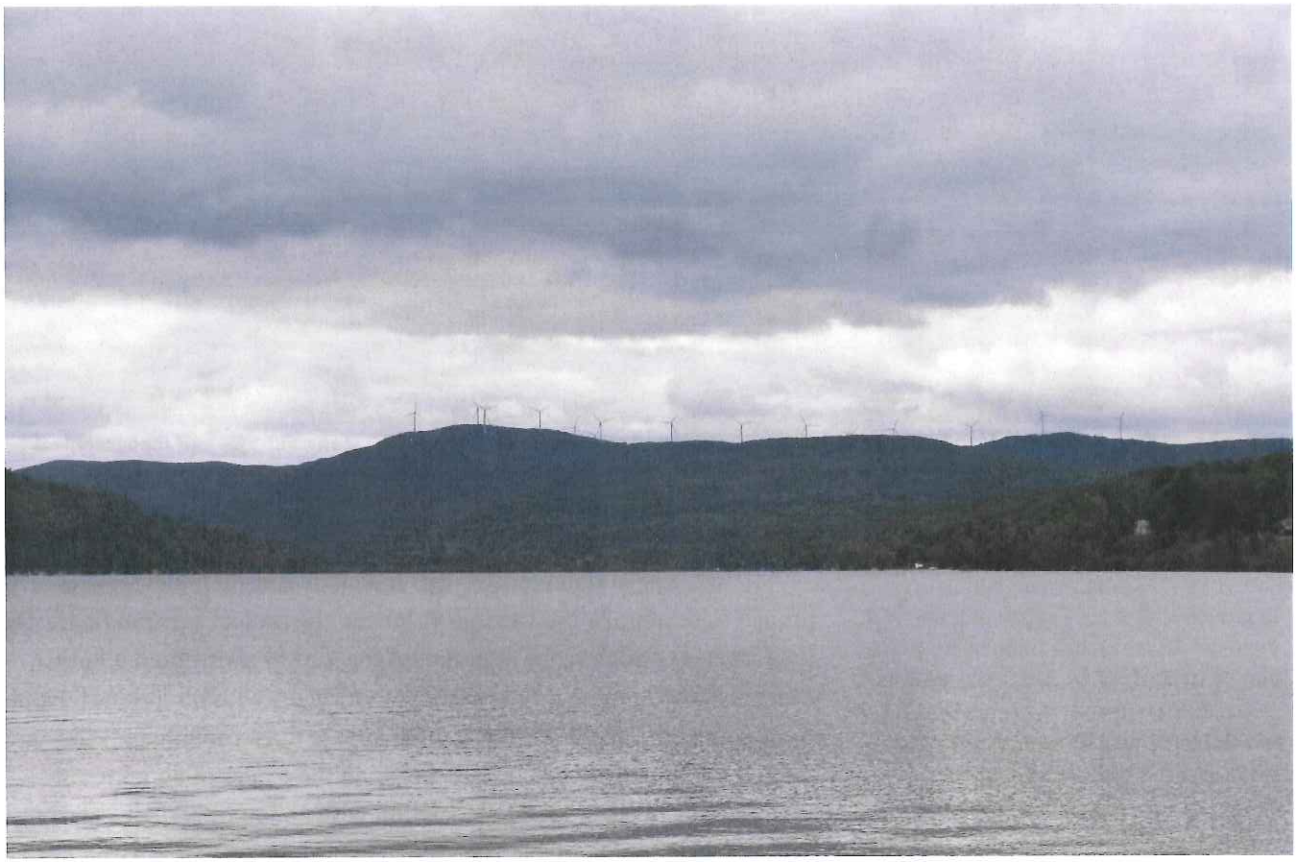
Example of landscape with MODERATE visual absorption capability: The many hillsides and topographical diversity around Bowers Mountain combined with a predominantly wooded landscape lessens potential project visibility and focuses viewers' interest in a number of directions.

In previous wind application proceedings, the term "looming" has been used, which can be defined as "to come into view as a massive, distorted, or indistinct image." We use the term "visual dominance" instead, since looming implies a negative connotation, or the highest degree of impact, before evaluation has even been conducted. Visual dominance, on the other hand, can vary in its degree of impact and allows for a more thorough understanding of potential effect (i.e. ranging from low to high to none at all).

- visual dominance – this indicator considers the scale of the project in relation to the vantage point and the project surroundings. Do the turbines command the attention of the viewer away from all other aspects of the landscape? Are there other ridges without turbines visible from a give resource? Turbines often appear most prominent if they are seen at close range (within a half-mile), in the center of an important view, and/or in close visual association with an important natural or cultural focal point. In addition, the height of the turbines in relation to the height and mass of the landforms below them affects visual dominance. Depending on factors such as distance and quality of the light, wind turbines can appear rather slender and light in comparison with the dark wooded landforms around them.
- landscape coherence/visual clutter – clusters of turbines or structures of different designs can create a potentially discordant appearance and reduce the coherence of the landscape. Turbines spaced in a linear fashion at regular intervals can be more aesthetically pleasing than turbines that overlap each other and appear jumbled.

4.2.2 Weather and the Effects of Atmospheric Conditions

Weather and lighting conditions can have a dramatic effect on the visibility of turbines. This region of Maine has a median daily cloud cover of 68% (partly cloudy) to 87% (mostly cloudy), with May and November being the cloudiest months.[15] White turbines in front of a white sky can be very difficult to discern even without the screening effects of low clouds or fog. Turbine visibility can sometimes be more pronounced on cloudy days, however, when thick clouds cast turbines in shadow with a light sky backdrop. Due to shifting cloud movements, lighting levels and quality can change significantly from one moment to the next (see photos that follow).

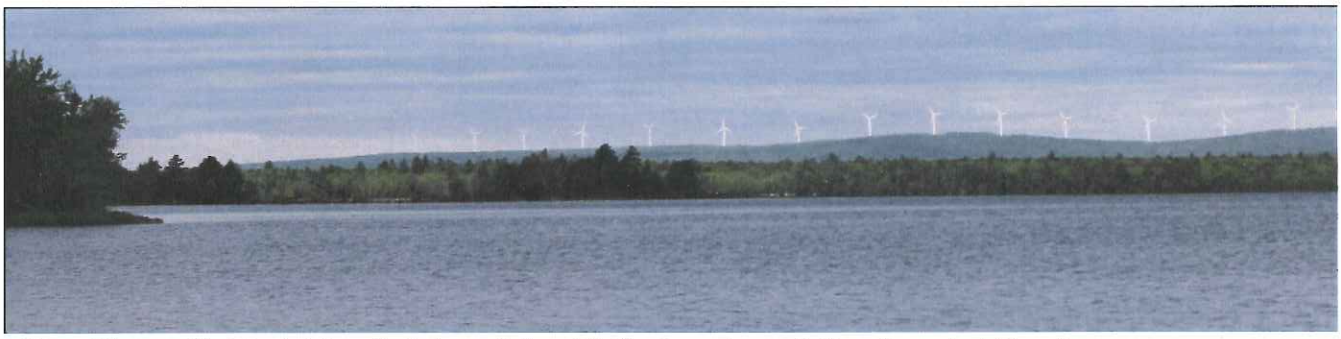


View of Sheffield Wind Project from Crystal Lake: with the project ridge cast in shadow, turbines are readily visible against a cloudy sky background.

[15] http://weatherspark.com/averages/29744/Bangor-Maine-United-States "This report describes the typical weather at the Bangor International Airport (Bangor, Maine, United States) weather station over the course of an average year. It is based on the historical records from 1974 to 2012."

View of Sheffield Wind Project from Crystal Lake: with diffused sunlight on the project ridge, the light turbines are very difficult to discern against a cloudy sky background.

The effects of weather and atmospheric conditions become more pronounced with distance. The photos of the Stetson Wind Project from Baskahegan Lake (shown below) illustrate how the shifting light conditions on a mildly cloudy day can dramatically affect turbine visibility from a relatively far distance.



View of Stetson Wind Project from Baskahegan Lake: with direct morning sunlight on the project ridge, the white turbines are readily visible against the darker sky background.

View of Stetson Wind Project from Baskahegan Lake: with diffused sunlight on the project ridge, the turbines are very difficult to discern against a light sky background.

Even on sunny blue-sky days, white turbines do not necessarily stand out in a striking way against a blue background when viewed from a distance. It is typically when turbines are heavily shadowed, which is dependent on the relative positions of the sun, turbines and viewer, their three-dimensional forms become more distinct. Backlighting of turbines can cast them in heavy shadow. The photo below shows turbines viewed in half-shadow from a location in Vermont. The effect of backlighting is minimized for the scenic resources of the Bowers Project, however, since the turbines are viewed generally from the south and looking north. For projects in which the viewer is on the north side, turbines would appear cast in shadow for much longer times of the day as the sun makes its arc across the southern sky.

View of Kingdom Community Wind project from Lowell: bright sunlight casts the turbines in half-shadow, making their 3-dimensional forms apparent against a blue sky background.

4.2.3 Tourism

The Downeast lakes area attracts tourists for fishing, hunting, boating, and other activities. The nearest tourist destination to the Bowers Project is the West Grand Lake and Grand Lake Stream area, located approximately 18 miles away. Project opponents have placed emphasis on the area's importance as a tourist destination and its centrality to the region. We do not dispute that West Grand Lake and the village are important tourist areas, but they are located well beyond the 8-mile limit set by the Act for evaluating impacts to scenic and recreational resources. The removal of turbines from Dill Hill has eliminated visibility of the Project from the village. The evidence indicates that recreational and guiding activities based out of that area take place predominantly on West Grand Lake and in the immediate vicinity, not on the lakes within the 8-mile Project radius.

Within the 8-mile Project radius, there are very few tourist attractions. Only three sporting camps, one of which is not operational, are located within the Project area. In online listings of hunting and fishing guides within the Downeast lakes region, there are limited guides based within the Project radius. Of nine individual guides' websites, only one includes any mention of a lake within the 8-mile radius. In the Kleinschmidt survey of lake users, only one person, out of 69 respondents total, reported using a registered Maine guide service. Nearly half of the people surveyed (45%) owned property on the lakes, and 87% were year-round or part-time Maine residents. Thus, visibility of turbines from the lakes within the Project radius is not expected to significantly impact the tourist activities based out of the West Grand Lake and Grand Lake Stream area. While the Project lakes are indeed used for boating and fishing, the comprehensive body of evidence reviewed suggests that they are not a significant tourist destination for the region.

Furthermore, there is evidence that the presence of turbines would not be incompatible with the recreational uses of the area. The area around the Project is a hub of commercial forestry, and

millions of surrounding acres are in active forest management. For more than 100 years, these uses have existed in concert with one another. Outdoor recreation and commercial forestry are not mutually exclusive pursuits, and the network of land management roads constructed by timber companies is used by thousands of hunters, fishers, boaters, wildlife watchers and other outdoor enthusiasts. Similarly, and as our experience and investigation here has shown, the presence of turbines in the viewshed of the lakes in the Project area and the continued recreation and use and enjoyment of those lakes are not mutually exclusive pursuits. Indeed, as the Baskahegan Study discussed in Section 4.2.4 demonstrates, visibility of turbines in the viewshed of Baskahegan Lake, which shares important attributes to the Project lakes, has not adversely impacted scenic quality or recreational use of that lake.

4.2.4 Public Perception of Wind

A. Overview

While utility scale wind turbines and arrays of such turbines - often referred to as "wind farms" - are relatively new to the New England region and the Maine landscape, wind generated power, and windmills themselves, have been in use in America since the first one was built on Manhattan Island in 1633. In fact, the seal of the City of New York has a windmill design as its centerpiece. Lithographs of Nantucket in the early 1800s show windmills above the bustling harbor. From the 1940s on, grid scale wind power has been developed in Vermont, with turbines on Little Equinox Mountain from 1986 to 1994 and with the Searsburg Wind Farm, which was developed in the late 1990's and is still in operation. Thus, the form and shape of the classic windmill is not new, nor is the notion of wind power being interconnected with and part of the working landscape.

The working landscape is now changing to accommodate new forms of energy generation, as represented by wind, solar and biomass. As John Stilgoe pointed out in his book *Landscape and Images*, "...the American vernacular landscape will change and change again, ceaselessly reflecting the unprecedented complexity and rate of economic, technical and social change...the vernacular landscape is often the first to indicate changes in lifestyle and attitude, because it is the built form that shapes the lives of most Americans."[16] Wind energy represents an example of technical change to accommodate the changing values and needs of our population. But change is often difficult to accept. When large scale manufactured metal silos were introduced into the agrarian landscape of New England in the mid 20th century, there were initial concerns about their visual impacts - they represented a change from the smaller scale wood strip and tile sided silos which were dwarfed by the larger, newer designs - those manufactured "Harvestore" type silos can now be seen on scenic postcards and are an accepted part of the pastoral landscape.

There is also an assumption among some that wind projects inevitably result in adverse visual impacts. However, it can be argued that many viewers see wind turbines as representative of

[16] John R. Stilgoe, *Landscape and Images*, (Charlottesville: University of Virginia Press, 2005).

technological innovation and beautiful examples of modern design that are representative of the well established design ethic of "form follows function." When considered in this context, wind turbines, with their towers and rotors, are simple, unadorned and elegant elements in the landscape that visually represent their purpose.

Research presented in the publication "Wind Power In View" has also highlighted increased public understanding and acceptance of wind generation as a viable alternative to fossil fuels; of relevance to placing wind farms in the Maine landscape is the view presented by noted landscape architect Robert Thayer, who stated that well designed and "well sited wind energy projects can achieve a serviceable beauty common to other working landscapes."[17]

In response to these factors and insights, and in relation to grid-scale wind projects in Maine, it is important to consider a number of key factors when assessing visual impacts from wind projects. These factors include: 1) the historic working landscape of the state that has tapped into its renewable resources; 2) a tradition of a resource based landscape that is not pristine and, in fact, has been utilized for extensive logging; and, 3) the public's increasing recognition that wind provides an alternative to other forms of more harmful and unsustainable energy generation.

There is also ample evidence that people adapt to changes they initially view as undesirable, in particular wind turbines. A number of local, national and international studies and reports have been conducted, which have addressed the public reaction to and acceptance of utility scale turbines, their towers and the associated landscape modifications required for the siting of such installations. While some of this has included misinformation, including a barrage of negative publicity that the Bowers project has received from organized opposition groups, there is a growing body of evidence which validates that **the presence of wind turbines does not unreasonably adversely impact either scenic quality or, importantly, the continued use and enjoyment of scenic and recreational resources.** This evidence includes intercept surveys conducted in Maine, surveys of users of a lake where there is significant visibility of the Stetson project, studies done in New England and elsewhere on the impact of wind turbines on tourism in the area, and public polling (see Section 2.3.4 for complete list).

B. Polls and User Surveys Relevant to Maine

Polling in Maine has demonstrated public support for wind power, including in areas of high scenic value. For example, a September 2009 Critical Insights on Maine survey, a comprehensive, statewide public opinion survey of registered voters that covers a variety of topics, indicated that 90% of Maine people support wind power development as a way to reduce our dependence on fossil fuels and produce jobs and other economic benefits.[18] A poll conducted

[17] Pasqualetti, Gipe, et al., *Wind Power in View*, (San Diego: Academic Press, 2002).
[18] Critical Insights, *Critical Insights on Maine* Tracking Survey: Residents' Views on Politics, the Economy & Issues Facing the State of Maine, November 2009

by the Pan Atlantic SMS Group for the Maine Renewable Energy Association (MREA) in May 2010, found that 88% support wind power statewide and 83% in the "rim counties," which are the rural counties where development of wind facilities is more likely.[19] A Critical Insights Maine voter preferences survey conducted in March 2011 found that 82% support development of wind power as a source of electricity.[20]

A number of wind power projects in Maine have utilized intercept surveys to evaluate public use, user expectations, and impact of project visibility on use and enjoyment of scenic resources. Although there are limitations to the intercept and other forms of surveys, they provide information on recreational uses and user expectations that, when synthesized with other data, helps inform our evaluation of the review criteria under the Wind Energy Act.[21] Portland Research Group, a professional market research firm, conducted two studies specific to the Project area. The first study was a telephone survey of users of outdoor resources in Maine (the "Telephone Survey"). The purpose of the study was to measure awareness and use of the lake resources in the Project area, and to understand both user expectations and the potential impact of turbine visibility on those users. Key findings from this survey include:

- **The Study Area is not well known as a tourist or recreational destination.** More than one-third of respondents (37%) are not aware of any of the lakes in the Study Area. Out of all the individuals asked, only five percent use at least one of the eight lakes mentioned from the Study Area more than just rarely.
- **The primary recreational use in this region is fishing.** Two-fifths (42%) of those who use the Study Area reported fishing as the outdoor activity they most frequently participate in, followed distantly by hiking (19%), camping (10%) and canoeing or kayaking (10%).
- **Users not adversely effected by seeing a wind farm.** The majority (52%) said seeing a wind farm would have no effect or a positive effect on their enjoyment of their visit.
- **Users are likely to return if a wind farm were in view.** Over two-thirds of the respondents (68%) were either more likely to return or would be unaffected by seeing a wind farm.
- **Users could go elsewhere if the view of a wind farm affected them.** Most respondents (84%) indicated that they could go elsewhere in Maine to participate in their outdoor activity of choice; three quarters (73%) of respondents for whom seeing wind farms would have a negative impact indicated that they could go elsewhere.

Although the Telephone Survey has its limitations, as noted in his expert report, Kevin Boyle concluded that it provides credible information to inform decisionmaking. See "Assessment of the Kleinschmidt Bowers Mountain Wind-Farm and Baskahegan Lake Recreational User Surveys," Expert Report of Kevin J. Boyle, PhD., October 1, 2012 ("Boyle Report"). Dr. Boyle

[19] Pan Atlantic SMS Group, *Report to MREA: Highlights of Survey Findings*, May 2010

[20] "Critical Insights: Maine Voter Preference Survey," Critical Insights, March 2011

[21] Surveys often times are self-selecting because only people with an interest in responding do so. Additionally, due to typically limited samplings, the results may not be statistically significant or necessarily reflective of broader trends. With that cautionary note, we believe the surveys done for this Project and others provide helpful insights.

notes that the similarity of findings provides "what researchers refer to as convergent validity; two different surveys provide similar results." Specifically, the telephone survey reinforces the results of the intercept surveys conducted by Kleinschmidt on four of the Project Lakes. Boyle Report at 18.

In his response to concerns raised by Dr. James Palmer on the Telephone Survey, Bruce Lockwood, the study's author, also noted that the results were consistent with other surveys and showed remarkably consistent attitudes toward wind farm development and its potential impact on recreational activities. See Lockwood Rebuttal Testimony in DP 4889 at 11.

Finally, Dr. Palmer noted that as compared to the age distribution reflected in Maine's 2009 SCORP, people between 18-44 years old were significantly underrepresented. The results, however, are consistent with the Kleinschmidt User Surveys, in which 76% of the respondents were 45 or older. Kleinschmidt User Surveys, Table 6. Thus actual users of the Project Lakes exhibit a different demographic than is reflected in the 2009 Maine SCORP data. Compare Maine DOC 2009 SCORP at A-36. Again, the consistency of results between the Telephone Survey and the Kleinschmidt User Surveys reinforces the strength of those results.

The second study was an intercept survey of snowmobilers who attended a ride-in at the Stetson Mountain project (the "Snowmobile Survey"). That study also sought to evaluate awareness and use of the lake resources in the Project area. Findings from this survey are very similar to the telephone survey and include:

- **The primary recreational use in the region is fishing.** Two-thirds of respondents (66%) indicated that fishing is their most frequent outdoor activity in the Study Area, followed by ATV riding (59%), and motor boating (52%)
- **Wind power in Maine is highly supported.** Almost three-quarters of respondents (72%) support the development of commercial-scale wind energy in Maine. One-quarter (25%) is neutrally disposed to it; none of those interviewed indicated a negative disposition.
- **Overall a wind farm in view would not negatively impact users enjoyment of the resource.** One-half (50%) indicated that seeing a wind farm would have a positive effect on their overall enjoyment, while only 5% indicated that this would have a negative effect.
- **Users would be likely to return if a wind farm were in view.** One-half (50%) indicated that seeing a wind farm would make them more likely to return to the region, while less than one-tenth (8%;) would make them less likely to return.

The Snowmobile Survey also has its limitations and cannot by itself be used to draw broader generalizations about impacts to other user groups. As noted by the study's author, Bruce Lockwood, however, there is evidence that the snowmobile respondents are users of the Project Lakes. The results are also consistent with other surveys. The Maine Snowmobile Association, which represents 288 snowmobile clubs statewide, indicated they support the Project and the

recreational opportunities it will provide. See July 20, 2011 Statement from Bob Meyers, Executive Director of the Maine Snowmobile Association. Accordingly, there is credible evidence that snowmobilers are a user group that does not object to the presence of turbines and does not believe that the Project will adversely affect their recreational experience. To the contrary, there is evidence that the Project will enhance their experience.

The Kleinschmidt Report provides the results of a comprehensive survey of recreational visitors to the Bowers Project Area. Information with regard to Respondent characteristics, Trip characteristics, Quality of experience, Scenic values, and Repeat visitation provides a clear sense of viewer expectations and responses to the proposed Bowers Wind Project. A total of 486 people and 123 boats were observed during the 12 days of survey work between May 25 and August 11, 2012, or an average of 5 boats per day. Approximately 1/2 of the surveys were conducted on Pleasant Lake, with the remaining split between Junior and Scraggly. No recreational users were observed on Shaw Lake.

Boat observations during surveying and separate boat counts on Junior Stream in 2011 and 2012 all provide insight regarding the type of boaters that most commonly use the lakes. Of the 31 boats intercepted during the 12 days of survey work, 29 (94%) were motor boats and only one was a canoe. Only one person out of 69 survey respondents reported using guide services. Kleinschmidt at 21. The Junior Stream boat counts, carried out over 11 days from July 4 to July 15, 2011, and 27 days between May 25 and August 11, 2012, showed a similar trend. In 2011, 39 boats were counted in total, of which 82% were motor boats, 15% were canoes, and 3% were Grand Lakers. The 2012 boat counts were spread out over a longer stretch of time in order to capture months that guides had indicated they used the lakes. Of the 90 boats observed in 2012, 82% were motor boats, 8% were Grand Lakers, 6% were canoes, 3% were kayaks, and 1% were freighter canoes. Kleinschmidt at 13. These results demonstrate that overall use of these lakes is low, and that the predominant use is motorboat use with very limited evidence of guiding or paddling.

Survey respondents did indicate there would be a diminishment of scenic values once the Project was completed, but a majority of respondents (55%) indicated that the Project, if constructed, would have no effect or a positive effect on their enjoyment of the lakes. In terms of the likelihood of visitors to return to the lake once the simulated conditions were in place (i.e. the Project was built), 80% indicated that the Project would have no effect or a positive effect on their likelihood to return. These results are provided in more detail and on a lake-by-lake basis in the Report, but the conclusions are instructive and support the permitting of this Project.

Dr. Kevin Boyle's review of both the Baskahegan and Bowers surveys reinforces this conclusion. As Professor Boyle states in the Executive Summary of his report: "The survey results indicate that the effect of the wind farm's 'presence on the public's continued use and enjoyment of the scenic resource will be minimal'. "He cites the fact that "while some people fear the construction

of the wind farm, the data (from the survey work) show that the Bowers Mountain wind farm is not going to have a significant adverse impact on recreational use and enjoyment of the lakes within eight miles of the project". The Baskahegan Lake surveys reinforce professor Boyle's conclusions by readily demonstrating that the Stetson Wind Project, already in place, has not substantially reduced recreational user's perception of scenic qualities on that lake. This is demonstrated by the continued use and enjoyment of the lake and its resources, all within direct view of the Stetson turbines.

Boyle continues in his review to address the survey process as being a "best practice" approach "consistent with established survey-research procedures." (p. 5). This is a clear indication of the reliability of these surveys and supports the reliance on their findings in developing this visual assessment and its related conclusions. Additionally, Professor Boyle's background in user studies with regard to natural resources in Maine and elsewhere and his research on how lake qualities affect lake user preferences further substantiates his expertise and enables LandWorks to incorporate both the findings of the surveys and Professor Boyle's conclusions in our understanding of how the Project will affect the lake based recreational activities of the typical user. Professor Boyle interprets the survey results in detail, noting differences in responses from lake to lake and providing a basis for understanding these differences.

Overall, the conclusions in both the Kleinschmidt Report and Professor Boyle's Assessment reinforces findings from other surveys administered in concert with proposed wind energy projects. The one exception is a survey conducted by the Partnership to Preserve Downeast Lakes Watershed (PPLDW). Professor Boyle provides specific reasons for why the "Downeast Lakes User Survey" is not reliable nor has been conducted within established protocol for such surveys - it relies, on, for example, a pre-selected set of respondents. The findings from the Bowers and Baskahegan Surveys, in contrast, and other similar surveys conducted for wind energy projects in Maine reflect a random sampling and credible data sets. Although the PPDLW survey cannot be used to draw more general conclusions about the Project, we have considered the information in that report in our evaluation.

The Kleinschmidt and Boyle Reports reinforce the conclusion that 1) while there may be some diminishment in the rating of scenic values associated with resources that are within view of proposed (or constructed) wind energy projects, 2) this impact is not so extensive or significant to ultimately affect the typical user's experience and enjoyment, or 3) their likelihood to return to the resource (lake) for recreational activities in the future.

In addition to these three surveys specific to the Project area, there have been a number of user surveys at other wind power project sites in Maine, including the Spruce Mountain Project, the Saddleback Ridge Project, the Bull Hill Project, the Wind Highland Project, the Oakfield II Project and the Passadumkeag Project (see also Table 2 of the Boyle Report pg. 9). The key themes that emerge from these user surveys include the following:

- Visibility of wind projects is viewed as positive or neutral by the majority of respondents.
- Visibility of wind projects overall does not have a negative impact on recreational users' enjoyment of the resource.
- Visibility of wind turbines does not seem to greatly affect recreational users' likelihood to return.
- Visibility of other forms of human activity, such as ski trails and facilities, second home development, power lines, clear cuts, and other industrial facilities from scenic / recreational areas is considered much less desirable than views of wind projects.

Collectively, these surveys confirm that wind energy projects do change the landscape, but the typical user will still visit the resource and enjoy their experience there. This is critical - it substantiates one of the most important conclusions with regard to visual impacts from wind energy projects, and the Bowers' Wind Project in particular: that the potential (or resultant) impacts are not so significant or extensive to result in an unreasonable, adverse impact on scenic resources and the use and enjoyment of those resources. This is the finding on which this VIA bases, in part, its overall conclusion that the Bowers Wind Project **will not** "significantly compromise views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character of the scenic resource(s) of state or national significance."

C. The Stetson Experience

The presence of existing projects in the Maine landscape also provides an opportunity to understand the impact of wind turbines on use and enjoyment of lakes and other resources. For many people, visibility of turbines is compatible with the continued use and enjoyment of the resource. Indeed, a 2010 study entitled "Baskahegan Stream Watershed Recreation Use & Resource Analysis," conducted by Andrea Ednie, Ph.D. of the University of Maine at Machias (and Chad Everett, a student at UMM and John Daigle, Ph.D. at the University of Maine) (the "2010 Baskahegan Study") provides evidence that visibility of turbines on a lake that receives relatively high recreational use has not had any impact, let alone an adverse impact, on the public's continued use and enjoyment of that lake. The purpose of the 2010 Baskahegan Study was to evaluate recreation use patterns and site conditions around the Baskahegan watershed area, including Baskahegan Lake, which is 7,145 acres in size and is described as the "defining feature of the landscape." 2010 Baskahegan Study at 1. At its closest distance, the lake is approximately 5.1 miles from the existing Stetson Mountain Project and there are expansive views of up to 55 turbines from the lake.

Although the 2010 Baskahegan Study did not evaluate visibility of the Stetson Project on recreational uses (indeed the study did not address wind power or the Stetson Project in any manner), it nonetheless provides useful information that contributes to our understanding of the

significance of turbine visibility on recreational uses in the region. It also confirmed a number of key points that support our VIA conclusions. Of significance is the fact that those individuals who were interviewed indicated that scenery was a secondary reason for their enjoyment of the lake; and this response was given with the wind project already in place. In essence, this study serves, in part, as a de facto post construction review. The study identified several key conclusions resulting from the recreational use monitoring, including the following:

- The primary users of the Baskahegan Lake are people who fish; the fishing on the lake is excellent and affords great opportunities for children learning how to fish (67% as opposed to 6% kayaking and 4% canoeing).
- The lakes and streams also provide a special place for family groups to enjoy the scenery, the quietness, and the opportunity to camp.
- The undeveloped shorelines, recreational access, and wild character of the resource are important to visitors and should be protected.
- Items that required improvement related to infrastructure (parking, outhouse facilities, and boat launching improvements or changes).

2010 Baskahegan Study at 16. Certain frequent and long-term users were also queried with regard to changes in use and condition of the lake (and streams). **What is particularly telling is that not a single person interviewed mentioned the presence of the turbines in the viewshed. No one cited the wind project as a factor in their enjoyment, or as a detriment to the scenic and recreational qualities of the lake.** This was such a significant finding that we followed up with the principal author, Professor Ednie (Phone interview conducted by Neil Kiely May 15, 2011). She noted that while there were no specific questions regarding the wind project in the survey or interviews, she was equally surprised that no one referenced turbines in any of the responses. She assumes that people just did not attach any significance to them. By contrast she confirmed that residential development seems to be perceived much more negatively.

More recently, Kleinschmidt conducted a study[22] on Baskahegan Lake to learn if recreational visitation to and enjoyment of Baskahegan Lake are influenced by the presence of the Stetson Project (the "2012 Baskahegan Study"). The study builds upon the 2010 Study by "specifically asking lake users the extent to which the visibility of the Stetson Wind Farm has impacted scenic quality, their use and enjoyment of Baskahegan Lake, and their likelihood to return to Baskahegan Lake." (p. 3) This study is especially significant and relevant because it is the first post-construction survey conducted in Maine. As such, it evaluates *actual* perception and impact of turbine visibility on recreational users rather than *anticipated* impacts. Moreover, its conclusions are consistent with the Searsburg post-construction study discussed in Section __ below. The 2012 Baskahegan Study demonstrates that:

[22] Baskahegan Lake Users Study by Kleinschmidt, September 2012

- the wind farm has no effect or a positive effect on scenic value (81%);
- the wind farm has no effect or a positive effect on the quality of their experience (93%); and,
- the wind farm has no effect on their likelihood to return (93%).

2012 Baskahegan Study, Tables 10, 12.

Baskahegan Lake shares common attributes to the Project Lakes. They are in the same general region, scenic value is high, and the primary recreational activity is fishing. 2012 Baskahegan Study at 22. Additionally, 50% of those surveyed in 2012 also visit one or more of the Pleasant, Scraggly, Shaw and Junior lakes. As described in Kevin Boyle's expert report the Baskahegan Survey demonstrates that visibility of a wind farm on a scenic lake does not substantially diminish recreational users' enjoyment of the lake or their rating of the scenic quality of the lake. Boyle Report at 2.

In his report, Kevin Boyle confirms "The collective results of the two [Baskahegan] studies indicate that the wind farm has not caused users…to shift their recreation to other lakes without views of wind turbines." (p. 10) He also states that since the vast majority of users are repeat visitors (86%), this is conclusive evidence that people have not stopped visiting Baskahegan due to the Stetson Project. (p. 11)

The fact that the presence of the Stetson wind project did not emerge as an issue affecting use and enjoyment on Baskahegan Lake suggests that users of the lakes within the Bowers project area (who are most likely to be of the same demographic makeup with the same proclivities towards recreation activities) are likely to continue recreating on those lakes after the construction of the Project and will not find the view of the wind turbines to be detrimental to their experience or create an unreasonable adverse effect on the recreational and scenic resources of the area.

D. Polls and User Surveys Outside of Maine

The results of Maine polls and user surveys are consistent with surveys conducted outside of Maine. A recent poll conducted by the Vermont Department of Public Service found that 90% supported a wind farm being built within the view of their home, with 75% strongly supporting the development of a wind farm within view of their home.[23]

The pre-filed testimony to the Vermont Public Service Board submitted by Todd Comen[24], an Associate Professor of Hospitality and Tourism Management at Johnson State College in Johnson, Vermont, and Managing Director of the Institute for Integrated Rural Tourism, draws conclusions from a number of studies regarding wind power impacts on tourism as well as

[23] Vermont Department of Public Service website on Vermont's Energy Future - http://www.vermontsenergyfuture.info/Final.

[24] Prefiled Direct Testimony of Todd Comen on Behalf of the East Haven Windfarm, November 17, 2003, State of Vermont Public Service Board. Docket #7192.

original research conducted among visitors to the Northeast Kingdom of Vermont and the area near the Searsburg wind power project in southern Vermont. Searsburg and the Northeast Kingdom have a number of geographic and cultural similarities with the Bowers Project Area, with a similar demographic of recreational visitors. Comen concludes, based in part on interviews with local tourism industry representatives, that wind energy development can actually be a positive element for tourism.

In his testimony, Comen references James Palmer's Searsburg Study,[25] which concluded that after the Searsburg wind power project was built, project opponents' views all became more positive, and most improved substantially (p. 51). One year after the project had been in operation, 89% of respondents to a survey sent to Searsburg residents were either supportive or very supportive of the project. 80% of respondents were either supportive or very supportive of the existing wind power project doubling in size by adding 11 new turbines (p. 19). Initially, non-supporters had fearful expectations about the impacts of the turbines on wildlife, the noise they might produce, their conspicuous visibility, and likely unreliability. Over time, opponent's views moved to more neutral ratings, indicating that they are unsure whether there are any real disadvantages, or possible advantages (p. 51).

Todd Comen also conducted intercept surveys of tourists in the vicinity of the Searsburg Wind Project. He found that after the project was built in Southern Vermont, a major tourism destination in New England, 100% of the visitors interviewed "said that the wind farm did not deter them from visiting specific attractions in the area. 100% also said that additional wind towers would not deter them from visiting the Southern Vermont Region in the future." (p. 26) Additionally he interviewed the owners of 5 local businesses in the hospitality industry. "All of those interviewed observed no negative impact on their business and in fact were proud that the wind farm was located in their region of Vermont." (p. 23)

Several international studies have also been conducted in recent years concluding that tourists, including hikers, boaters, and other outdoor recreational enthusiasts, are either unaffected or positively affected by the presence of wind energy projects. All of these studies conclude that wind energy development in view of tourist destinations does not negatively impact tourism overall. For example, the 2008 study conducted in Scotland[26], in which 380 tourists were surveyed near operational wind power facilities, found that the vast majority (93-99%) of tourists that had seen a wind farm in the local area suggested that the experience would not have any effect on their decision to return to that area, or to Scotland as a whole (Section 4.3: Survey Results). Approximately 25% of those surveyed were engaging in wilderness-related outdoor activities like hiking and wildlife watching. The conclusions included the following:

[25] Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-Construction, James F. Palmer, December 1997

[26] Economic Research Findings: The Economic Impacts of Wind Farms on Scottish Tourism, The Scottish Government, March 2008

- Only 4% of tourists who have viewed a nearby wind farm indicated that the turbines affect their intention of returning to the area (2% said it would increase the likelihood of return and 2% said it would decrease the likelihood of return);
- 72% of visitors were either positive or neutral about the statement "I like to see wind farms";
- Among hikers, for whom landscape was expected to be a major factor, only 19% indicated a negative attitude toward wind farms, whereas 25% of all respondents indicated a negative attitude; 45% of hikers indicated a positive attitude toward wind farms, while only 39% of all respondents held a positive view; and
- Respondents that had seen a wind farm were less opposed to wind power development than those who had not seen a wind farm.

Part 3 of the 2008 Scottish report includes a comprehensive literature review of other European studies and surveys on the impact of wind farms on tourism. The authors summarized 15 different studies that addressed visitors' return likelihood, including six from England, five from Scotland, two from Wales, one from Germany, and one from Denmark. Of these, five studies are based on revealed likelihood of returning and ten are based on stated likelihood. Based on this literature review, the report concludes:

- None of the five studies based on revealed behaviors found turbines to have an effect on visitors' likelihood of returning;
- Of the ten studies based on stated likelihood, seven found that wind turbines would negatively impact the likelihood of returning for less than 6% of respondents;
- The remaining three surveys found negative effects for 32%, 25%, and 70% of respondents, though the authors questioned the reliability of these surveys based on methodological concerns; and
- Overall, the authors conclude that while residents sometimes believe wind farms will have a negative impact on tourism, there is no significant evidence that turbines discourage visitors from returning.

In 2011, VisitScotland[27] released a report summarizing results from two surveys on consumer attitudes about wind farms, one in the UK with 2,000 respondents and the other in Scotland with 1,000 respondents. The surveys included only people who had taken a holiday or short break in the UK in the past year, and who intended to do so again. The report concludes that the majority of respondents (80 and 81.3%) do not find wind farms offensive. Similarly, the majority (82 and 83%) would not change their travel patterns to avoid areas with wind farms. Roughly a quarter (24%) of respondents believe that "using wind farms in the promotion to tourists would provide an added appeal to visitors."

[27] http://www.visitscotland.org/default.aspx?page=2371

A 2008 Prince Edward Island study,[28] which used surveys from 1,676 people, of which 1,313 were tourists, included findings with regard to the visual impacts of several operational wind energy facilities on a region that is proximate and similar to Maine:

- With respect to the statement "wind farms ruin the view in the areas they are located," 63% of respondents disagreed or strongly disagreed, while only 5% of respondents strongly agreed;
- While only 44% of both residents and visitors either agreed or strongly agreed that a wind farm adds to the attractiveness of the area where it is located, about 81% of both residents and visitors either disagreed or strongly disagreed that wind farms are a poor use of PEI's land base; and,
- 71% of resident respondents either agreed or strongly agreed that wind farms are an attraction for visitors to PEI.

A recent peer-reviewed study conducted in two rural areas of the Czech Republic that host nature-based recreational activities such as hiking, camping and fishing, catalogued the views of 156 tourists and 73 business owners to determine the impact of wind power development on tourism.[29] The study found that over 90% of tourists said that the presence of turbines did not influence their choice of destination, and only 6% of tourists stated that they would not visit an area where turbines are located. (pg. 510) In addition, the study revealed that tourists were much more likely to view turbines favorably than were local residents. (pg. 512)

E. Conclusion

Collectively, this literature provides evidence that wind energy development is gaining support and that the consequent visual impacts of wind are not always necessarily negative or adverse. We believe that this large body of evidence strongly supports this VIA's conclusion that the construction of the Project will not result in the rejection of the area as a place to visit and recreate, nor will it degrade scenic character or the recreational experience for most users.

[28] Wind Energy Report: Views of Residents of PEI and Visitors to PEI, Tourism Research Centre at University of PEI School of Business, September 4, 2008

[29] Wind Turbines in Tourism Landscapes, Frantal and Kunc, Annals of Tourism Research, Vol. 38, No. 2, at 499-519 (April 2011)

4.3 Lake-by-Lake Visual Analysis

4.3.1 BOTTLE LAKE

A. Significance of the Scenic Resource[30]

Bottle Lake is identified as "Significant" for scenic quality, and has a Management Class rating of 5, indicating that it is a heavily developed lake, approaching heavily developed status. The following table provides a summary of the ratings and scores assigned to Bottle Lake in the "Evaluation". Bottle Lake achieved an intermediate score for "Significant" eligibility.[31]

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Medium	25	15
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Low	15	5
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	Low	15	5
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Lo/N	-20	0
Total			**100**	**35**

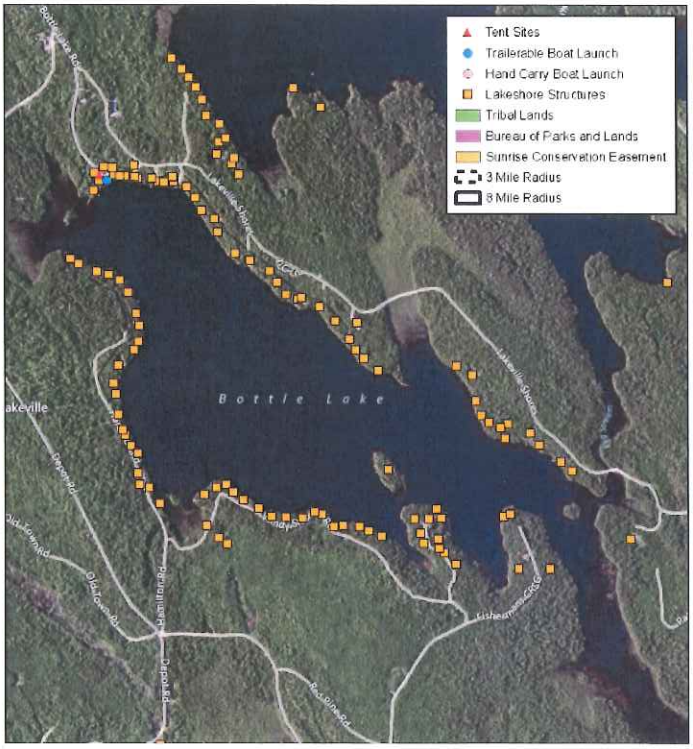
It should be noted that the 1986 "Evaluation" varies greatly from the 2010 "CLUP" class rating, in that the Evaluation indicates low or no inharmonious development, while CLUP states it is highly developed. This is an indication of the dramatic change of land use over 25 years and that the "Evaluation" may be outdated and unreliable for some of these lakes. As such, it should not be used as the only indicator for identifying a resource's significance. It is critical to consider the significance of the resource, as it exists today, because that is how the public experiences the resource. Presently, the lake contains several intrusive elements such as power lines, extensive camp development and a communication tower, which do not promote a memorable experience based on the visual qualities of the scenery alone. It has an undifferentiated landscape and does not have any unique or outstanding qualities or geomorphic elements. ***Based on all of these factors, the significance of the scenic resource is LOW.***

[30] Resource ratings as designated or defined in the Maine Wildlands Lake Assessment ("Assessment"), Scenic Lakes Character Evaluation in Maine's Unorganized Town's ("Evaluation"), Maine's Finest Lakes, The Results of the Maine Lakes Study ("Study"), and LURC's (now LUPC) 2010 Comprehensive Land Use Plan ("CLUP").

[31] Lakes scoring between 20 and 45 points, were rated as "Significant". Lakes receiving 50 or more points were rated as "Outstanding."

B. Existing Character of the Surrounding Area

Bottle Lake, located in the town of Lakeville within Penobscot County, is approximately 258 acres, all of which are located within 8 miles of the Project. This lake is located 5.1 miles from the nearest visible turbine. Mixed forest cover and low-lying hills and mountains surround the lake. Views to the northwest are most prominent (away from the Project), with Lombard and Almanac Mountains relatively nearby and visible. From the southwestern edge of the lake a small portion of Bowers Mountain is visible above the intervening ridge.



The general character of Bottle Lake can be described as a rural recreational, developed lake. It is the most densely developed lake within the Project study area with roughly 100[32] camps or homes concentrated around most of the shoreline. Many of the older camps or homes are relatively modest, while the newer camps, interspersed throughout the lake, are larger and more pronounced. Many of the camps are close to the shore with little intervening tree screening, and are quite visible. Private docks and recreational equipment can be seen near the water's edge in several locations. In addition, power lines are visible from the lake at a few locations along the shoreline. They can be seen in one area over a wetland marsh near the northeastern shoreline of the lake, just south of the boat launch; and over a wetland marsh area, paralleling Bottle Lake Road. A communication tower located on top of Almanac Mountain is also visible from the lake. ***Based on all of these factors, the character of the surrounding area is LOW.***

C. Typical Viewer Expectations

Fishing, boating, and paddling are common recreational uses of this lake. A local fishing and hunting guide confirmed that this lake receives medium to high frequency of use by anglers (in boats), notably in the spring during salmon fishing season. Bottle Lake was not included in the Kleinschmidt Bowers Survey, so quantitative user ratings for scenic quality are not available.

[32] Structures were identified by Stantec based on the 2009 NAIP imagery for Penobscot and Washington counties as well as the 24K USGS quads, and LURC parcel maps.

This is one of the most developed lakes in LURC's jurisdiction, however, and therefore users must expect to see evidence of that development. Furthermore, the Quiet Water Guide refers to the lake in this manner: "Bottle Lake's heavy development represents the kind of place we prefer to paddle through as quickly as possible." (p. 145) Due to its high development and high use, ***the typical viewer expectations are LOW.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

Boating, water skiing, paddling, fishing and swimming are the predominant recreational uses, while winter activities would likely include snowmobiling as well. Bottle Lake is joined to Junior Lake to the southeast via Bottle Lake Stream. This stream is a wide, shallow, marshy channel passable by motorboats when seasonal water levels are high, and passable only to kayaks and canoes when seasonal water levels are low. This lake can also be accessed by a quasi-public motorboat launch, located at the northwest end of the lake, at the end of Bottle Lake Road. No public parking is available at this location. In addition, paddlers can also use Bottle Lake as a means of accessing a half-mile portage to Sysladobsis Lake (Lower). There are no publicly owned campgrounds or campsites on Bottle Lake. Due to the amount of residential development on the lake, and the fact that Bottle Lake is the principal access point for people wanting to visit Junior Lake and other connected lakes, it experiences some of the highest use in the 8-mile viewshed. ***Based on these factors, the extent, nature and duration of public use is HIGH.***

E2. Project's Effect on Continued Use and Enjoyment of the Scenic Resource

Our understanding of the nature of the lake's use and subsequent viewer expectations do not suggest that the Project would result in a significant negative impact on use and enjoyment of the lake. This is a highly developed lake that receives some of the highest use in the study area. It is often used as a passage and transportation route to other larger lakes in the region. The visibility of the Project is also limited to a small portion of the lake. ***Given all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

According to viewshed mapping, up to 10 turbines within 8 miles may be visible from limited portions of the southern shore of Bottle Lake, where visibility of the most turbines is possible. At over 5 miles away, these turbines would be considered background views. Seventy-three percent (73%) of the lake, however, would have no visibility of the Project, including the boat launch. From those limited portions of the southern shore with visibility, the seven southern turbines on Bowers Mountain would likely be seen, with the blades of others potentially visible (see Exhibit 11: Visual Simulation from Bottle Lake). The ridge itself, however, is barely visible above the shoreline trees. These seven turbines would take up an insignificant portion of the overall view – 7° or less than 2% of a 360° view, which occupies a small portion of the human field of view and therefore has decreased visual impact (See Diagram 6 below).

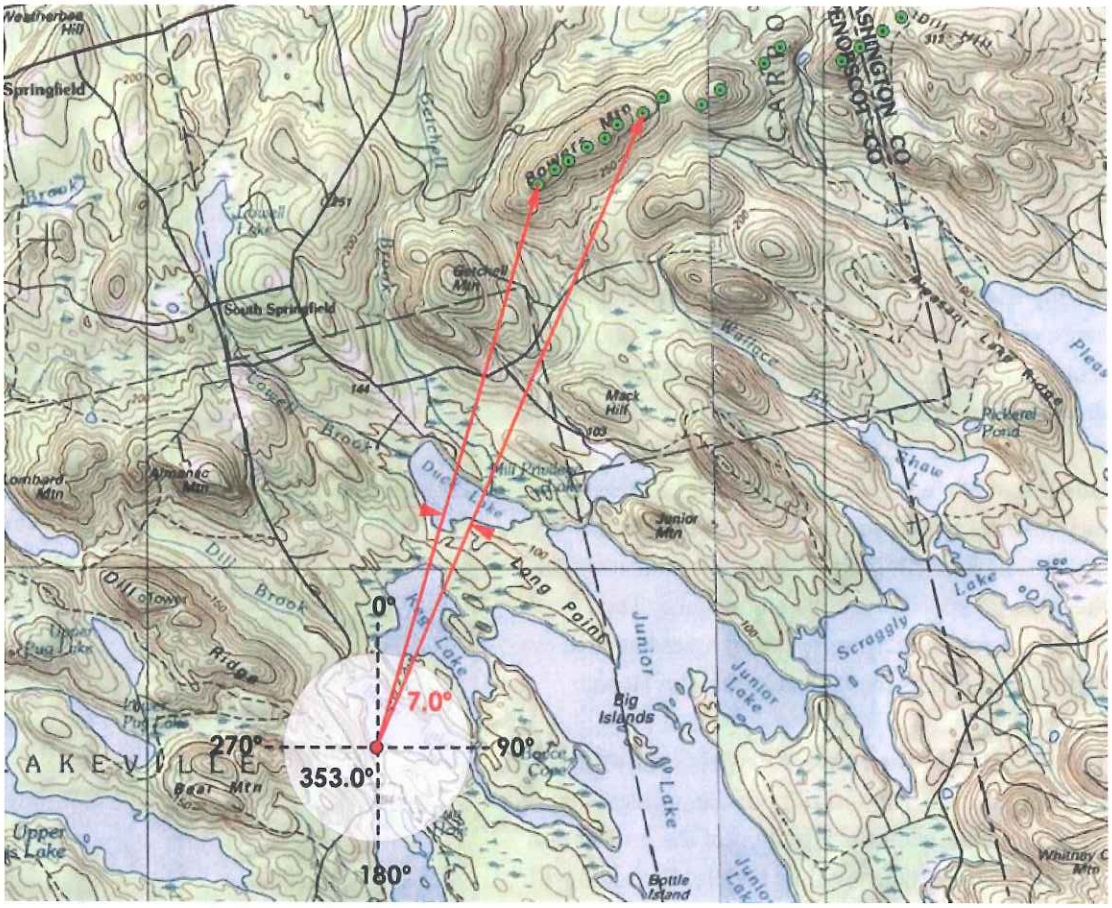


Diagram 6. Extent of view within 360° panorama at Bottle Lake from the visual simulation location. Potential angle of view would only be 7° from this point.

Fewer turbines would be visible as you travel toward the Project site due to intervening shoreline vegetation and topography. From the center of the lake and north, no turbines would be visible. There would be no visibility from the boat launch, where user activity and duration is typically greatest. This lack of visibility continues along the expected transportation route that boats, kayaks and canoes would take to connect to Junior Lake via Bottle Lake Stream. Where visible, the turbines will not appear prominent since they are not in the center of an important view, nor are they in close visual association with an important natural or cultural focal point. As noted, the terrain of the Project site is barely visible and the overall view in that direction is defined by a rather flat and undifferentiated landscape. Therefore, the viewer's eye is drawn more to distinct hills to the northwest, including Almanac Mountain, which has a communications tower clearly visible. In addition, the ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is LOW.***

G. Bottle Lake Overall Scenic Impact

Bottle Lake is perhaps the most highly developed lake in the project area, a fact further emphasized by the relatively smaller size of the lake when compared to others in the project area. The boat access is privately-owned with limited public access and lacks a sufficient parking area and thus is not readily used or accessed by the general public. The sense of the lake is clearly one where the natural features and scenic qualities are diminished by the development that wraps around the entire lakeshore.

View to the northwest towards Bottle Lake Boat Launch

Bottle Lake is a highly developed lake lacking in any distinct or unique features. In fact, in the evaluation set forth in the Evaluation indicates that there are no special features on this lake. The CLUP, which reflects more recent assessment of the resource, indicates the lake is highly developed.

View of Almanac Mountain to the west – the Project is to the north

The visibility of the Bowers Project on Bottle Lake is limited. The visibility of the project is highly limited, and only a portion of the project and portion of the turbines will be visible. Turbines will be over five miles distant when viewed from the southwestern shoreline, and over 5.1 miles at the closest point of visibility from the lake where only the tips of the rotors will be visible. The remaining portion of the turbines will be screened by shoreline vegetation and the woodland areas beyond the shoreline. The Bottle Lake simulation depicts the proposed wind project as a worst case - where the view is the most extensive of the turbines. Only about 27% or less of the area of Bottle Lake will have visibility of 7 turbines. From the point at which the simulation was taken, the visibility of the turbines will continue to diminish as one moves further to the northeast, with no visibility of the project from the center of lake. The entire eastern, northeastern, northern and northwestern shoreline will not have any visibility of the project, along with the adjacent surface waters of the lake. It should also be noted that there will be no project visibility in the Bottle Lake Stream portion of the lake which connects with Junior Lake. This ensures that the use of this quiet shallow, much less developed area will not be at all affected by the proposed project.

Project visibility will not unreasonably affect the use, duration or enjoyment of the typical user. The view of the project from Bottle Lake will be of a project in the distance, and from the bulk of the lake the lack of visibility means that users on the lake will be minimally affected by the project. Given that the **closest** visible turbine is 5.1 miles distant, the project will not appear dominant nor overly distracting to the typical user, which in the case of Bottle Lake would be local individuals and those staying in camps who are engaged in summertime lake-based recreation. The view to the Project from the location on the lake where the most turbines are visible is a highly limited angle of view of 7 degrees as set forth in Diagram 6. This very little portion of the 360 degree view horizon surrounding the lake will be taken up by the visible elements of the project. Taking all these factors into account it can be concluded that project visibility and the nature of that visibility will not appear to be extensive, dominant or overly distracting to the typical users of the lake.

Based on all of these factors, the overall scenic impact to Bottle Lake will be LOW.

4.3.2 DUCK LAKE

A. Significance of the Scenic Resource

Duck Lake is identified as "Significant" with a Management Class approaching 5, indicating that it is "approaching heavily developed status." The following table provides a summary of the ratings and scores assigned to Duck Lake in the "Evaluation". Duck Lake achieved closer to the minimum score for "Significant" eligibility.

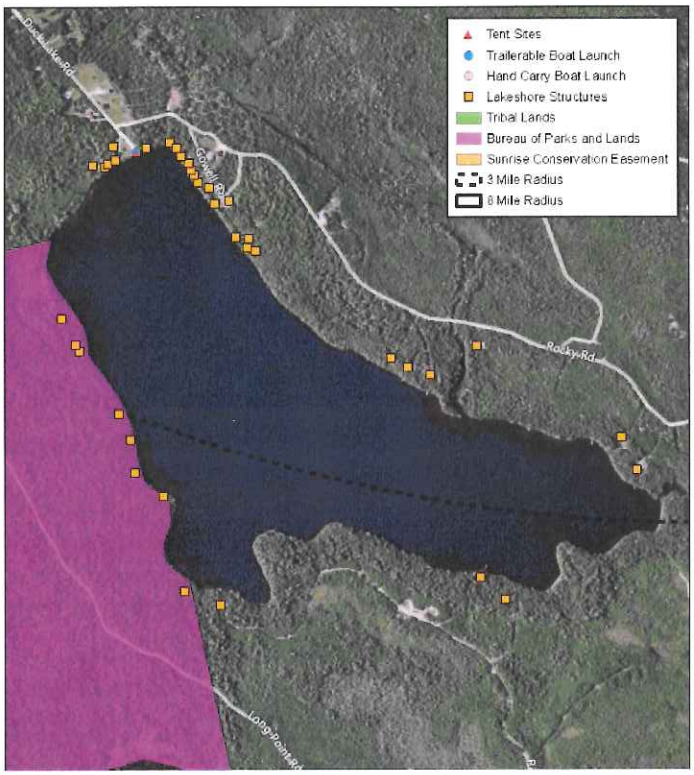
CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Medium	25	15
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Low	15	5
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	None	15	0
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Lo/N	-20	0
Total			**100**	**30**

Presently, the lake contains some intrusive elements such as residential and camp development as well as a communication tower. A trailerable boat launch at the northwestern end of the lake

provides easy access for motorboats and promotes a transportation route for kayaks and canoes to Junior Lake via a narrow stream connection at the southeast end of the lake. The landscape itself is undifferentiated and does not have any unique or outstanding qualities or distinctive geomorphic elements. ***Based on all of these factors, the significance of the scenic resource is LOW.***

B. Existing Character of the Surrounding Area

Duck Lake, located in the town of Lakeville within Penobscot County, is approximately 262 acres. This lake is one of the closet lakes to the Project site, second to Pleasant Lake, and is located 2.7 miles from the nearest visible turbine. Mixed forest cover and low-lying hills and mountains surround this lake, and the shoreline is wooded and interspersed with marsh areas. The lake is joined to Junior Lake to the south by a narrow stream. From the southern shoreline, the top of Bowers Mountain is visible just above the intervening tree lined ridge. The most prominent topographic feature from Duck Lake is nearby Getchell Mountain to the north. A communications tower located on Almanac Mountain is also visible above a nearby ridge to the southwest.



A fair amount of camp or home development can be found on this lake, with approximately 37 structures. The highest density is in the vicinity of the boat launch along the northern shore. The character and size of these camps or homes vary. Some of the newer camps are quite large and visible, while others are small, secluded and screened by vegetation. Many camps have private, visible docks. Approximately three quarters of the shoreline is privately owned and developed. The remaining quarter, located along the western shore, is designated as Maine Public Reserved Land, but is interspersed with private residential development. ***Based on all of these factors, the character of the surrounding area is LOW.***

C. Typical Viewer Expectations

This lake and the surrounding area are not highly scenic and it is not a particularly popular destination in Maine. The lake is more developed and while visitors expect to get away, it can not be assumed that their expectations for a pristine environment are high. The most common activity appears to be fishing and boating and based on the surveys discussed in Section 4.2.4 above, such users may be less sensitive to changes in scenic quality. Duck Lake was not included

in the Kleinschmidt Bowers Survey, so user ratings for scenic quality are not available. ***Based on these factors, the typical viewer expectations are LOW.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

Fishing, boating, and paddling appear to be the predominant activities on this lake, while winter activities would likely include snowmobiling as well. A motorboat launch located at the northwest end of the lake, at the end of Duck Road, provides public access. Most boats can access this lake from Junior Lake via a narrow stream connection at the southeast end of the lake, although its seasonal navigability is unknown. The lake's warm water temperatures, which are not conducive to an abundance of desirable coldwater species such as salmon and brook trout, discourages the use of Duck Lake as a fishing destination. There are no publicly owned campgrounds or campsites on Duck Lake. Based on its relatively small size and less than desirable fishing quality, this lake is most likely used by camp owners and experiences low to moderate use. ***Based on these factors, the extent, nature and duration of public is LOW.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

Our understanding of the nature of the lake's use and subsequent viewer expectations do not suggest that the Project would result in a significant negative impact on use and enjoyment of the lake. The visible presence of camp and home development along the northern shore serves to lessen the expectation of scenic quality. Moreover, because fishing and boating are common activities not typically focused solely on scenic quality, impact to enjoyment is not likely to be high. Given that scenic expectations are low for this resource due to existing development , low use, and nature of the activity, the Project's impact on likelihood to return is also considered low. ***Given all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

Although viewshed mapping suggests that up to 14 turbines within 8 miles may be visible from a very limited portion of the southern cove of Duck Lake, the visual simulation confirms that only the six southern turbines on Bowers Mountain would likely be visible from this location (see Exhibit 12: Visual Simulation from Duck Lake). At 3-4 miles away, these turbines would be considered middleground views. The turbines will not appear prominent, even those within the foreground view at 2.7 miles, since they are not in the center of an important view, nor are they in close visual association with an important natural or cultural focal point. Only the top portion of Bowers Mountain is visible from Duck Lake, and it is dwarfed by the closer and taller form of Getchell Mountain. In addition, the eye is drawn to more distinct hills within view to the east, including Penobscot Bald Mountain (with highly visible ridgeline logging) and Junior Mountain (see photo inventory, Exhibit 5). These six turbines would take up an insignificant portion of the overall 360° view – only 8° or 2.2%, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 7).

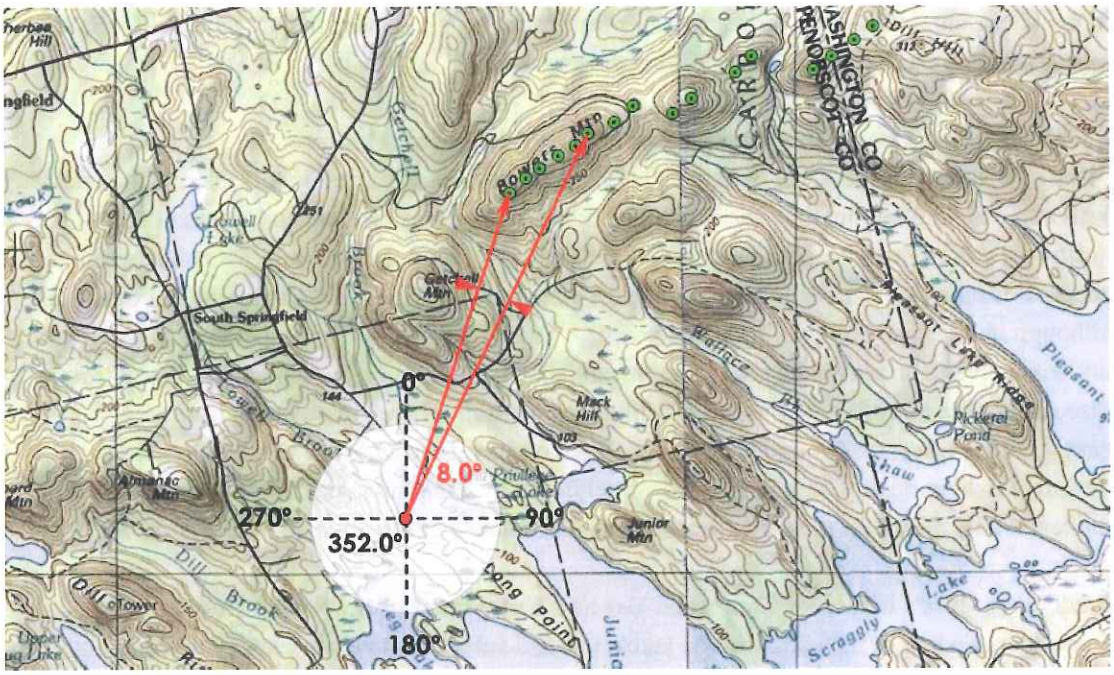


Diagram 7. Extent of view within 360° panorama at Duck Lake from the visual simulation location. Potential angle of view from this location would only be 8°.

For the remaining potentially visible turbines, only small portions of them, such as a blade or portion of a rotor, might be visible just above the tree line (see Exhibit 12). Fewer turbines would be visible as you travel toward the Project site due to intervening shoreline vegetation and topography. Due to the screening effects of the landscape and the dominant landforms around the turbines, the landscape is capable of visually absorbing the project. From the public boat launch, the viewshed map indicates that there is no potential visibility of the project. This lack of visibility continues along the likely transportation route that kayaks and canoes would take to connect to Junior Lake. In addition, the ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is LOW.***

G. Duck Lake Overall Scenic Impact

Duck Lake is a moderately developed lake that is situated about 2.7 miles from the closest shoreline to the nearest visible turbine of the project. As with Bottle Lake, there are no significant topographic features in the immediate environs and the lakeshore presents a uniform, wooded character with some rock outcrops. It has a relatively low rating with regard to the scenic criteria in the Evaluation, and as with Bottle Lake, it's scenic values are diminished by the lack of special features and the presence of inharmonious development. In fact, the communications tower on Almanac Mountain is readily visible to the west of the lake at 2 miles to the closest shoreline. Almanac and other mountains in the distance such as Getchell and Penobscot Bald will serve to draw the viewer's eyes and diminish the Bowers ridge as a focal point.

The visibility of the Bowers Project on Duck Lake is limited. While Duck Lake is one of the closest lakes to the project area, the number and extent of the turbines visible limits potential impacts to individuals staying in camps as well as those recreating on the lake. While the overall potential visibility of the project from the lake covers over half of the lake surface, that visibility is only of 6 turbines which occupy an 8 degree angle of view of the total 360 degree panorama of the lake, when viewed from the highest visibility location of the simulation site. This view does not exist from the northwest, north, northeast and most of the easterly shoreline, and thus there are extensive stretches of the lake where individuals and parties may fish or paddle out of sight of the project, if so desired. Additionally, as access to and from this lake to Junior Lake is via a stream that will not have project visibility, and is only accessible or even navigable by kayaks or canoes, there will be no impact to those who wish to take advantage of lake connectivity.

Duck Lake' s scenic values and user activities will not be unreasonably diminished by the presence and visibility of the proposed wind project. Duck Lake's scenic values and user activities, which are focused on lake-based recreation, will not be unreasonably diminished by the presence and visibility of the proposed wind project. This factor, coupled with the lower level of use compared to other lakes in the project area (given, for example, the nature of the fishery on the lake) leads to the conclusion that ***the overall scenic impact to Duck Lake will be LOW***.

4.3.3 JUNIOR LAKE

A. Significance of the Scenic Resource

Junior Lake is identified as "Significant" with a Management Class of 7, indicating that it has not been designated. The following table provides a summary of the ratings and scores assigned to Junior Lake in the "Evaluation". Junior Lake achieved the highest possible score for "Significant" eligibility.

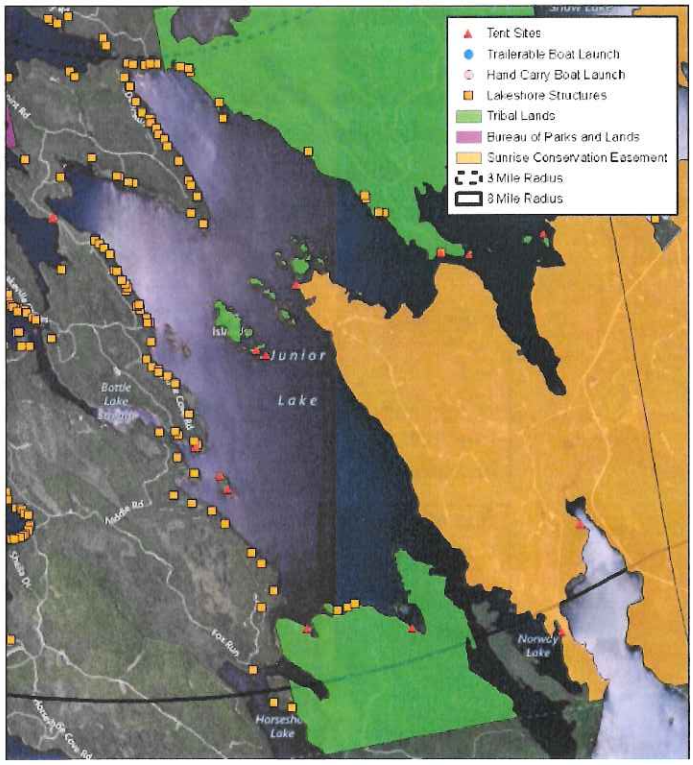
CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Medium	25	15
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Medium	15	10
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	Medium	15	10
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic	Lo/N	-20	0

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
	drawdowns, dams that are intrusive, etc			
Total			**100**	**45**

Presently, the western shore of the lake contains the bulk of residential development, yielding more intrusions on that side than the eastern side of the lake. Evidence of logging on nearby ridges is also visible in several locations across the lake. The scenery is generally indistinct throughout much of this large lake, but the shoreline complexity and the presence of several rocky islands provide some added visual interest. There are a few hills and ridges visible to the west-northwest. ***Based on all of these factors, the significance of the scenic resource is MEDIUM.***

B. Existing Character of the Surrounding Area

Junior Lake, located in Lakeville and Pukakon Twp, is one of the largest lakes in the 8-mile region at approximately 4,000 acres and nearly 29 miles of shoreline. It is located 3.2 miles from the nearest visible turbine. The character of this lake is not unique to the region with low hills and mixed forest cover. The scenery of the surrounding landscape is generally indistinct, except for views to the west-northwest, which include Almanac Mountain, Lombard Mountain, and Dill Ridge. Because of its large size, there are expansive views, particularly to the south. A number of rocky islands in the vicinity of McKinney Point add visual interest to the landscape.



While a portion of the eastern shore is conserved through the Sunrise easement, Junior Lake has seen much development in recent years, and there are approximately 87 camps and homes on large lots along the shoreline, many of which are along the western shore. These structures are generally set back from the shore and somewhat obscured by shoreline vegetation. Private docks, play equipment, and patio furniture can be seen near the water's edge in some locations. Although not terribly obtrusive due to setbacks, the residential development on the western shore gives that side of the lake a more developed feel than the eastern side of the lake. Portions of the eastern and southern shorelines are owned by the Passamaquoddy Tribe. A sporting camp is located at the southeast corner of the lake in a secluded bay, but it is no longer conducting business regularly. Evidence of logging on nearby ridges is visible. ***Based on all of these factors, the character of the surrounding area is MEDIUM.***

C. Typical Viewer Expectations

Of the viewers interviewed for the Bowers Survey, 81% rated Junior Lake as having high scenic value. Although this would suggest that viewer expectations could be relatively high for these users, other evidence suggests that viewer expectations could be lower based on the most common recreational activities on the lake (i.e. fishing and boating) and when considering a broader interpretation of the typical viewer. Moreover, the results of the 2012 Baskehegan study also indicate that while people rate Baskahegan Lake as having high scenic value, most users (80%) are likely to return. Given that Baskahegan has 41 more turbines visible than Junior, it can be inferred that turbines will not necessarily detract from viewers expectations of Junior. This lake is not widely known outside of the local area, as supported by the Telephone Survey and our analysis of guidebooks and other tourism resources. ***Based on these factors, the typical viewer expectations are MEDIUM.***

Looking west at the Big Islands near McKinney Point (away from from Project)

Typical shoreline development along the western shore of Junior Lake

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

According to the Bowers Survey, the most popular activities are fishing, motor boating, relaxing, observing wildlife, and enjoying/viewing the scenery. Winter activities would likely include snowmobiling as well. Locals tend to fish here, and there is a relatively high amount of recreational boating, especially when motorboat access is possible from Bottle Lake Stream in late spring early summer. The Bowers Survey recorded an average of approximately 7 boats and 3 people on shore during a half-day period, with a maximum of 20 boats and 8 people on shore recorded. Of the lakes studied in this survey (excluding Shaw), this represented the highest average boat count and the lowest average people on shore count. According to one website source, "it is almost impossible to fish this lake without a boat."[33] There are no publicly owned campgrounds or campsites on Junior Lake, but users can take advantage of up to 10 privately maintained primitive

[33] www.trails.com/tcatalog_trail.aspx?trailid=XFA051-060

tent sites accessible to the public. Four of these tent sites are only accessible via boat. Junior Lake does not have any public boat launches, but it can be accessed from the public boat launch at Bottle Lake via Bottle Lake Stream. This passage becomes difficult for motorboats in mid to late summer as the water level drops. As with the connection to Scraggly Lake, this continues to be a viable paddling connection for canoes and kayaks throughout the season. Junior Lake can also be accessed by boat via Junior Stream, which connects to Junior Bay. Access from Duck Lake may be possible for most boats via a narrow stream connection at the northern tip of the lake, although its seasonal navigability is unknown. ***Based on these factors, the extent, nature and duration of public use is MEDIUM.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

The recent survey results and our understanding of the nature of the lake's use suggest that the Project would not result in a significant negative impact on use and enjoyment of the lake. The Bowers Survey found that 74% of respondents stated that simulated conditions (depicting the proposed wind project) would have no effect on their decision to visit in the future or their likelihood to return. The survey also found that 40% of respondents stated that simulated conditions would have no effect or positive effect on enjoyment of their visit. While 60% said the Project would adversely affect their use and enjoyment, as explained in Boyle Report, there is likely some bias reflected in the survey responses due to significant public opposition and outreach by PPDLW. Additionally, the results of the 2010 and 2012 Baskahegan surveys discussed in Section 4.2.4 above provide strong evidence that the impact of visibility will not adversely affect scenic quality and recreational uses. Although a considerable portion of the lake has potential visibility of the project, there are a number of areas that provide visual isolation, including the northern and eastern shorelines and the many islands on this lake. The islands, in fact, represent one of the most striking feature of the lake while on the water, and the visual appreciation of this foreground feature would be unaffected by middleground or background views of turbines. The publicly accessible campsite on McKinney Point would continue to have views of the Big Islands and the distinct landform of Almanac Mountain, while no turbines would be visible from that vantage point. The other primitive camping areas are for the most part set back from the water's edge and with a focus on the shoreline. Only 3 of the total campsites on the lake are oriented in the project direction or have potential project visibility, although very limited due to intervening vegetation. ***Based on all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

According viewshed mapping, up to 13 turbines within eight miles could potentially be visible from a very insignificant area within the southern third of the lake. Much of the western shore of Junior Lake has potential visibility of 10 turbines, while the number of visible turbines decreases when traveling northeast on the lake. At over 5 miles long, and stretching away from the Project site, the character of the Project's visibility from Junior Lake differs noticeably depending of the position of the viewer. Although the viewshed map indicates that more turbines are potentially

visible from the southern half of the lake, these include turbines that are beyond 8-miles. They also represent background views with overall viewing distances greater than 6 miles.

From the northern half of the lake, fewer turbines are potentially visible but they represent middleground views. From the southern end of the lake, a wide panorama of hills is visible to the north, with Getchell Mountain and Penobscot Bald Mountain appearing more distinct than the Project ridges. Because the lake is so large, the landscape has a feeling of expansiveness when viewed from the water. As a result of this vastness, the nature of the topography and the distance from the turbines, the landscape is capable of visually absorbing the views of the proposed Project without undermining its essential visual qualities. Even from the northwest shore of the lake, where the majority of camps and homes are located, the turbines do not dominate the view due to the relationship between the number and scale of visible turbines and the topography (see Exhibit 13: Visual Simulation from Junior Lake). At this viewpoint, the turbines would take up a very small portion of the 360° view – 17.25° or only 4.8% of the 360° view, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 8). Alternatively, Diagram 9 shows another vantage where additional turbines may be visible according to the viewshed analysis, but 4 of these turbines would be visible at a distance beyond eight miles. Even at this location, the turbines within 8 miles would still take up a small portion of the overall 360° view – 13.26° or 3.7% of the 360° view. The intervening topography of Vinegar Hill completely blocks views of two turbines from this vantage point.

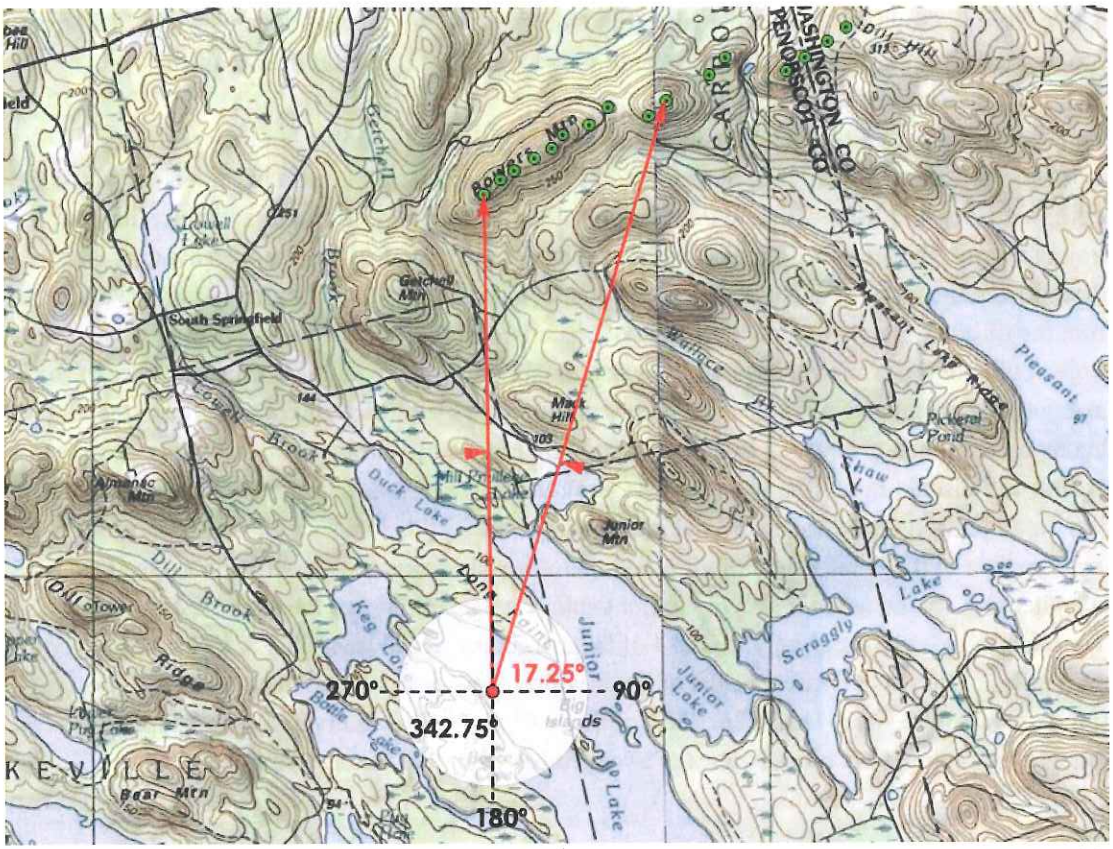


Diagram 8. Extent of view within 360° panorama at Junior Lake from the visual simulation location. Potential angle of view from this spot would only be 17.25°.

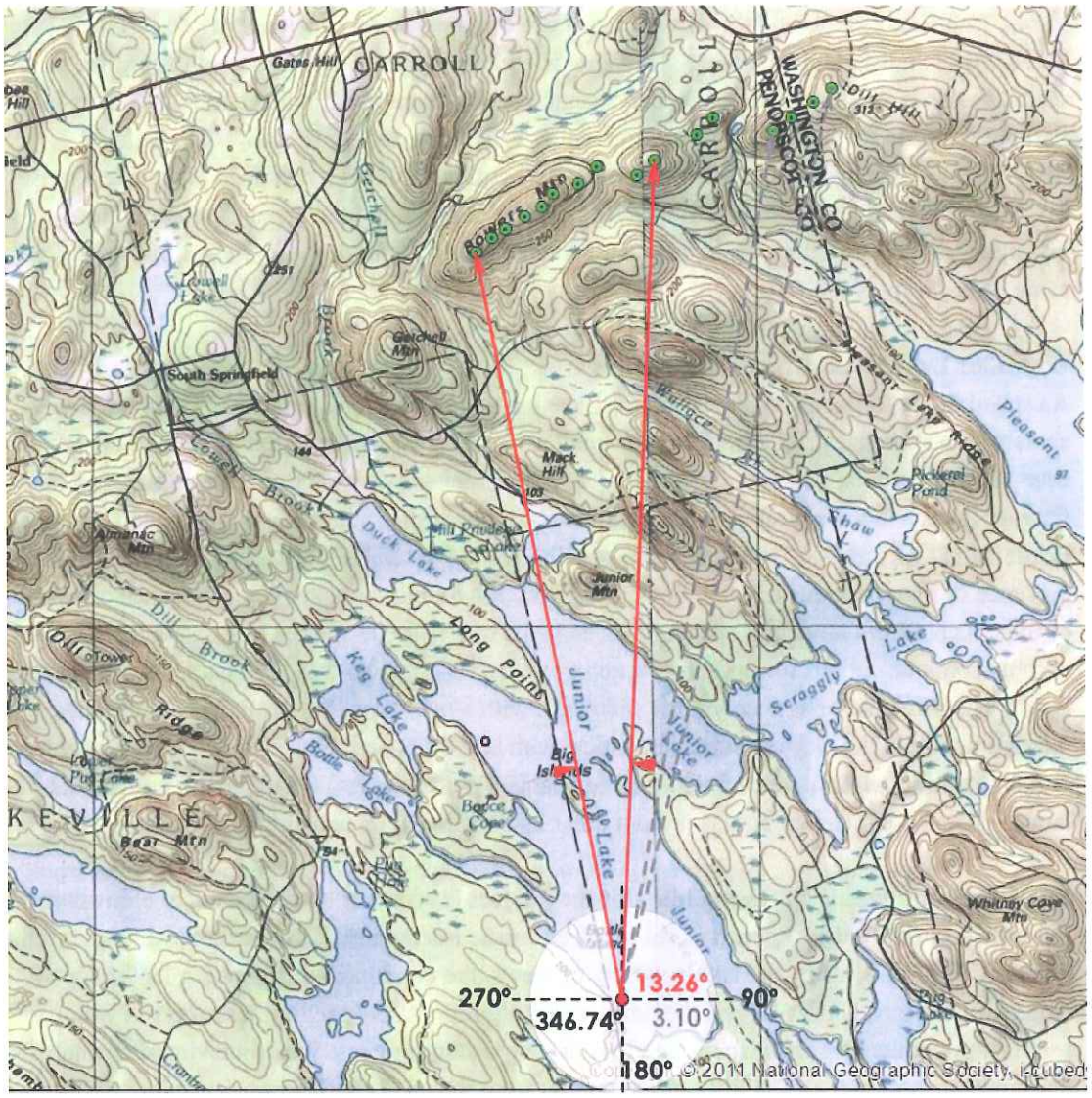


Diagram 9. Extent of view within 360° panorama at Junior Lake from the southern end of the lake. Potential angle of view of turbines within 8 miles from this spot would be 13.26°. The grey angle depicts angle of view for turbines located farther than 8 miles.

Although a considerable portion of the lake has potential visibility of the Project (86.8%), the majority of the lake would only have potential visibility of nine or fewer turbines within eight miles at any one time. This view would not be static and can change dramatically on the lake depending on the direction of travel, location of view and the activity of the user (i.e. from no turbines visible to all nine turbines visible). There are a number of areas that provide visual isolation, including portions of the northern and eastern shorelines and the many islands on this lake. The islands in fact represent perhaps the most striking feature of the lake, and the visual appreciation of this foreground feature would be unaffected by middleground or background views of turbines. The publicly accessible campsite on McKinney Point would continue to have

views of the Big Islands and the distinct landform of Almanac Mountain, while no turbines would be visible from that vantage point. The other island campsites were not visited to confirm visibility of the Project site, but 3D analysis and viewshed mapping indicate it is likely that they will not have visibility as well due to intervening vegetation and topography. The ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. The ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is MEDIUM.***

G. Junior Lake Overall Scenic Impact

As stated in the foregoing analysis, Junior Lake has some developed sections intermingled with areas where shoreline configurations and small rocky islands may draw the interest of the typical user – motor-boaters, fishermen, paddlers – and in winter snowmobilers and those engaged in ice fishing. It has a moderate rating with regard to the scenic criteria in the Evaluation, and as with Bottle and Duck Lakes, it's scenic values are diminished by the lack of special features and the presence of inharmonious development. The exception to this character is the presence of a range of hills visible from large areas of the lake, some of which are developed (for example, Almanac with its communications towers) and logged (with harvesting areas readily visible on Penobscot Bald). The lake does afford a complex shoreline, with a number of coves and peninsulas. There is relatively little in the way of tourist amenities, with one B&B and a sporting camp no longer in regular operation. Primitive campsites are available via boat access. There are no public boat launches, and thus primary access is from other lakes in the area, reducing boat traffic.

The extent and nature of the visibility of the project is reduced by the physical character of the lake and the limited spread of the project on the horizon line. The extent and nature of the visibility is diminished by the lake's variety of views, the continuous surrounding landscape of wooded shoreline and low ridges, the near and far shorelines, and the limitless ways in which a user can orient themselves or focus on close or long distance views. While the viewshed analysis does indicate widespread visibility of the project from the lake's surface waters, this visibility is qualified and reduced by a number of important factors and indicators. The angle of view to the project, as taken from the visual simulation location, is only 4.8% of the 360° view, and this indicates that an individual on the lake has to be directly focused on the project to take it in. As soon as the viewer is drawn to another object or view, the project recedes into peripheral vision, or out of view.

The visibility of the project is not so extensive and dominant as to deter the typical user, and will not substantively reduce use and enjoyment. Given the breadth of Junior Lake and the variety of shoreline and island configurations, as well as the presence of surrounding hills, the landscape variety better absorbs the view of the project within this context. There are no views closer than 3 miles, and the far end of the lake stretches almost 8 miles away from the nearest turbine. The combination of the turbine scale and the lack of mass (slender rotors, narrow

towers) with the constantly changing atmospheric conditions of these lakes greatly reduces the sense of the project within the landscape, and this has been confirmed in actual field studies conducted to assess projects already constructed.

Based on the foregoing analysis, the overall scenic impact to Junior Lake is MEDIUM.

4.3.4 KEG LAKE

A. Significance of the Scenic Resource

Keg Lake is identified as "Significant" with a Management Class of 7, indicating that it has not been designated. The following table provides a summary of the ratings and scores assigned to Keg Lake in the "Evaluation". Keg Lake achieved the minimum possible score for "Significant" eligibility.

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Medium	25	15
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Low	15	5
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	None	15	0
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Lo/N	-20	0
Total			**100**	**30**

Presently, the lake contains some moderate camp development that diminishes the significance of the visual quality. It also has an undifferentiated landscape and does not have any unique or outstanding qualities or geomorphic elements. ***Based on all of these factors, the significance of the scenic resource is LOW.***

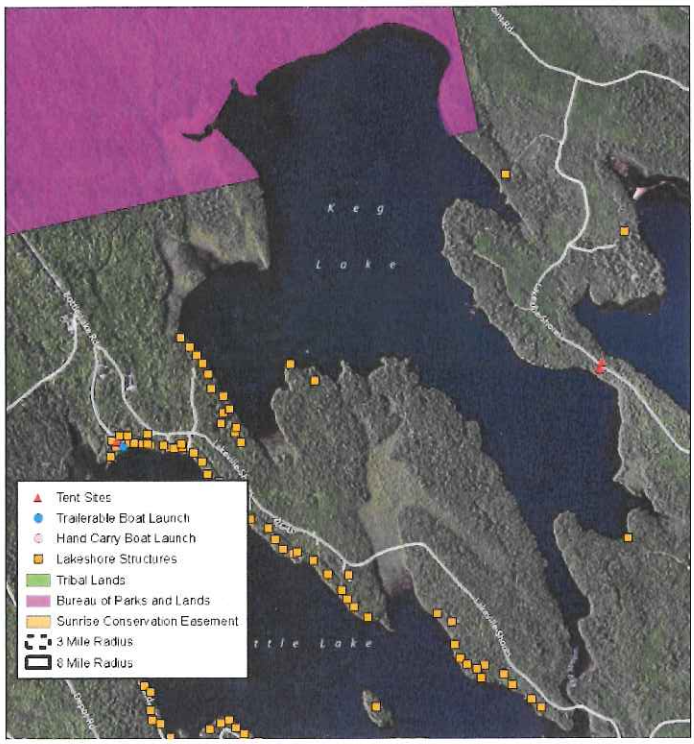
B. Existing Character of the Surrounding Area

Keg Lake, located in the town of Lakeville within Penobscot County, is approximately 371 acres. This lake is located 3.7 miles from the nearest visible turbine. The character of Keg Lake is similar to adjacent Duck Lake, with mixed forest cover, low-lying hills and less extensive development. The western cove of the lake has moderately dense development, with about 15 camps or homes, while the remaining shoreline is largely undeveloped, with a portion of the

northern shore being part of the Bureau of Parks and Lands. ***Based on all of these factors, the character of the surrounding area is LOW-MEDIUM.***

C. Typical Viewer Expectations

Like nearby Duck and Bottle, this lake and the surrounding area are not highly scenic and it is not a particularly popular destination in Maine. The most common activity appears to be fishing and perhaps limited paddling. The lake is somewhat developed and while visitors expect to get away, it can not be assumed that their expectations for a pristine environment are high. However, since there is no easily accessible public boat launch, it is expected that many users are camp owners and camp visitors, who are more likely to have an elevated sense of scenic value. Keg Lake was not included in the Bowers Survey, so user ratings for scenic quality are not available. ***Given these factors, the typical viewer expectations are LOW-MEDIUM.***



E1. Extent, Nature and Duration of Public Use of the Scenic Resource

Boating, fishing, and paddling are the primary activities on this lake, while winter activities would likely include snowmobiling as well. It is connected to Bottle Lake to the south via a narrow, long marshy stream, which provides a seasonally navigable passage by kayaks and canoes. However, Bottle Lake Road spans over the stream, limiting boat connections between the two lakes. Passage under this road at this location only allows for small boats, if any. Portage may be necessary. As there is no designated parking area at this bridge or clear area to launch a paddling or small motorboat, it is assumed this is not a designated public boat access site. There is another unofficial canoe carry access at Lakeville Shore Road, but, again, there is no public parking. There are no other identified public boat launches on the lake. There are no publicly owned campgrounds or campsites on Keg Lake, but there are two primitive privately maintained wooded tent sites near the eastern shore that are available for public use. Due to limited public access, including no public boat access or designated public parking, the lake is primarily used by private camp owners. Moreover, as this lake supports predominately warm water fish, and does not stock coldwater fish due to the lack of suitable habitat, Keg Lake is not considered a fishing destination and receives very low use overall. ***Based on these factors, the extent, nature and duration of public use is LOW.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

Our understanding of the nature of the lake's use and subsequent viewer expectations do not suggest that the Project would result in a significant negative impact on use and enjoyment of the lake. As noted, the common activity is likely fishing and some paddling, primarily by camp owners. As such, they are still likely to continue to visit and use the resource. ***Based on all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

View from the western shoreline of Keg Lake looking north toward Getchell Mountain

F. Scope and Scale of Visibility from the Scenic Resource

Based on viewshed mapping, up to 12 turbines might be visible from the western cove of Keg Lake as middleground and background views. Overall, this still represents a relatively limited percentage of the 360° view - 15° or only 4.2%, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 10).

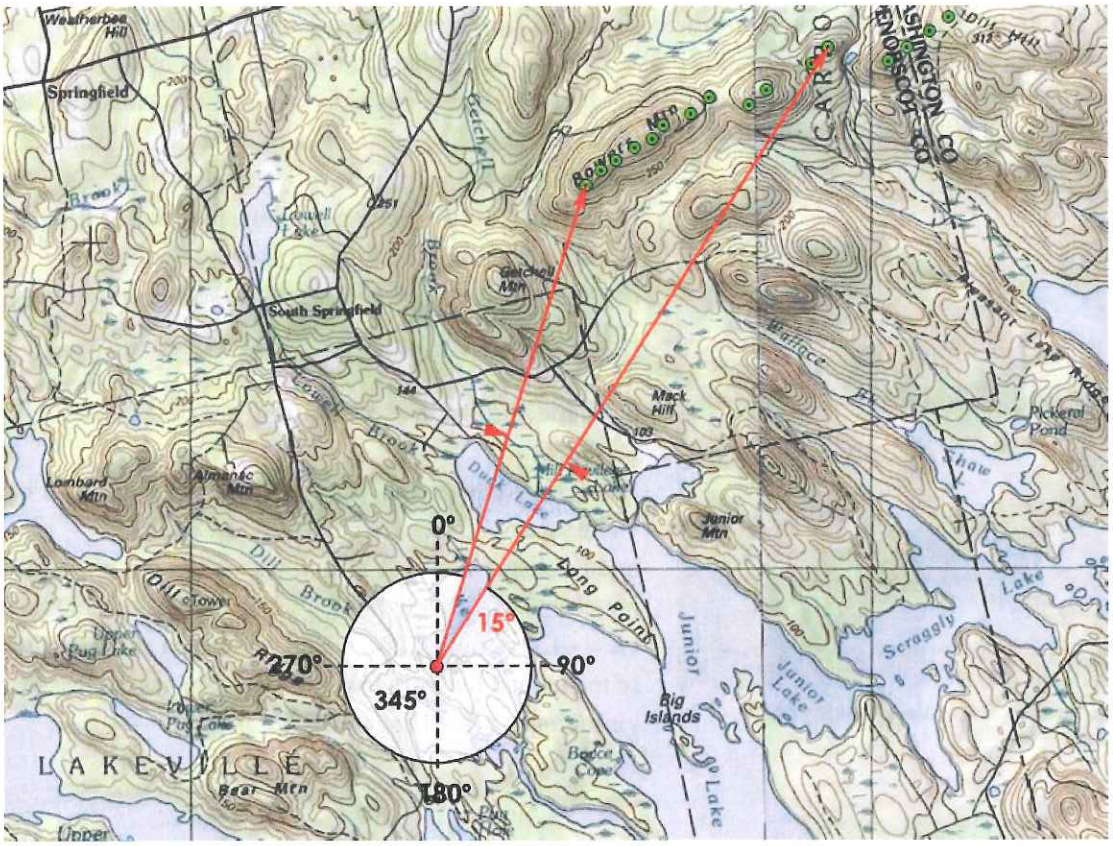


Diagram 10. Extent of view within 360° panorama at Keg Lake from the visual simulation location. Potential angle of view from this spot would only be 15°.

As seen in Exhibit 14: Visual Simulation from Keg Lake, the 10 southernmost turbines on Bowers Mountain are likely visible. Only portions of the blades/hubs of the remaining turbines to the north appear to have potential visibility due to the intervening topography of 'South Peak' and Vinegar Hill. Depending on the viewer's position, Getchell Mountain and/or Penobscot Bald Mountain would remain visually dominant due to their height and mass and would block views to the Project for most of the southern portion of the lake. Additional areas without project visibility include the northern shoreline of the lake. In addition, the ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter, despite some minor clustering of turbines to the northeast. ***Based on all of these factors, the scope and scale of visibility has a MEDIUM potential effect on scenic impact.***

G. Keg Lake Overall Scenic Impact

Keg Lake is another lake within the project area that has camp development on its shores, and low values with regard to its scenic quality designation as "significant" in the Assessment. There are similarities with the shoreline and contextual attributes of Bottle and Duck Lakes, and its scenic values are diminished by the lack of special features and the presence of inharmonious

development. The lake lacks vegetative diversity, is surrounded by low hills and undifferentiated wooded shoreline.

Project Visibility is limited and not overly dominant. Project visibility is limited to a typical 15 degree angle of view when calculated from the simulation site, which has the most extensive view of the project. Ten turbines would be visible from this location, with only the rotors of 5 others barely detectable above the treeline and an intervening ridge. Of the project visibility from the lake, about ½ of the viewshed area would have up to 8 turbines in view. The northern and eastern shorelines are likely to have no views of the project whatsoever.

The Bowers Wind Project will not have an adverse, unreasonable effect on scenic values and existing uses of Keg Lake. Limited public access, the difficulty of motorboat access to the lake from Bottle Lake, and the lack of a public boat launch limits recreational uses, and as identified, the primary user group here will be those staying at one of the private lakeshore camps. Keg Lake is not a well-known or attractive destination for visitors to this region, and, as stated, lacks the fishing conditions to attract those seeking sport-fishing opportunities.

In addition, there are extensive areas of the lake where the project will not be visible, and the distance of the lake between 3.6 and 5.1 miles to the closest turbine reduces the perceived visual presence. The lack of diversity and unique scenic values further reduces the potential for impacts from this project.

Based on the foregoing conclusions, the overall scenic impact to Keg Lake is LOW-MEDIUM.

4.3.5 PLEASANT LAKE

A. Significance of the Scenic Resource

Pleasant Lake is identified as "Outstanding" with a Management Class of 2, indicating that is of especially high value, accessible, and undeveloped. The following table provides a summary of the ratings and scores assigned to Pleasant Lake in the "Evaluation". Pleasant Lake achieved the minimum possible score for "Outstanding" eligibility.

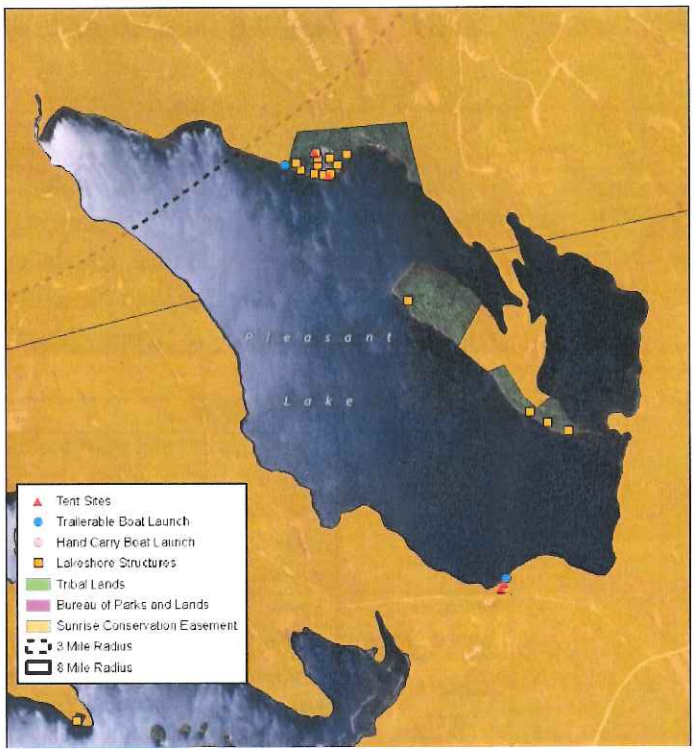
CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Medium	25	15
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Low	15	5
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	Medium	15	10

Special Features	Water clarity and probability of observing wildlife	Medium	15	10
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Lo/N	-20	0
Total			**100**	**50**

The lake contains some pleasing attributes due to the undeveloped nature of the shoreline, but the configuration of the lake itself is ordinary and the vegetation is typical of the region. There are no other dramatic or unique scenic features. Evidence of logging is visible on the nearby hills indicating that this is not a pristine or intact wilderness area. The campground at the southeastern shore, which generally hosts RV campers visible from the lake, some of them year-round, also interrupts the idea that this is an untouched landscape. ***Based on all of these factors, the significance of the scenic resource is MEDIUM.***

B. Existing Character of the Surrounding Area

Pleasant Lake, located in Kossuth Twp and T6 R1 NBPP, is approximately 1,550 acres and situated 2.4 miles from the nearest visible turbine. The scenery and topography visible from the lake is typical of the region with low rolling hills and mixed forest cover. It has a pleasant, but not dramatic or unique, scenic quality. The majority of the shoreline is conserved as a working forest and is undeveloped, aside from Maine Wilderness Camps and a few camps along the eastern shore, with a mix of white cedar and other evergreen trees. Evidence of logging is visible on nearby Bowers Ridge, and aerial photographs indicate logging activity in extensive areas around the lake, most notably in the vicinity of the Project site (see Diagram 2). Accessing Pleasant Lake from Amazon Road, which clearly serves as a major access road for logging, also sets a tone of being in a working landscape. ***Based on all of these factors, the character of the surrounding area is MEDIUM.***



C. Typical Viewer Expectations

The lake receives a moderate amount of use for the area and is used mostly by fishermen as well as for camping and paddling. Of the viewers interviewed for the Bowers Survey, 93% rated Pleasant Lake as having high scenic value. Although this would suggest that viewer expectations could be high for these users, other

evidence suggests that viewer expectations could be lower based on the most common recreational activities on the lake (i.e. fishing and boating) and when considering a broader interpretation of the typical viewer. This lake is not widely known beyond the region, as supported by the Telephone Survey and our analysis of guidebooks and other tourism resources. Interviews with Kathy Whitney, former manager of the campground, and the owners of the Maine Wilderness Camp, confirm that its scenic qualities don't appear to be the major reason for attracting visitors. ***Given these factors, typical viewer expectations are MEDIUM-HIGH.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

According to phone interviews[34] conducted by LandWorks, Pleasant Lake gets a moderate amount of use for the area and is used mostly by fishermen. According to the Bowers Survey, the most popular activities are relaxing, observing wildlife, enjoying/viewing the scenery, and camping. Winter activities would likely include snowmobiling as well. The Bowers Survey recorded an average of approximately 6 boats and 29 people on shore during a half-day period, with a maximum of 12 boats and 56 people on shore recorded. Of the lakes studied in this survey (excluding Shaw), this represented the middle of the average boat counts and the highest average people on shore count. With Maine Wilderness Camps on the northern shore, which offers canoe outfitting and boat rentals, it is certain that there are a number of people who also take rental boats (including motor boats) out on the lake from the private boat launch and some who embark on canoe camping trips from this point. A short portage is required to access Scraggly Lake to the south and thereby enter the Grand Lake Chain of Lakes, over 40 miles of connected lakes and ponds. Although there are no publicly owned campgrounds on Pleasant Lake, camping is available at Maine Wilderness Camps and at a campground located on the southern shore, which is also owned by Maine Wilderness Camps. Accessed off of Amazon Road, this wooded campground offers tent sites and accommodates large 5th-wheel trailers/RV's, in addition to a boat launch and picnic tables accessible to the public. The access road is approximately 6 miles from Route 6. ***Based on these factors, extent, nature and duration of public use is MEDIUM.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

The recent survey results and our understanding of the nature of the lake's use suggest that the Project would not result in a significant negative impact on use and enjoyment of the lake. The Bowers Survey found that 86% of respondents stated that simulated conditions (depicting the proposed wind project) would have no effect their decision to visit in the future or they are likely to return. The survey also found that 70% of respondents stated that simulated conditions would have no effect or positive effect on enjoyment of their visit. In addition, fishing is the primary use, which is an activity where there is evidence that people do not place as high a value on scenic quality with regard to their overall enjoyment. ***Based on all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

[34] Telephone interviews conducted by LandWorks, September and December 2010

F. Scope and Scale of Visibility from the Scenic Resource

Based on viewshed mapping, up to 16 turbines, or portions of turbines, may be visible at the southeastern end of the lake as middleground views. At this viewpoint, the turbines would take up a limited portion of the 360° view – 30° or only 8.3% of the 360° view, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 11).

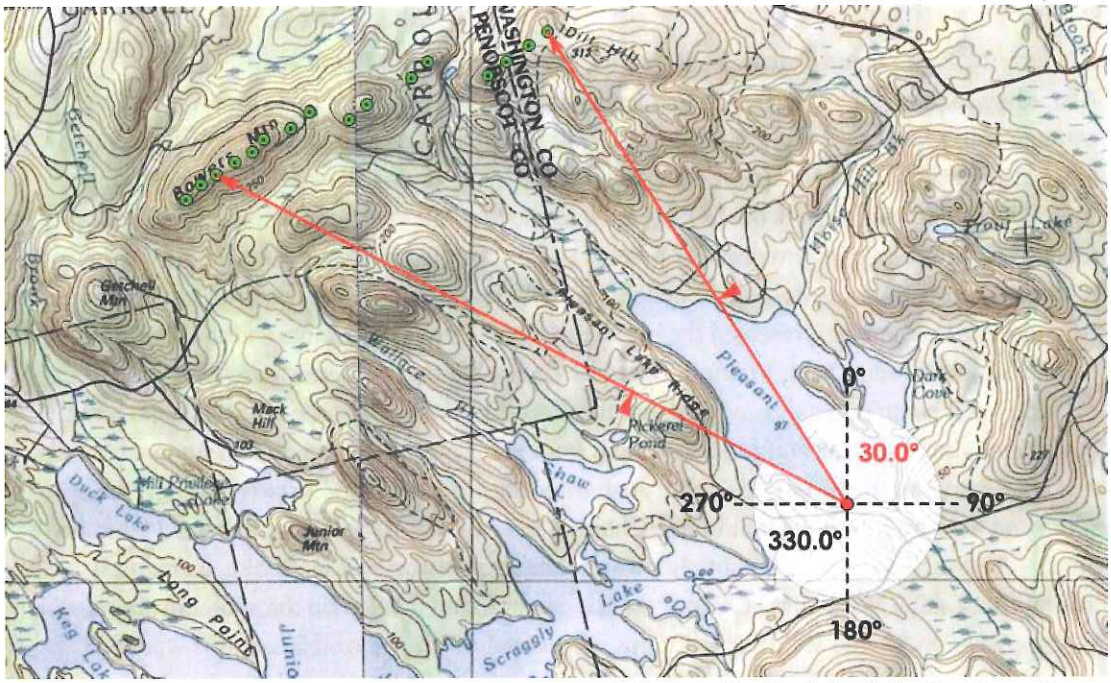


Diagram 11. Extent of view within 360° panorama at Pleasant Lake from the visual simulation location at the boat launch. Potential angle of view from this spot would be 30°.

Due to orientation and intervening vegetation, no views of the Project are expected from Maine Wilderness Camps. From the boat launch, the closest turbine visible will be on Dill Hill 5.1 miles away, and the farthest on Bowers Mountain 6.6 miles away (see Exhibit 15: Visual Simulation from Pleasant Lake Boat Launch). From this view, sixteen turbines will be visible. The intervening topography of Pleasant Lake Ridge blocks much of Bowers Mountain, and only a sliver of Dill Hill is visible above the hills southeast of Dill Hill. This has the effect of visually reducing the height of a number of turbines since only upper sections of their towers or portions of their blades are visible.

When traveling toward the Project, these turbines would become more obscured by intervening topography and fewer would be visible when approaching the northwestern shore, with limited to no visibility along portions of the northern shoreline (see Exhibit 16: Visual Simulation from Pleasant Lake, West). Eleven turbines will be visible from this location. Even though turbines are closer, the angle of view decreases to just 8° or 2.2% of the 360° view in some spots (see

Diagram 12). Visual isolation would also be possible within portions of Dark Cove, which is considered to be the most desirable section of the lake for paddlers and fisherman.

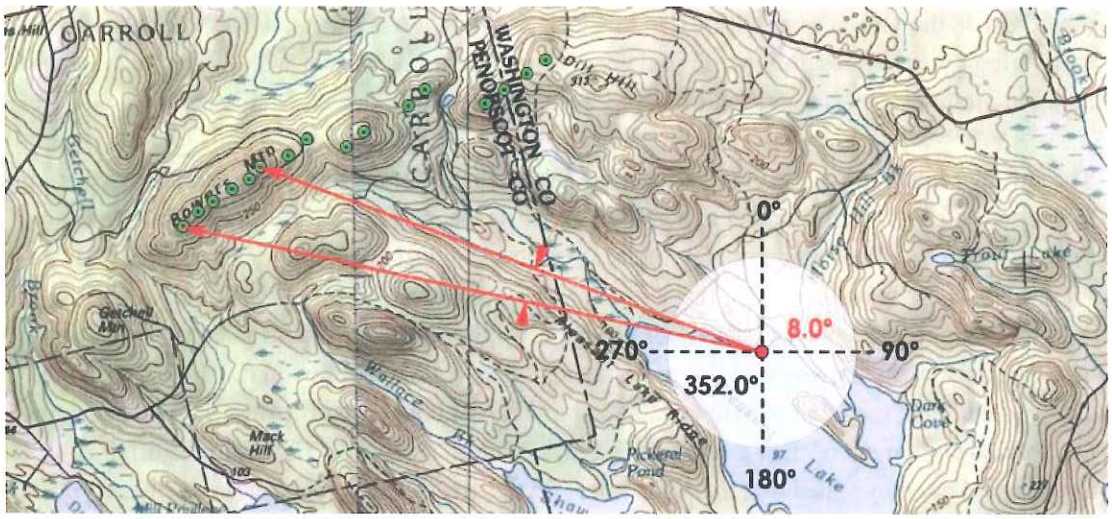


Diagram 12. Extent of view within 360° panorama at Pleasant Lake from a location near the northern shore. Potential angle of view from this spot would only be 8°.

Although the turbines are visible throughout much of the lake, they would not be an unduly dominant visual presence. The nearest visible turbine would be 2.4 miles away at the northwest end of the lake, but even at this location the turbines would not appear visually dominant as a result of their distance and the height of the turbines in relation to the surrounding vegetation and topography. In addition, the ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is MEDIUM.***

G. Pleasant Lake Overall Conclusion

Pleasant Lake clearly has scenic value based on some features and characteristics of its shoreline landscape and configuration, vegetative mix, water clarity and lack of shoreline development - with the one exception being the area directly surrounding the boat launch. The evaluation set forth in the Evaluation assigned the bare minimum of points to result in this lake being "outstanding." Nonetheless, it can be concluded that while this threshold has been crossed in terms of the original evaluation, the lake does not possess any unique or individually outstanding features. West Musquash Lake, for example, is another lake rated "Outstanding" for scenic quality within eight miles of the Project, and it is more accessible, and yet more secluded, less developed, and with greater relief visible closer to its shorelines - clearly a lake with greater scenic qualities than Pleasant, and one offering an alternative experience to the recreational user.

The immediate surroundings of the lake's public camping and boat launch area, is also indistinct and not overly scenic - typical for this area. Also typical for this area is the presence and extent of

logging activity, a fact that directly influences user expectations by diminishing the potential for this area and the lake itself to be viewed as a pristine, unaffected landscape. In fact, logging activity is visible from many portions of the lake. These characteristics and considerations tie in directly with the viewer expectation that this lake is within a working landscape that is based on cultivating the resources presence. Wind energy projects are consistent with the region's reliance on local products for economic and social benefits - in this instance the wind resource.

The surveys conducted and relied on for this analysis, as reviewed and summarized elsewhere in this report, along with the results of a case study of Baskahegan Lake, all lead to the conclusion that the project will not unreasonably impact the extent, duration and use of Pleasant Lake.

A key source of "typical user" activity, the Maine Wilderness Camps does not have direct views of the project, and the owners of this tourist destination, (one of the few in the project area), have clearly stated that they do not believe that the project will unacceptably affect their business, or the use and enjoyment of their guests. In fact, in testimony before the LURC in the original Bowers review, they stated that their customers do not find wind projects unreasonable with regard to their activity and enjoyment, and even seek out wind energy facilities as destinations for the recreational activities (email from Neil Keily, May 26, 2011).

This project will be visible from the main body of the lake, but given the extent of the turbine array and its distance, the nature of that visibility will not be overwhelming or inescapable. The view is one direction and the angle of view from the main body of the lake is limited enough so that the viewer has to be looking directly at the project to take it all in. Our experience and that of other individuals engaged in lake-based activities is that one does not typically (nor can one typically) stay focused for extensive periods of time on a distant object. There are many portions of the lake from which the project will not be visible or minimally visible, particularly from coves and shorelines to which paddlers and those fishing typically gravitate (add to this fact the consideration that a broad lake such as Pleasant can be subject to winds which make the center of the lake less hospitable to small craft on many days). Whether paddling, fishing, boating, camping or swimming, the eye and the experience takes in many views, near and far, and in all directions, and one does not typically fixate on one view as they might from a mountain summit vantage point. This consideration, coupled with the visual qualities of the individual turbines and rotors as thin, vertical elements rather than massive singular objects, lessens the visual presence and dominance of the project at the distances the project

View from the public boat launch at the southeastern corner of Pleasant Lake looking towards the Project.

will be viewed from. Our field experience confirms that the effects of sun angle, cloud cover, wind (on the lake itself), time of day and time of year, all diminish the visual impacts of the wind turbines when seen from the farthest and closest point. In fact cloud cover or background clouds can substantially diminish the visibility of these objects, given their light coloring and slender forms.

The pattern of the layout also influences the visual qualities - and given that the view will be of a regular linear, pattern - a recognized pattern that limits visual impacts. Taken together, the considerations of the lake characteristics and setting, the visual qualities of the project itself, and the findings of the user analyses, all lead to the conclusion that while the project will potentially result in a ***MEDIUM overall scenic impact to Pleasant Lake***, that impact in no way exceeds a threshold of being unreasonable.

4.3.6 PUG LAKE (WEST GRAND LAKE)

A. Significance of the Scenic Resource

West Grand Lake, of which Pug Lake is a part, is identified as "Outstanding" with a Management Class of 3, indicating that it is potentially suitable for development. The following table provides a summary of the ratings and scores assigned to West Grand Lake in the "Evaluation." West Grand Lake achieved a lower score for "Outstanding" eligibility.

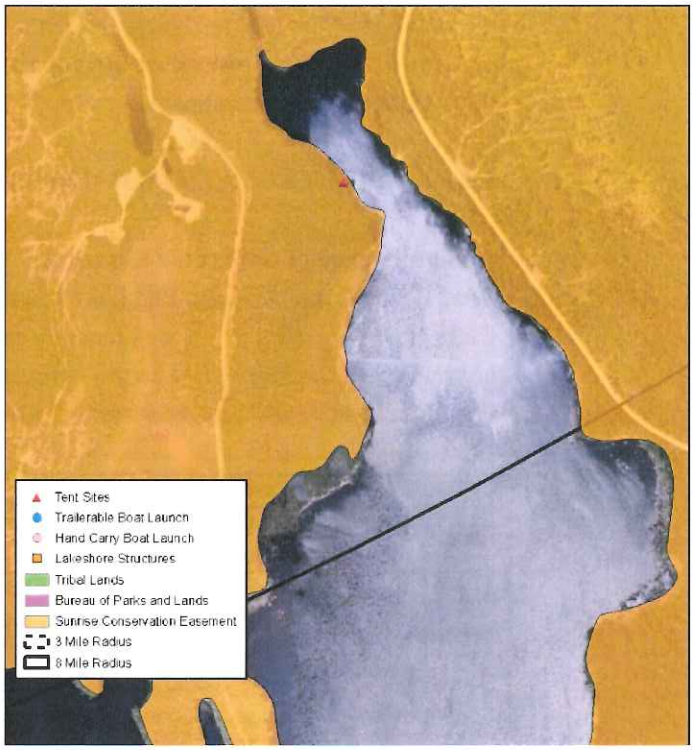
CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	High	25	25
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	High	15	15
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	Medium	15	10
Special Features	Water clarity and probability of observing wildlife	Medium	15	10
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Medium	-20	-5
Total			**100**	**65**

It is important to note that the ratings given by the "Evaluation" are based on West Grand Lake as a whole. Taken individually, Pug Lake would likely not receive the same scores or scores even high enough to be considered "significant" or "outstanding". In particular, the configuration of the lake itself is ordinary and the vegetation is typical of the region. There are no dramatic or

unique physical features and this portion of the lake itself is not particularly scenic. The landscape is generally flat or rolling and indistinct. ***Based on all of these factors, the significance of the scenic resource is LOW.***

B. Existing Character of the Surrounding Area

Pug Lake is one of the farthest lakes from the Project with the nearest visible turbine 7.7 miles away. Only a very small portion of the lake is within the Project's 8-mile radius, approximately 97.2 acres. Mixed forest cover generally surrounds this portion of the lake. Although there is no development at this location, roads run on either side of the lake, indicating that one is not within a remote wilderness. This portion of the lake is surrounded by the Sunrise Conservation Easement, which is managed primarily for forestry, wildlife habitat and recreation. It is not characterized by any distinct or dramatic physical features. ***Based on these factors, the existing character of the surrounding area is LOW.***



C. Typical Viewer Expectations

While Pug Lake is considered a part of West Grand Lake, which is a notable destination in the area, this small portion of the lake is not directly adjacent to the main body of water, nor is it along the route that connects Junior Bay to Junior Lake. One would have to intentionally travel up to this most northerly piece of West Grand Lake. However, there are no outstanding scenic qualities that would prompt someone to do so. Alternatively, there is a public boat launch at this point, which may increase the number of users, but it is more likely that this area of the lake is strictly used as a launching point to areas south of here, and not a place where one remains to enjoy the scenery. Pug Lake was not included in the Bowers Survey, so user ratings for scenic quality are not available. ***Based on all of these factors, typical viewer expectations are LOW.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

Although Pug Lake is considered a part of West Grand Lake, this portion is located at the very northeastern extreme of the main body of water. While there is a boat launch here, it is likely that most users are only launching their boats and then continuing on to all locations south. With a primitive tent site near the boat launch, camping and fishing are possible activities at Pug Lake, while winter activities could likely include snowmobiling as well. ***Based on all of these factors, the extent, nature and duration of public use is LOW.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

This particular area (within the Project's 8-mile radius) would not be a place where one stays to enjoy the scenery. Even if fisherman do stay for longer periods, they are most likely nearer to the shoreline, where there is no Project visibility. Given the low use of this portion of the lake and importantly the very limited visibility of the Project, ***the effect on continued use and enjoyment is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

Based on viewshed mapping, up to 6 turbines, or portions of turbines, may be visible within eight miles at a very limited area within the northern end of the lake. With the closest visible turbine at approximately 7.7 miles, this would be a background view. The turbines would take up a very small portion of the 360° view – 5.32° or only 1.5% which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 13). As can be seen in the visual simulation, only the hub of 1-3 turbines would have potential visibility, depending on viewer orientation in relation to dips in the shoreline vegetation, while the blades of a fourth turbine might be visible. Given their limited visibility and small appearance, these turbines would potentially be difficult to discern amongst the shoreline trees. ***Based on all of these factors, the scope and scale of visibility is LOW.***

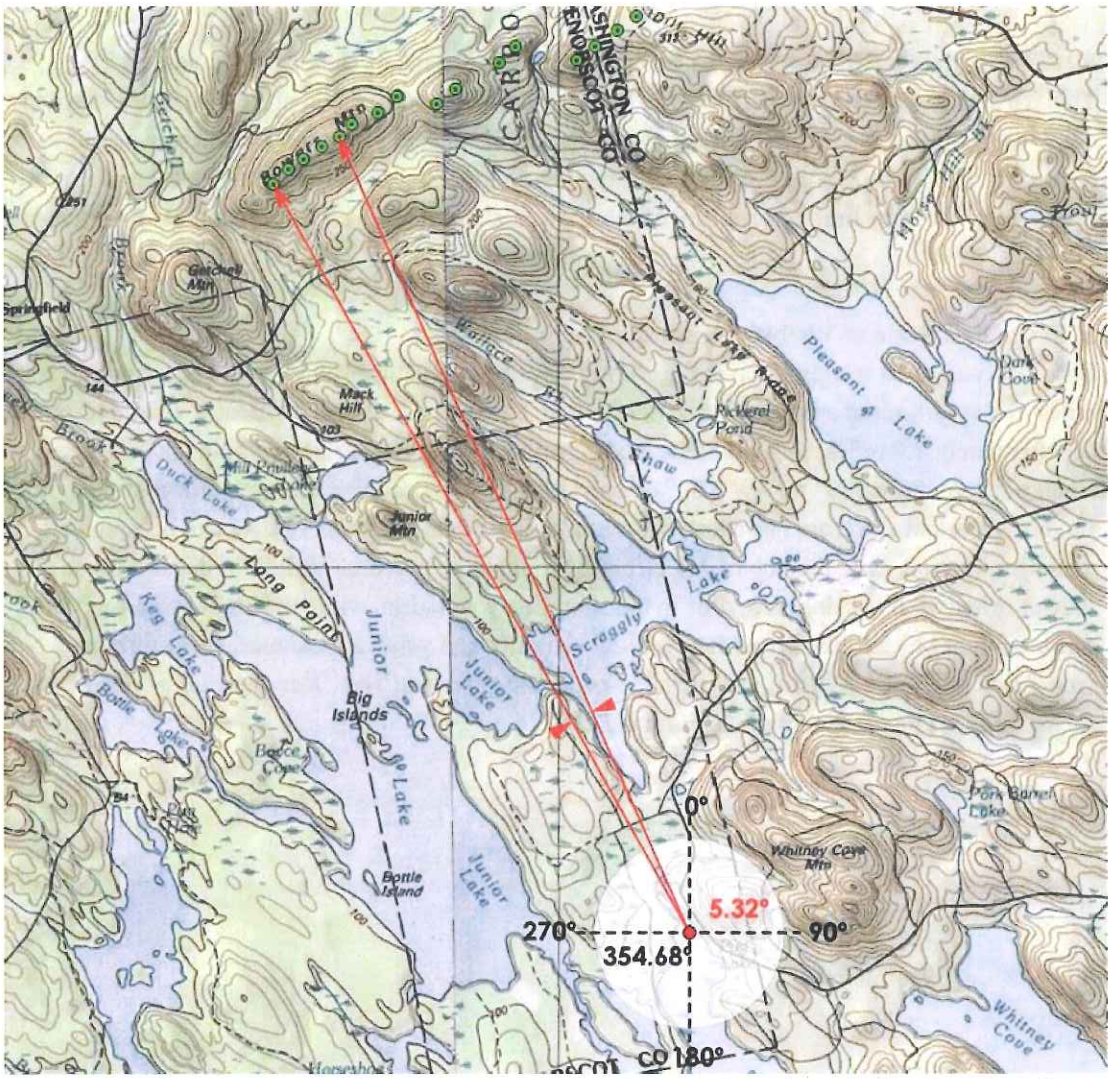


Diagram 13. Extent of view within 360° panorama at Pug Lake from the visual simulation location. Potential angle of view from this spot would be 5.32°.

G. Pug Lake (West Grand Lake) Overall Scenic Impact

It is important to note that less than half of Pug Lake is included in the 8-mile radius of the project. The Maine Lakes Assessment covers a much larger area outside of the 8-mile radius, including West Grand Lake, of which Pug Lake is actually a part. Thus, the overall assessment is only directly applicable to this small portion of Pug Lake. Based on the criteria for evaluating scenic quality, this portion of West Grand Lake would not qualify as significant or outstanding.

The distance of this lake from the turbine site and the portion of the individual turbines that will be visible greatly reduce the potential for visual impact. There is only a small portion of this lake that will have any visibility of the project, and this visibility would be at a distance of just under 8 miles. The visibility will be limited to the hubs of 1-3 turbines and the blades of a

fourth from limited vantage points only, and these elements will be difficult for users on the lake to discern given their presence within, rather than above, the surrounding treeline of predominantly white pines. This visibility assessment also assumes a 40 foot tree height. The actual height of trees in this area will have a critical impact on whether any hub or rotors would be visible at all (i.e. trees greater than 70 feet will block any potential views of the Project).

There will be minimal effect on the use and enjoyment of the typical user. Given the limited project visibility on Pug Lake and the nature of that visibility it is highly unlikely that there will be a substantive effect on users within the portion of the lake that is within the project area. ***Based on all of these factors, the overall scenic impact to Pug Lake (West Grand Lake) is LOW.***

4.3.7 SCRAGGLY LAKE

A. Significance of the Scenic Resource

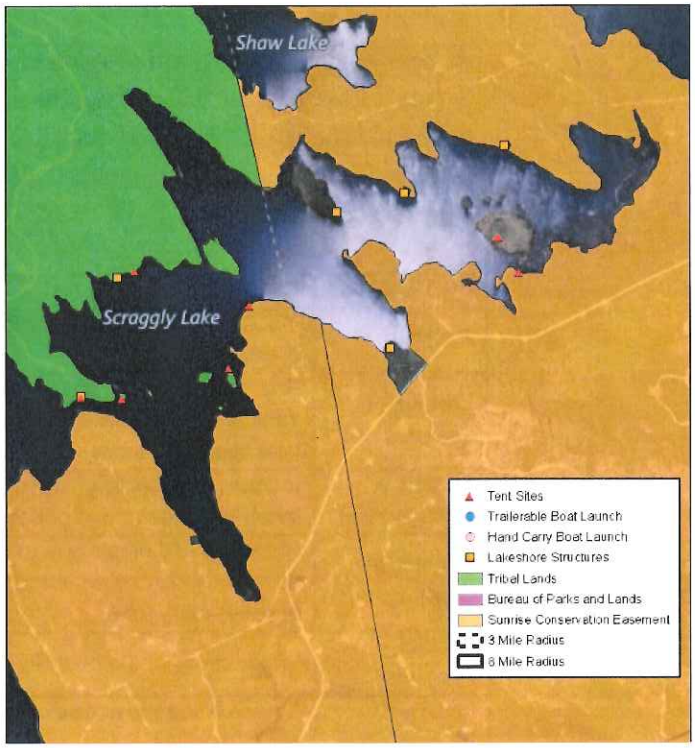
Scraggly Lake is identified as "Significant" with Management Class of 7, indicating that it has not been designated. The following table provides a summary of the ratings and scores assigned to Scraggly Lake in the "Evaluation". Scraggly Lake achieved the highest possible score for "Significant" eligibility.

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Low	25	10
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Medium	15	10
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	High	15	15
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Lo/N	-20	0
Total			**100**	**45**

Scraggly Lake has very limited lakeshore development scattered along the nearly 20 miles of shoreline. While the scenery is generally undifferentiated and indistinct throughout much of this wide lake, the shoreline complexity, marshy coves and islands provide some added visual interest. Evidence of logging on nearby ridges is also visible in several locations across the lake. ***Based on all of these factors, the significance of the scenic resource is MEDIUM.***

B. Existing Character of the Surrounding Area

Scraggly Lake is approximately 1,641 acres and is 4.1 miles from the nearest visible turbine. Nearly three-quarters of the lake is surrounded by the Sunrise Conservation Easement, while the remaining is tribal land. The scenery and topography visible from the lake is typical of the region, with low rolling hills, mixed forest cover, and marshy coves, while the irregularity of the shoreline and the presence of some small islands does add a level of visual interest. From the majority of the lake, Penobscot Bald Mountain represents the tallest and most distinct landform when looking toward the Project, thereby drawing the eye. Vinegar Hill and the unnamed hill northeast of it completely or partially block views of Bowers Mountain. While the lake is only 3.5 miles long, the varied shoreline extends nearly 20 miles through marshy coves and remote islands. There is a hand-carry boat/canoe launch at Hasty Cove off of Amazon Road. Located approximately 9 miles from Route 6, the access road to the boat launch is very rough and requires a high-clearance, off-road vehicle. Scraggly Lake can also be accessed by boat via Junior Lake, although this narrow passage is shallow and rocky during certain times of the year. The lake is also accessible from a half mile or less portage from Pleasant Lake. The difficulty in accessing the lake may create a feeling of remoteness. However, scattered camps and evidence of logging clearly visible from the lake introduces human intrusions that counter this idea of isolation. Accessing Scraggly Lake from Amazon Road, which clearly serves as a major access road for logging, also sets a tone of being in a working landscape. ***Based on all of these factors, the character of the surrounding area is MEDIUM.***



C. Typical Viewer Expectations

Of the users interviewed for the Bowers Survey, 100% rated Scraggly Lake as having higher scenic value. Although this indicates that viewer expectations are high for these users, other evidence suggests that overall viewer expectations could be lower based on the most common

The varied shoreline of Scraggly Lake

Logging activity is evident on the approach to many of the lakes, particularly along Amazon Road

recreational activities on the lake (i.e. fishing and boating) and when considering a broader interpretation of the typical viewer. Moreover, the results of the 2012 Baskehegan study also indicate that while people rate Baskahegan Lake as having high scenic value, most users (80%) are likely to return. Given that Baskahegan has 39 more turbines visible than Scraggly, it can be inferred that turbines will not necessarily detract from viewers expectations of Scraggly. The difficulty in accessing the lake and limited development along the shoreline does create a feeling of remoteness (but it is not designated as remote by LURC). However, this feeling is tempered somewhat by the viewer's awareness that the lake is located in a working landscape with some visible logging activity. The lake also sees a moderate amount of use for the area even though access is not easy. ***Given these factors, the typical viewer expectations are MEDIUM-HIGH.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

According to the Bowers Survey, the most popular activities on Scraggly Lake are observing wildlife, enjoying/viewing the scenery, camping, and fishing. Winter activities would likely include snowmobiling as well. Scraggly Lake sees a moderate to low amount of fishing, boating, paddling, and camping. The Bowers Survey recorded an average of approximately 3 boats and 5 people on shore during a half-day period, with a maximum of 10 boats and 25 people on shore recorded. Of the lakes studied in this survey (excluding Shaw), this represented the lowest average boat count and the middle of the average people on shore counts. There is one hand-carry boat launch on the eastern shore of Hasty Cove, and motorboat access is only possible by connecting through Junior Lake. At times paddlers are more common due to access issues- in particular when low water levels makes travel from Junior Lake to Scraggly Lake difficult. Quoting one website "...wild and remote, this is the paddler's ideal lake: too shallow for most motorboaters and far enough from road access that you have to do some work to get here."[35] There are no publicly owned campgrounds or campsites on Scraggly Lake, but there are six primitive privately maintained tent sites that are available for public use, three of which are only

[35] http://www.trails.com/tcatalog_trail.aspx?trailid=CGN022-047

accessible by boat. Scraggly Lake is connected to the Grand Lake Chain of Lakes, and camping is available at three primitive sites accessible to the public. ***Based on these factors, the extent, nature and duration of public use is LOW.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

The recent survey results and our understanding of the nature of the lake's use suggest that the Project would not result in a significant negative impact on use and enjoyment of the lake. The Bowers Survey found that 77% of respondents stated that simulated conditions (depicting the proposed wind project) would have no effect their decision to visit in the future or their likelihood to return. The survey also found that 50% of respondents stated that simulated conditions would have no effect or positive effect on enjoyment of their visit. ***Based on all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

Based on viewshed mapping, up to 16 turbines, or portions of turbines, may be visible within 8 miles from portions of the lake as middleground to background views. From the boat launch, there are direct views of Bowers Mountain, but Dill Hill is obscured by shoreline vegetation. As such, any visibility of the four turbines on Dill Hill would be very limited from this vantage point. From the majority of the lake, Penobscot Bald Mountain represents the tallest and most distinct landform when looking toward the Project, thereby drawing the eye. Vinegar Hill and the unnamed hill northeast of it completely or partially block views of some turbines on Bowers Mountain, serving to visually break-up views of the Project. Shoreline vegetation obscures portions of the turbines on Dill Hill as well, thereby lessening their visual impact (see Exhibit 18: Visual Simulation from Scraggly Lake). From the simulation viewpoint, the turbines would take up a limited portion of the 360° view – 36.4° or only 10.1% of the 360° view, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 14). Even at a closer location on the lake, the angle of view still occupies a limited human field of vision – 43.23° or only 12% of the 360° view (see Diagram 15).

Scraggly Lake has a complex shoreline with several coves, many of which would provide visual isolation from the turbines. The numerous wooded islands would also buffer or block views of the Project, and the enjoyment of their picturesque qualities would not be undermined. Few to no turbines would be visible when approaching the northern shore of the lake due to intervening topography and vegetation.

Although the turbines are visible throughout much of the lake, they would not be an unduly dominant visual presence. The nearest visible turbine would be 4.1 miles away at the northwest end of the lake. Under no circumstances would the viewer perceive that the turbines are visually dominant, as a result of their distance and the height of the turbines in relation to the surrounding vegetation and topography. In addition, the ordered distribution of turbines along the ridge

presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is MEDIUM.***

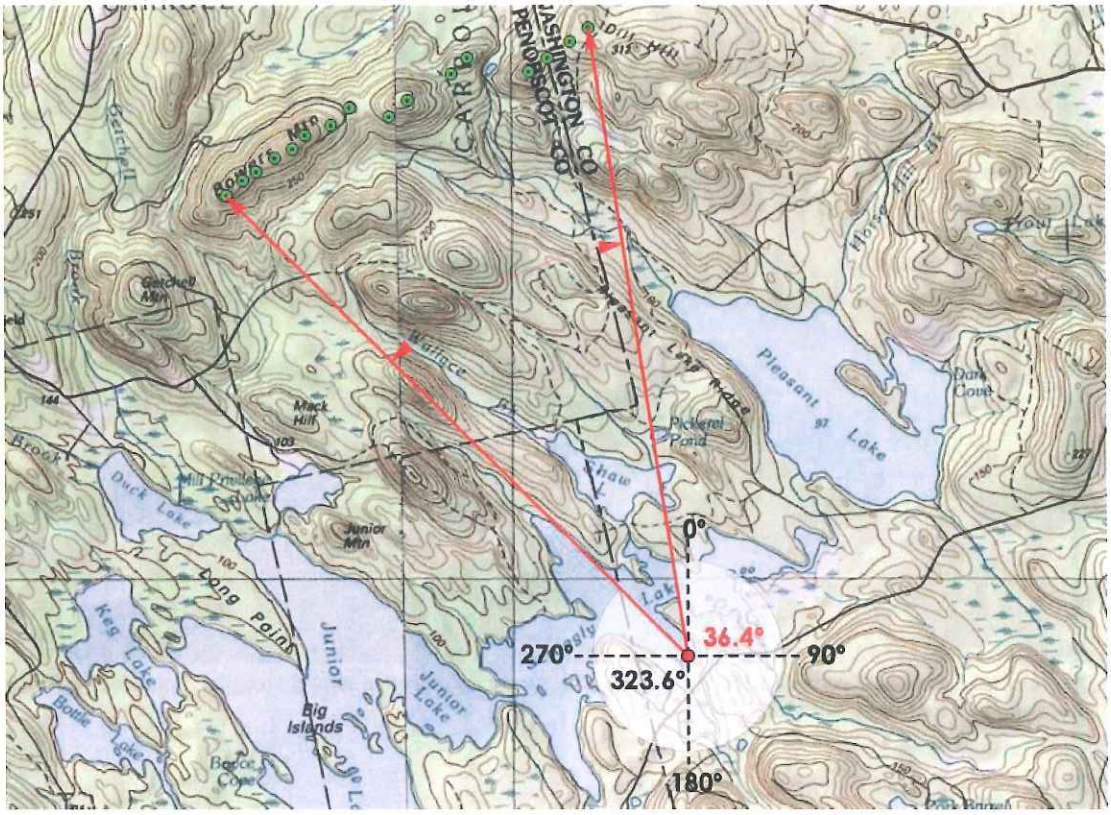


Diagram 14. Extent of view within 360° panorama at Scraggly Lake from the visual simulation location. Potential angle of view from this spot would be 36.4°.

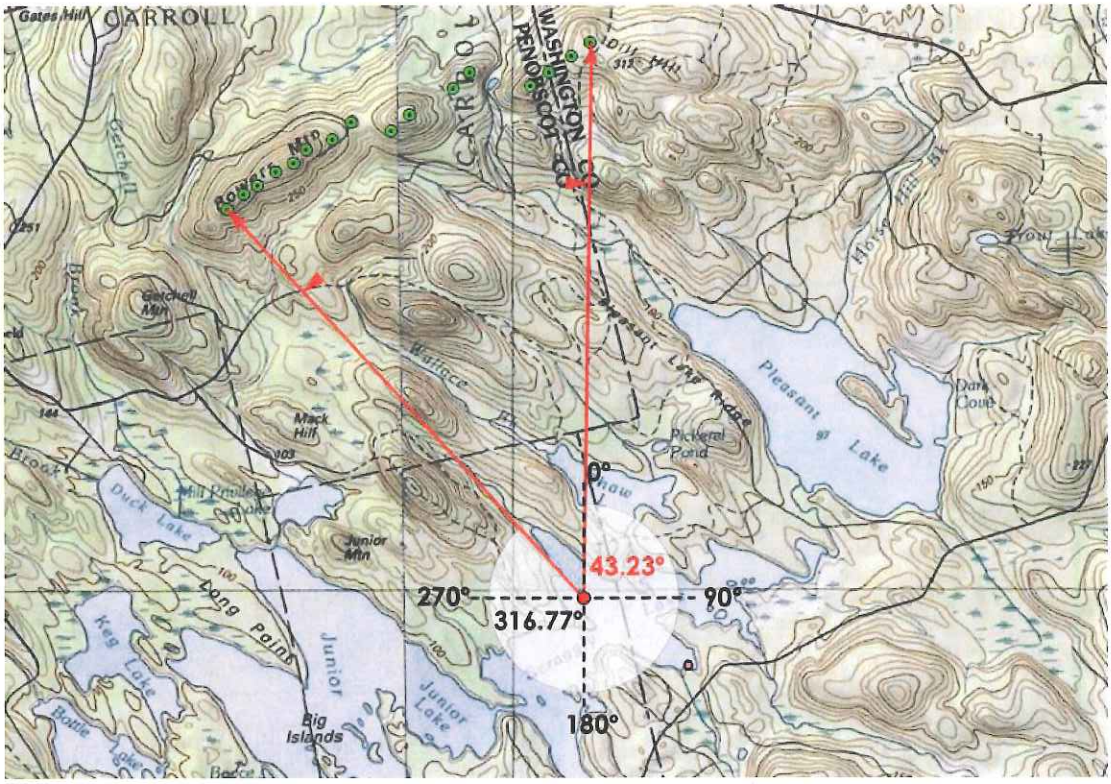


Diagram 15. Extent of view within 360° panorama at Scraggly Lake from a second location. Potential angle of view from this spot would be 43.23°.

G. Scraggly Lake Overall Scenic Impact

Scraggly Lake is listed as "significant" in the Maine Wildland Lakes Assessment and rates high for vegetative diversity, but low for other important scenic characteristics such as "presence of scenic physical features" and relief. There are no special features identified. A distinguishing feature of this lake is the actual rock strewn shoreline configuration with its many coves and beaches. This character provides opportunities for close-to-shore paddling and fishing, whereas the overall orientation of the lake provides for long fetches where the prevailing winds can build and create rough water. Scraggly Lake is a difficult lake to access due to the condition of the boat launch access. Low water levels also, as stated, limit access and use. Survey results indicated that Scraggly Lake gets less than 1/2 the use that Pleasant or Junior receive. The lake does have distinct scenic qualities, but it is also within the context of extensive timber harvesting, a fact reinforced by the drive to the lake where logging activity is readily present, and the view of timber harvesting on the hills surrounding the lake where cuts and logged areas are clearly visible.

The visual qualities of the lake and project layout diminish the overall perceived project impact. The potential visual effects (or impacts) of the project are qualified by the distance of the nearest visible turbine at 4.1 miles. This factor coupled with the continuous foreground and midground "roll" of the landscape diminishes the prominence of the turbine array. It can also be

posited that the extent of the project and linear layout reduces the potential for the view of the project to act as a distinct focal point that will continually draw the eye.

The variety of coves and shoreline elements, along with the general configuration of the lake and the resulting patterns of use provide many options for water travel, direction and orientation. Although the viewshed indicates that the project will be potentially visible in many sections of the lake, this visibility is also qualified by the habits of the users. For example, and as described in the section on the "Typical User", paddlers tend to hug shorelines, and anglers tend to focus on the fishing and float in particular locations that may or may not be in view of the project.

The potential impacts to the lake user do not rise to the level of being unreasonable. First of all, the access to the lake limits the overall user numbers, and thus the potential number of recreationists who might be affected by the project. As stated, the lake's configuration and numerous islands and coves provide extensive areas from which the project will not be visible. Secondly, and perhaps the most important consideration, is the fact that the surveys conducted indicate that for 73% of the respondents they will be likely to return or the project will have no effect on their likelihood to return to this lake after the project is constructed. (Kleinschmidt, Table 4.3-1, p.26) This is the true test of project impacts – that they are not unacceptable, or will prevent people from continuing to use the lake as they do currently. ***Based on all of these factors, the overall scenic impact to Scraggly Lake is MEDIUM.***

4.3.8 SHAW LAKE

A. Significance of the Scenic Resource

Shaw Lake is identified as Significant with a Management Class of 7, indicating that it has not been designated. The following table provides a summary of the ratings and scores assigned to Shaw Lake in the "Evaluation". Shaw Lake ranked in the higher range of scores for "Significant" eligibility.

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands and beaches)	Medium	25	15
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	Low	15	5
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	Medium	15	10
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious	Camps lining the edge of a lake, heavily eroded	Lo/N	-20	0

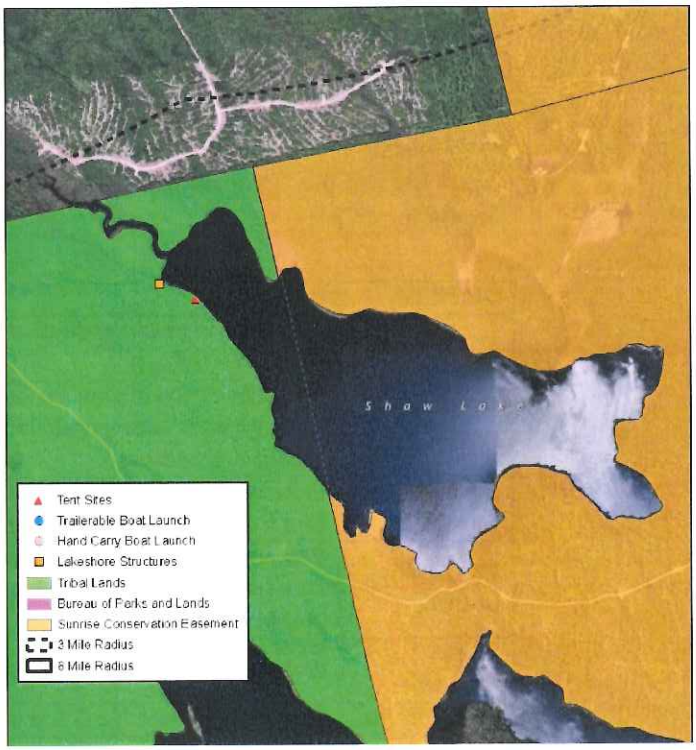
CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Development	shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc			
Total			**100**	**40**

Shaw Lake has virtually no visible lakeshore development and is isolated due to its primitive accessibility and public amenities. While the scenery is generally undifferentiated and indistinct, a horizontal ridge to the north provides some added visual interest. ***Based on all of these factors, the significance of the scenic resource is MEDIUM.***

B. Existing Character of the Surrounding Area

Shaw Lake, located in the townships of T5 R1 within Penobscot County and T6 R1 within Washington County, is approximately 251 acres. This lake is located 3.5 miles from the nearest visible turbine. There is no development on the shoreline of the lake and access is only possible by way of a single gravel road, which is only passable during limited times of the year and typically only by 4x4 vehicles. Roughly three-quarters of the lake is surrounded by the Sunrise Conservation Easement, with the remaining bordering tribal land to the west and north. Just beyond the lake to the north is the 66-lot Vinegar Hill Subdivision, situated on nearly 3,150 acres. To date, there are approximately 40 houses or seasonal camps located within the subdivision, which is served by more than 17 miles of interior roads that have been developed to Commission standards that require 15-foot wide gravel roads.

The landscape and topography around this lake is typical of the region with only a few, low rolling hills visible. A relatively horizontal ridge, visible just above the tree line, defines the majority of the long distance views to the north. Mixed forest characterizes the hillside vegetation, while the undeveloped shoreline is dominated by evergreen tree species. Shaw Lake is the third closest lake to the Project, but views of Bowers Mountain and a portion of Dill Hill are blocked due to intervening topography. ***Based on all of these factors, the character of the surrounding area is MEDIUM.***



C. Typical Viewer Expectations

Although scenic ratings were not available for the Bowers Survey due to absence of any users, one could infer that the high scenic rating for Pleasant Lake would apply to Shaw Lake, due to similarity in terms of scenic quality (See Boyle report). Of

all the lakes with visibility within 8 miles of the project, this lake definitely has the lowest use, and it is likely not known by people outside the local area. Access is very difficult (there is no publicly designated boat launch), it is not connected to any other lakes, and it is very modest in size. The difficulty in accessing the lake and limited development along the shoreline does create a feeling of remoteness (but it is not designated as remote by LURC), but this is tempered somewhat by the viewer's awareness that the lake is located in a working landscape with logging activity and neighbors a large subdivision with high density build-out. When activity does take place on this lake, it is assumed to be fishing and paddling. ***Based on these factors, typical viewer expectations are LOW-MEDIUM.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

Use of this lake is very limited (no one was observed during the course of the Bowers study conducted by Kleinschmidt) and is most likely limited to the occasional adventurous, inveterate paddlers and anglers. Winter activities could likely include snowmobiling as well. According to a 1974 MDIFW survey, the lake provides good habitat for warm water gamefish, and is noted for its smallmouth bass fishery. Access to the lake is very difficult. There are no publicly designated boat launches, and only a single primitive tent site. Although there is a logging road that passes by the lake to the south, it appears to be impassable. Shaw Lake can be accessed from Scraggly Lake to the south, less than 1/8 of a mile away, via a canoe or kayak portage over the logging road which divides the two lakes, along an unclearly marked, densely wooded streamside path, leading to a debris filled shallow stream which connects to Shaw Lake upstream. ***Based on these factors, the extent, nature and duration of public use is LOW.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

Our understanding of the nature of the lake's use and subsequent viewer expectations do not suggest that the Project would result in a significant negative impact on use and enjoyment of the lake. Of all the lakes with visibility within 8 miles of the Project, this lake definitely has the lowest use as confirmed in the Bowers Survey, and it is likely not known by people outside the local area. However, just because use is extremely low, it does not automatically translate into a remote and pristine lake that would be negatively impacted. Indeed, in this case the lake's proximity to a 66-lot subdivision would preclude it being designated as "remote." It is simply a lake that is not used very often because it lacks any defining characteristics that would normally draw people to it. In that case, continued use and enjoyment would not be negatively impacted by the Project because use is already low due to

View of Shaw Lake from adjacent access road

factors other than scenery. ***Given these considerations, the effect on continued use and enjoyment of the scenic resource is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

According to viewshed mapping, up to 14 turbines may be visible within 8 miles from the southern shore of Shaw Lake, with the closest turbine being in the midground at 3.5 miles away. For as many as 5 of these turbines, however, only views of blades would be likely. While Dill Hill is visible from Shaw Lake, the other ridges with proposed turbines are not visible due to the intervening topography associated with Vinegar Hill and unnamed ridges. As such, the majority of the visible turbines tend to visually 'hug the ridgeline,' thereby lessening their potential visual impact (see Exhibit 19: Visual Simulation from Shaw Lake). From the simulation viewpoint, the turbines would take up a limited portion of the 360° view – 44.7° or 12.4% of a 360 degree view, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 16) The viewer would not perceive that the turbines are visually dominant in relation to the terrain. Dill Hill has a very flat and indistinct form from this vantage point, while Vinegar Hill and the peak directly northeast of it appear as the most pronounced hills when looking toward the Project site. As indicated in the visual simulation, the visual forms of these hills would remain dominant compared to the turbines visible around them. In addition, the ordered distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is MEDIUM.***

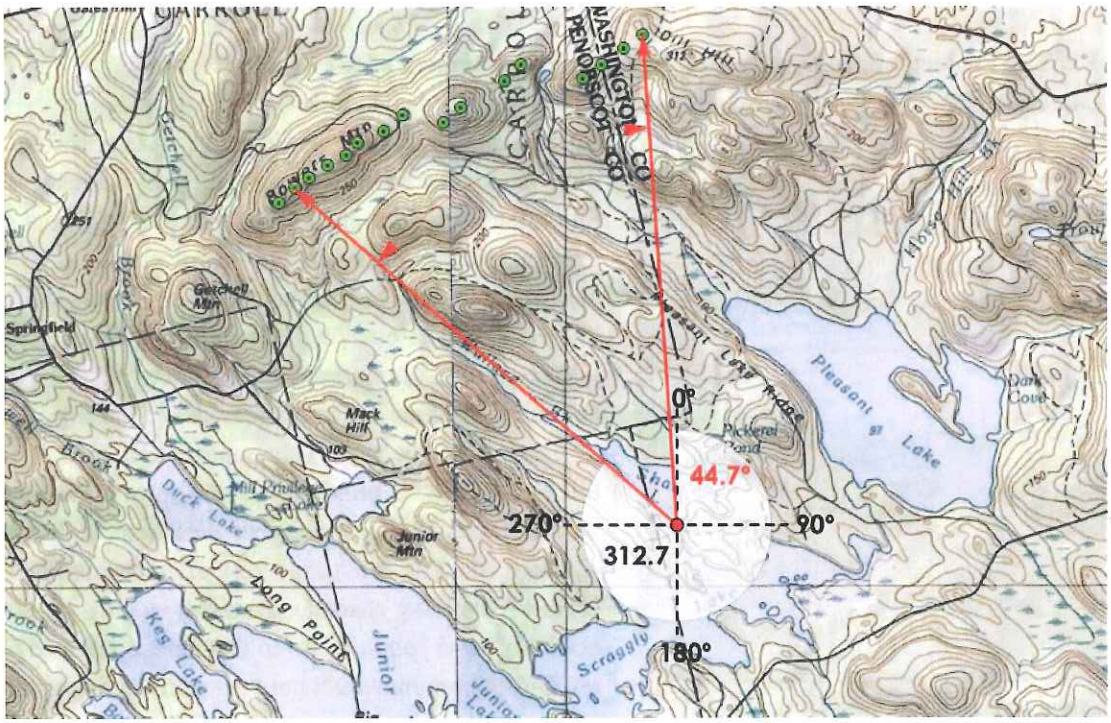


Diagram 16. Extent of view within 360° panorama at Shaw Lake from the visual simulation location. Potential angle of view from this spot would be 44.7°.

G. Shaw Lake Overall Scenic Impact

The most important aspect of Shaw Lake for the purposes of this review is the lack of suitable access which translates into very low use of this resource. This low use was evidenced by the survey process, which during the 2012 monitoring effort, no individuals were observed using this lake. The lake, which has a rating of "significant", has not been designated as remote under LURC classifications and therefore is not considered to be a wilderness setting where the presence of turbines would potentially affect that quality. This is another lake that received no points for special features. The nearest visible turbine will be 3.5 miles from the lake. Only about 1/2 the lake will have views of 9 to 14 turbines, although intervening topography will block portions of both Bowers Mountain and Dill Hill and portions of the project.

The project will not appear overly dominant. Despite the proximity of the lake to the project site, the topographic forms of the low ridges near to the lake to the north/northwest and the Bowers Mountain and Dill Hill landforms will continue to be the primary visual element when looking towards the project. The regular pattern and linear nature of the array reflects accepted practice for reducing visual impact by providing order and pattern to the turbine siting. Thus, the project visibility in and of itself is not necessarily a negative factor to the experience of the lake.

The project will not unreasonably affect users. The low number of users for this lake coupled with the overall survey results of both the Baskahegan and Bowers project area lakes reinforce the fact that having wind turbines in view does not necessarily diminish the likelihood of users to return to this resource. As Professor Boyle has stated in his report, "The survey results indicate that the effect of the wind farms "presence on the public's continued use and enjoyment of the scenic resource" [35-A M.R.S.A. Section 3452(3)] will be minimal". ***Based on all of these factors, the overall scenic impact will be LOW-MEDIUM.***

4.3.9 SYSLADOBSIS LAKE

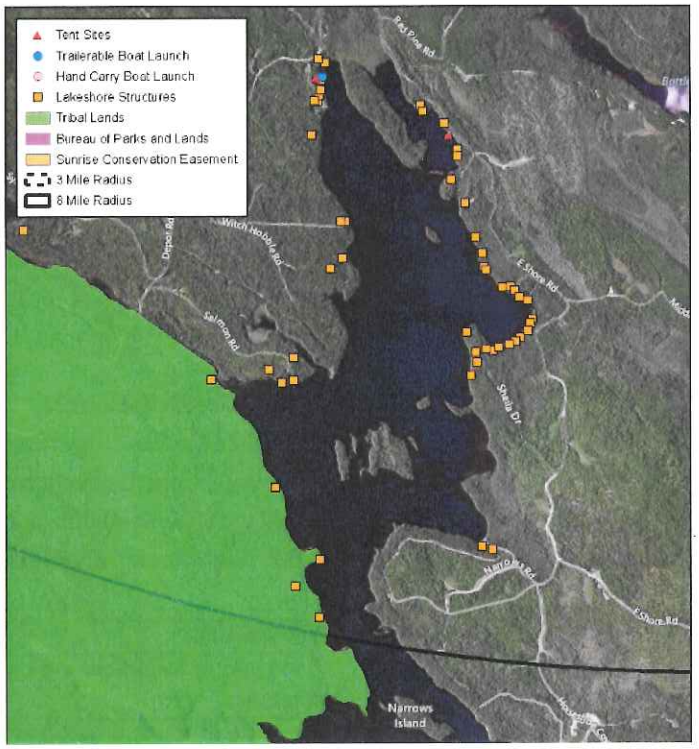
A. Significance of the Scenic Resource

Sysladobsis Lake is identified as "Significant" for scenic quality with a Management Class of 4, indicating that it is a high valued, developed lake. The following table provides a summary of the ratings and scores assigned to Sysladobsis Lake in the "Evaluation". Sysladobsis Lake achieved the highest score for "Significant" eligibility.

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Two types of relief were evaluated - complex or dramatic.	Low	30	10
Physical Features	Presence of scenic physical features (Cliffs, vertical ledges, slab ledges, rockslides, boulders,	Medium	25	15

CRITERIA	DEFINITION	RATING	MAX. PTS	SCORE
	islands and beaches)			
Shoreline Configuration	Index of complexity of shoreline based on a lake's variation from a perfect circle.	High	15	15
Vegetation Diversity	Presence and diversity of mixed hardwoods or softwoods, softwoods, marsh and the presence of super-story trees	Low	15	5
Special Features	Water clarity and probability of observing wildlife	None	15	0
Inharmonious Development	Camps lining the edge of a lake, heavily eroded shorelines, powerlines or roads that are site intrusively, dammed lakes with drastic drawdowns, dams that are intrusive, etc	Lo/N	-20	0
Total			**100**	**45**

It is important to note that the ratings given by the "Evaluation" are based on Sysladobsis Lake as a whole. Only a small portion of this large lake is located within the 8-mile viewshed and may not, on its own, receive the same scores as the entire lake. Many camps and homes line the shoreline in this portion of the lake, with particular concentration on the eastern side. The scenery in this portion is generally undifferentiated and indistinct, aside from a somewhat varied shoreline and some dispersed islands. There are no dramatic or unique physical features and this section of the lake itself is typical of other lakes in the region. ***Based on all of these factors, the significance of the scenic resource is LOW-MEDIUM.***



B. Existing Character of the Surrounding Area

Sysladobsis Lake, located in the town of Lakeville and stretching across Washington and Penobscot Counties, is approximately 5,401 acres with the upper 689 acres located within 8-miles of the Project. About one-quarter of the lake within the 8-mile study area borders tribal land on the west. This lake is 6.3 miles from the nearest visible turbine. Consistent with the character of the surrounding region, this lake is surrounded by low hills and mixed forest cover. The lake is narrow and long with a generally rocky shoreline, interspersed by several sandy beaches. There are several shoals and rocky points, and at least eight identified islands throughout the lake, adding to the lake's interest. At the upper end of the lake, coves with marshy, weedy shorelines are evident. The lake is impounded with a dam located at the

southeastern end that raises the water level approximately six feet. Coldwater and warm water fish are present.

Within 8-miles of the Project, there are about 52 private camps and homes scattered along the lakeshore, with more concentrated development on the eastern shore. A private campground is located along the northwestern shore near the public boat launch, but it is unclear whether or not it is still in business. ***Based on all of these factors, the character of the surrounding area is LOW.***

C. Typical Viewer Expectations

While not widely known for its scenery, Sysladobsis is a moderately used lake with a significant amount of development, indicating that scenic expectations of users would not be high. Because it is annually stocked with fish, the lake is commonly used by anglers and boaters as well as campers, whose focus is not typically on scenic quality but quality of the fisheries. Sysladobsis Lake was not included in the Bowers Survey, so user ratings for scenic quality are not available. ***Given these factors, typical viewer expectations are LOW.***

E1. Extent, Nature and Duration of Public Use of the Scenic Resource

Fishing, boating, paddling, swimming and camping are common recreational uses of this lake. Winter activities would likely include snowmobiling as well. There is one motorboat launch and up to two campgrounds located in the portion of the lake within the Project's 8-mile radius. Annually stocked salmon, and the presence of bass, perch and pickerel draw fishing enthusiasts to this lake, but not necessarily this section of the lake. A local fishing and hunting guide suggests that this lake receives medium to high frequency of use by anglers, notably in the spring during salmon fishing season, but this is for the entire lake in general. This particular portion of the lake likely sees fewer users and less activity. ***Based on these factors, the extent, nature and duration of public use is LOW.***

E2. The Project's Effect on Continued Use and Enjoyment of the Scenic Resource

Sysladobsis Lake was not included in the Bowers Survey, so ratings on continued use and enjoyment are not available. Our understanding of the nature of the lake's use and subsequent viewer expectations do not suggest that the Project would result in a significant negative impact on use and enjoyment of the lake. In addition, fishing is anticipated to be the primary use and Palmer (1999) found that fishing was an activity where people did not appear to place as high a value on scenic quality as people who hiked or paddled." ***Based on all of these factors, the effect on continued use and enjoyment of the scenic resource is LOW.***

F. Scope and Scale of Visibility from the Scenic Resource

Looking south from the northernmost boat launch on Sysladobsis

Viewshed mapping indicates that up to 10 turbines may be visible within eight miles as background views, but the majority of visibility (roughly 2/3) will be of less than 7 turbines, with the closest visible turbine being 6.3 miles away. The turbines visible on Dill Hill would appear small and clustered due to distance and angle of view. The majority of the lake is beyond 8 miles. Even for the portion of the lake within 8 miles of the Project, many areas of the lake would be without visibility, notably along the northern and eastern shore. The cove that connects to Upper Sysladobsis Lake would have no visibility, and the large islands on the lake would buffer or block views as well. The boat launch and two tentsites at the northern end of the lake will also have no visibility. Due to the distance and angle of view, the most visible turbines would appear relatively clustered and small, taking up only 2.8% (or 10.25°) of the 360° view from the simulation viewpoint, which occupies a small portion of the human field of view and therefore has decreased visual impact (see Diagram 17). In addition, Getchell Mountain is the proximate landform in view, and it would serve to provide visual balance to the turbines on the adjacent Bowers Mountain (see Exhibit 20: Visual Simulation from Sysladobsis Lake), contributing to the landscape's ability to visually absorb the Project. The surrounding landforms such as Chamberlain Mountain and Almanac Mountain to the west would also provide visual interest and draw the eye. Aside from minor clustering of turbines to the east, the distribution of turbines along the ridge presents a harmonious layout and does not create a sense of visual clutter. ***Based on all of these factors, the scope and scale of visibility is LOW.***

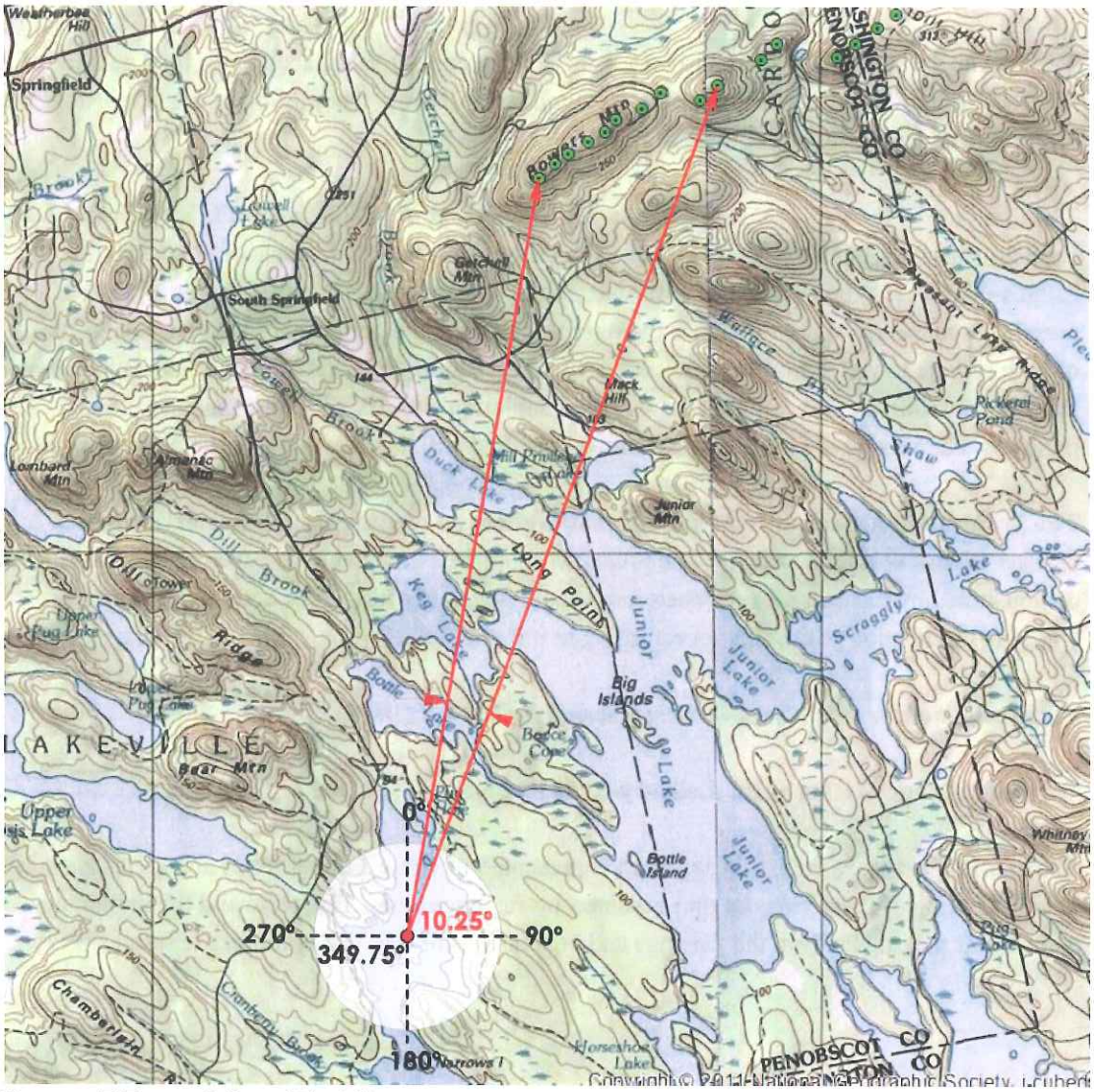


Diagram 17. Extent of view within 360° panorama at Sysladobsis Lake from the visual simulation location. Potential angle of view from this spot would be 10.25°.

G. Sysladobsis Lake Overall Scenic Impact

Sysladobsis Lake is designated a "significant" lake in the Maine Wildlands Lake Assessment. Only a small portion of the northerly extent of Sysladobsis Lake is within the 8 mile project area, and of this portion 58% will have potential views of the project. The closest visible turbine is 6.3 miles. The section within the project area has extensive camp development, and most of these camps do not have orientation towards the project. As stated, there is one commercial campground listed in this area, Spruce Lodge Campground, but no listing for the campground was found (so it cannot be confirmed if it is still operating), and the mapped site for the campground will not have any views of the project. There are no special features associated with this portion of the lake as established in the Assessment.

The lake as a whole is considered to have good fishing and is readily accessible via a number of launches for motorboats, although these are some distance from that portion of the lake within the project area – the closest being over 3 miles.

The distance of the project from the lake and the extent of project visibility significantly reduces the potential for visual impact. The closest visible turbine as shown in the simulation for this lake is 7.1 miles and the array is clustered in a manner that greatly reduces its visual presence on the lake. At this distance the turbines appear to be quite small, and the slender forms of both turbine tower and turbine rotors reduce their visibility in a wide range of atmospheric and sun angle conditions. The angle of view at the simulation site, 10.25°, confirms this fact and indicates that only a very small portion of the shoreline will have the view of the project beyond.

The project will not result in an unreasonable effect on scenic character or existing uses related to that scenic character. The project will not be a dominant presence on the lake, as demonstrated by the analysis, and therefore should not overly distract or deter users from enjoying this portion of the lake, or returning to it in the future.

Based on all of these factors, the overall scenic impact is LOW.

4.2.10 Summary Matrix of the Lake-by-Lake Analysis

The matrix that results from this approach is presented in Table 2 that follows and yields an overall ranking of scenic impact on a resource-by-resource basis. This table and the individual and overall rankings inform the findings and conclusions of this Visual Impact Assessment.

Table 2. Summary of Statutory Criteria's Effect on Scenic Impact

NA = the Project is not visible from the resource or there are no turbines within 8 miles that are visible, therefore the criteria is not evaluated for its effect on scenic impact
Low = the criteria's effect on scenic impact is low
Med = the criteria's effect on scenic impact is medium
High = the criteria's effect on scenic impact is high

SCENIC RESOURCE OF STATE OR NATIONAL SIGNIFICANCE	[2]STATUTORY EVALUATION CRITERIA							OVERALL SCENIC IMPACT
	A.	B.	C.	D.	E.1[1]	E.2	F.	
Bottle Lake	Low	Low	Low	Low	High	Low	Low	**Low**
Duck Lake	Low	Low	Low	Low	Low	Low	Low	**Low**
Horseshoe Lake	NA	NA	NA	NA	NA	NA	NA	**NA**
Junior Lake	Med	Med	Med	Low	Med	Low	Med	**Med**
Keg Lake	Low	Low-Med	Low-Med	Low	Low	Low	Med	**Low-Med**
Lombard Lake	NA	NA	NA	NA	NA	NA	NA	**NA**
Norway Lake	NA	NA	NA	NA	NA	NA	NA	**NA**
Pleasant Lake	Med	Med	Med-High	Low	Med	Low	Med	**Med**
Pug Lake (West Grand Lake)	Low	Low	Low	Low	Low	Low	Low	**Low**
Scraggly Lake	Med	Med	Med-High	Low	Low	Low	Med	**Med**
Shaw Lake	Med	Med	Low-Med	Low	Low	Low	Med	**Low-Med**
Sysladobsis Lake	Low-Med	Low	Low	Low	Low	Low	Low	**Low**
Upper Sysladobsis Lake	NA	NA	NA	NA	NA	NA	NA	**NA**
West Musquash Lake	NA	NA	NA	NA	NA	NA	NA	**NA**
Springfield Congregational Church	NA	NA	NA	NA	NA	NA	NA	**NA**

[1]Note that this criterion does not assess impact to scenic quality. A resource that receives low use (and subsequently a low rating for E1) but has high scenic quality, such as a remote pond, could still receive a high overall scenic impact rating based on contributions from other criteria. Likewise, a resource that has a high use (and subsequently a high rating for E1) but has low scenic quality due to shoreline development or other considerations could still receive a low overall scenic impact rating based on contributions from other criteria.

[2]Statutory Criteria

A. Significance of the Scenic Resource
B. Existing Character of the Surrounding Area
C. Typical Viewer Expectations
D. Purpose and Context of the Proposed Activity
E.1 Extent, Nature and Duration of Public Use of the Scenic Resource
E.2 The Project's Effect on Continued Use and Enjoyment of the Scenic Resource
F. Scope and Scale of Visibility from the Scenic Resource

4.4 Nighttime Lighting

One critical element of visual impact resulting from utility scale wind projects is night lighting. Night lighting of this project will potentially affect users of all the lakes and ponds analyzed as part of the VIA. While nighttime impacts are greatly diminished by the fact that recreation is limited during the night time hours, those users who are camping, fishing at dusk, out for moonlit paddle, or camp owners with visual access to the project will be affected.

Despite the fact that the nighttime lights do not produce glare and do not directly impact the viewing of the night sky, there is an annoyance factor associated with the continuous on-off operation of the beacons, as required for aircraft safety. The night sky is a cherished resource and the impact cannot be overlooked. The applicant has committed to installing a radar-assisted lighting system to mitigate any impacts once the FAA has approved it for wind applications in the United States, and this Project. Until such time, red-flashing lights per FAA standards will need to be used. As such, an analysis of these temporary conditions has been conducted as part of the VIA.

For any of these lake resources from which turbine lights may be seen, the number of lights visible will vary depending on the position of the observer on the surface of the water (see also Exhibit 8: Meteorological Tower Viewshed Map, Exhibit 9: Turbine Night Lighting Viewshed Map, and Exhibit 10: Annotated Visual Simulations).

- Bottle Lake. No lights will be visible for most of the northern half of the lake. Along the southern portion of the lake 3-4 lights will most likely be visible with up to seven lights visible in the cove along the southern shoreline. The met tower light will not be visible from Bottle Lake. There are no publicly owned or maintained campgrounds or campsites on Bottle Lake.

- Duck Lake. No lights will be visible along the northern/eastern shoreline. Four lights will be seen over most of the lake, with up to 7 lights visible for a small portion along the southernmost shoreline. An insignificant area on Duck Lake may have the potential to see the met tower light. There are no publicly owned or maintained campgrounds or campsites on Duck Lake.

- Junior Lake. No lights will be visible from the northernmost shoreline and most of the eastern shoreline. From the northern half of the lake (above the islands), anywhere from 1-4 lights will be visible. From the southern half of the lake, anywhere from 5-7 lights will be visible with the most visibility east and south of Bottle Island. The met tower may also be visible from this area, as well as a small area in the northeasternmost portion of the lake. There are no publicly owned or maintained campgrounds or campsites on Junior Lake. There are several tent sites situated around the lake that are available for public use, but are privately maintained:

- McKinney Point Tent Site – located on western side of peninsula and will have no views of the Project.
- Mosquito Island Tent Site – located on the southern shore of the island and will have no views of the Project.
- Big and Bline Island Tent Sites – campsites are wooded with only partial views possible through the trees, depending on viewer location and type of forest cover, tree height, and branching density. Based on the viewshed analysis turbine lights may be visible at the water's edge.
- Bottle Island Tent Sites (2) – located on western and southern shores of the island and will have no views of the Project.
- Junior Lake Tent Site – campsites are located near, but not on, the shoreline and may have partial views possible through the trees, depending on viewer location and type of forest cover, tree height, and branching density. Based on the viewshed analysis turbine lights may be visible at the water's edge.
- Junior Lake Cove Tent Site – campsites are heavily wooded with only glimpses possible through the trees. Based on the viewshed analysis turbine lights may be visible at the water's edge.

- Keg Lake. No lights will be visible along the northern and eastern shorelines, as well as the westernmost cove. Most of the lake will see 3-5 lights, while a portion along the western shore may see up to 6 lights. An insignificant area on Keg Lake may have the potential to see the met tower light. There are no publicly owned or maintained campgrounds or campsites on Keg Lake.

- Pleasant Lake. Portions of Dark Cove and along the northernmost shoreline will have no visibility of the lights. Anywhere from 1-8 lights will be visible from the remainder of the lake, with the least visibility in the northwestern most cove and the most visibility from the center of the lake and points south. There are no publicly owned or maintained campgrounds or campsites on Pleasant Lake. There is one private campground located on the southeastern shore at the boat launch. The site is mostly wooded, and there will be limited visibility from campsite facilities (i.e. fire pit, picnic tables). There may be partial visibility of some lights through the trees, and up to 8 lights would be visible for campsites at the water's edge. The met tower light may also be visible for about three quarters of the lake, including the boat launch. There will be no visibility of night lights from Maine Wilderness Camps, a commercial camp located at the northern end of the lake.

- Pug Lake. Up to 3 lights may be visible from Pug Lake, but actual tree heights and tree density will likely limit or block any possible views. The met tower light will not be visible.

- Scraggly Lake. No lights will be visible along the northern shoreline. About half of the lake will have visibility of up to 5 lights. Anywhere from 6-8 lights will be visible from the remainder of the lake, with the most visibility in a portion of Hasty Cove. The met tower light may be visible for portions of the lower half of the lake. There are no publicly owned or maintained campgrounds or campsites on Scraggly Lake. There are several tent sites situated around the lake that are available for public use, but are privately maintained:

    - Scraggly Island Tent Site – campsites are wooded with only limited views possible through the trees, depending on type of forest cover, tree height, and branching density. Based on the viewshed analysis turbine lights may be visible at the water's edge.
    - Hasty Cove Tent Site – campsites are heavily wooded with only glimpses possible through the trees and a narrow view window through the boat launch. Based on the viewshed analysis turbine lights may be visible at the water's edge.
    - Scraggly Point Tent Site – campsites are wooded with only limited views possible through the trees, depending on viewer location and type of forest cover, tree height, and branching density. Based on the viewshed analysis turbine lights may be visible at the water's edge.
    - Rock Table Island Tent Site – campsites are wooded with only partial views possible through the trees, depending on viewer location and type of forest cover, tree height, and branching density. Based on the viewshed analysis turbine lights may be visible at the water's edge.
    - Scraggly Lake Inlet Tent Site – campsites are wooded with only glimpses possible through the trees, depending on viewer location and type of forest cover, tree height, and branching density. Based on the viewshed analysis turbine lights may be visible at the water's edge.

- Shaw Lake. No lights will be visible from the northern shoreline. The majority of visibility will be from the southern half of the lake, with up to 6 lights visible and 7 lights potentially visible in a limited location along the south eastern shore. As one travels north the visibility of lights diminishes. The met tower may be visible from the lower half of the lake. There are no publicly owned or maintained campgrounds or campsites on Shaw Lake.

- Sysladobsis Lake. No lights will be visible from about half of the lake (within the 8-mile radius), particularly in the northern portion. Anywhere from 1-5 lights will be visible, with the most visibility just north and west of the islands with up to 8 lights, and the least visibility on the eastern half of the lake. The met tower light may be visible from a very insignificant are just north of the islands, but the majority of the lake will not have visibility. There are no publicly owned or maintained campgrounds or campsites on Sysladobsis Lake within the 8-mile study area.

The visual impact from the required night lighting of the Project is not unreasonable for several reasons:

1. The visibility will be reduced due to the limited vertical beam spread. Warning lights must be visible horizontally from the light and higher and do not direct light of any significant intensity below minus 10 degrees of the horizontal plane created by the direct cast of the light itself. Because of the limited vertical beam spread, visibility is reduced since viewers typically do not see these lights directly, and they do not create glare or untoward light impacts to the naked eye situated below the tower base.
2. There is no impact to night sky viewing and the quality of the night sky (except on the horizon lines beyond or in the vicinity of the lights, but stargazing or the night experience is not typically focused on the horizon).
3. FAA studies have suggested that the use of red light emitting diode or rapid discharge style fixtures limits exposure time, thus creating less of a nuisance (as compared to a constant red light).
4. The visibility of these lights will be mitigated by the distance of the lights from potential viewing locations, an average of 4 miles and beyond.
5. Exposure to lake users is limited. Very few people paddle or fish at night, primarily for reasons of safety, orientation, navigation and overall enjoyment. Fisherman and others may see the lights at dawn and at dusk when they are arriving or departing from the lakes, but this would only be for limited duration and users are typically focused on preparing and launching their boats and gathering their equipment.
6. There are no publicly owned or maintained campgrounds or campsites within the study area. There are however several privately maintained campsites available for public use. Most campsites are in wooded locations or are situated away from the Project and therefore will not have visibility, or will only have limited visibility. In instances where visibility is possible, impacts are diminished because views are filtered through the trees and campers are usually focused visually on a campfire or other campsite activities (i.e. cleaning dishes, socializing, etc.).
7. Primary impact would be to camp owners although a) many camps are oriented away from project or are out of view; b) lights from these camps often create direct glare on the lakes, are brighter or more noticeable, and have greater impacts in some regards than the night lighting of turbines. Overall impact would be one of annoyance to camp owners, but would not substantively impact use and enjoyment at night as this use is so highly limited.

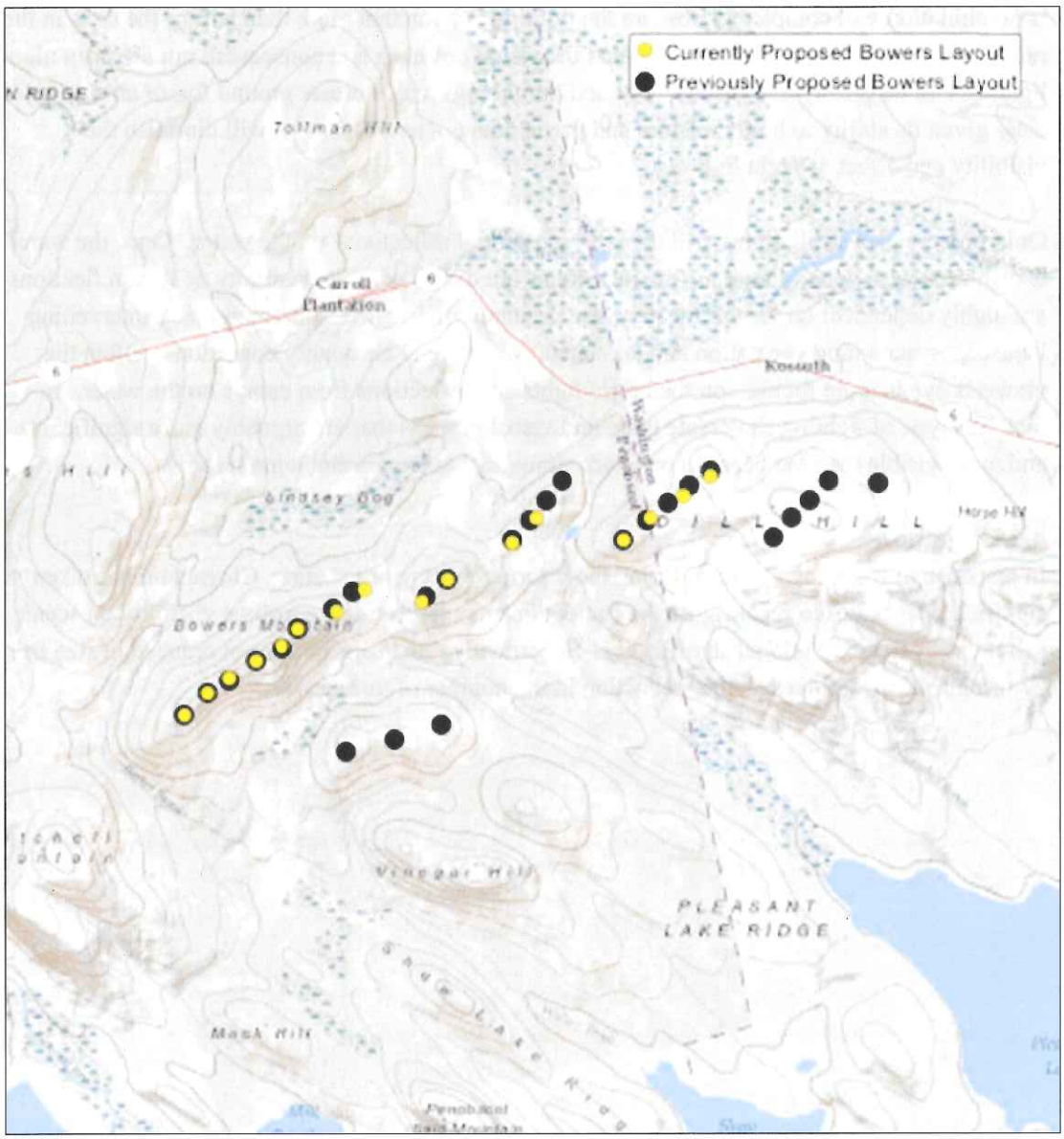
Overall, night lighting is very difficult to simulate. While it is possible to create simulations, a static photo of one moment in time does not accurately capture the effects of the lighting and we have not found that simulations provide an accurate depiction of the experience of observing night lighting. Even video type representations can be misleading. The primary reason for this is that night lighting visibility and effects are totally subject to atmospheric conditions and the viewer's position, even more so than during the day. Some nights that are overcast or when there

is precipitation will completely obscure the lighting. Given that more than half of the days in the region are cloudy, it is therefore likely that the visual presence and consequent impact from night lighting will be greatly diminished. Hot and humid nights also create ground fog or air that is less clear given its ability to hold moisture and particulate matter. This, too, will diminish the visibility and effect of night lighting.

Only on very clear, still nights will there be substantial reflectivity on the water. Once the water is disturbed with wind or boat traffic, reflections are disrupted. The visibility of such reflections are highly dependent on viewer location and orientation, distance from the project, intervening landscapes, screening vegetation and, as stated, weather and air quality conditions. Often the viewer's eye is more focused on the bright lights and reflections from camps on the water. In fact, this type of lighting can create glare and visual impacts that are arguably more significant and more visible than the beacons on telecommunication towers and wind turbines.

4.5 Mitigation

In response to feedback obtained during the prior permitting proceeding, Champlain has taken significant measures to reconfigure the Project in a manner to reduce turbine visibility on scenic resources of state or national significance. Specifically, the Project has been reduced in size from 27 turbines to 16 turbines, a 40% reduction in the number of turbines.



The reduction in turbines results in a reduction in associated facilities such as the mountaintop collector line, crane path, and clearing. The number of permanent met towers has also been reduced from up to four in the original project to one. Importantly, turbines previously located on "South Mountain," the closest location to most Project lakes have been removed, as have the five turbines located furthest to the East on Dill Hill. The elimination of turbines from South Mountain has had the effect of increasing the distance of the closest visible turbines on six lakes. As a result, only two lakes now have potential turbine visibility within three miles, whereas previously four lakes had potential visibility within three miles. The elimination of 11 turbines has reduced the number of turbines visible on Project lakes as summarized in the following table:

Lake	Reduction in number of potentially visible turbines within 8 miles[1]
Bottle Lake	3
Duck Lake	4
Junior Lake	9
Keg Lake	4
Pleasant Lake	11
Pug Lake	1[2]
Scraggly Lake	10
Shaw Lake	9
Sysladobsis Lake	12

[1]Based on viewshed analysis (visibility from the hub and accounting for topography and 40-foot vegetation).
[2]Visibility would be of tips only and highly dependent on tree height. While visibility information regarding Pug Lake was not included in the original VIA, it was later provided in a memo dated July 5, 2011, as a follow up to the LURC public hearing.

As indicated above, the reduction in potentially visible turbines is most noticeable on Junior Lake, Pleasant Lake, Scraggly Lake, Shaw Lake, and Syladobsis Lake. Although the turbine height and rotor diameter is larger in the current design, the number of turbines has a more significant effect on visual impact than turbine height. As noted in Environmental Impacts of Wind-Energy Projects, "The difference between a 200-foot turbine and a 360-foot turbine (hub or nacelle height) can be difficult to perceive, especially when the turbines are seen against the sky. Size may make a difference if the height of the landform begins to be overwhelmed by the height of the turbine. Generally, fewer larger turbines can result in a better visual outcome than a larger number of smaller turbines."

The reduction in turbines resulted in a reduction in angle of view (between 12 and 18 degrees) for a number of resources, including Pleasant Lake, Duck Lake, Shaw Lake and Scraggly Lake. The combination of fewer turbines and a smaller angle of view reduces the visual impact of the turbines.

Finally, as discussed in Section 4.4 above, Champlain has proposed use of radar-assisted lighting to reduce potential impacts of required FAA lighting for the turbines and met tower. This is a significant mitigation measure and would be the first proposed on a project in Maine.

4.6 Cumulative Impact

MDEP guidance promulgated in connection with the Natural Resources Protection Act, another environmental statute administered by the MDEP, directs applicants to consider the effects of past, present and reasonably foreseeable activities when evaluating potential cumulative impacts. MDEP Guidance Doc. Num. DEPLW00630-A2004. Reasonably foreseeable future activities are activities for which there is a high likelihood they will proceed, i.e., valid permits have been granted, they are in the construction phase, or applications are currently under consideration. Id.

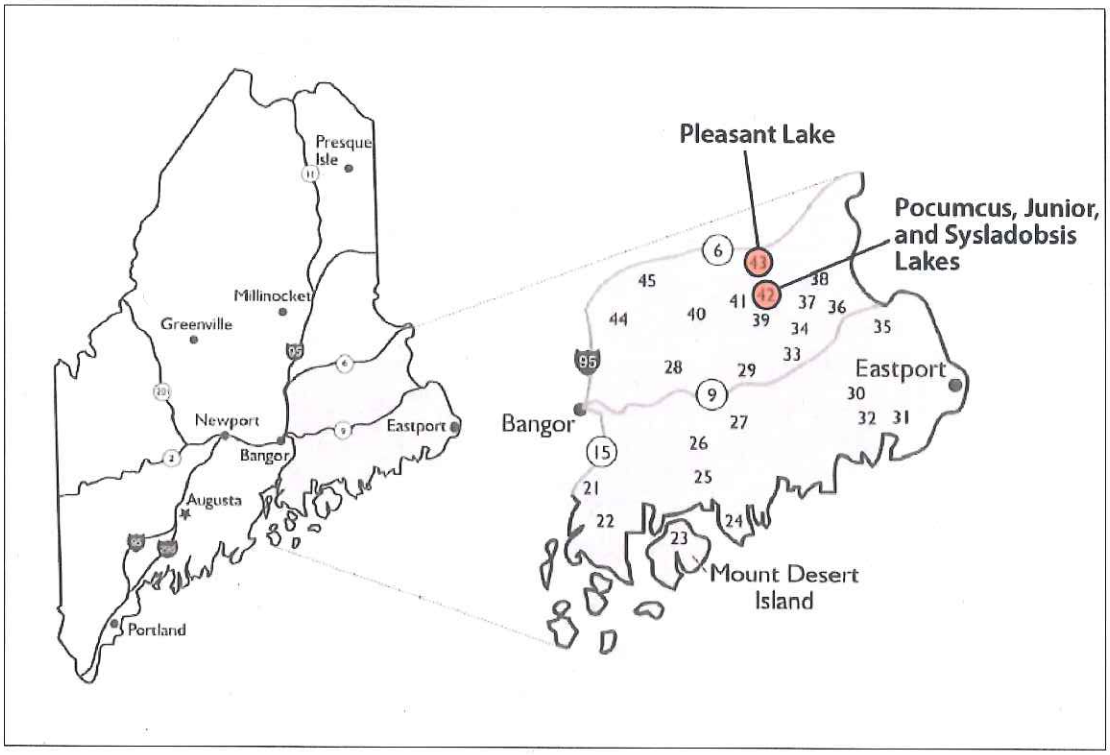
There are three other existing or as defined by the MDEP reasonably foreseeable wind projects in the region that should be considered when evaluating the potential for cumulative impacts. As shown on Exhibit 21: Other Wind Projects in the Region, the existing Stetson project is located to the north of the Project. The closest turbine is approximately 5.7 miles from Project turbines and 8.2 miles from the nearest scenic resource of state or national significance within the 8-mile Project viewshed, which is Pleasant Lake. Although a viewshed analysis was not conducted for Stetson, or the other existing and proposed wind projects in the region, field verification and 3D analysis demonstrates that the Stetson turbines will not be visible from Pleasant Lake, or indeed from any of the scenic resources of state or national significance within the Project 8-mile viewshed due to intervening vegetation and topography. The existing Rollins project is located to the west of the Project. The closest turbine is approximately 16 miles from the Project turbines and 10.7 miles from the nearest scenic resource of state or national significance within the 8-mile Project viewshed, which is Lombard Lake. Based on intervening vegetation and topography and verified through 3D analysis, none of the Rollins turbines will be visible from any scenic resource of state or national significance within the 8-mile Project viewshed. The Stetson, Rollins and Bowers projects are all First Wind projects and either connect (or in the case of Bowers would connect) to Line 56, a 38-mile generator lead constructed as part of the Stetson project, and which connects those projects to the electrical grid at the Keene Road substation.

The proposed Passadumkeag project is located to the south and west of the Project. It is not a First Wind project and would not utilize Line 56 to connect to the electrical grid. The closest Passadumkeag turbine is located approximately 21.1 miles from the Project turbines and 13.2 miles from the nearest scenic resource of state or national significant within the 8-mile Project viewshed, which is Upper Sysladobsis Lake. Due to intervening vegetation and topography and verified through 3D analysis, none of the Passadumkeag turbines will be visible from any scenic resource of state or national significance within the 8-mile Project viewshed.

Because none of the existing or proposed turbines associated with other wind projects in the region will be visible from scenic resources of state or national significance within the 8-mile Project viewshed, there will be no cumulative impacts.

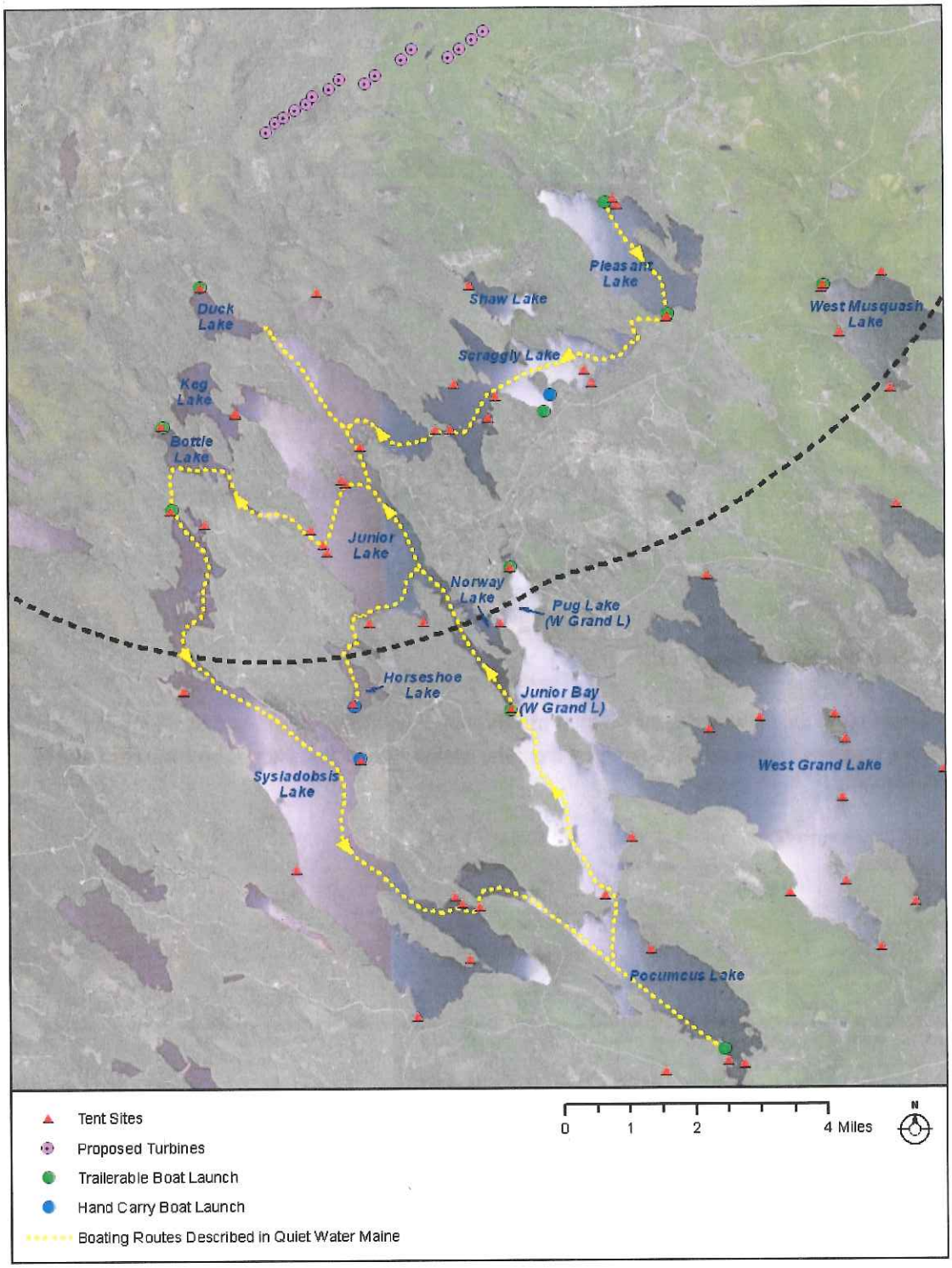
4.7 Continuous Visibility

The *Quiet Water Maine Canoe & Kayak Guide, 2nd Edition* describes 25 different paddling routes in the Downeast region. Two routes pass through part of the 8-mile study area (routes 42 and 43, highlighted in the map below).



Source: Quiet Water Guide, p. 61

Specifically, the authors describe a loop trip through Pocumcus, Junior, and Sysladobsis Lakes, and a common one-way trip beginning from the Maine Wilderness Camps on Pleasant Lake (see map below).



The Pocumcus, Junior, and Sylsladobsis paddle is described as one of the best extended quiet-water loop trips. It begins at the southern end of Pocumcus Lake, at the Elsemore Landing

campground and boat launch, over 15 miles away from the nearest turbine. If following this route, paddlers would travel northwest through Pocumcus Lake and Junior Bay, heading closer to the proposed turbines but still outside of the 8-mile study area. Paddlers would eventually enter the study area while traveling along Junior Stream, which leads from Junior Bay into Junior Lake.

Out of the entire suggested route, Junior Lake would have the greatest visibility of the project, with up to 10 turbines visible within 8 miles along the western side, and another three visible that are located beyond 8 miles At this end of the lake, the closest visible turbines would be 6 to 7 miles away. If paddlers headed to the northern end of the lake, near the stream connecting it to Duck Lake, the nearest visible turbine would still be over 3 miles away, and fewer turbines would be visible. Along much of the northeastern shores of Junior Lake, the turbines would be fully obscured from view by the adjacent forested hillsides. Within the center of the lake, the Big Islands would likely be the primary focus of view and interest. The authors described Junior Lake as having the roughest water along the route, especially towards the middle of the lake where waves reached up to two feet high. Paddlers in these conditions would be unlikely to focus their gaze on the turbines in the distance because of the more pressing concern of navigating choppy waters.

Although the authors describe three potential detours branching off of Junior Lake, of which two could take boaters closer to the proposed turbines—northeast into Scraggly Lake or northwest to Duck Lake—the primary route heads farther west into Bottle Lake. The turbines would not be visible along Bottle Lake Stream, but some turbines could come into view on the right as the stream opens up into Bottle Lake. The authors describe Bottle Lake, as "the kind of place we prefer to paddle through as quickly as possible" because of "heavy development." Thus, it is unlikely that paddlers would linger at the lake or be offended by the view of turbines in the distance beyond the heavily developed shores.

After Bottle Lake, the route heads south, turning away from the turbines via a portage into Sysladobsis Lake. Although there is some turbine visibility from the northern part of Sysladobsis Lake, the turbines would be located behind paddlers following the suggested route. Continuing into the main part of Sysladobsis, paddlers would leave the 8-mile study area. At the far southeast end of Sysladobsis Lake, paddlers would portage around a dam back into Pocumcus Lake, and then finally return to Elsemore Landing.

The second route described in the *Quiet Water Guide* travels through Pleasant and Scraggly Lakes. This route is less specific than the first, as the authors in fact explored these lakes as a detour on the Pocumcus, Junior, and Sysladobsis Lakes loop trip. However, they note that a common trip through Pleasant and Scraggly Lakes is one-way, beginning at the Maine Wilderness Camps on the northern shore of Pleasant Lake. Beginning at Maine Wilderness Camps, paddlers would head primarily southeast towards the portage into Scraggly Lake, and thus would be facing away from the proposed turbines. Continuing southwest on Scraggly Lake,

the proposed turbines would be visible five to six miles away on the right. Visibility would be limited on the northwestern side of the lake, but up to 16 turbines could be visible from parts of the southeastern shores of the lake. However, because paddlers would likely turn frequently as they wind their way along Scraggly Lake's meandering shorelines, the turbines would come in and out of view even in these areas of greater visibility. Beyond Scraggly Lake, the authors note that paddlers may continue on to either Pocumcus Lake or West Grand Lake, which are both outside of the 8-mile study area.

When these *Quiet Water Guide* boating routes are considered in the context of turbine visibility and the actual experience of paddling, it is unlikely that turbine visibility will significantly detract from paddlers' enjoyment of the lakes (see also *Sheffield Case Study – A Paddlers Experience* in the text box that follows, and Exhibit 22). For the majority of these routes, paddlers would be either outside of the 8-mile study area or facing away from the turbines, or hills and trees may obscure views of the turbines. Even when turbines would come into view, paddlers would often be more focused on immediate water conditions, the action of paddling and shoreline scenery, instead of focusing on turbines on the distant hillsides. Certainly the turbines would draw the viewer's eye at times, which could bother some paddlers while enhancing the experience for others. Alex Wilson, co-author of the AMC *Quiet Water Guide*, was contacted to ascertain his opinion on the prospect of encountering a wind energy project while paddling on one of the project lakes. In an email dated 10-29-10, Mr. Wilson says "If I were paddling on Scraggly – a wonderful place where I've seen moose, bald eagles and otters – and there were wind turbines on a ridge 2 or 3 miles away, that would not bother me at all. In fact, I would appreciate the fact that those wind turbines were responsible for keeping the crisp, clear air around me cleaner…for me ridgetop windfarms are not incompatible with a wilderness experience."

Finally, there was little evidence of paddlers using these lakes during the boat count and intercept surveys described in the Bowers Wind Project User Surveys (Kleinshmidt 2012). During the July, 2011 boat counts at Junior Stream, 82% of the boats were motor boats, 0% were kayaks, and 15% were canoes. During the 2012 boat counts at Junior Stream, 82% of the boats were motor boats, 3% were kayaks, and 6% were canoes. See Table 2 of Kleinschmidt 2012 Report. Similar results occurred during the intercept surveys on Pleasant, Scraggly and Junior lakes, where 123 boats were observed and almost all were motor boats. Of those boats that were intercepted for interviewing, 94% were motor boats, 3% percent were canoes and no kayaks. See Table 4 of Kleinschmidt 2012 Report. As a result, there is no evidence of significant use of the Project lakes for paddling.

SHEFFIELD CASE STUDY – A PADDLERS EXPERIENCE

Due to certain similarities compared to the Bowers Wind Project, the Sheffield Wind Project in northeast Vermont serves as a relevant case study with regard to the effect of a wind energy project on recreational use of scenic resources. In particular, there are similarities between Vermont's Crystal Lake and Pleasant Lake, one of the scenic resources identified in the Bowers

assessment (see Exhibit 22: Sheffield Case Study). At Pleasant Lake, as is the case at Crystal Lake, the turbines would be visible in the hills across the lake from the boat launch/picnic area. From the Crystal Lake State Park beach, all 16 turbines of Sheffield Wind are visible. The nearest turbine is 5.6 miles away from the beach, and 3.2 miles from the closest point on the lake. From the Pleasant Lake boat launch, 14 of 16 of the Bowers Wind Project turbines would be visible. The nearest proposed turbine would be 5.1 miles from the boat launch, and 2.4 miles from the closest point on the lake.

Crystal Lake receives a moderate to high amount of use, with typical users being beach goers, picnickers and paddlers (canoes and kayaks), with some motorboating and fishing. While there is some moderate development along the eastern shore of the lake, the western shore is mostly undeveloped except for a small cluster of modest historic cabins that are set back into the woods.

On September 10, 2012, David Raphael and another staff member from LandWorks paddled kayaks on Crystal Lake from the beach at the State Park towards the turbines at the opposite end of the lake to gain first-hand experience of paddling with turbines in full view. This experience yielded several distinct conclusions with regard to the effect and visibility of turbines on the paddler's experience:

1. The atmospheric conditions directly affect the "visual presence" of the turbines in the viewer's eyes. On a late summer's day with clouds and sun, and a backdrop of clouds, turbine visibility and prominence receded to render the project an almost negligible visual presence. At other times the silhouettes of the turbines cast in shadow were readily visible against a light cloudy background.
2. From these distances, the slender nature of the both the towers and the rotors minimized their visual presence and prominence. Although a turbine may be quite tall, the form does not have a feeling of great mass.
3. The requirements and experience of paddling diminished the visual presence of the project in view. As conditions on the lake became windier, there was an increased need to focus on the paddling and the conditions in the immediate surroundings. In addition, paddlers tend to follow the shoreline for protection from longer fetches and to observe shoreline interest.
4. When approaching the near shore, the visual presence of the turbines did not noticeably increase. Even when two miles closer, the increased size of the turbines was difficult to discern and topography began to limit project visibility. There was some sharpening of form and detail at the closer distance.

4.6 Overall Conclusion

These lakes are indeed part of the landscape character of the region but are not unique resources that stand out as one-of-a-kind scenic environments.

The lakes and the experience they provide will not be substantially altered or undermined by a wind energy development visible at a distance of 2 to 8 miles most often as part of the background view. The shorelines will remain intact, the waters will still be quiet, the fishery will

not be affected, and it will still attract the avid and recreational fishing enthusiast. This is not to discount the fact that there will be visual impacts, and that in some instances there will be significant visibility that changes the view. However, there is a growing body of evidence that for many people who recreate in Maine, the presence of wind turbines in the viewshed has no impact on their use and enjoyment of the resource and, in some instances, positively impacts their experience. Thus, the assumption that visibility of turbines negatively impacts recreational users is not always true. While some people would prefer not to look at turbines, many people are indifferent and others find them beautiful. This concept is reflected in the Wind Energy Act, which specifically states that visibility alone is not a basis for determining there is an unreasonable adverse impact; rather, the agency must evaluate the extent to which visibility results in an unreasonable adverse impact on scenic character or existing uses related to scenic character. That is a much more nuanced inquiry, and for the reasons set forth in the VIA and here, we do not believe that visibility of the Project will sufficiently impact the scenic character or use and enjoyment of the resource to warrant a conclusion of unreasonable adverse impact.

In summary, the Project area is not in a remote area where recreational users may have a heightened expectation of a pristine landscape. Instead, it is located proximate to existing infrastructure, including Line 56 that can accommodate the power from the Project, and in an area that the Legislature specifically identified as appropriate for wind power. The Project area is generally able to accommodate the presence of turbines without fundamentally changing the scenery or adversely impacting recreational uses of the lake resources. This is due in part to the following considerations:

- The lake resources and surrounding landscapes do not present unique and highly sensitive qualities that preclude the addition of an array of wind turbines within the viewshed.
- While scenic and valued for its recreational qualities, the region is a similar landscape to other nearby areas and lake-region landscapes elsewhere in Maine.
- The landscape does not have the prominent distinctions between landforms, such as a flat open field in combination with a steeply rising mountain, or have unique focal points and distinct, memorable profiles that are characteristic of iconic landscapes that are more sensitive to changes in the viewshed.

Additionally, the data cited, the surveys generated, the intercept surveys reviewed, interviews conducted, and field observations noted all indicate that wind power does not and will not, in this case, prevent users from returning and enjoying this region and its lakes. Taken together, these considerations and this broader perspective of wind energy and its potential visual impacts, support our conclusion that the Bowers Wind Project (and its associated facilities), in accordance with the evaluation standards of the Maine Wind Energy Act (35-A MRSA Section 3452) will not result in "an unreasonable adverse effect to the scenic character or existing uses related to the scenic character of the scenic resource of state or national significance."

5. Associated Facilities

The Project's associated facilities include access and crane-path roads, the express collector line, the substation, the operations and maintenance building ("O&M building"), and the permanent met tower. Although not specifically included in the definition, to be conservative we have assumed that the cleared areas around individual turbine foundations, including those cleared during construction and subsequently allowed to revegetate, are also associated facilities.[36]

5.1 Regulatory Purview

Visual impacts of associated facilities are reviewed under the standard that applies to the generating facilities (the Wind Energy Act visual standard), unless the primary siting authority concludes that application of the Wind Energy Act visual standard "may result in unreasonable adverse effects due to the scope, scale, location or other characteristics of the associated facilities." 35-A MRSA § 3452.2. For the reasons discussed below, the Project's associated facilities are consistent with similar facilities located throughout the rural landscape in Maine, and none of the facilities are located within or are highly visible from scenic resources of state or national significance. Additionally, the associated facilities do not adversely impact local scenic resources that would not be reviewed under the Wind Energy Act visual standard. Therefore this VIA evaluates their visibility pursuant to 35-A MRSA § 3452.1. In the event the review agency determines that the associated facilities should be reviewed pursuant to standards for developments other than wind energy developments, we will supplement this VIA as necessary.

5.2 Methodology

The same methodology used for the generating facilities was used for the associated facilities, which includes visual and cartographic analyses, document and statutory research, and site inventory and photographic review. In particular, we prepared viewshed analysis maps for the express collector, substation and O&M facilities, and MET towers (see Exhibits 6, 7, and 8), analyzed potential visibility of access and crane-path roads and clearing using 3D Analyst, developed a photographic inventory (see Exhibit 5), and reviewed field inventory notes.

5.3 Effect of Distance on Visibility

In our analysis of associated facilities, we have employed an eight-mile viewshed from all associated facility components in order to remain consistent with consideration of visibility of the

[36] "Associated facilities" are defined in the Wind Energy Act as "elements of a wind energy development other than its generating facilities that are necessary to the proper operation and maintenance of the wind energy development, including but not limited to buildings, access roads, generator lead lines and substations. 35-A M.R.S.A. § 3451(1). "Generating facilities" are defined to include "wind turbines and towers and transmission lines, not including generator lead lines, that are immediately associated with the wind turbines." 35-A M.R.S.A. § 3451(5).

generating facilities. However, it should be noted that a 3-mile viewshed is usually more appropriate for associated facilities. Many VIA's of transmission lines and associated facilities do not, for example, even employ viewshed mapping and instead focus on impacts adjacent to or near to such facilities. In our analysis of associated facilities, we have gone beyond what is typically done and extended our assessment to include impacts beyond the immediate environs.

5.4 Visibility Analysis

Although this VIA evaluates the visual impacts of the associated facilities under the Wind Energy Act visual standard, for background and context, we have included a table of local viewpoints (including road crossings and resources that do not constitute resources of "state or national significance"), and identified whether the associated facilities are visible from such viewpoints. These local viewpoints were chosen due to their popularity as a recreational or cultural resource, and evaluating visibility (or the lack thereof) of the associated facilities on such resources demonstrates in part the appropriateness of utilizing the Wind Energy Act standard in this case. We have not, however, provided a more detailed analysis of visibility on local viewpoints, but will do so if the agency determines that the visual impact standard for developments other than wind energy developments applies to associated facilities.

5.4.1 Access Roads, Turbine Pad Clearing, Crane Paths

The primary access road for the Project, beginning at Route 6, is 24 feet in width. Between turbines, portions of the path will be 35 feet in width to accommodate the crane during construction. Many of the proposed turbine sites and portions of the Project area have been or are being used for commercial forestry operations, and the Project area contains logging roads that will be upgraded and used, where appropriate, to minimize new construction, clearing and wetland impacts. Roads are sited to work with the existing topography and therefore minimize cut and fill. In most instances, existing mature trees will screen views of the access roads. All of the visual simulations presented in this report account for access roads and resultant clearing. Access roads and resultant clearing will have limited visibility from some scenic resources of state or national significance. See Table 3.

5.4.2 O&M Building

The O&M building is a single story building constructed of metal or other suitable material and will be painted a neutral color to blend with its surroundings. It will be located just north of Route 6 in an area near a former automotive building and used vehicle storage area. The building is a typical one-story commercial structure and is similar in size to many other buildings present in the landscape. It is not located in an area of unique scenic value and it has an extensive wooded buffer on all sides that minimize any off-site visibility. As shown in the image below, there is at least 700 feet of vegetation between Route 6 and the proposed O&M building, which would block views from Route 6.

Attached as Exhibit 7 is a map depicting areas within eight miles of the O&M building. There are nine scenic resources of state or national significance located within eight miles of the building. The O&M building, however, will not be visible from any resource of state or national significance. See Table 3.

Additionally, as reflected in Table 4, the O&M building will not be visible from any other locally identified scenic resources.

5.4.3 Express Collector and Substation

The express collector is an approximately 5.2 mile 34.5 kV electrical line that will deliver electricity from the turbines to the proposed substation located adjacent to the existing Line 56, which is a 115 kV generator lead that was constructed as part of the Stetson Wind Project. Generating facilities include "transmission lines" that are "immediately associated with the wind turbines." To be conservative, we have assumed that the express collector is an associated facility and not a generating facility. Note that because the mountaintop collector system is part of the generating facilities, it has already been addressed with the turbine visibility and is reflected in the visual simulations (Exhibits 11-20).

The express collector is a 34.5 kV line that is typical of distribution lines that are present throughout the rural landscape in Maine (see photograph below). This line is only slightly over 5 miles in length, and has limited visibility as well, due in part to 1) the overall height of the structures at 80 feet, 2) its placement in a wooded landscape, and 3) the topography of the area. Exhibit 6 identifies areas within eight miles of the express collector. There are twelve resources of state or national significance located within eight miles of the express collector. The express collector has been located on the north side of the ridgeline to minimize potential visibility on the

lakes, which are all located to the south of the Project. As a result, the collector and resultant clearing will not be visible from any resources of state or national significance. See Table 3. Although Exhibit 6 indicates that there may be visibility of the express collector from some portions of Pleasant Lake, additional 3D analysis has confirmed that due to topography, distance, and vegetation, it will not be seen.

The view of this electrical line will be similar to visibility of other distribution and transmission lines present throughout the rural Maine landscape, including the existing electrical line along Route 6. The photo below illustrates a typical 34.5 kV line

The photograph that follows shows that, at 3.4 miles, an existing corridor clearing of 190 feet for a transmission line ROW is hardly perceptible, and the existing structure in the ROW is barely, if it all, visible to the naked eye. This compares to the proposed corridor clearing for this project, which is generally 100 feet wide (150 feet at corners), nearly half of the corridor shown in the picture. Additionally, as reflected in Table 4 below, there will be minimal visibility of the express collector from any local scenic resources.

The substation associated with the express collector is located adjacent to the existing 115 kV transmission line and due to its location will have limited off-site visibility (see Exhibit 7). The substation is typical in size to many located throughout Maine, and it is not located in an area of high scenic value. It will not be visible from any resources of state or national significance. See Table 3. Only the highest of the substation's structural elements would be visible from off site, and there will not be any visibility of even these elements from local public viewpoints. See Table 4.

5.4.4 Permanent Met Tower

The Project will include only a single permanent meteorological (met) tower. It will be up to 90-meters (295 feet) high and approximately 18" wide. The photograph that follows shows visibility of a meteorological tower from a viewpoint one-half mile away. The structure is extremely difficult to discern.

The Project meteorological tower will be located just opposite of T16 and therefore is within the 8-mile figure used for the turbines. Compared to the turbines themselves, the visual impact from the met tower will be negligible and not add substantive additional impacts related to the overall visibility of the Project. This is further reinforced by the fact that the tower, based on our own extensive field analyses, is typically very difficult to pick out beyond a mile or so in distance from its location - it has a very narrow profile and generally is much less visible than even cell towers. These types of towers tend to be visible only when reflecting light or visible against a contrasting backdrop of light colored sky. Although some of the lakes in the region will have potential visibility (see Exhibit 8), the distance from the tower to the closest scenic resource of state or national significance is over 3 miles (Pleasant Lake), and most resources are well beyond that distance, the tower will be almost inconsequential, if even visible with the naked eye. See Table 3. The effect of night lighting of the meteorological tower is discussed in Section 4.4 of this report.

Additionally, as reflected in Table 4 below, there will be limited visibility from local public viewpoints that are not scenic resources of state or national significance.

Table 3. Visibility of Associated Facilities from Resources of State or National Significance

Great Ponds	Nearest Associated Facility	Substation Visible	O&M Visible	Access Roads/Crane Path Visible	MET Tower Visible	Express Collector Visible
Duck Lake	Approx. 2.5 miles (turbine pad/ clearing)	No	No	Yes (limited)	Yes	No
Junior Lake	Approx. 3.03 miles (turbine pad/ clearing)	N/A	No	Yes (limited)	Yes	No
Pleasant Lake	Approx. 2.38 miles (turbine pad/clearing)	No	No	Yes (limited)	Yes	No
Shaw Lake	Approx. 3.2 miles (access road)	N/A	No	No	Yes	No
Bottle Lake	Approx. 4.7 miles (turbine pad/clearing)	N/A	No	Yes (limited)	No	No
Keg Lake	Approx. 3.56 miles (turbine pad/clearing)	N/A	No	Yes (limited)	Yes	No
Scraggly Lake	Approx. 3.92 miles (turbine pad/clearing)	N/A	No	Yes (limited)	Yes	No
Sysladobsis Lake	Approx. 5.83 miles (turbine pad/clearing)	N/A	N/A	Yes (limited)	N/A	No
Horseshoe Lake	Approx. 7.77 miles (turbine pad/clearing)	N/A	N/A	N/A	N/A	N/A
West Musquash Lake	Approx. 6.52 miles (turbine pad/clearing)	N/A	N/A	N/A	No	N/A
Norway Lake	Approx. 7.87 miles (turbine	N/A	N/A	N/A	N/A	N/A

Great Ponds	Nearest Associated Facility	Substation Visible	O&M Visible	Access Roads/Crane Path Visible	MET Tower Visible	Express Collector Visible
	pad/clearing)					
Upper Sysladobsis Lake	Approx. 6.62 miles (turbine pad/clearing)	N/A	N/A	No	N/A	No
Lombard Lake	Approx. 5.29 miles (turbine pad/clearing)	N/A	No	No	N/A	No
Pug Lake (West Grand Lake)	Approx. 7.38 miles (turbine pad/clearing)	N/A	N/A	No	N/A	No

National Register of Historic Places	Nearest Associated Facility	Substation Visible	O&M Visible	Access Roads/Crane Path Visible	MET Towers Visible	Express Collector Visible
Springfield Congregational Church	Approx. 5.25 miles (turbine pad/clearing)	No	No	N/A	N/A	No

N/A= Not Applicable because the associated facility is located more than 8 miles away from the resource.

Table 4. Visibility of Associated Facilities from Local Public Viewpoints

Locations of Local Public Viewpoints	Nearest Associated Facility	Substation Visible	O&M Visible	Access Roads/Crane Path Visible	MET Tower Visible	Express Collector Visible
Carroll Church	0.25 miles (O&M)	No	No	Yes (limited)	Yes	No
Route 6	0.0 miles (Access Road)	No	No	Yes (limited)	Yes	Yes (limited)
Baskahegan Stream Put-In	0.85 miles (Access Road)	No	No	Yes (limited)	Yes	Yes
Lowell Lake	2.8 miles (turbine-pad clearing)	No	No	No	No	No

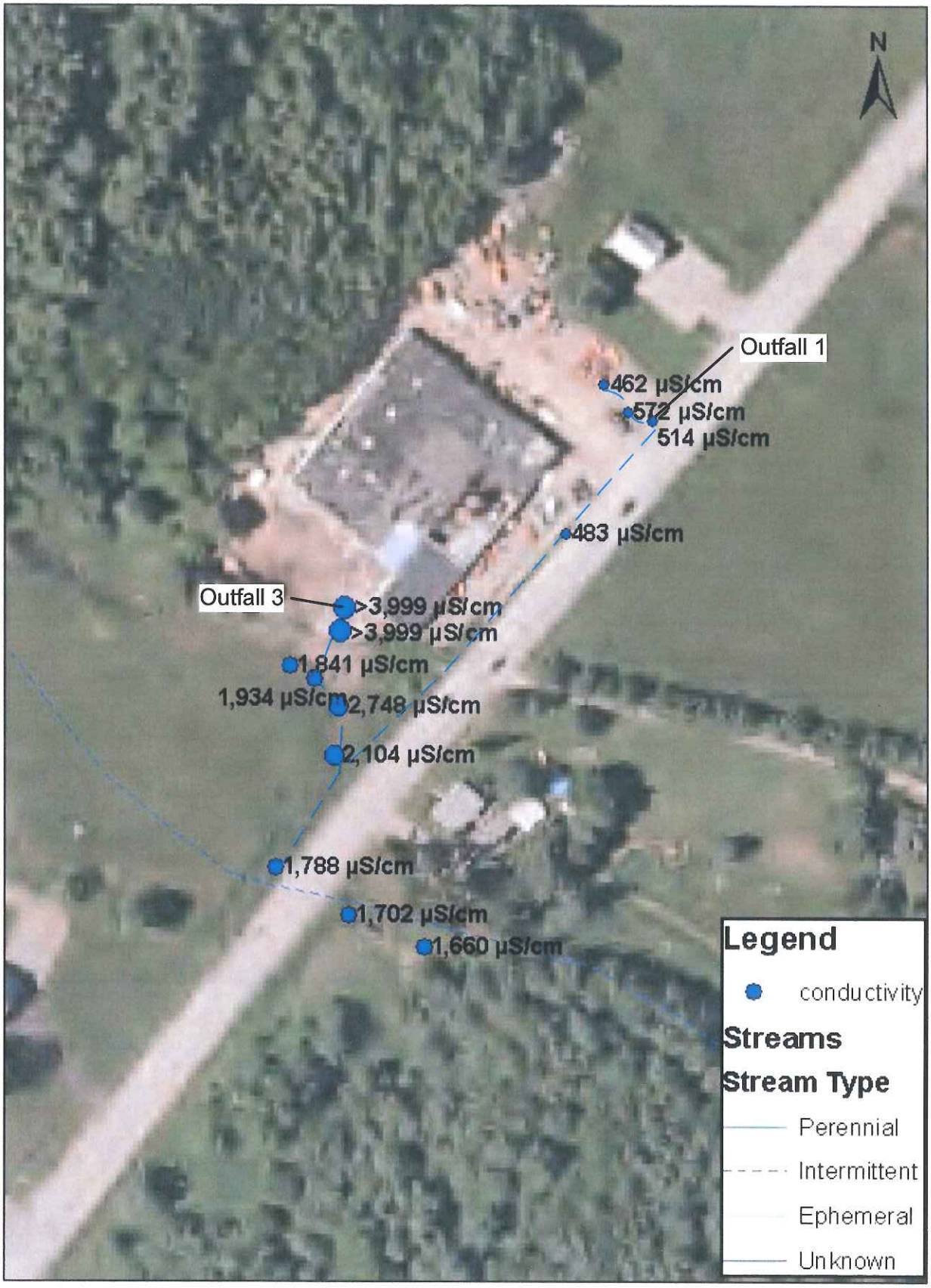
Locations of Local Public Viewpoints	Nearest Associated Facility	Substation Visible	O&M Visible	Access Roads/Crane Path Visible	MET Tower Visible	Express Collector Visible
Mill Privilege Lake	2.48 miles (turbine-pad/clearing)	No	No	No	No	No
Trout Lake	3.93 miles (turbine pad/clearing	N/A	No	No	No	No
Maine Public Reserved Land (between Duck and Keg)	2.72 miles (turbine pad/ clearing)	No	No	Yes (limited)	Yes (limited)	No
Baskahegan Lake	7.23 miles (turbine pad/clearing)	N/A	N/A	Yes (limited)	Yes (limited)	N/A
East Musquash Lake	6.83 miles (turbine pad/clearing)	N/A	N/A	Yes (limited)	Yes	N/A
Springfield Fairgrounds	5.1 miles (turbine pad/clearing)	No	No	No	N/A	No
Almanac Mountain	3.95 miles (turbine pad/clearing)	N/A	No	Yes (limited)	No	No

N/A= Not Applicable because the associated facility is located more than 8 miles away from the resource.

5.5 Overall Conclusion

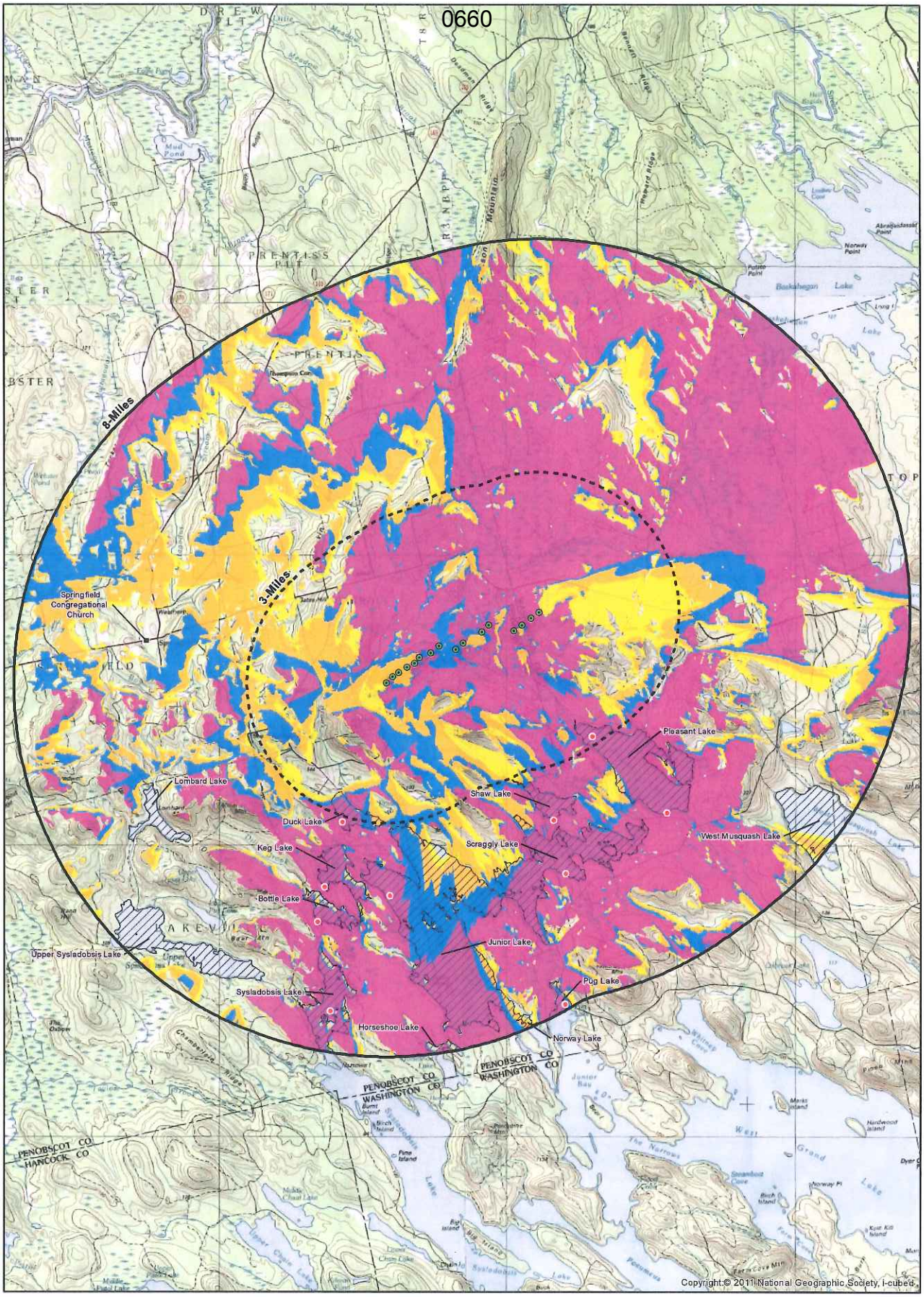
LandWorks undertook a complete evaluation of the associated facilities of the Bowers Wind Project and evaluated the visual impacts of these facilities pursuant to the visual standard set forth in Maine's Wind Energy Act. As noted above, this region of Maine represents a working landscape that is accustomed to modern land use and landscapes, evidenced in the network of logging roads, transmission corridors, transportation infrastructure, and other general development. There is active logging in the study area with new roads being created to support this activity on a routine basis. Throughout most of the study area, topography, forest cover, and roadside vegetation constrain or block views of the Project's associated facilities, limiting any visual impact. There is no visibility of the substation, O&M building or express collector, only limited visibility of the access roads and crane paths, and insignificant visibility of the met tower from any resources of state or national significance. Further, as shown on Table 4, these facilities are not significantly visible from any local resources.

Lee Boulin, Inc.
Stormwater Runoff Specific Conductivity
06/11/2013 Rain Event



0 35 70 140 210 280 Feet

Author: Tom Dannielson
Date: 2/25/2014



NOTE: This map depicts areas with POTENTIAL views of one or more turbines. Visibility is generated from the turbine tip at 140m. Not all turbines (or all parts of turbines) will be seen from each location. The map only accounts for topography. The map does not account for other factors such as buildings and structures, forest and trees, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where turbines will be seen from. Potential viewshed is based on GIS data available at the time from USGS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 2 Miles

Date: Oct 2012
Drawn by: NS

N

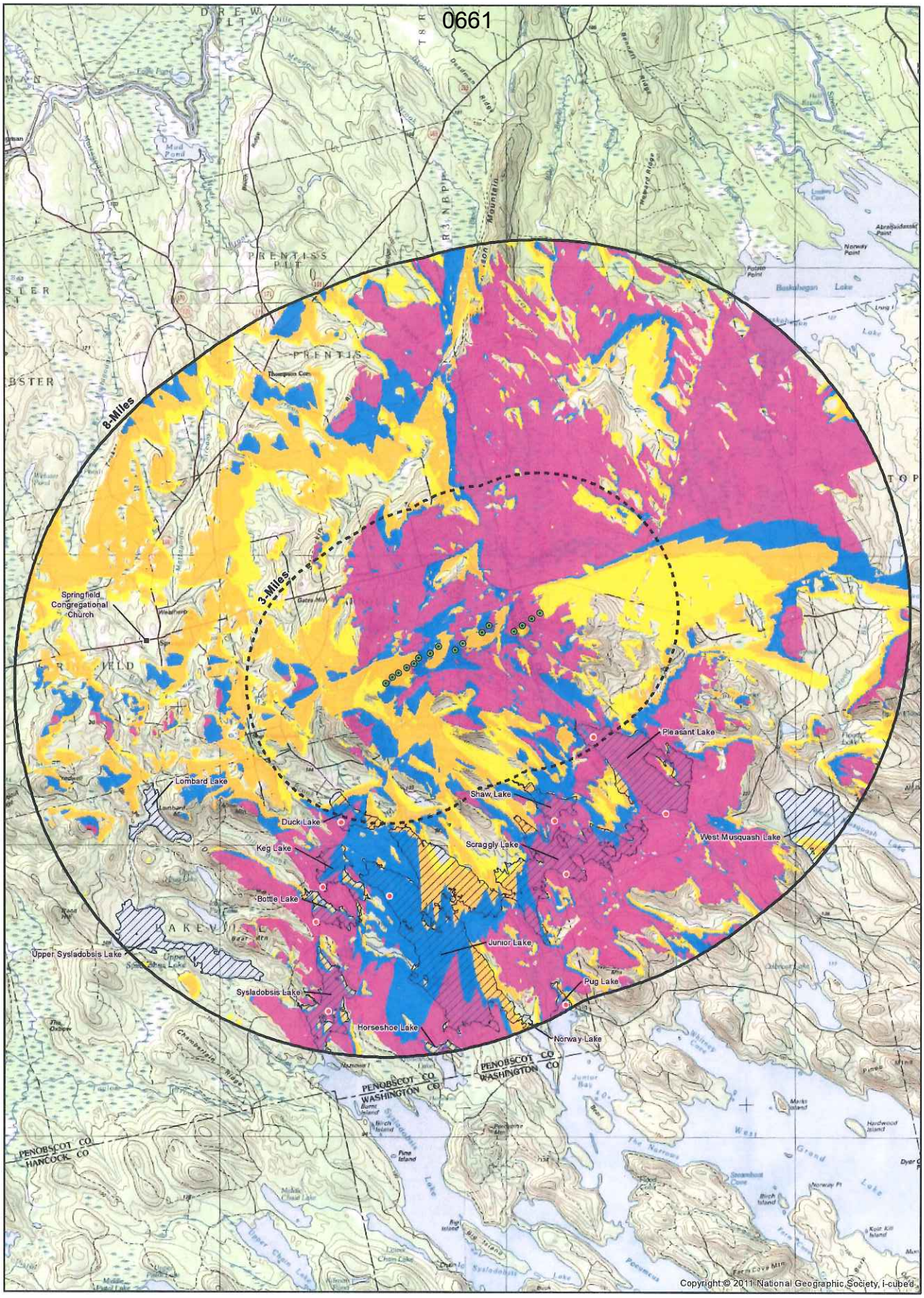
firstwind

LandWorks

Legend

Proposed Turbines	# of Turbines Visible
Visual Simulation Location	1-4
National Historic Site	5-8
Scenic Lakes	9-12
3 Mile Radius	13-16
8 Mile Radius	

EXHIBIT 1
VIEWSHED MAP (topography only/from the tip)
Bowers Wind Project



NOTE: This map depicts areas with POTENTIAL views of one or more turbines. Visibility is generated from the turbine hub at 84m. Not all turbines (or all parts of turbines) will be seen from each location. The map only accounts for topography. The map does not account for other factors such as buildings and structures, forest and trees, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where turbines will be seen from. Potential viewshed is based on GIS data available at the time from USGS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 2 Miles

Date: Oct 2012
Drawn by: NS

N

firstwind

LandWorks

Legend

- Proposed Turbines
- Visual Simulation Location
- National Historic Site
- Scenic Lakes
- 3 Mile Radius
- 8 Mile Radius

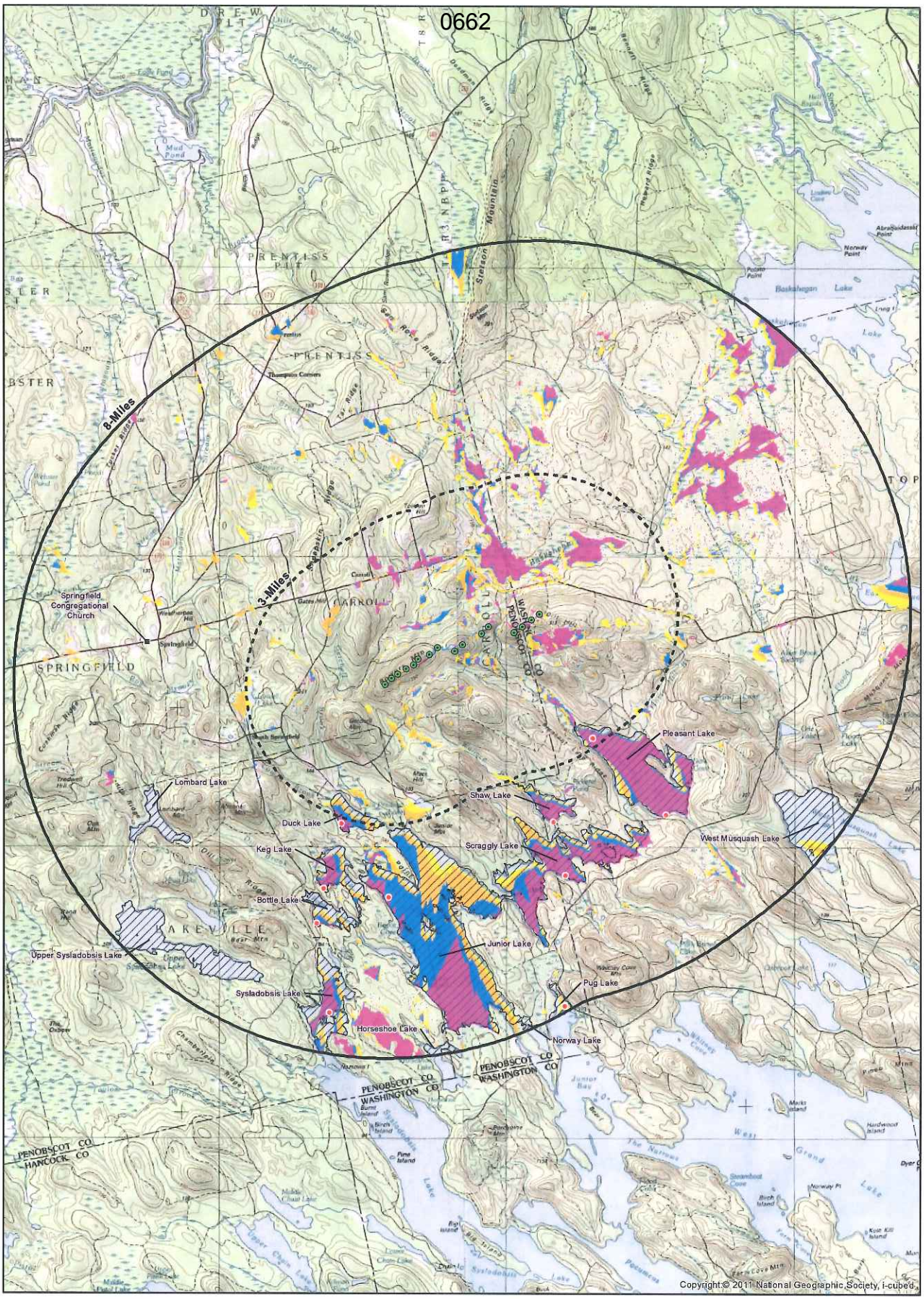
# of Turbines Visible

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

EXHIBIT 2

VIEWSHED MAP (topography only/from the hub)

Bowers Wind Project



NOTE: This map depicts areas with POTENTIAL views of one or more turbines. Visibility is generated from the turbine tip at 140 m. Not all turbines (or all parts of turbines) will be seen from each location. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where turbines will be seen from. Potential viewshed is based on GIS data available at the time from USGS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 2 Miles

Date: Oct 2012
Drawn by: NS

N

firstwind

LandWorks

Legend

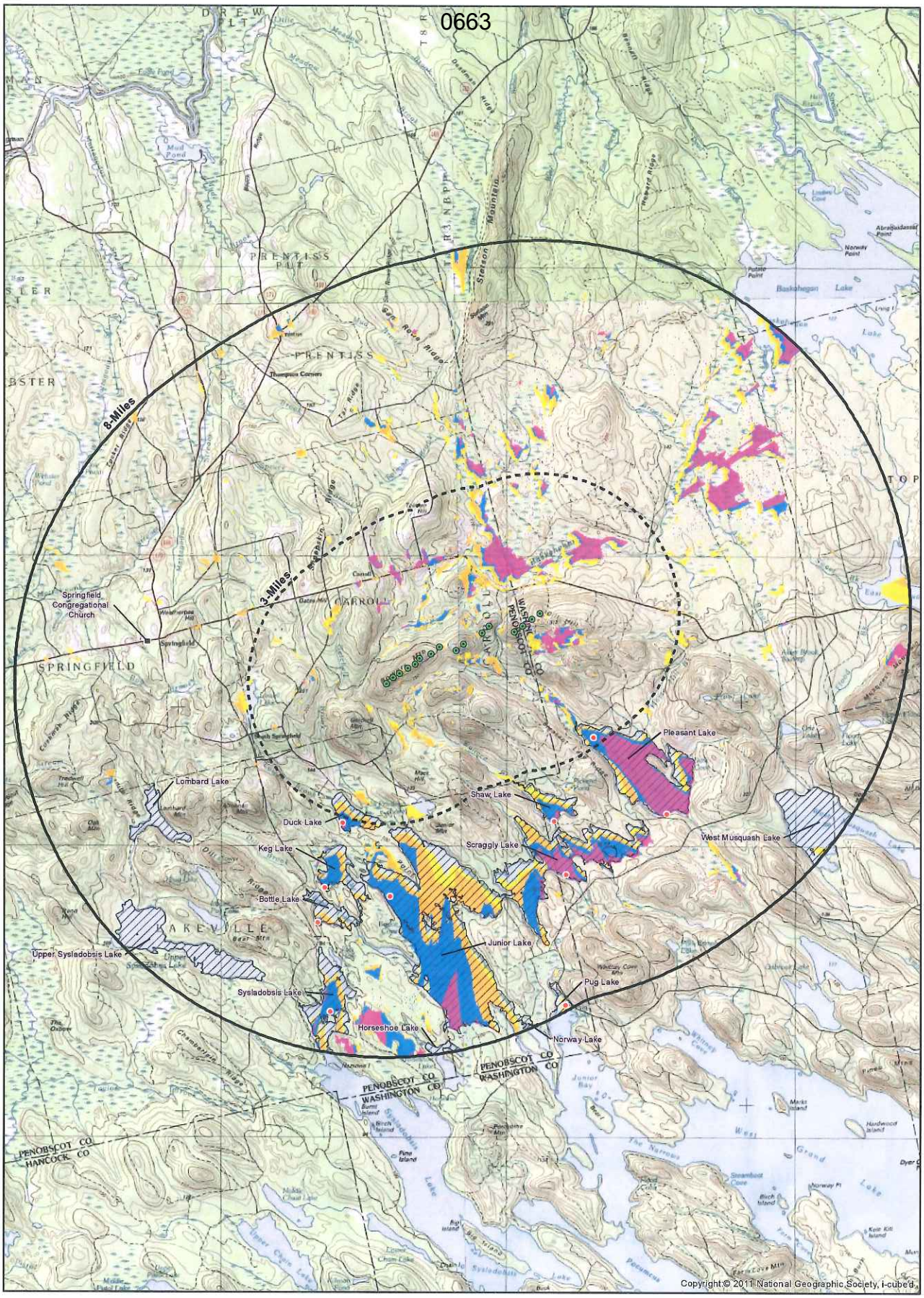
- Proposed Turbines
- Visual Simulation Location
- National Historic Site
- Scenic Lakes
- 3 Mile Radius
- 8 Mile Radius

# of Turbines Visible

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

EXHIBIT 3
VIEWSHED MAP (topography and vegetation/from the tip)

Bowers Wind Project



NOTE: This map depicts areas with POTENTIAL views of one or more turbines. Visibility is generated from the turbine hub at 84m. Not all turbines (or all parts of turbines) will be seen from each location. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where turbines will be seen from. Potential viewshed is based on GIS data available at the time from USGS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 2 Miles

Date: Oct 2012
Drawn by: NS

N

Legend

- Proposed Turbines
- Visual Simulation Location
- National Historic Site
- Scenic Lakes
- 3 Mile Radius
- 8 Mile Radius

# of Turbines Visible

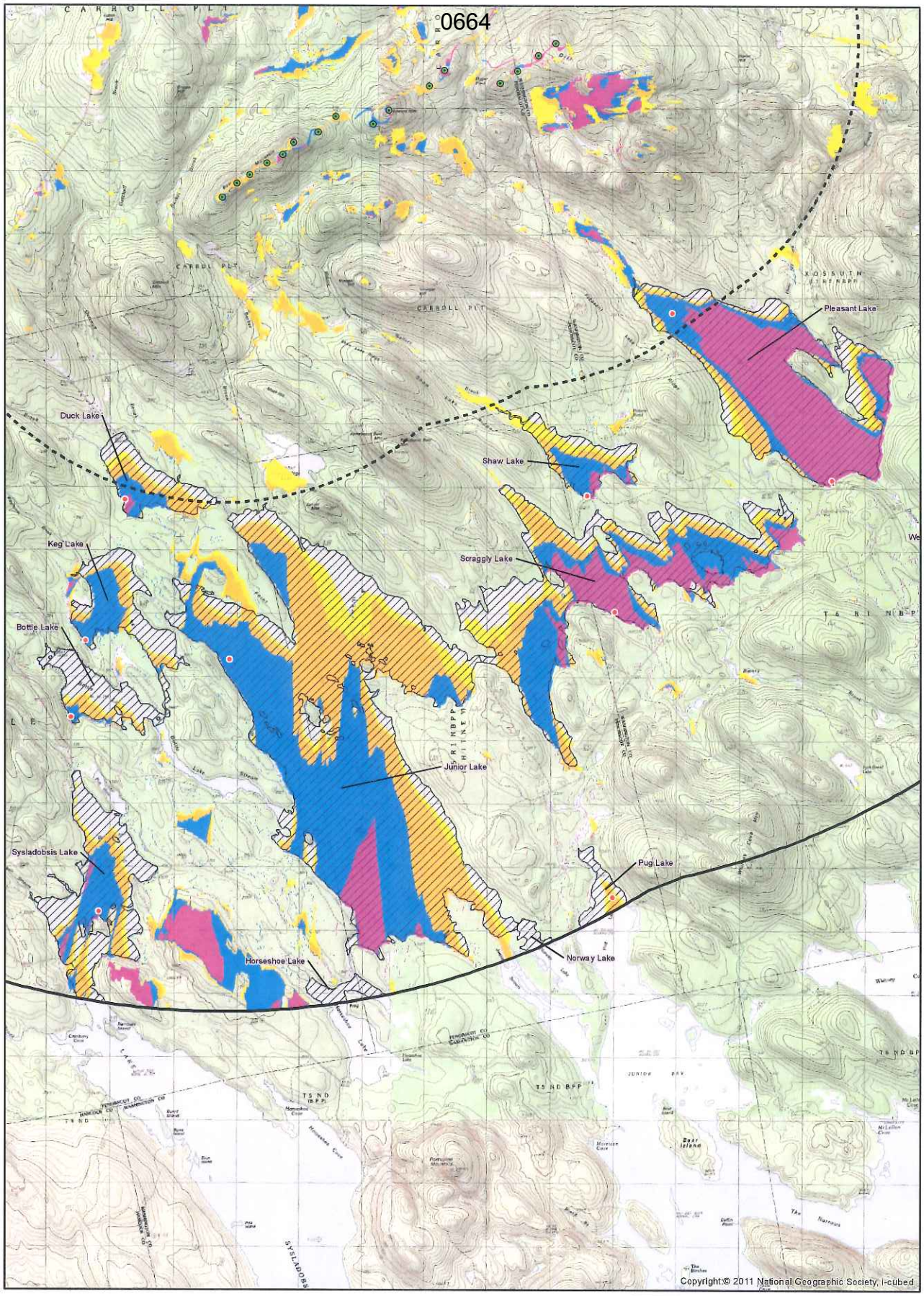
- 1-4
- 5-8
- 9-12
- 13-16

EXHIBIT 4: PAGE 1 OF 2
VIEWSHED MAP (topography and vegetation/from the hub)

Bowers Wind Project

firstwind BOWERS

LandWorks



NOTE: This map depicts areas with POTENTIAL views of one or more turbines. Visibility is generated from the turbine hub at 84m. Not all turbines (or all parts of turbines) will be seen from each location. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where turbines will be seen from. Potential viewshed is based on GIS data available at the time from USGS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

0 0.5 1 Miles

Date: Oct 12
Drawn by: NS

N

Legend

- Proposed Turbines
- Visual Simulation Location
- National Historic Site
- Scenic Lakes
- 3 Mile Radius
- 8 Mile Radius

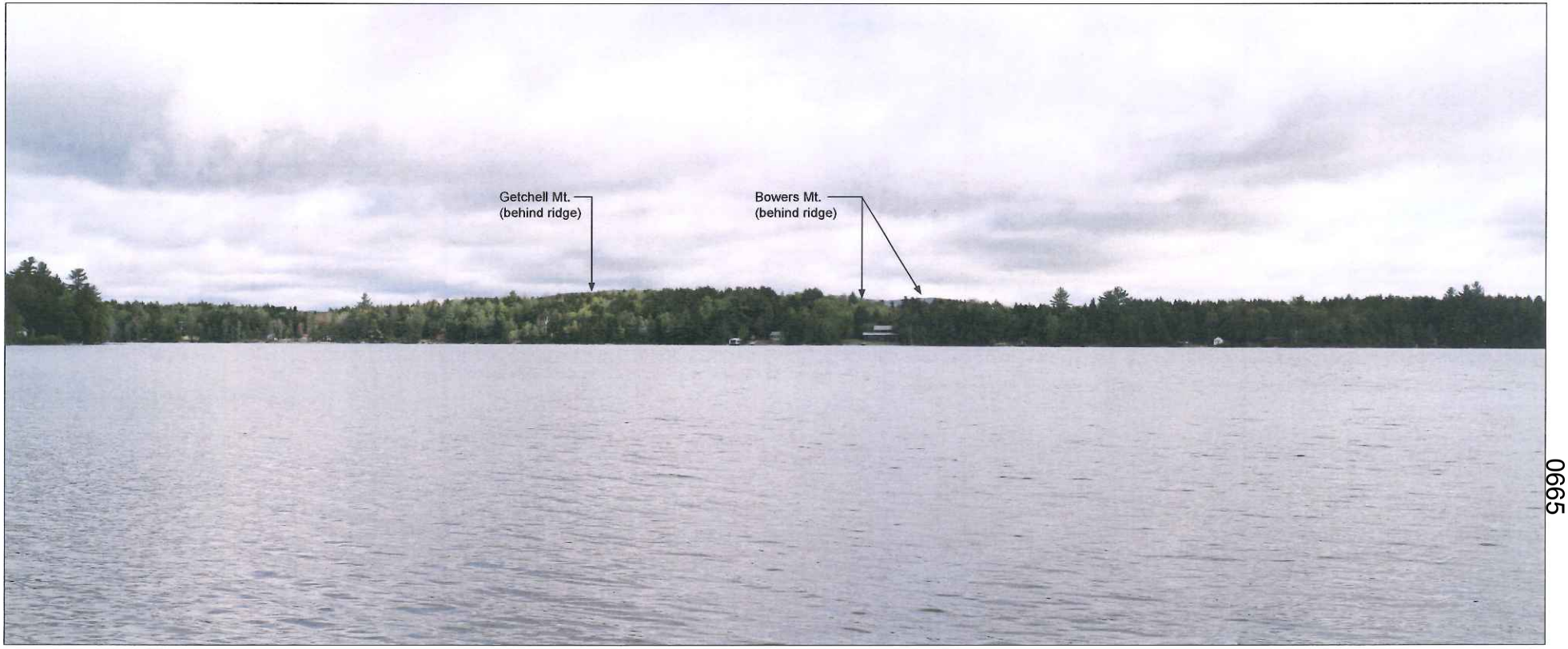
# of Turbines Visible
1-4
5-8
9-12
13-16

EXHIBIT 4: PAGE 2 OF 2
VIEWSHED MAP (topography and vegetation/from the hub)

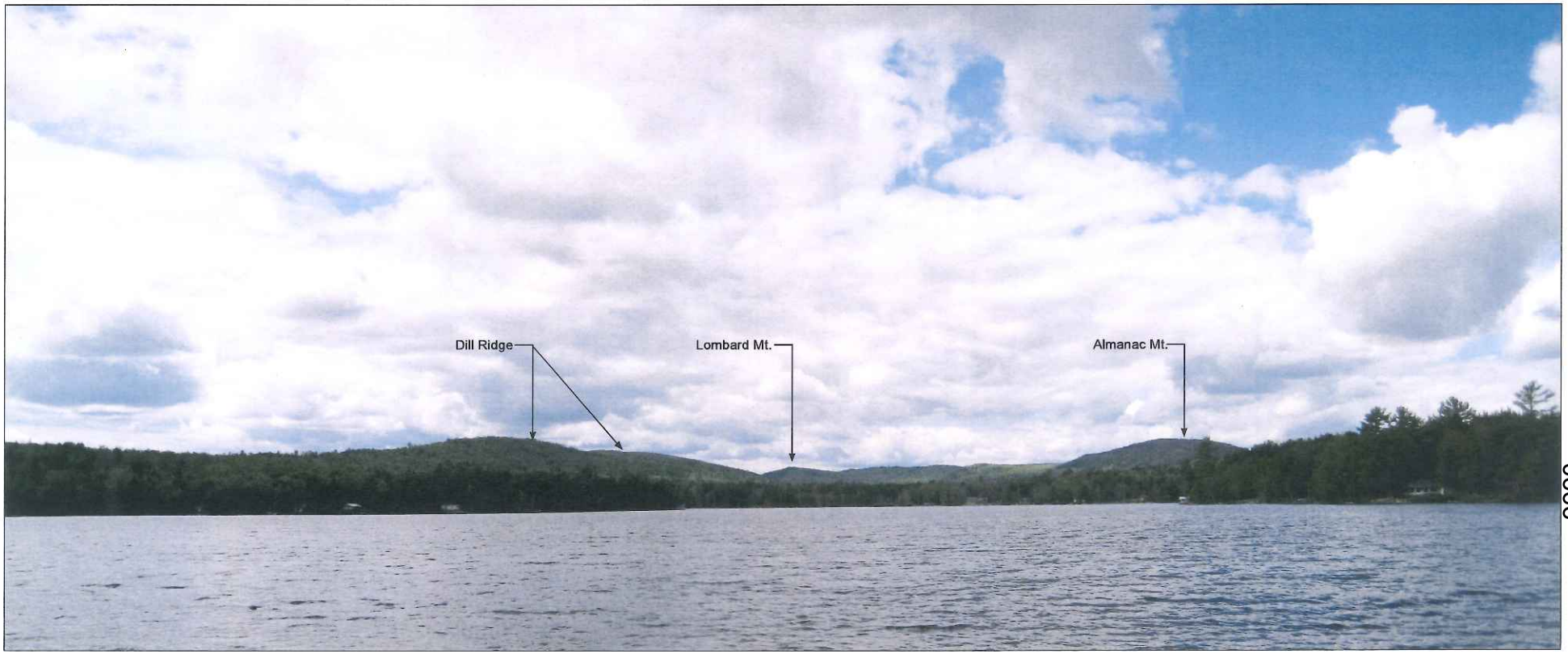
Bowers Wind Project

firstwind BOWERS

LandWorks



Panorama view looking north toward project site from the southwest portion of Bottle Lake.



Panorama view looking to the northwest towards Almanac Mt., illustrating additional ridges surrounding the lake.

Panorama view looking south from public boat launch.

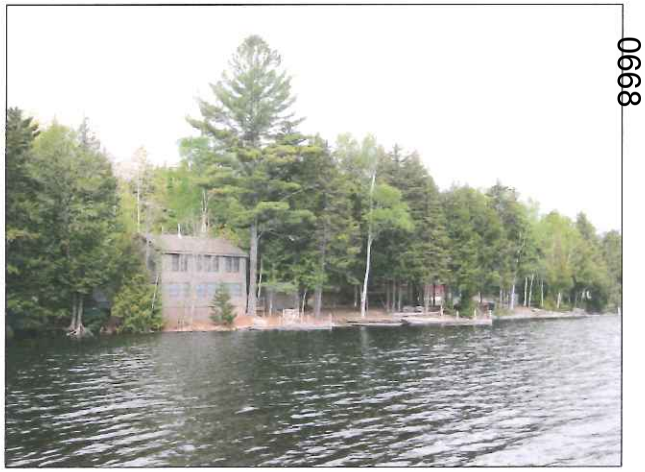
Bottle Lake boat launch.

House adjacent to Bottle Lake boat launch area.

View of Bottle Lake boat launch.

Looking northwest towards Almanac Mt.

View of house near top of Dill Ridge (zoomed photo).



Lake house at the southern end of the lake.

0668

Exhibit 5: Photo Inventory (Bottle Lake)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks

Powerlines over an inlet / wetland at the northeast end of the lake.

Representative lake house / cottage development along the northern shore.

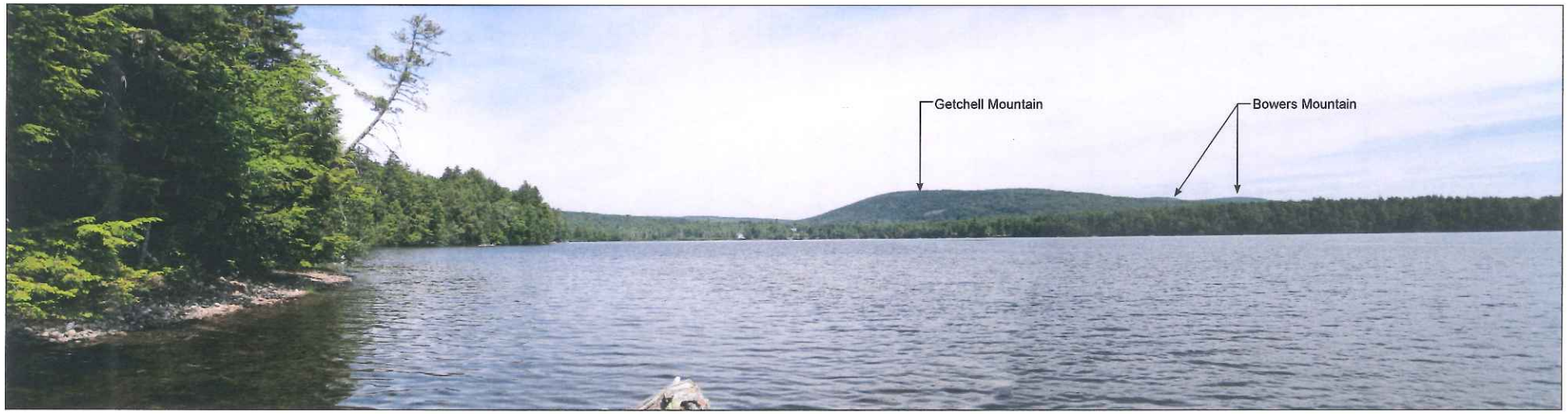
Representative lake house / cottage development along the northern shore.

Representative lake house / cottage development along the northern shore.

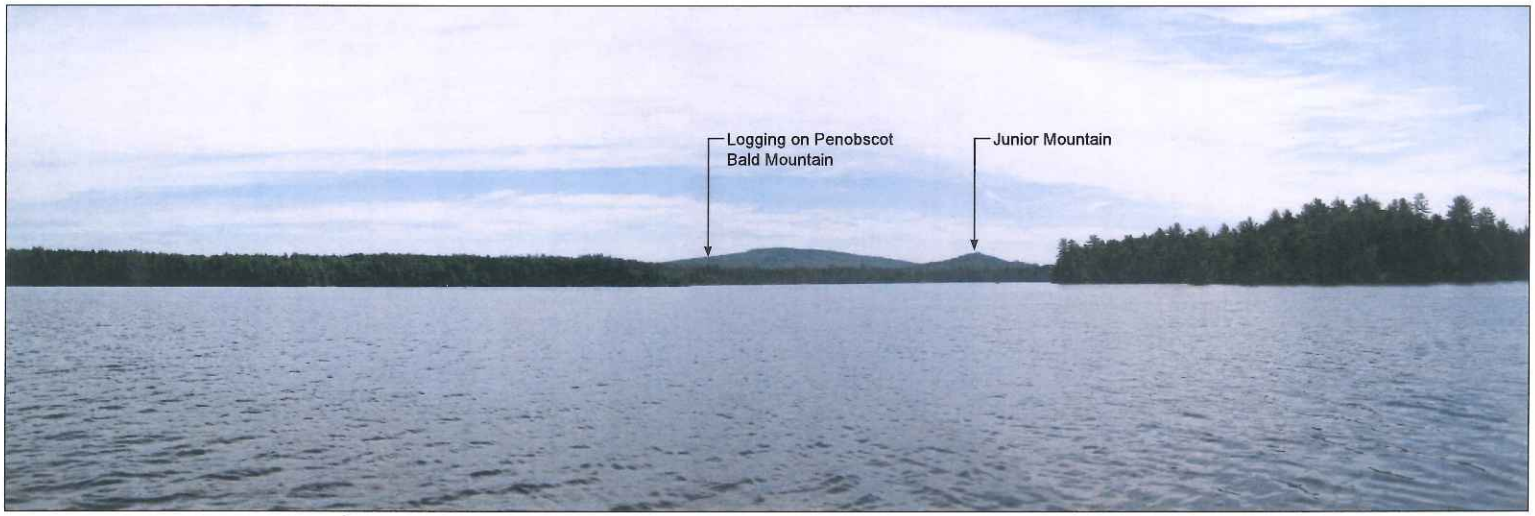
Representative lake house / cottage development along the northern shore.

Lake house development along the western shore. Note that powerlines cross the lake.

0669



Panorama view from southern shore looking north.



Continuation of panorama view from southern shore looking northeast.

0670

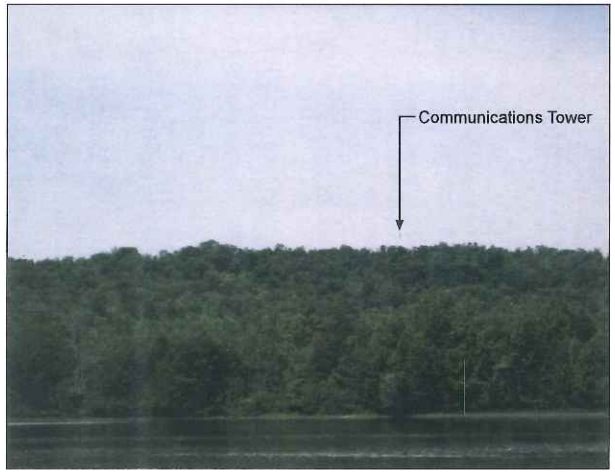
Continuation of panorama view from southern shore looking east.

View looking north / northeast from center of lake. Note that the distant ridgelines are not visible due to intervening topography and trees.

Camp development along southern shore.

Camp development along southern shore.

Camp development along southern shore.



View west with Almanac Mountain communications tower popping up above ridge (zoom photo).

Camp / house development along northern shore.

Public boat launch.

0672

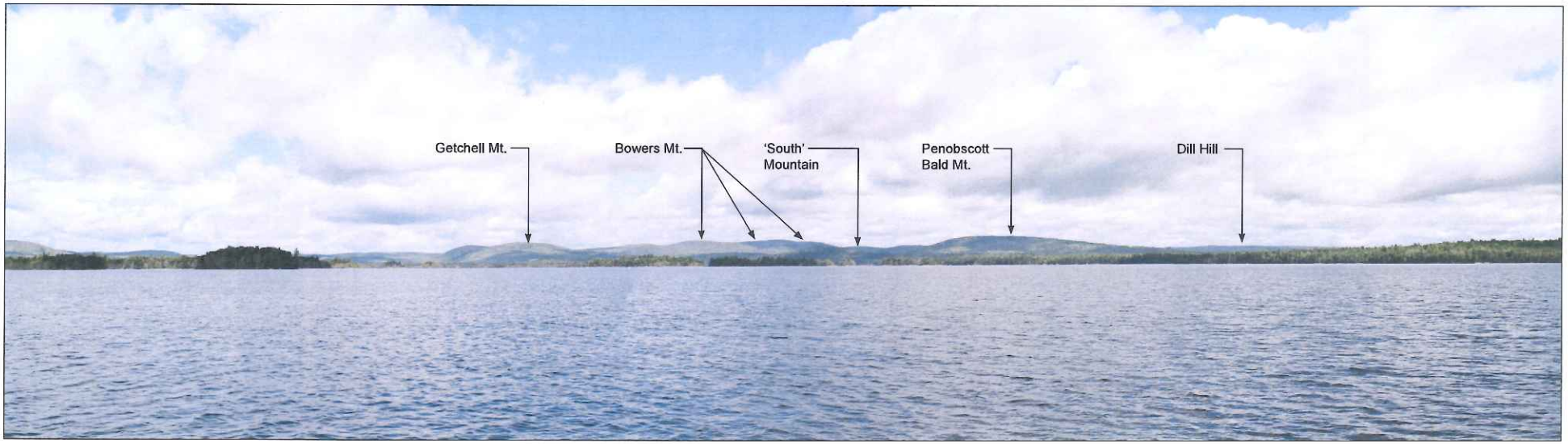
Exhibit 5: Photo Inventory (Duck Lake)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks



Panorama view looking north toward the project site from the southern end of Junior Lake.

Panorama view looking toward Almanac Mt. from a public camp site, centrally located on the lake east of the "Big Islands."

0674

View of Bottle Lake Stream from Junior Lake.

Representative lake house / cottage development along the western shore of Junior Lake near Bottle Lake Stream.

View from the mouth of Bottle Lake Stream looking east towards logging on a distant ridge.

View of lake house / cottage at the south end of the lake.

View looking northwest towards the "Big Islands."

Public campsite located east of the "Big Islands" on a peninsula, centrally located on the lake.

Exhibit 5: Photo Inventory (Junior Lake)

Bowers Wind Project

September 2012

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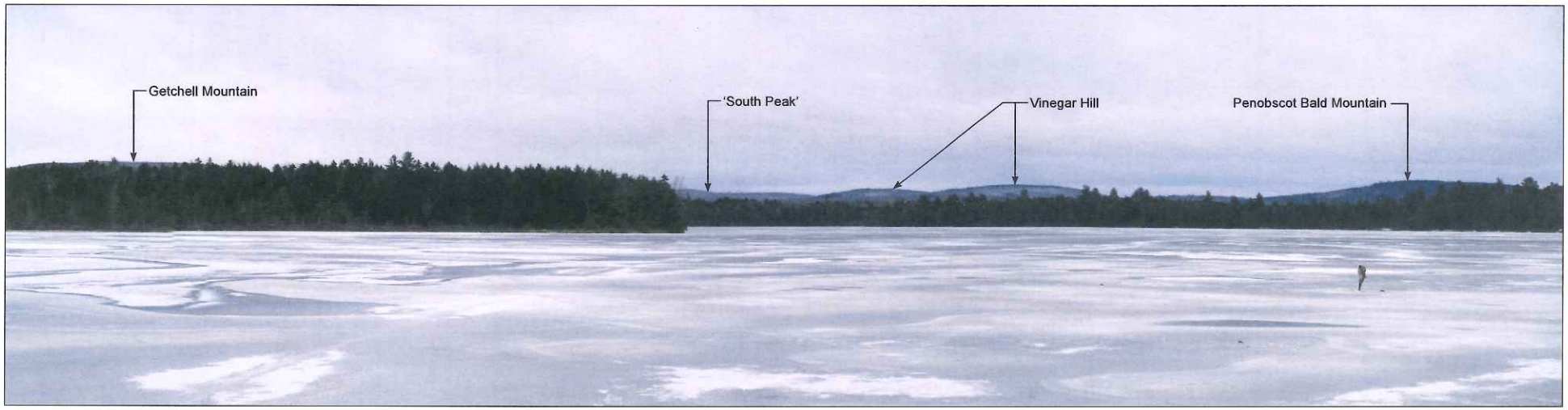
Public campsite sign.

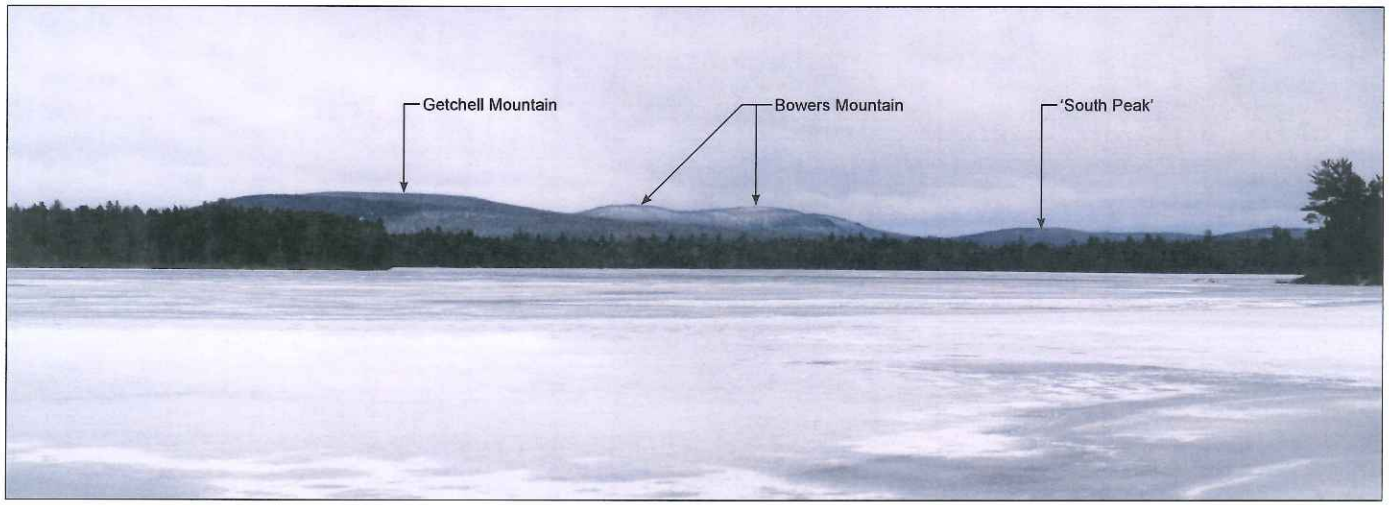
Representative lake house and dock development along the western shoreline.

Representative lake house and shoreline development along the western shoreline. Note the private sandy beach with dock and slide.

0676

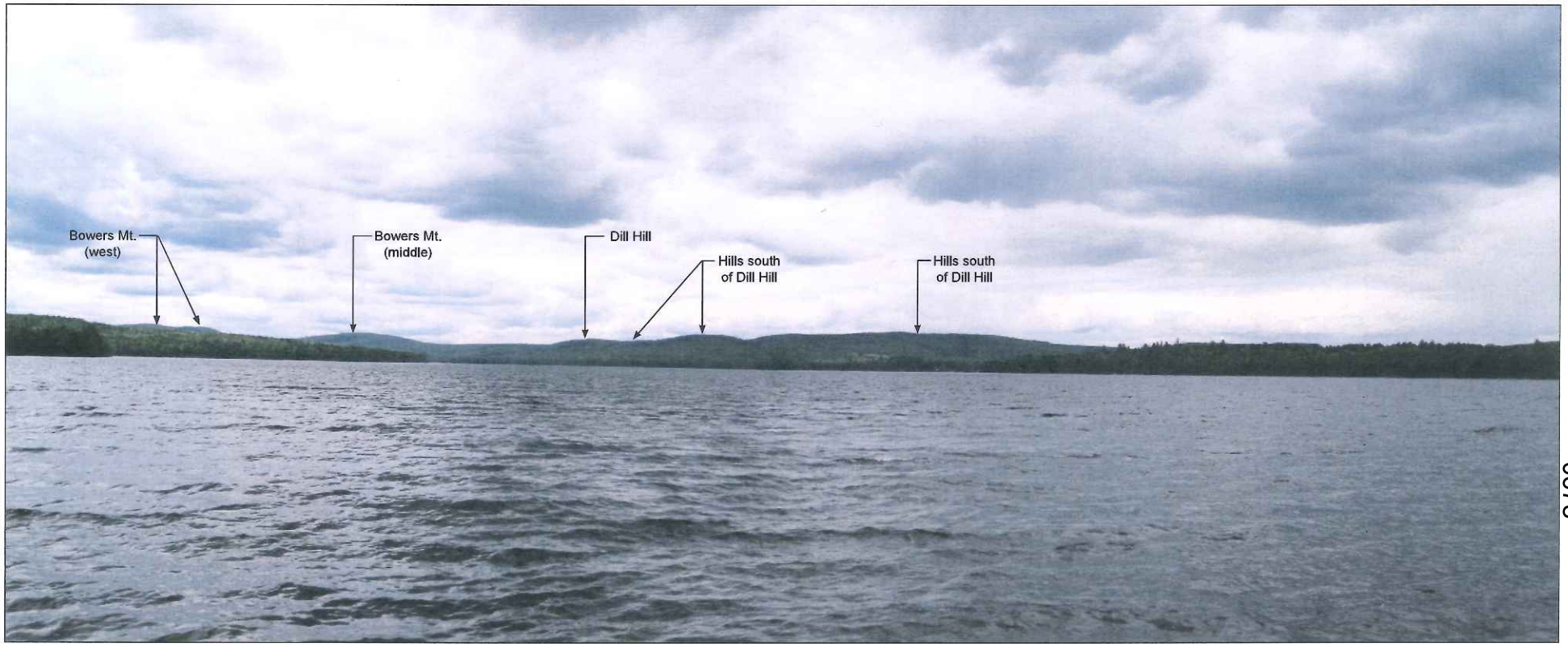


Panorama view from western shore of western cove looking northeast.



Panorama view from southern shore of western cove looking northeast.

0677



Panorama view looking northwest towards project site from the public boat launch.

0678

Exhibit 5: Photo Inventory (Pleasant Lake)

Bowers Wind Project

September 2012

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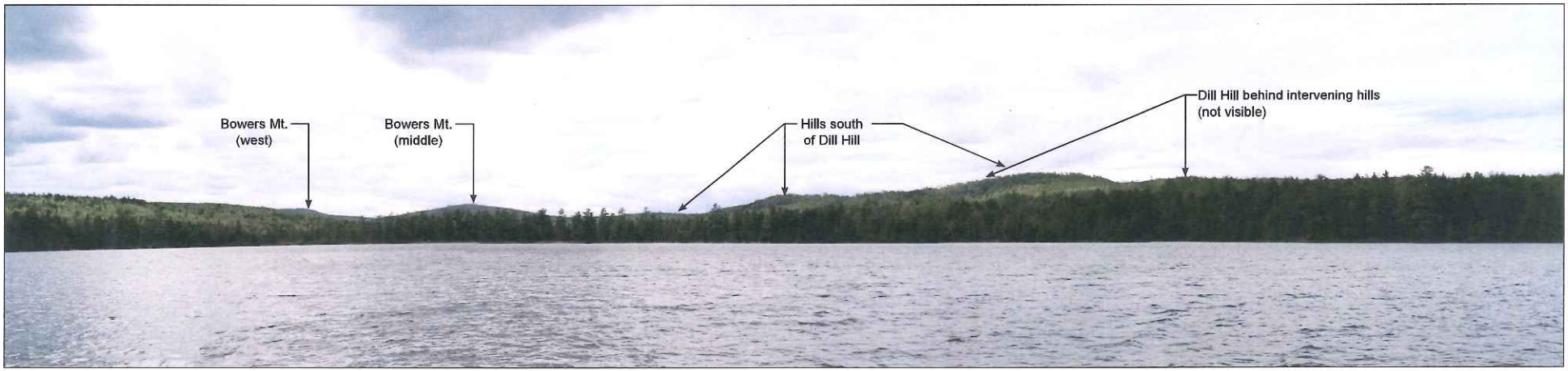


Panorama view looking northwest toward project site from the northwest portion of the lake.

Panorama view looking north towards "Maine Wilderness Camp" with private boat launch.

0680

Exhibit 5: Photo Inventory (Pleasant Lake)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks

Pleasant Lake boat launch and camping area at south end of the lake.

Campground at public boat launch.

Public boat launch.

Campground at public boat launch.

View of public boat launch area from lake.

View of logging activity along Bowers Mt. ridge line at northwestern end of lake.

0681

View of "Maine Wilderness Camps," a private camp ground with cabins, camping sites, and boat launch.

Pleasant Lake Road / Amazon Road to Pleasant and Scraggly Lakes. This is a maintained gravel, logging road.

Pleasant Lake Road / Amazon Road.

0682

Panorama view from western shore looking north.

0683

View of unmarked trail to canoe launch area off Amazon Road.

View of lake edge from the trail.

View of canoe launch area, which is rocky, uncleared, and challenging to walk over.

View from sim. site on western shore looking southeast.

0684

Panorama view looking northwest toward project site from canoe / small boat launch.

Exhibit 5: Photo Inventory (Scraggly Lake)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks

Panorama view looking northwest toward project site from photo simulation site in Hasty Cove.

0686

Exhibit 5: Photo Inventory (Scraggly Lake)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks

Active logging roads off of Amazon Rd.

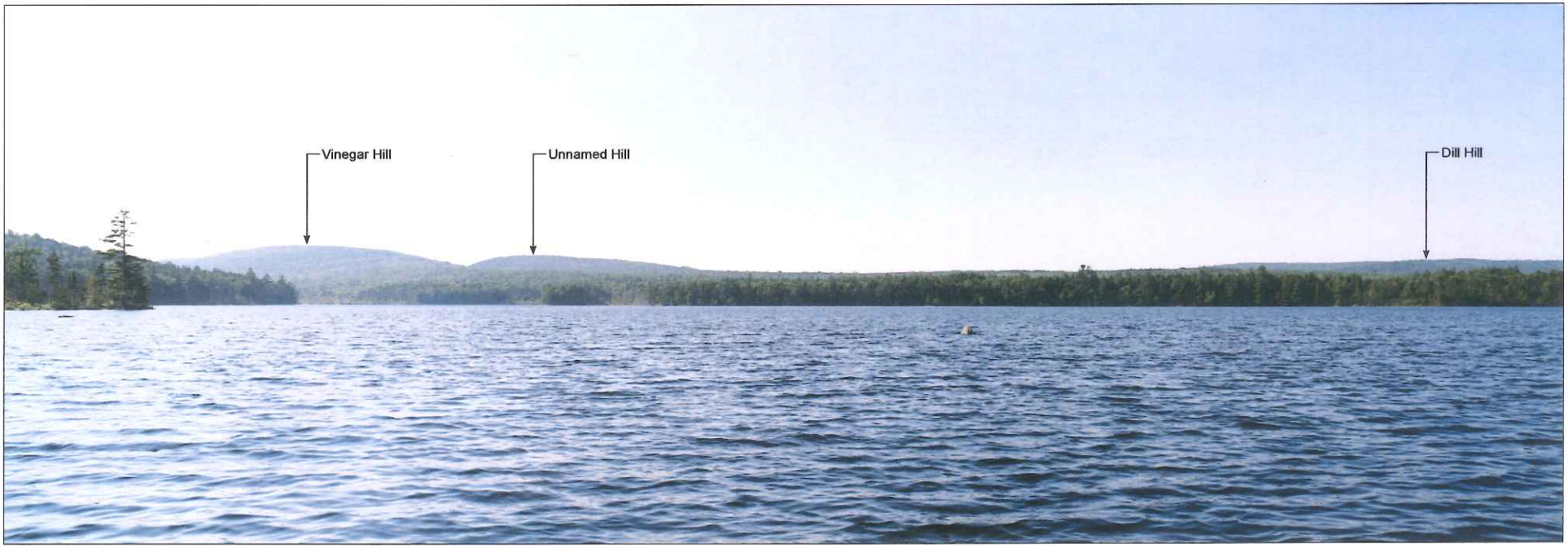
Active logging roads off of Amazon Rd.

Sign for "Hasty Cove" on Amazon Rd. to Scraggly Lake canoe / small boat access.

View from visual simulation site toward boat launch at Hasty Cove.

View to southwest from cove close to Shaw Lake.

0687



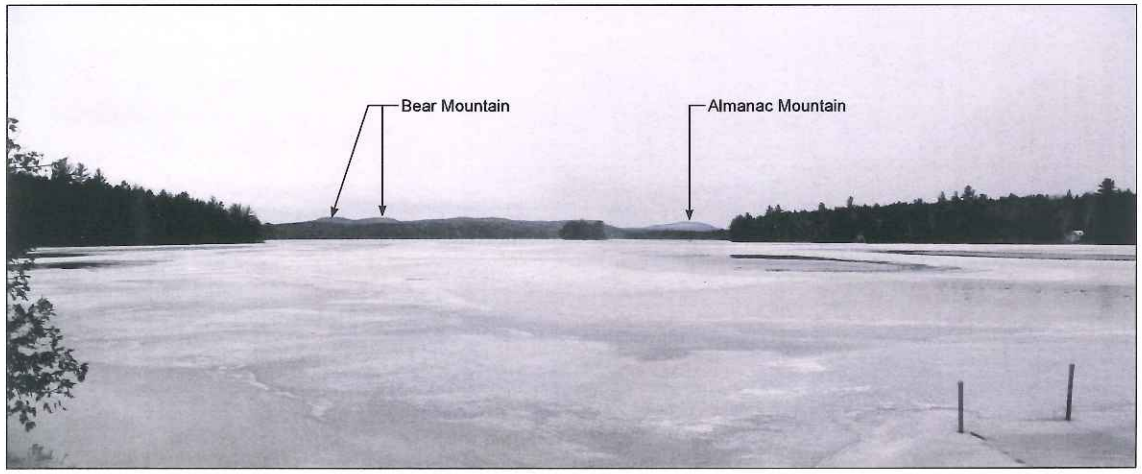
Panorama view of Shaw Lake from southern shore.

View of Shaw Lake from logging road along southern shore.

View of stream crossing logging road along southern shore (road impassable to most vehicles due to obstacles / wet areas)

View looking up stream that connects Shaw Lake and Scraggly Lake (requires boat portage)

0689



Panorama view from northeast cove (off Forest Harbor drive) looking northwest.

Typical shoreline development.

View from northwest shore looking northeast.

Road to public boat launch at northern end of lake.

View of private boat house from public boat launch.

0690

Exhibit 5: Photo Inventory (Sysladopsis Lake)

Bowers Wind Project

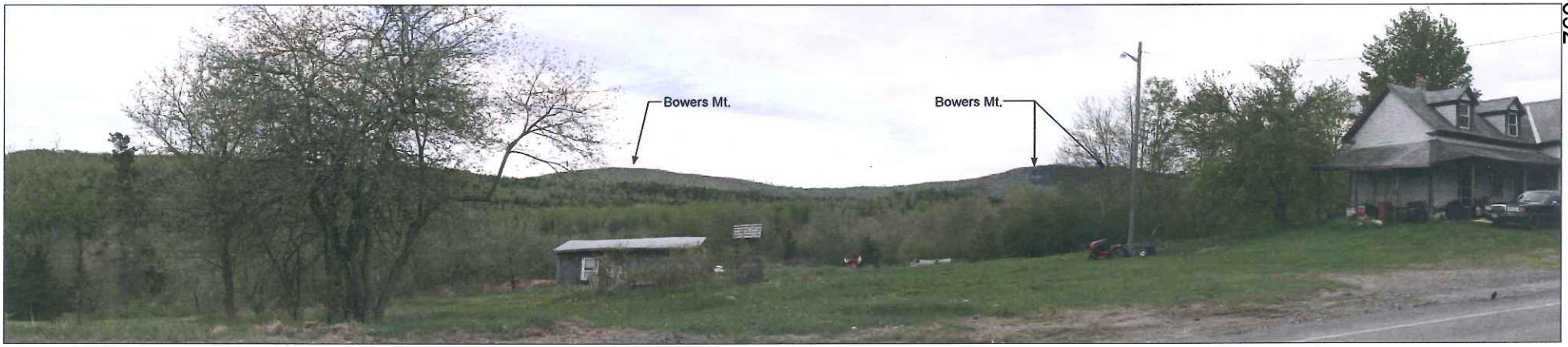
September 2012

Prepared for First Wind

LandWorks

Panorama view looking west on Route 6 immediately north of Dill Hill.

Panorama view looking south toward the project site on Route 6 between the intersections of North Rd and Sheepskin Rd.



Panorama view looking south toward the project site on Route 6 just east of the North Road intersection.

0692

Exhibit 5: Photo Inventory (Route 6)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks

Panorama view of Horseshoe Lake from sim. site looking north.

Panorama view toward Lombard Mountain (left) and Almanac Mountain (right) from southern shore of Lombard Lake.

View of Upper Sysladobsis Lake.
Source: http://www.ssih.com/virtual/wtpaddlers/phpBB3/viewtopic.php?p=16776

Panorama view of West Musquash Lake from boat launch looking east.

View of Dill Hill on Route 6 at opening in roadside vegetation in Kossuth.

Road off of Route 6 with view of Stetson Wind Farm.

View of Stetson Wind Farm from Route 6.

Representative development along Route 6 at locations where project site is visible.

0695

Exhibit 5: Photo Inventory (Route 6)

Bowers Wind Project

September 2012

Prepared for First Wind

LandWorks

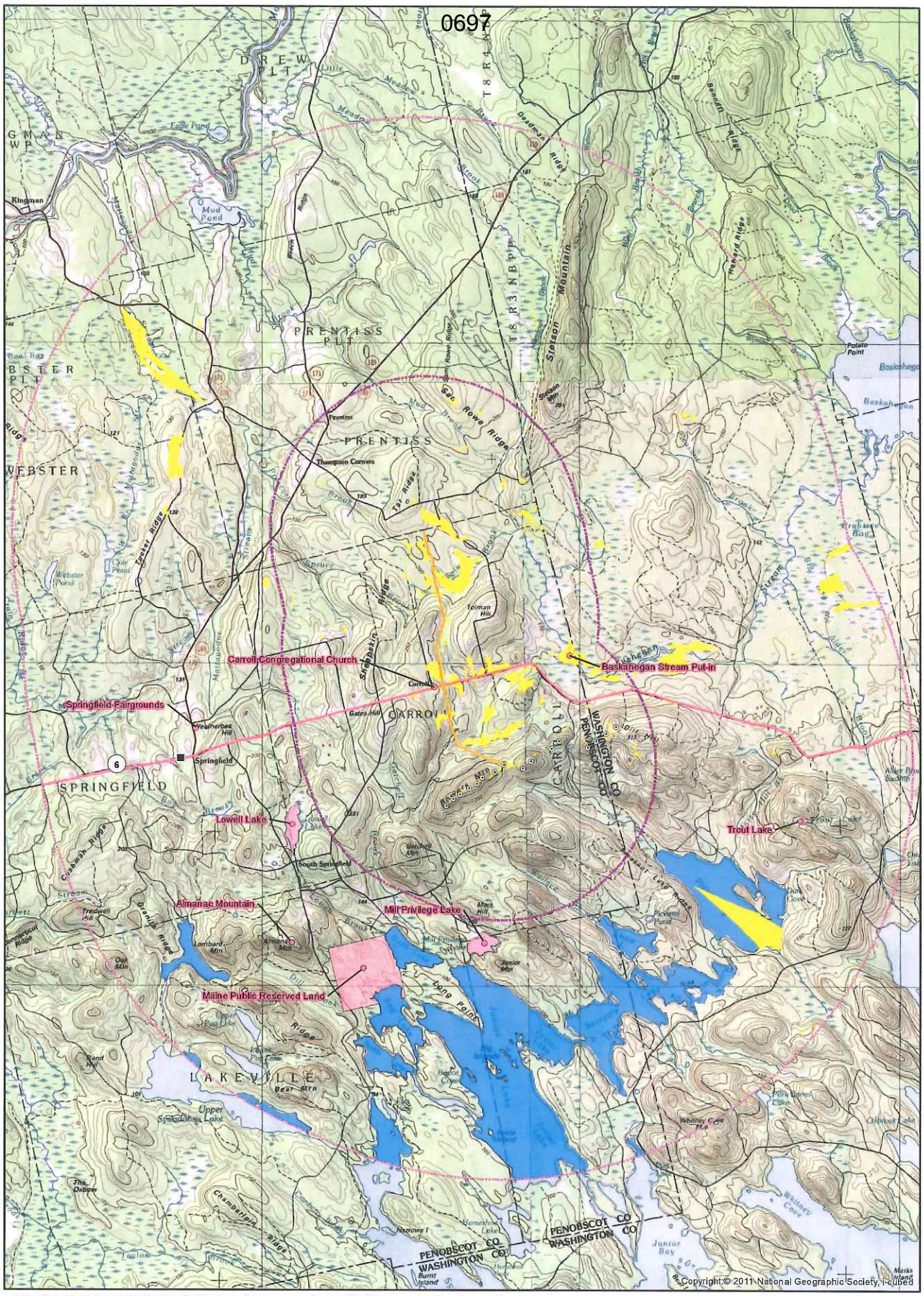
View of Route 6, near proposed location for express collector crossing. Poles of express collector would be similar to existing poles in this picture.

View from Route 6 towards location of O&M building. Existing vegetation will block any views of the O&M building, which is not more than 28 feet in height.

View of existing development along Route 6. Any visible poles would be similar to those shown in this picture.

View of Carroll Congregational Church from Route 6. Views of the O&M building and express collector poles would primarily be blocked by vegetation. When viewing the church, views of access roads would be in the opposite direction.

0690



NOTE: This map depicts areas with POTENTIAL views of the express collector. Visibility is generated from the top of the poles at 80 ft. Not all parts of the structure will be seen from each location. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where the structure will be seen from. Potential viewshed is based on GIS data available at the time from USGS, Maine Office of GIS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 Miles

N

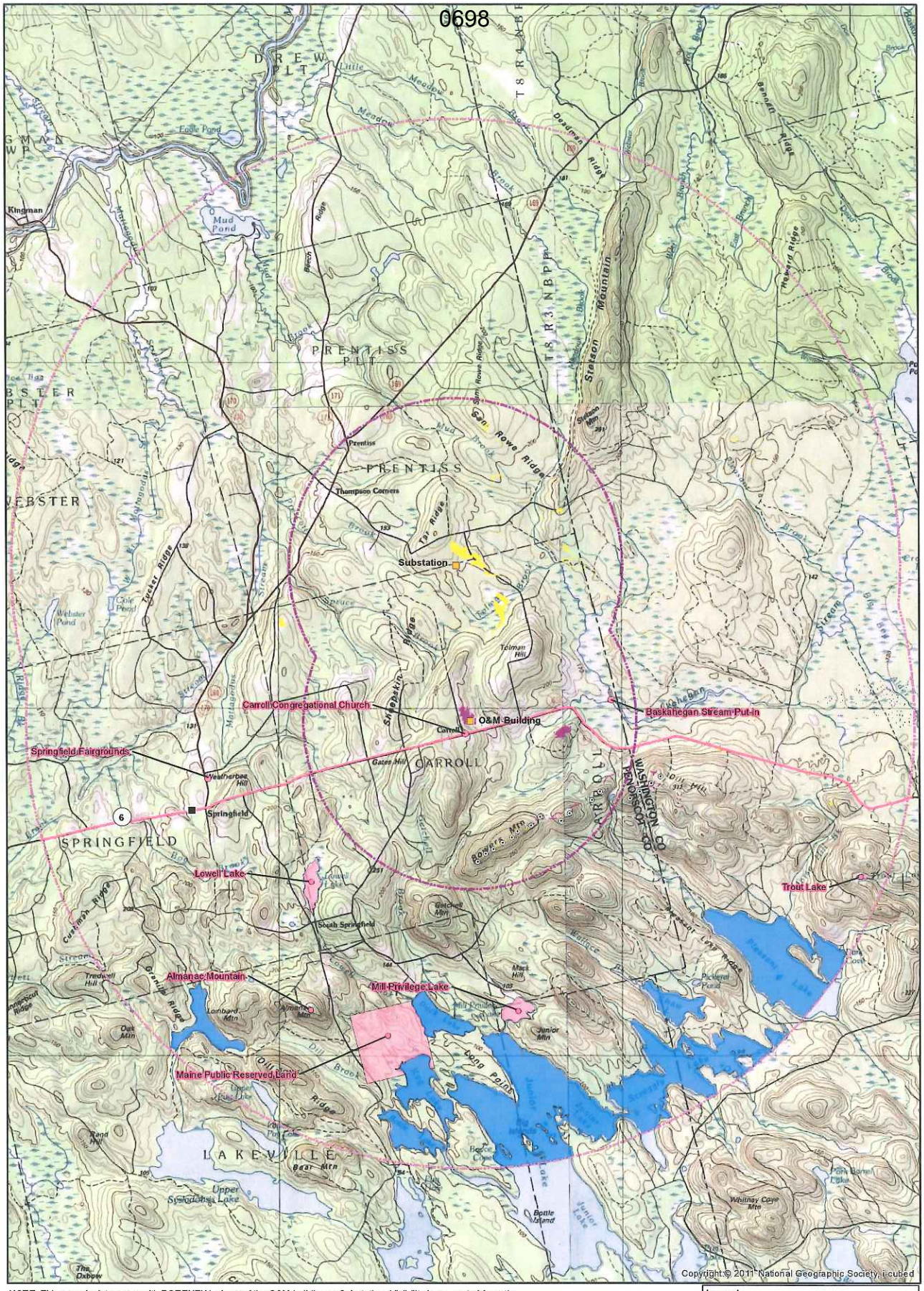
Date: Oct 2012
Drawn by: NS

Legend
- Proposed Turbines
- National Historic Site
- Local Public Viewpoints
- Proposed Express Collector
- Local Resource Road
- 3-Mile Radius
- 8-Mile Radius
- Areas with Potential Visibility of Express Collector
- Scenic Lakes of State or National Significance
- Local Resource Lake/Land

EXHIBIT 6
EXPRESS COLLECTOR VIEWSHED MAP
(topography and vegetation)
Bowers Wind Project

firstwind BOWERS

LandWorks



NOTE: This map depicts areas with POTENTIAL views of the O&M building or Substation. Visibility is generated from the top of the O&M building at 28 ft, and the tallest component of the substation at 54 ft. Not all structures (or all parts of structures) will be seen from each location. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where structures will be seen from. Potential viewshed is based on GIS data available at the time from USGS, Maine Office of GIS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 Miles

Date: Oct 2012
Drawn by: NS

N

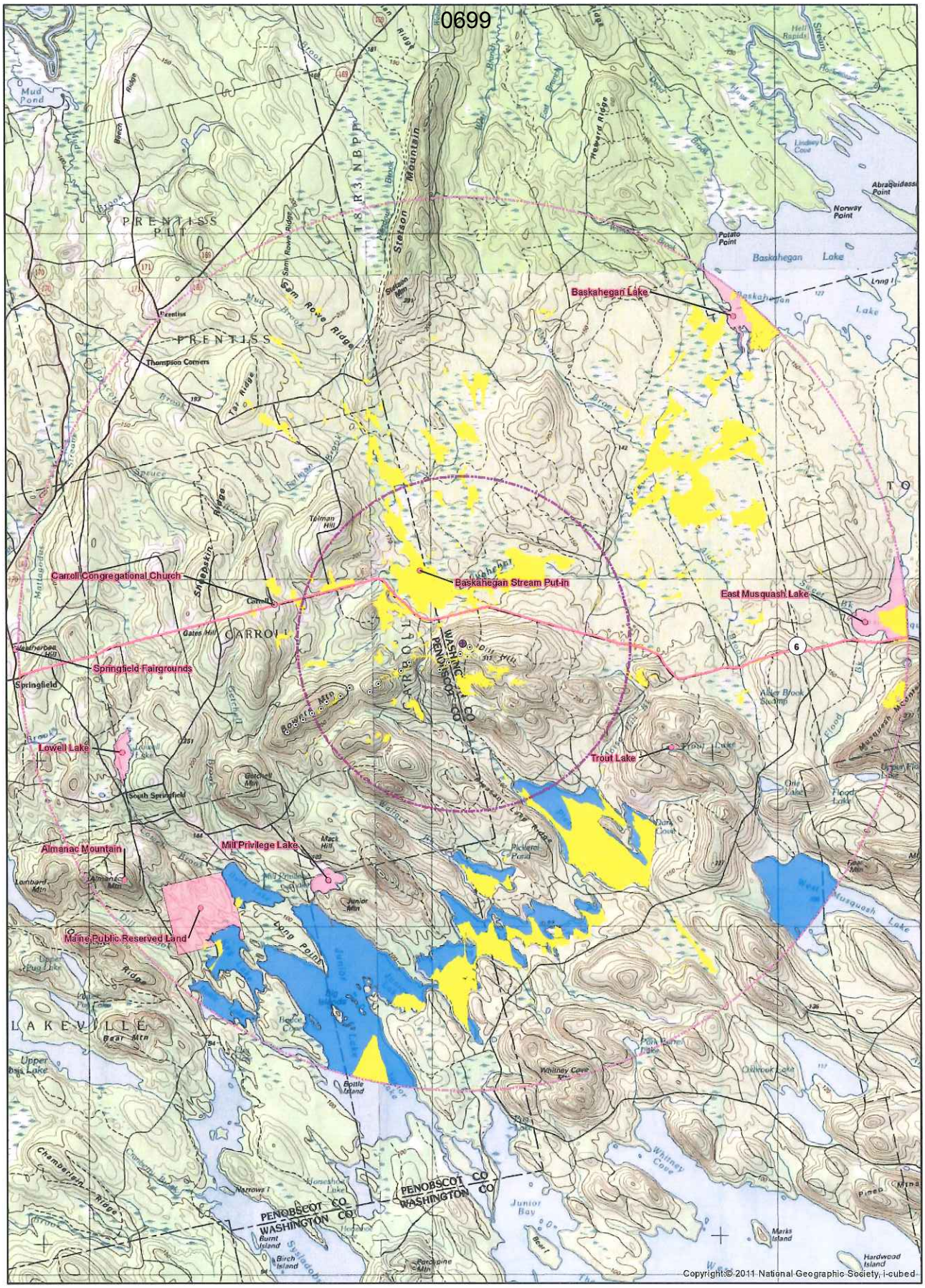
firstwind

LandWorks

Legend

- Proposed Turbines
- Building Location
- National Historic Site
- Local Public Viewpoints
- Local Resource Road
- 3-Mile Radius
- 8-Mile Radius
- Areas with Potential Visibility of Substation
- Areas with Potential Visibility of O&M
- Scenic Lakes of State or National Significance
- Local Resource Lake/Land

EXHIBIT 7
O&M and SUBSTATION VIEWSHED MAP
(topography and vegetation)
Bowers Wind Project



NOTE: This map depicts areas with POTENTIAL views of the MET tower. Visibility is generated from the top of the tower at 90 m. Not all parts of the structure will be seen from each location. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where the structure will be seen from. Potential viewshed is based on GIS data available at the time from USGS, Maine Office of GIS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 Miles

N

Date: Oct 2012
Drawn by: NS

Legend

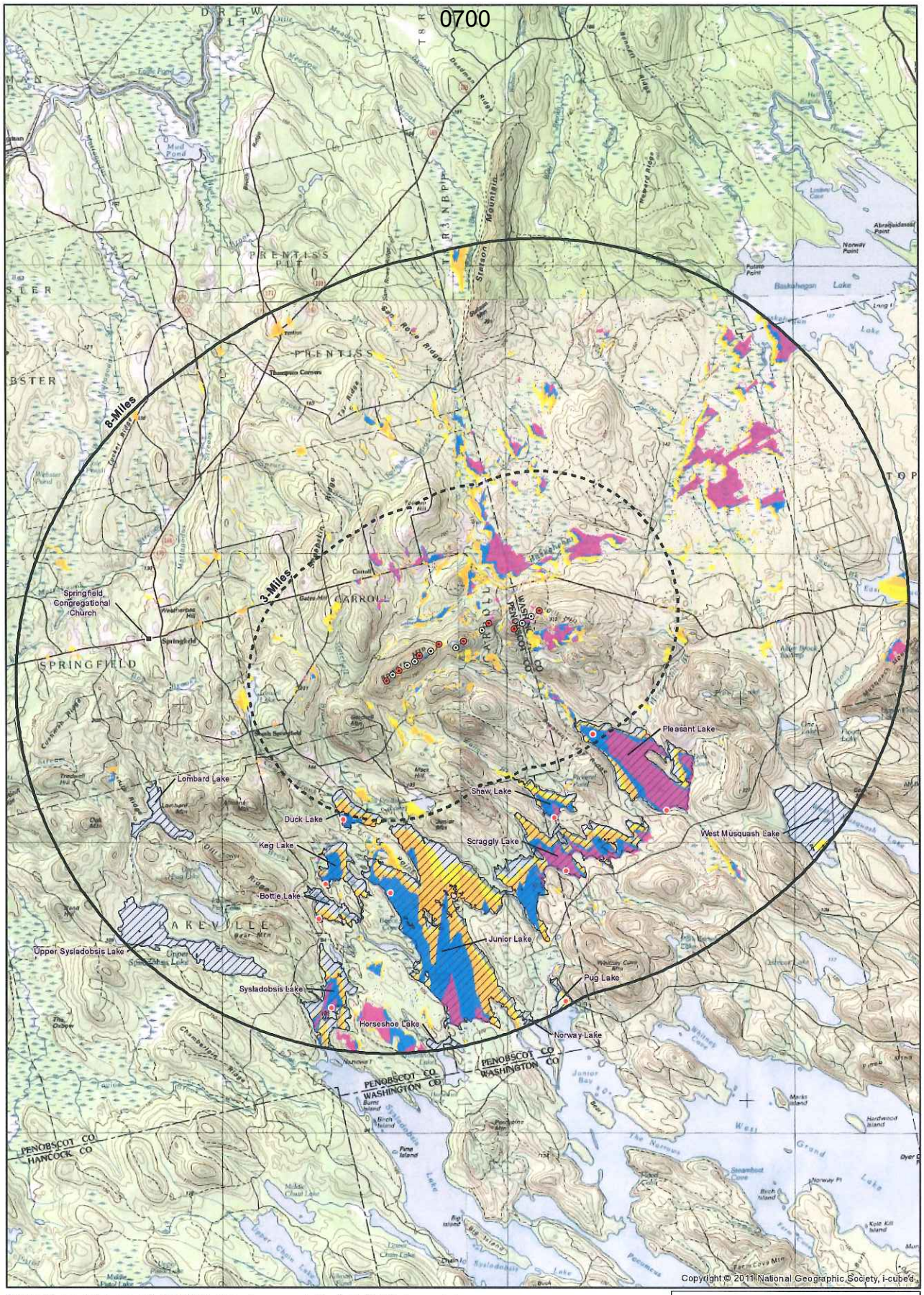
- Proposed MET Tower
- Proposed Turbines
- Local Public Viewpoints
- Local Resource Road
- 3-Mile Radius
- 8-Mile Radius
- Areas with Potential Visibility of MET Tower
- Scenic Lakes of State or National Significance
- Local Resource Lake/Land

firstwind

LandWorks

EXHIBIT 8
METEORLOGICAL TOWER VIEWSHED MAP
(topography and vegetation)

Bowers Wind Project



NOTE: This map depicts areas with POTENTIAL views of one or more turbine lights. Visibility is generated from the turbine hub at 84m. The map only accounts for topography and vegetation with an assumed tree height of 40 feet. The map does not account for other factors such as buildings and structures, site specific vegetation, variations in eyesight, and atmospheric and weather conditions and may overstate where lights will be seen from. Potential viewshed is based on GIS data available at the time from USGS and First Wind, LLC. Data is only as accurate as the original source and is not guaranteed by LandWorks.

1 0 1 2 Miles

Date: Oct 2012
Drawn by: NS

N

firstwind HOWSER

LandWorks

Legend

- Lit Turbines
- Unlit Turbines
- Visual Simulation Location
- National Historic Site
- Scenic Lakes
- 3 Mile Radius
- 8 Mile Radius

Lights Visible
1-2
3-4
5-6
7-8

EXHIBIT 9
TURBINE NIGHT LIGHTING VIEWSHED MAP
(topography and vegetation/from the hub)
Bowers Wind Project

Exhibit 10: Annotated Visual Simulation from Bottle Lake, Lakeville (Sheet 1 of 10)

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

0701

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 9:30 am
	Location: Bottle Lake (island in southwest cove of lake), Lakeville; 45.308° N, -68.063° W
	Camera elevation above sea level: 304' (92.7 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 5.3 miles (8.5 km) Furthest: 6.7 miles (10.8 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

Exhibit 10: Annotated Visual Simulation from Duck Lake, Lakeville (Sheet 2 of 10)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0702

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/16/10; 10:20 am
	Location: Duck Lake (just off southwestern shore), Lakeville; 45.339° N, -68.052° W
	Camera elevation above sea level: 302.5' (92.2 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 3.1 miles (5.0 km) Furthest: 4.6 miles (7.5 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind

Exhibit 10: Annotated Visual Simulation from Junior Lake, Lakeville

(Sheet 3 of 10)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0703

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 12:22 pm
	Location: Junior Lake (northwest portion, approx. 550' off western shore), Lakeville; 45.316° N, -68.031° W
	Camera elevation above sea level: 306' (93.3 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 4.4 miles (7.1 km) Furthest: 5.6 miles (9.1 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 10: Annotated Visual Simulation from Keg Lake, Lakeville (Sheet 4 of 10)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 12/22/10; 10:30 am
	Location: Keg Lake (western cove), Lakeville; 45.318° N, -68.060° W
	Camera elevation above sea level: 304' (92.7 m)
	Focal length (35mm equivalent): Unknown
	Simulation viewing distance: Approximately 19" (48.3 cm)
	Distance to nearest visible turbine: 4.6 miles (7.4 km) Furthest: 7.5 miles (12.1 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. The photographs and field data used for this simulation were taken by Stantec, and a compact digital camera was utilized. As such, the scale and visibility of the turbines depicted is potentially less accurate and should be considered 'approximate'.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

0704

Exhibit 10: Annotated Visual Simulation from Pleasant Lake Boat Launch, T6 R1 NBPP (Sheet 5 of 10)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0705

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 3:20 pm
	Location: Pleasant Lake Boat Launch, T6 R1 NBPP; 45.340° N, -67.908° W
	Camera elevation above sea level: 324.5' (98.9 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 5.08 miles (8.2 km) Furthest: 6.6 miles (10.7 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 10: Annotated Visual Simulation from Pleasant Lake West, T6 R1 NBPP (Sheet 6 of 10)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0706

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 3:39 pm
	Location: Pleasant Lake West, T6 R1 NBPP; 45.3644° N, -67.9403° W
	Camera elevation above sea level: 324.5' (98.9 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 2.82 miles (4.54 km) Furthest: 4.27 miles (6.87 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

3. Portions of two turbines are potentially visible off-frame to the right. Panorama width is limited by the 11x17 size format and consistent viewing distance.

firstwind BOWERS

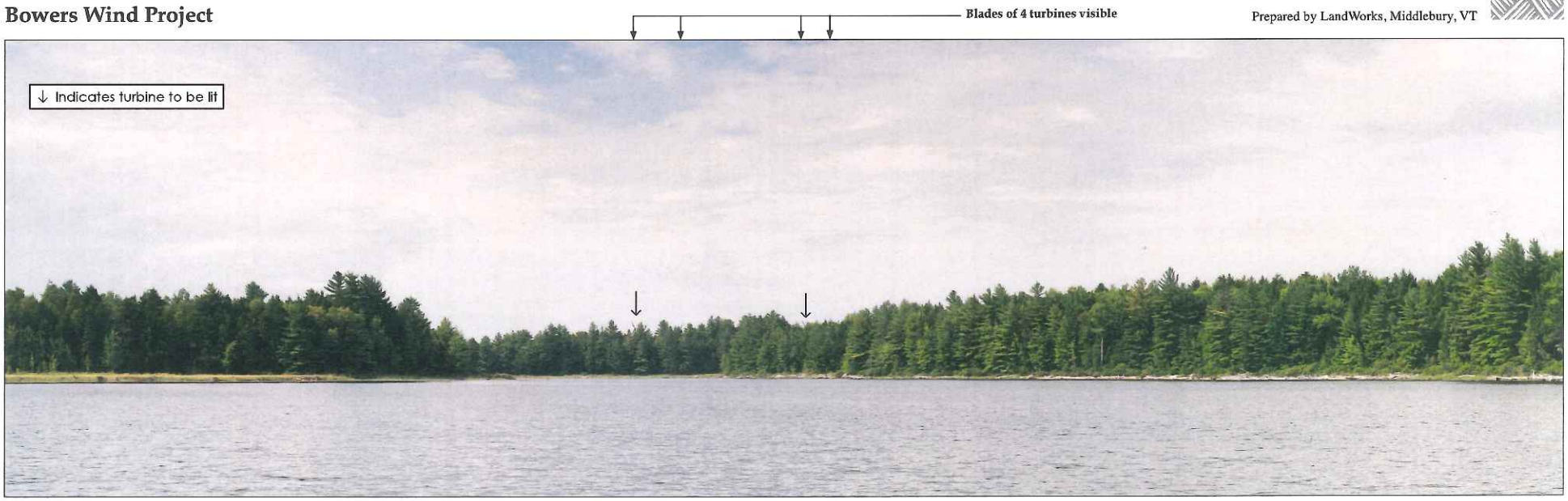
Exhibit 10: Annotated Visual Simulation from Pug Lake, Pukakon Twp (Sheet 7 of 10)

October 2012

LandWorks

Bowers Wind Project

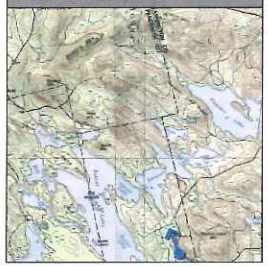
Prepared by LandWorks, Middlebury, VT



0707

Existing Conditions Photograph

View Location Map



Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 8/15/12; 3:04 pm
	Location: Pug Lake (just off northeast shore), Pukakon Twp; 45.281° N, -67.954° W
	Camera elevation above sea level: 301' (91.7 m)
	Focal length (35mm equivalent): 50mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 7.87 miles (12.67 km) Furthest: 7.97 miles (12.84 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. The photographs and field data used for this simulation were taken by Stantec.

3. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

4. Turbines were artificially darkened in this simulation in order to ensure that they are discernible against the light sky background.

firstwind BOWERS

Exhibit 10: Annotated Visual Simulation from Scraggly Lake, Pukakon Twp (Sheet 8 of 10)

October 2012 LandWorks

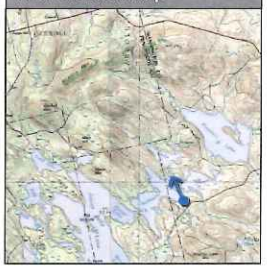
Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0708

Existing Conditions Photograph

View Location Map



Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/17/10; 4:26 pm
	Location: Scraggly Lake (southwestern shore of Hasty Cove), T6 R1 NBPP; 45.322° N, -67.953° W
	Camera elevation above sea level: 304' (92.7 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 5.3 miles (8.6 km) Furthest: 5.6 miles (9.0 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 10: Annotated Visual Simulation from Shaw Lake, T6 R1 NBPP (Sheet 9 of 10)

October 2012 LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0709

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/17/10; 5:27 pm
	Location: Shaw Lake (southern shore), T6 R1 NBPP; 45.339° N, -67.958° W
	Camera elevation above sea level: 307' (93.6 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 4.1 miles (6.6 km) Furthest: 4.6 miles (7.4 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

3. A Portion of one turbine is potentially visible off-frame to the left. Panorama width is limited by the 11x17 size format and consistent viewing distance.

firstwind BOWERS

Exhibit 10: Annotated Visual Simulation from Sysladobsis Lake, Lakeville (Sheet 10 of 10)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0710

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/22/11; 7:05 pm
	Location: Sysladobsis Lake, Lakeville; 45.280° N, -68.058° W
	Camera elevation above sea level: 309' (94 m)
	Focal length (35mm equivalent): Unknown
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 7.1 miles (11.4 km) Furthest: 8.4 miles (13.5 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. The photographs and field data used for this simulation were taken by Stantec.

3. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 11: Visual Simulation from Bottle Lake, Lakeville (Sheet 1 of 2)

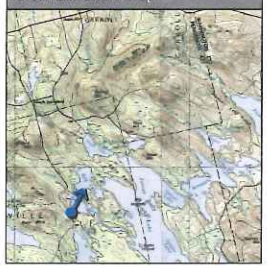
Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map



Simulation Information	
Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 9:30 am
	Location: Bottle Lake (island in southwest cove of lake), Lakeville; 45.308° N, -68.063° W
	Camera elevation above sea level: 304' (92.7 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 5.3 miles (8.5 km) Furthest: 6.7 miles (10.8 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

0711

Exhibit 11: Existing Conditions from Bottle Lake, Lakeville (Sheet 2 of 2)

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

Exhibit 12: Visual Simulation from Duck Lake, Lakeville (Sheet 1 of 2)

October 2012

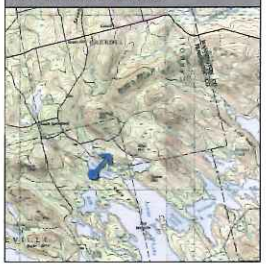
LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map



Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/16/10; 10:20 am
	Location: Duck Lake (just off southwestern shore), Lakeville; 45.339° N, -68.052° W
	Camera elevation above sea level: 302.5' (92.2 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 3.1 miles (5.0 km) Furthest: 4.6 miles (7.5 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 12: Existing Conditions from Duck Lake, Lakeville (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

Exhibit 13: Visual Simulation from Junior Lake, Lakeville (Sheet 1 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 12:22 pm
	Location: Junior Lake (northwest portion, approx. 550' off western shore), Lakeville; 45.316° N, -68.031° W
	Camera elevation above sea level: 306' (93.3 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 4.4 miles (7.1 km) Furthest: 5.6 miles (9.1 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 13: Existing Conditions from Junior Lake, Lakeville (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

Exhibit 14: Visual Simulation from Keg Lake, Lakeville

(Sheet 1 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0717

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 12/22/10; 10:30 am
	Location: Keg Lake (western cove), Lakeville; 45.318° N, -68.060° W
	Camera elevation above sea level: 304' (92.7 m)
	Focal length (35mm equivalent): Unknown
	Simulation viewing distance: Approximately 19" (48.3 cm)
	Distance to nearest visible turbine: 4.6 miles (7.4 km) Furthest: 7.5 miles (12.1 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. The photographs and field data used for this simulation were taken by Stantec, and a compact digital camera was utilized. As such, the scale and visibility of the turbines depicted is potentially less accurate and should be considered 'approximate'.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

3. Turbines were artificially darkened in this simulation in order to ensure that they are discernible against the light sky background.

firstwind BOWERS

Exhibit 14: Existing Conditions from Keg Lake, Lakeville (Sheet 2 of 2)

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

LandWorks

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

Exhibit 15: Visual Simulation from Pleasant Lake Boat Launch, T6 R1 NBPP (Sheet 1 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 3:20 pm
	Location: Pleasant Lake Boat Launch, T6 R1 NBPP; 45.340° N, -67.908° W
	Camera elevation above sea level: 324.5' (98.9 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 5.08 miles (8.2 km) Furthest: 6.6 miles (10.7 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 15: Existing Conditions from Pleasant Lake Boat Launch, T6 R1 NBPP (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

0720

Exhibit 16: Visual Simulation from Pleasant Lake West, T6 R1 NBPP (Sheet 1 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0721

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 5/5/10; 3:39 pm
	Location: Pleasant Lake West, T6 R1 NBPP; 45.3644° N, -67.9403° W
	Camera elevation above sea level: 324.5' (98.9 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 2.82 miles (4.54 km) Furthest: 4.27 miles (6.87 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

3. Portions of two turbines are potentially visible off-frame to the right. Panorama width is limited by the 11x17 size format and consistent viewing distance.

firstwind BOWERS

Exhibit 16: Existing Conditions from Pleasant Lake West, T6 R1 NBPP (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0722

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

Exhibit 17: Visual Simulation from Pug Lake, Pukakon Twp (Sheet 1 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 8/15/12; 3:04 pm
	Location: Pug Lake (just off northeast shore), Pukakon Twp; 45.281° N, -67.954° W
	Camera elevation above sea level: 301' (91.7 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 7.87 miles (12.67 km) Furthest: 7.97 miles (12.84 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

#. Turbines were artificially darkened in this simulation in order to ensure that they are discernible against the light sky background.

firstwind BOWERS

Exhibit 17: Existing Conditions from Pug Lake, Pukakon Twp (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

Exhibit 18: Visual Simulation from Scraggly Lake, Pukakon Twp (Sheet 1 of 2)

October 2012

LandWorks

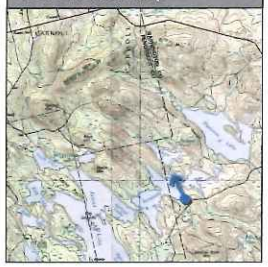
Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

0725

Existing Conditions Photograph

View Location Map



Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/17/10; 4:26 pm
	Location: Scraggly Lake (southwestern shore of Hasty Cove), T6 R1 NBPP; 45.322° N, -67.953° W
	Camera elevation above sea level: 304' (92.7 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 5.3 miles (8.6 km) Furthest: 5.6 miles (9.0 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

firstwind BOWERS

Exhibit 18: Existing Conditions from Scraggly Lake, Pukakon Twp (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photoshop CS5.

2. See Sheet 1 for photo information.

firstwind BOWERS

Exhibit 19: Visual Simulation from Shaw Lake, T6 R1 NBPP (Sheet 1 of 2)

October 2012

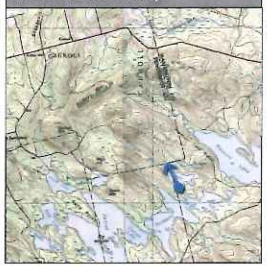
LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map



Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/17/10; 5:27 pm
	Location: Shaw Lake (southern shore), T6 R1 NBPP; 45.339° N, -67.958° W
	Camera elevation above sea level: 307' (93.6 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 4.1 miles (6.6 km) Furthest: 4.6 miles (7.4 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

3. A Portion of one turbine is potentially visible off-frame to the left. Panorama width is limited by the 11x17 size format and consistent viewing distance.

firstwind BOWERS

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Exhibit 19: Existing Conditions from Shaw Lake, T6 R1 NBPP (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

NOTES:

1. Existing photo is a panorama using photos taken from a Cannon Rebel SLR and photomerged using Photochop CS5.

2. See Sheet 1 for photo information.

Exhibit 20: Visual Simulation from Sysladobsis Lake, Lakeville (Sheet 1 of 2)

October 2012

LandWorks

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

Existing Conditions Photograph

View Location Map

Simulation Information

Turbine Information	Model: Vestas V112 - 3.0 MW
	Hub height: 275'-7" (84 m)
	Rotor diameter: 367'-6" (112 m)
Photograph Information	Date and time: 6/22/11; 7:05 pm
	Location: Sysladobsis Lake, Lakeville; 45.280° N, -68.058° W
	Camera elevation above sea level: 309' (94 m)
	Focal length (35mm equivalent): Unknown
	Simulation viewing distance: 19" (48.3 cm)
	Distance to nearest visible turbine: 7.1 miles (11.4 km) Furthest: 8.4 miles (13.5 km)
Technical Information	Software: ArcGIS 3D Analyst; Nemetschek VectorWorks 2008; SketchUp Pro 8; Adobe Photoshop CS5
	Contour data source: http://www.megis.maine.gov/catalog

NOTES:

1. This visual simulation is based on GIS data available at the time from MEGIS and First Wind. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2. The photographs and field data used for this simulation were taken by Stantec.

3. This simulation depicts turbines, as well as visibility of access roads, collector lines, and associated clearing.

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Exhibit 20: Existing Conditions from Sysladobsis Lake, Lakeville (Sheet 2 of 2)

October 2012

LandWorks

Bowers Wind Project

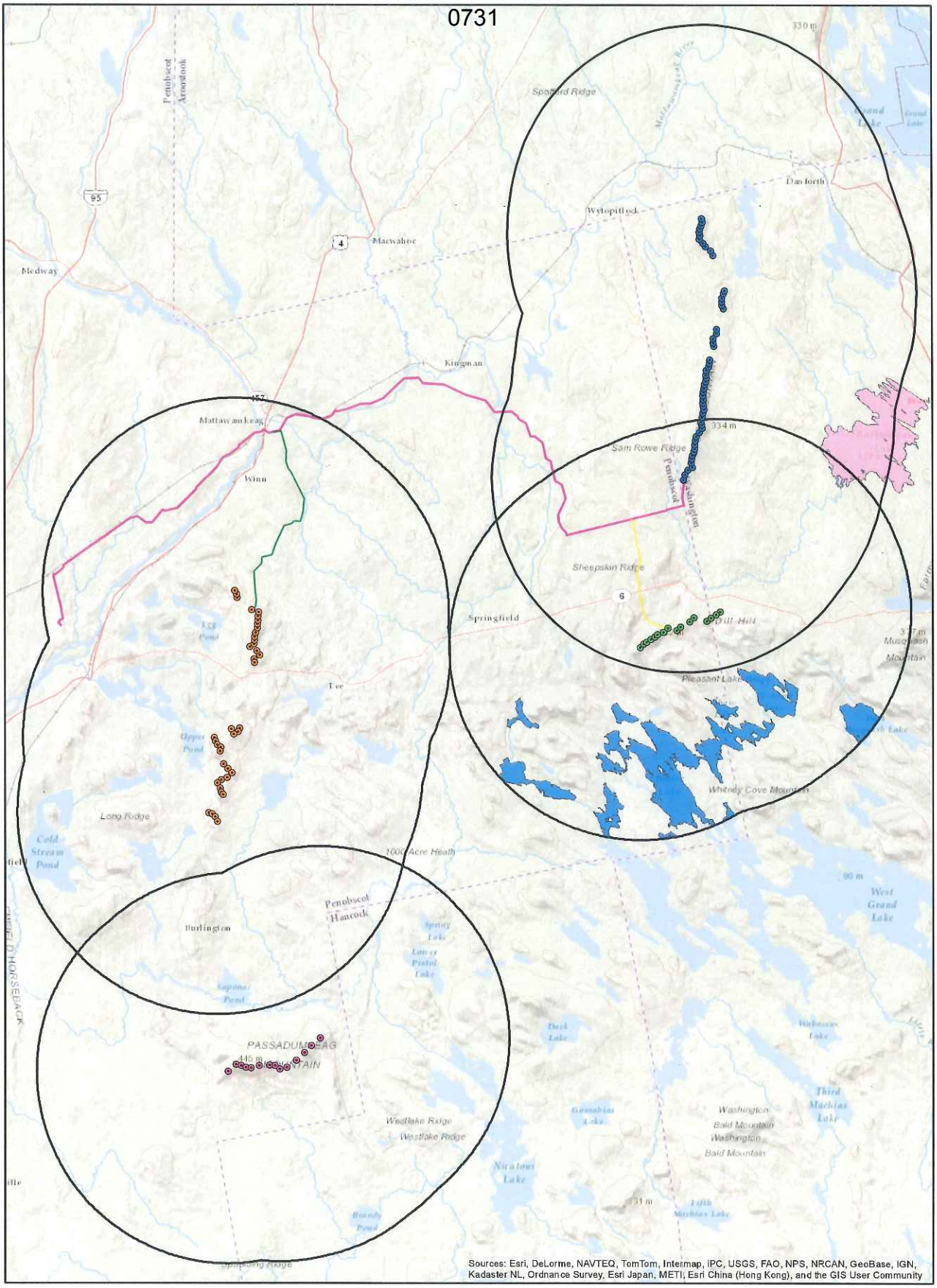
Prepared by LandWorks, Middlebury, VT

NOTES:

1. The photographs and field data used for this existing conditions panorama were taken by Stantec, and a digital camera was utilized. As such, the scale and visibility of the turbines depicted is potentially less accurate and should be considered 'approximate'.

2. See Sheet 1 for photo information.

firstwind BOWERS



NOTE: Turbine location data provided by Stantec. Data is only as accurate as the original source and is not guaranteed by LandWorks.

2.5 0 2.5 5 Miles

Date: Oct 2012
Drawn by: NS

N

firstwind BOWERS

LandWorks

Legend

- Existing Rollins Turbines
- Existing Stetson Turbines
- Proposed Bowers Turbines
- Proposed Passadumkeag Turbines
- 8 Mile Radius
- Proposed Bowers Express Collector
- Existing Rollins Collector
- Line 56
- Scenic Lakes of National or State Significance within 8-Miles of Bowers
- Baskahegan Lake

EXHIBIT 21
OTHER WIND PROJECTS IN THE REGION

Bowers Wind Project

View from Crystal Lake State Park Beach before construction of Sheffield Wind

View from Crystal Lake Boat Launch after construction of Sheffield Wind

Exhibit 22: Sheffield Case Study (Sheet 1 of 3)

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

LandWorks

0732

Existing view from Pleasant Lake Boat Launch

Simulated view from Pleasant Lake Boat Launch after construction of Bowers Wind Project

View Location Map

Exhibit 22: Sheffield Case Study (Sheet 2 of 3)

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

LandWorks

0733

Existing view of Sheffield Wind from Crystal Lake Boat Launch, at northern end of lake

Existing view of Sheffield Wind from middle of Crystal Lake

Existing view of Sheffield Wind from southern end of Crystal Lake

0734

Exhibit 22: Sheffield Case Study (Sheet 3 of 3)

Bowers Wind Project

October 2012

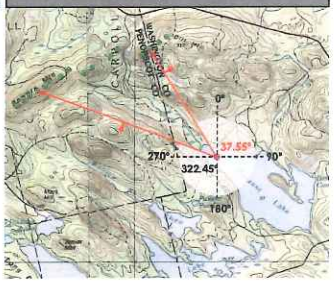
Prepared by LandWorks, Middlebury, VT

LandWorks

panorama continues

panorama continues

View Location Map



Note: Photos taken near vantage point of Exhibit 16: Pleasant Lake West using camera Panasonic DMC-ZS10, on May 5, 2010 at approximately 3:40pm.

Exhibit 23: Pleasant Lake 360° Panorama

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

LandWorks

Visual Simulation of Rollins Wind Project from Prince Thomas Park

Post-Construction Photo of Rollins Wind Project from Prince Thomas Park

Exhibit 24: Comparison of Visual Simulation and Post-Construction Photo

Bowers Wind Project

October 2012

Prepared by LandWorks, Middlebury, VT

LandWorks

Visual Simulation of Rollins Wind Project from Madagascal Pond

Post-Construction Photo of Rollins Wind Project from Madagascal Pond

Note: View location is slightly different for post-construction photo

0737

Exhibit 24: Visual Simulation and Post-Construction Photos

(Sheet 1 of 2)

October 2012

Bowers Wind Project

Prepared by LandWorks, Middlebury, VT

LandWorks

Rollins from Upper Hot Brook Lake.

From this location, the closest turbine at Rollins is approximately 2.5 miles away. Note that the rotors are difficult to discern from this distance, despite the silhouette effect present with these light conditions. Photo taken by TJDA, June 6-7, 2011.

Rollins from Upper Pond.

From this location, the closest turbine at Rollins is approximately 2.5 miles away. Note that even with a blue sky, the turbines do not stand out in this photo. Photo taken by TJDA, June 6-7, 2011.

Exhibit 30B-1: Bowers User Surveys by Kleinschmidt Associates

BOWERS WIND PROJECT
USER SURVEYS

Prepared for:

First Wind
Portland, ME 04101

Prepared by:

Kleinschmidt

141 Main Street
Pittsfield, ME 04967
www.KleinschmidtUSA.com

September 2012

BOWERS WIND PROJECT
USER SURVEYS

Prepared for:

First Wind
Portland, ME 04101

Prepared by:

Kleinschmidt

141 Main Street
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www.KleinschmidtUSA.com

September 2012

FIRST WIND

BOWERS WIND PROJECT USER SURVEYS

SEPTEMBER 2012

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ATTACHMENT B: PHOTOGRAPHS AND PHOTOGRAPHIC SIMULATIONS
ATTACHMENT C: BASIC FREQUENCIES

J:\1653\004\Docs\Report\001 Bowers Wind Project User Surveys - Report-09-28-12.docx

FIRST WIND

BOWERS WIND PROJECT USER SURVEYS

SEPTEMBER 2012

1.0 INTRODUCTION

This study investigates the potential effects of the proposed Bowers Wind Project on outdoor recreational users of area resources. Three primary areas of investigation were identified to support this study. These include:

1. Recreation use. This will support an understanding of who uses these resources, where use occurs and how it occurs, and how many people participate in outdoor recreation within the study area.

2. User perceptions. Understand perceptions of the proposed project as perceived by recreational users of the resources.

3. Repeat visitation. Examine the occurrence of repeat visitation by outdoor recreationists if the project were developed.

Addressing these topics required use of intercept surveys to collect information from users of the resources. First Wind retained Kleinschmidt Associates (Kleinschmidt) to complete this study in 2012. Working out of the Pittsfield, Maine office, the study team included Marcia Phillips as the technical expert for this work.

1.1 QUALIFICATIONS OF MS. PHILLIPS

Ms. Phillips was the project manager for this study and is a resource economist specializing in studying outdoor recreational activities, with 20 years of experience. She holds a MS in Agricultural and Resource Economics from the University of Maine, Orono and is published in peer-reviewed journals. She began her career as a Research Assistant at the University of Maine, estimating the value of Maine's fish and wildlife resources. She interned with the U.S. Fish and Wildlife Service, working on the National Survey of Fishing, Hunting and Wildlife Associated Recreation, and entered consulting in 1993 working at HBRS and Hagler Bailly Consulting in Madison, Wisconsin and joined Kleinschmidt in Pittsfield, Maine in 1996.

Ms. Phillips has managed or been the technical lead on many recreation studies around lakes and reservoirs in and outside of Maine. She was the senior analyst for analysis and reporting of recreation use studies in 1996 and 1997, when she toured Sysladobsis, Junior and Scraggly lakes, as well as Pocumcus and West Grand lakes, stopping at all boat launches and campsites. This work included examination of the adequacy of recreation facilities for meeting public needs, and evaluating the effect of changing water levels on recreation resources and evaluation of recreation amenities, reporting of recreation use, and assessment of impact of changing water levels for West Grand, Pocumcus, Pug, Sysladobsis, Junior, Norway, Scraggly, Bottle Lakes in Maine. She has also conducted survey-based research on Saluda Lake in South Carolina, Lakes

Hamilton and Catherine in Arkansas, and Lake Martin in Alabama. These included surveys designed to collect information on recreational use and resource needs. Study results were used to support federal licensing of the projects and shoreline management decisions. These studies targeted boaters, anglers, public park users and other outdoor recreationists. She is currently working on a study to estimate recreational use, recreation needs, and the economic impact of recreation occurring from public and private access locations on Lakes Keowee and Jocassee in South Carolina (ongoing). This study includes survey components with public access site users, shoreline property owners, regional residents, agencies, and nongovernmental organizations. She has worked on smaller studies on the Androscoggin, Saco, Kennebec, and Presumpscott rivers in Maine as well as at other locations in North Carolina, Connecticut, Vermont, Massachusetts, and Michigan, and designed a method for estimating boater density at Grand Lake o' the Cherokees in Oklahoma. Ms. Phillips spent several years working on Lake St. Lawrence in New York, where she inventoried boating hazards, and advised the New York Power Authority on recreation management needs along the St. Lawrence River for local public parks and two state parks. She was the technical lead for the recreation section of a programmatic EIS for TVA, encompassing 35 reservoirs across 7 states. In Maine, she designed and implemented mail and telephone-based surveys to estimate the nonuse value of wildlife species endangered in Maine and federally. For this study, she compared values of Maine residents with the values held by representatives of Inland Fisheries and Wildlife, who were responsible for managing these species.

Ms. Phillips has substantial experience implementing a number of different survey types, including on-site intercept surveys, mail surveys and telephone surveys. She is currently using web-based surveys in one study in North Carolina. Ms. Phillips has surveyed a variety of populations including general public populations, shoreline property owners, and users of shoreline public recreation access sites and parks, including boaters, anglers, and general park users. Other surveyed populations include users of commercial facilities (e.g., marinas) around lakes and reservoirs, state agency personnel, and representatives of nongovernmental interest groups.

Ms. Phillips has visited the study area over time as a recreationist. In the mid-1980s, she paddled and camped through Sysladobsis and Pocumcus lakes, north through Junior Stream, and from there into Junior Lake and Bottle Lake. She has vacationed at Sysladobsis Lake several times during the past 15 years.

Most recently, on June 9, 2012, she visited the project area with Neil Kiely and Kevin Boyle. During this trip, she visited the Brookton boat launch at Baskahegan Lake. Here she viewed the Stetson Wind Farm, visible from the launch, in the same manner and perspective that respondents to the Baskahegan survey would view the wind turbines. She returned to the launch on August 2, 2012, when she trained the interviewer retained to conduct surveys at the launch. On the June 9, 2012 visit, she also visited the boat launch on the southern shore of Pleasant Lake, from which the proposed Bowers Wind Farm would be visible, and looked at a photographic simulation of the wind farm, in much the same manner that a survey respondent would view it. From Pleasant Lake, she traveled to Junior Lake, and toured Junior and Scraggly lakes by boat with Kevin Boyle and Neil Kiely. On both lakes, she observed the view towards where the Bowers project would be developed, and viewed the photographic simulations similar to how survey respondents would view them from the lake.

2.0 STUDY AREA DESCRIPTION

The study area for the Bowers Wind Project encompasses an 8-mile radius around the proposed turbine locations. The area is primarily rural in nature, sparsely populated with small communities (Figure 1). The area's history is one of working commercial forests and related forest products industry. It is located at the northern edge of the Downeast Lakes Region, which is known for its recreational opportunities. The 8-mile radius is bisected by the east/west Route 6, which comprises the major transportation route from Lincoln to Topsfield where it terminates at US Route 1.

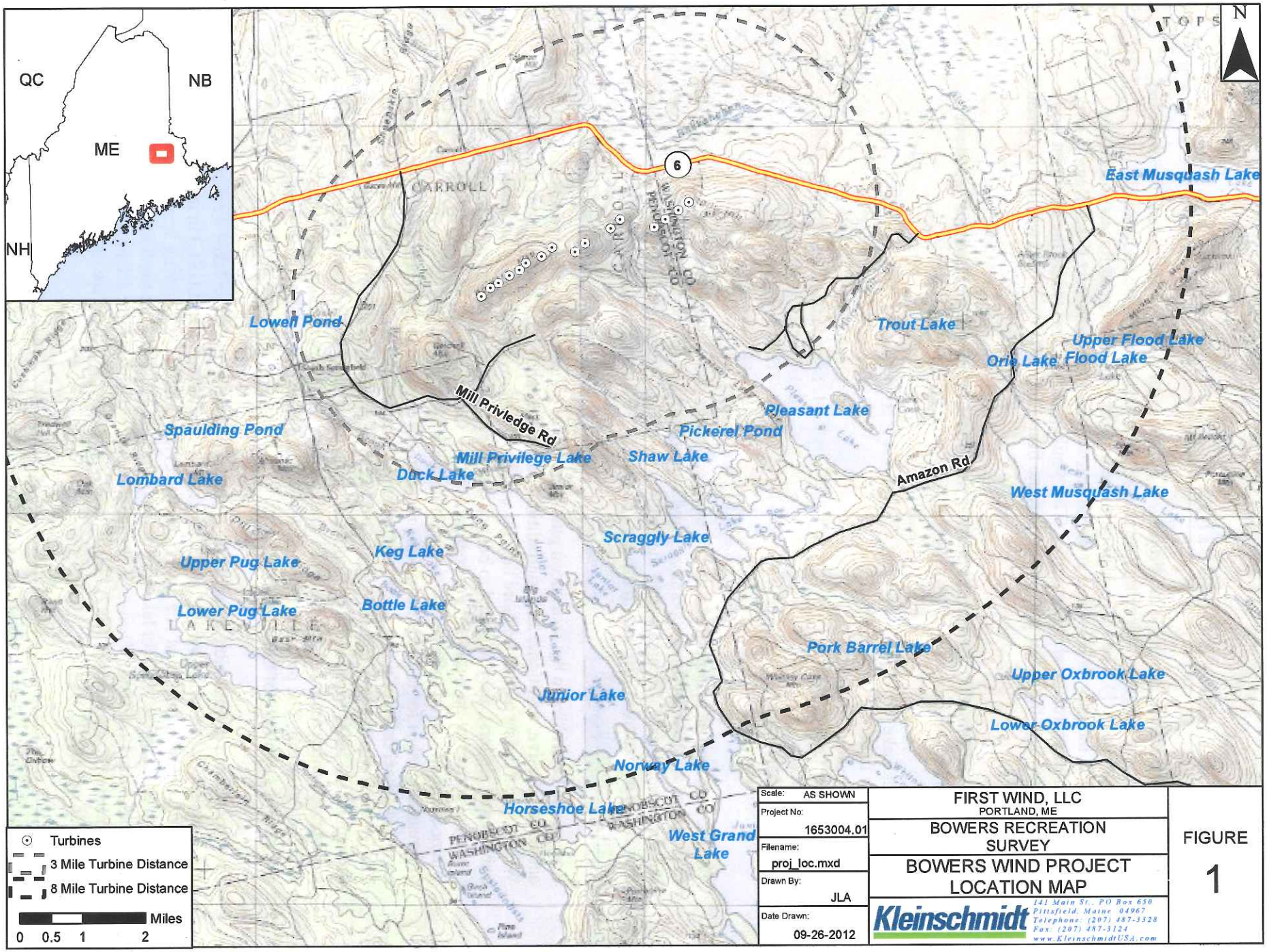
There are 14 lakes within the same radius that were identified as scenic resources of state or national significance pursuant to 35-A M.R.S.A. § 3451(9). These include:

1. Bottle Lake
2. Duck Lake
3. Horseshoe Lake
4. Junior Lake
5. Keg Lake
6. Lombard Lake
7. Norway Lake
8. Pleasant Lake
9. Scraggly Lake
10. Shaw Lake
11. Sysladobsis Lake
12. Upper Sysladobsis Lake
13. West Musquash Lake
14. Pug Lake

The lakes occupy an area nestled between working forests and conservation lands. Access roads to the lakes are used for forest operations, and logging trucks and operations can be heard from within the study area. Located within the headwaters of the West Branch of the St. Croix River, they range in size from 130 acres (Norway Lake) to 5,430 acres (Sysladobsis Lake) (www.lakesofmaine.org).

Recreational activities in the area encompass a variety of consumptive and nonconsumptive, active and passive, traditional and nontraditional activities, and many combinations thereof. While recreationists tend to be more heavily weighted towards consumptive activities (e.g., hunters and anglers), they still tend to boat or camp, even if it is not their primary activity (personal conversation with Paul Farrington, MDIFW Game Warden, May 16, 2012). Outside of winter and mud season (often early spring), a network of logging roads allows vehicular access to forests and lakes for individuals seeking recreational opportunities. While some access may require 4-wheel drive vehicles, there is opportunity for use of larger 5th-wheel campers, as well. The Maine Department of Conservation's 2012 map of ATV trails shows trails extending throughout the lakes to the south of Route 6. During the winter months, local snowmobile trails and Maine's Interconnected Snowmobile Trail System (ITS) provide access to lakes popular with ice fishermen. The presence of multiple ATV and snowmobile clubs in the project vicinity attest to the popularity of these activities.

This report focuses on Junior, Scraggly, Pleasant and Shaw lakes. These lakes were called out and given special attention by the Land Use Regulation Commission (LURC) in its April 17, 2012 draft decision for denial of a permit, citing review criteria for assessing scenic impacts as central to its decision. All four lakes are defined as Great Ponds within the State of Maine (Me. Rev. Stat. Ann. 17, §3860). Pleasant Lake is rated as "outstanding" for scenic quality (Maine Department of Conservation, 1987). Shaw, Junior, and Scraggly lakes are rated as "significant" for scenic quality (id.).


QC
NB
ME
NH
N
6
CARROLL
PENOBSCOT CO
WASHINGTON CO
East Musquash Lake
Lowell Pond
Trout Lake
Upper Flood Lake
Orio Lake
Flood Lake
Mill Priviledge Rd
Pleasant Lake
Spaulding Pond
Pickerel Pond
Mill Privilege Lake
Shaw Lake
Duck Lake
Lombard Lake
Amazon Rd
West Musquash Lake
Scraggly Lake
Keg Lake
Upper Pug Lake
Bottle Lake
Lower Pug Lake
Pork Barrel Lake
Upper Oxbrook Lake
Junior Lake
Lower Oxbrook Lake
Norway Lake
Horseshoe Lake
West Grand Lake
Turbines
3 Mile Turbine Distance
8 Mile Turbine Distance
Miles
0 0.5 1 2
Scale: AS SHOWN
Project No: 1653004.01
Filename: proj_loc.mxd
Drawn By: JLA
Date Drawn: 09-26-2012
FIRST WIND, LLC
PORTLAND, ME
BOWERS RECREATION SURVEY
BOWERS WIND PROJECT LOCATION MAP
Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
Telephone: (207) 487-3328
Fax: (207) 487-3124
www.KleinschmidtUSA.com
FIGURE
1

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2.1 LAKE DESCRIPTIONS

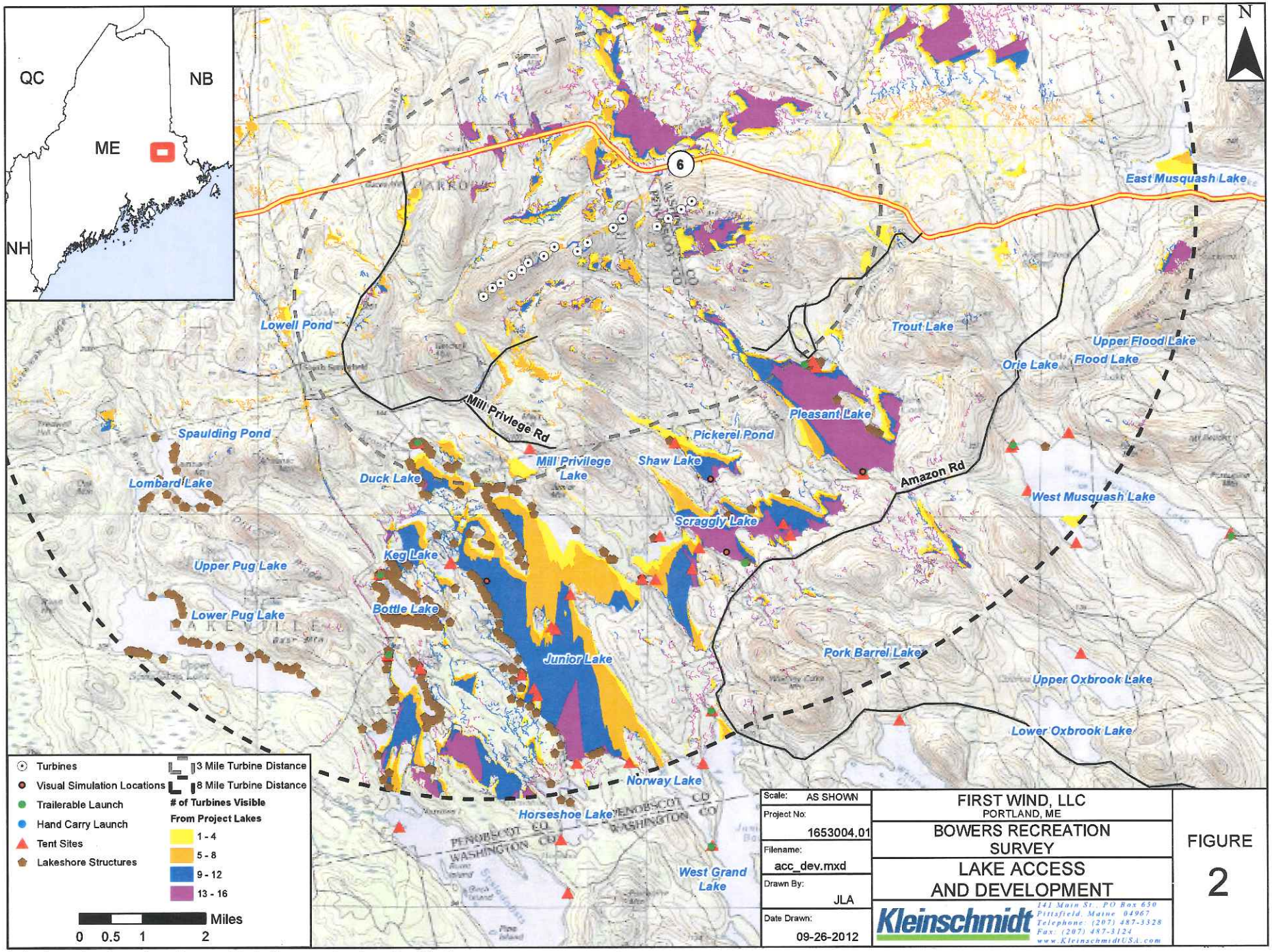
Pleasant and Shaw lakes are well defined geographically. In contrast, Scraggly and Junior lakes are part of a complex system of lakes all connected to one another. Scraggly and Junior lakes are connected by a narrow passage, which was used to mark the border between the two lakes for this study. Junior Lake also is connected to Bottle Lake Stream, Horseshoe Lake and Junior Stream. This study included the lake proper and Junior Stream. Bottle Lake Stream and Horseshoe Lake are outside the study area.

There are no public landings on Junior Lake, although MDIFW is interested in establishing one (personal conversation with Gordon Kramer, MDIFW Fisheries Biologist for Enfield Region F, March 29, 2012). Typically, the lake is accessed by water from Scraggly Lake, Bottle Lake or West Grand Lake via Junior Stream. Junior is the most developed of the four lakes with numerous private camps around the shoreline, primarily on the western and northern shores (Figure 2). For commercial development, there is a bed and breakfast, and Worster's Wild Fox Cabins and Campground, which offers cabin rentals. The shoreline of Junior Lake is shown in Woodland Pulp's relicensing documents as primarily being conservation land or private development, with smaller portions identified as tribal lands and commercial development (Kleinschmidt, 2009). Several of the islands in Junior Lake are owned by Woodland Pulp and are open to the public for camping.

Hasty Cove boat landing on Scraggly Lake is owned and operated by Woodland Pulp. Scraggly Lake supports few private camps, but most of the immediate shoreline is undeveloped (LandWorks, 2011). The shoreline of Scraggly Lake is held primarily as conservation land or is tribal lands (Kleinschmidt, 2009). Several of the islands are part of the hydro project and owned by Woodland Pulp.

There are two landings on Pleasant Lake, one on the north shore and one on the south shore. Maine Wilderness Camps is a privately owned lodging business offering cabins and campsites for rental. The north shore landing is located here. The south shore landing is also operated by Maine Wilderness Camps. It supports a campground as well. Both sites accommodate a range of camping styles, from small tents to large 5th-wheel trailers. With the exception of these campgrounds, the Pleasant Lake shoreline is wooded and undeveloped.

Shaw Lake is the smallest and least developed of the four lakes. Boat access is informal, available at a road culvert where small boats can be launched by hand.



Lakeshore structures, launches, and tent sites were developed by Stantec.
Turbine visibility (developed by LandWorks) shows topography and vegetation/from the hub.

2.2 LAKE USE

Little published information is available that speaks to quantitative recreational use of the study area, and Maine's state agencies do not provide comprehensive estimates of recreational use occurring within the study area. Because of this, we rely on conversations with regional fisheries and wildlife biologists and game wardens to provide insights into typical recreational uses.

The area is used for recreation in all four seasons and around the clock (personal conversation with Paul Farrington, MDIFW Game Warden, May 16, 2012). Weekends are typically busier than weekdays for recreation, with Fridays and Saturdays generally being the busiest days of the week (personal conversation with Paul Farrington, MDIFW Game Warden, May 16, 2012). Guided traffic, however, does not appear to change by day type until the end of the summer, possibly due to a change in clientele from avid anglers to family groups (personal conversation, Brad Richards, MDIFW Game Warden, May 15, 2012). Camping occurs on islands and at other campsites during the summer and people camp in their ice shacks in the winter (personal conversation with Paul Farrington, MDIFW Game Warden, May 16, 2012). Night fishing is permitted for both open water and ice fishing. Boaters make late night tours around the lakes before turning in. Guided hunts are popular, mostly for moose and bear, but deer, rabbit and grouse hunting are also popular, and duck hunting is gaining in popularity. A large number of hunters come from out-of-state (personal conversation, Brad Richards, MDIFW Game Warden, May 15, 2012).

The lakes are known for both warm and coldwater fishing. During open water season, anglers typically troll for land-locked salmon and lake trout after ice-out (personal conversation with Gordon Kramer, MDIFW Fisheries Biologist for Enfield Region F, March 29, 2012). Some people may troll for bass and perch in cold water. Within the area, avid anglers will fish all day long from ice-out until July 1 (personal conversation Brad Richards, MDIFW Game Warden, May 15, 2012). During the winter months, the lakes are used for ice fishing, snowmobiling, and other winter sports.

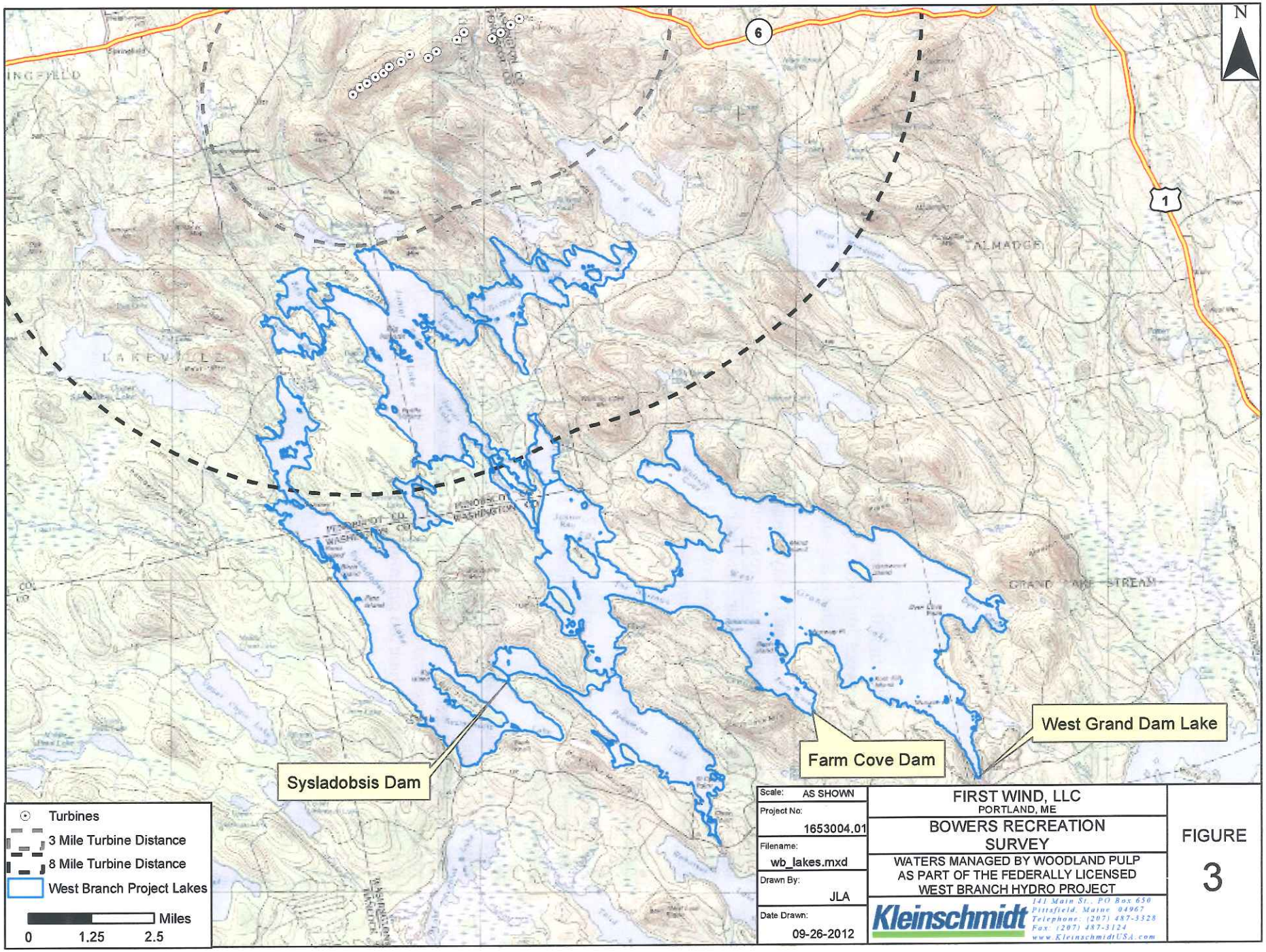
With respect to fisheries management, MDIFW generally focuses management effort on locations popular with anglers, and therefore receiving higher levels of fishing pressure, and areas where salmonids are stocked (personal conversation, Gorden Kramer, MDIFW Fisheries Biologist for Enfield Region F, August 27, 2012). In May 2012, MDIFW stocked land locked salmon in Junior, Upper Sysladobsis, West Musquash, and Pleasant lakes, and brook trout were stocked in Scraggly and Pleasant. Pleasant Lake supports populations of salmon, wild lake trout, and white fish. Shaw Lake is managed as a warm water lake, and white perch are reportedly large there, but the lake does not see much angler effort due to difficulty of access, so the lake does not receive as much attention in terms of fisheries management, as Junior and Pleasant lakes.

The Project is located approximately 17 miles north of Grand Lake Stream, which is a hub for Registered Maine Guides and commercially operated sporting camps. A few of the camps are within or close to the 8-mile circle around the Bowers project (Maine Wilderness Camps, Worster's Wild Fox Cabins, Spruce Lodge Campground and Grand Lake Wilderness Retreat) but the majority of the commercial camps are located outside that distance. As discussed in Sections 3 and 4, study efforts were designed in part to obtain data on use of these lakes by this group.

A survey of commercial camp owners/operators thought to operate within the boundaries of the West Branch Hydro Project was completed in 1997 as part of the project relicensing effort (Kleinschmidt, 1997). A total of 11 camps were identified; surveys were completed with 6 of the owners. Lakes reported used by their patrons included those within the West Branch Project (Junior, Scraggly, Sysladobsis, Bottle, Norway, West Grand and Pocumcus Lakes) as well as Duck and Musquash Lakes, among others. Bottle Lake, Duck Lake and Musquash Lakes were mentioned by one camp operator as being used by his patrons. Junior Lake was reported by 4 operators, Scraggly by 3 operators, and Sysladobsis by 5 operators. Results indicate limited use of these lakes by camp patrons.

2.3 WATER LEVELS

Junior, Scraggly, Bottle, Keg, Norway, Horseshoe, Sysladobsis, Pocumcus, West Grand, and Pug lakes are part of Woodland Pulp's West Branch Project, a hydro project licensed with the Federal Energy Regulatory Commission as Project No. 2618 (Figure 3). Waters discharged from the dams and dike within the Project flow into Grand Lake Stream and Grand Lake Brook. Water levels in these lakes are controlled by Woodland Pulp (Licensee), in accordance with its federal license requirements. From May through mid-October, water levels are held to a "preferred summer minimum" (Kleinschmidt, 2009). From mid-September through mid-October, water levels in West Grand Lake are reduced approximately 4 feet in anticipation of fall rains. The Licensee attempts to maintain the impoundment level through April 1. Studies conducted in 1996 and 1997 showed that the usability of some trailered launches may be affected under low water conditions, but this occurs outside the traditional summer recreation season from Memorial Day through Labor Day. These studies did not examine navigability of Junior Stream, or passage between Junior and Scraggly lakes during the drawdown. The local game warden reports he has never known the water to be so low that small boats, such as canoes, kayaks, Grand Lakers or 14-foot boats could not make it through Junior Stream, but larger boats (e.g., pontoon boats, bass boats, V-hull boats) could be blocked from passage due to low water levels (personal conversation with Paul Farrington, MDIFW Game Warden, June 18, 2012).



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Project No:	1653004.01
Filename:	wb_lakes.mxd
Drawn By:	JLA
Date Drawn:	09-26-2012

FIRST WIND, LLC
PORTLAND, ME

BOWERS RECREATION SURVEY

WATERS MANAGED BY WOODLAND PULP AS PART OF THE FEDERALLY LICENSED WEST BRANCH HYDRO PROJECT

Kleinschmidt
141 Main St., PO Box 650
Pittsfield, Maine 04967
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FIGURE 3

0752

3.0 OBSERVATIONS OF RECREATIONAL USE

Junior Stream is a shallow channel that connects Junior Lake to Junior Bay of West Grand Lake. It represents one means of accessing Junior Lake, which has no public access, and is the only water access point connecting West Grand Lake to Junior Lake. This section presents the boat count process and discusses results.

3.1 METHODS

Boaters using Junior Stream to travel between Junior and West Grand lakes were counted in 2011 and 2012.

2011 BOAT COUNTS

The process followed for the 2011 counts, completed by Stantec Consulting Services, Inc., are described in a letter between Joy Prescott (Stantec) and Neil Kiely (Champlain Wind, LLC) dated July 18, 2011. Those methods are summarized here.

Boat counts were conducted on 11 days, from July 4 through July 15, for approximately 12 to 15 hours per day, from pre-dawn to approximately 8:30 pm each day. The observer was stationed at the inlet to Junior Bay, with clear views of both water bodies. All boats traveling within Junior Stream were recorded. Information collected included observation time, boat type, number of people per boat, and potential guided trip.

2012 BOAT COUNTS

Additional boat counts were completed in 2012 between May 25 and August 11. Counts were conducted on 27 of the 78 days available, or 35 percent of the days, double the number of days counted in 2011 (Table 1).

This sample of days was selected to cover the early summer recreation season for anglers and other recreationists, including boaters who are not engaging in fishing, as well as use occurring commercially via use of guide services. With respect to the latter, testimony provided in Rebuttal to Comments on Procedural Order #9 (submitted on July 27, 2011 in DP 4889 pages 20-22), indicates that May and June are generally the busiest months for them.[1]

[1] The same testimony allows that fishing in Grand Lake Stream is always slow in July. While July is a month included in this study, Grand Lake Stream is outside of the study area.

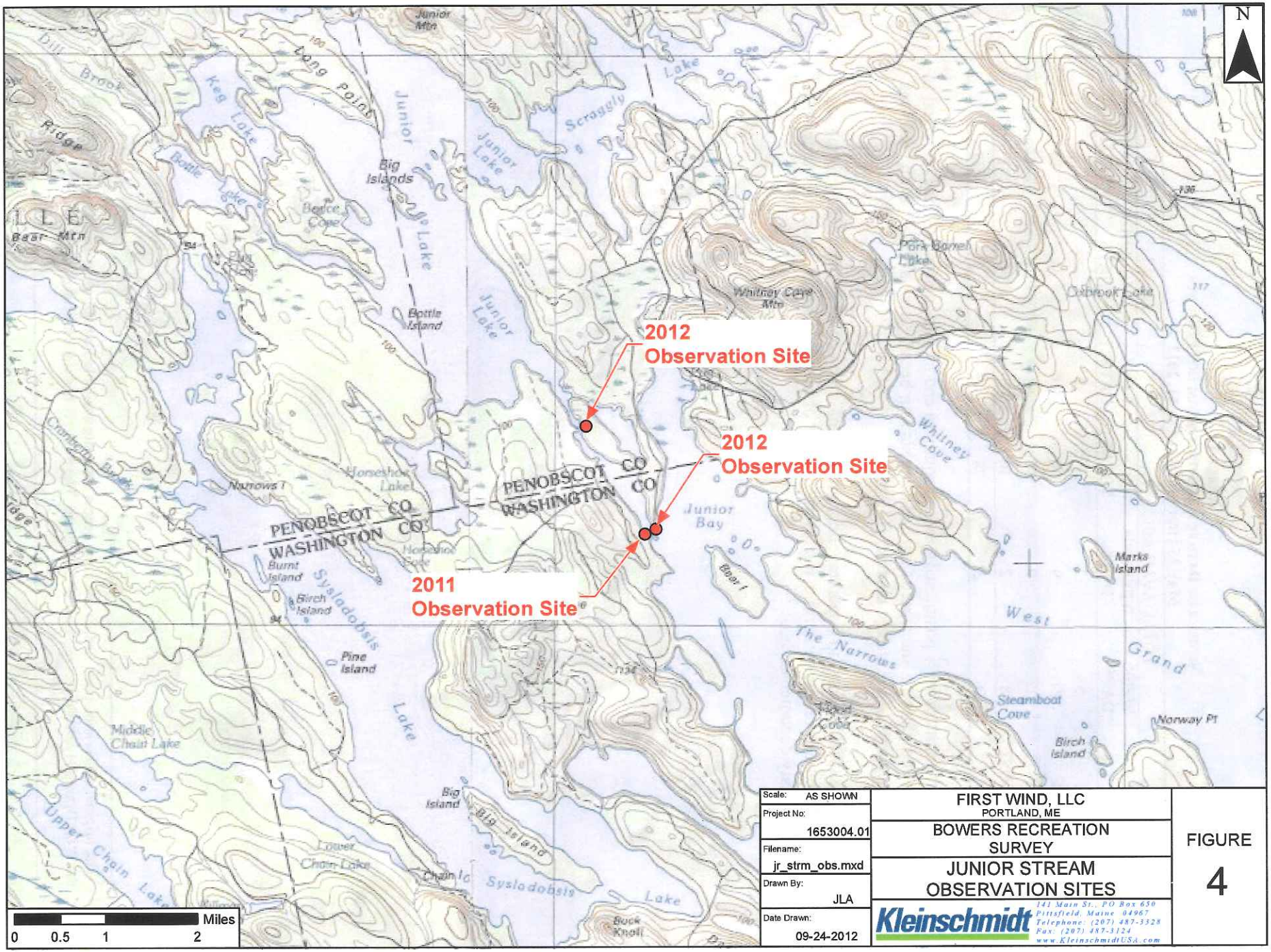
TABLE 1
NUMBER OF DAYS FOR JUNIOR STREAM BOAT COUNTS
MAY 25 THROUGH AUGUST 11, 2012

	TOTAL AVAILABLE			SAMPLE		
	WEEK DAYS	WEEKEND DAYS	TOTAL	WEEK DAYS	WEEKEND DAYS	TOTAL
MAY	5	2	7	4	2	6
JUNE	21	9	30	10	4	14
JULY	22	9	31	3	2	5
AUGUST	8	2	10	2	0	2
	56	22	78	19	8	27

Initially boat counters were positioned near the southern end of Junior Stream. They relocated to the northern end after the site where they had been staying became unavailable.[2] Both locations offered clear views of the stream channel (Figure 4).

Similar to the 2011 effort, all boats traveling within Junior Stream were recorded. Information collected included observation time, boat type, number of people per boat, potential guided trip, and previously documented boat.

[2] The original observation point had, at one time, been a campsite available for public use under the conditions of the West Branch Hydro Project relicensing agreement. The property has since changed hands.



Scale: AS SHOWN	FIRST WIND, LLC PORTLAND, ME	FIGURE 4
Project No: 1653004.01	BOWERS RECREATION SURVEY	
Filename: jr_strm_obs.mxd	JUNIOR STREAM OBSERVATION SITES	
Drawn By: JLA	Kleinschmidt 141 Main St., PO Box 650 Pittsfield, Maine 04967 Telephone: (207) 487-3328 Fax: (207) 487-3124 www.KleinschmidtUSA.com	
Date Drawn: 09-24-2012		

3.2 RESULTS

Table 2 presents summary results from both the 2011 and 2012 boat counts. According to the results of the 2011 boat counts conducted by Stantec, boats were observed traveling through Junior Stream on 82% of the study days (9 out of 11 days). In total, 96 people and 39 boats were counted. On average, 9 people and 4 boats were observed per day. During 2012, boats were observed on Junior Stream on 74% of the study days, and a total of 206 people and 90 boats were counted passing between Junior Lake and Junior Bay (or West Grand Lake). On average, 8 people and 3 boats per day were observed which is similar to the 2011 results. In both 2011 and 2012, almost all (82%) boats observed, were motor boats. Grand Lakers and freighter canoes are both expected to be used by guides. In 2011, only one Grand Laker and no freighter canoes were observed. In 2012, Grand Lakers and freighter canoes accounted for 9% of observations. No boats with logos or other features that would identify the party as a guided trip were observed. The interaction between one boat operator and others in the boat led the staff counting boats to believe it could have been a guided trip, as the operator appeared to provide direction, advice and guidance to others in the boat.

The low number of canoes and kayaks observed traveling through Junior Stream (15% in 2011 and 9% in 2012) indicates little use of the canoe trails described by Wilson and Hayes (2005). The five canoes observed in 2012 were all in one party, and were observed traveling in one direction (they did not return through Junior Stream during the observation period). All kayaks observed traveled in both directions, indicating they were not participating in a one-way trip on a canoe trail. In places, this is big water and the fetch allows ample opportunity for wind-swept waves, which can be difficult to navigate for novice paddlers or canoes in general, particularly when loaded with gear.

TABLE 2
SUMMARY RESULTS OF 2011 AND 2012 JUNIOR STREAM BOAT COUNTS

	YEAR			
	2011		2012	
OBSERVATION CHARACTERISTICS				
NO. DAYS	11		27	
AVERAGE HOURS/DAY	14		13	
WEEKDAYS	9		19	
WEEKEND DAYS	2		8	
PEOPLE				
TOTAL OBSERVED	96		206	
AVERAGE PER BOAT	2		2	
AVERAGE PER DAY	9		8	
BOATS				
TOTAL OBSERVED	39		90	
AVERAGE PER DAY	4		3	
BOAT TYPE:	NUMBER	PERCENT	NUMBER	PERCENT
MOTOR	32	82%	74	82%
CANOE	6	15%	5	6%
KAYAK	0	0%	3	3%
GRAND LAKER	1	3%	7	8%
FREIGHTER CANOE	0	0%	1	1%
TOTAL	39	100%	90	100%

Source of 2011 data: Stantec, 2011.

4.0 SURVEY RESEARCH

4.1 SURVEY DESIGN

Interviews were designed to be completed with individuals recreating on Junior, Scraggly, Pleasant and Shaw lakes during the summer of 2012, to collect their opinions on the proposed Bowers Project. Questions were similar to previous surveys implemented across Maine, so that regulators may observe similarities and/or differences between the proposed project and others that have been undertaken in Maine. The survey was pretested and refined on the project team. A minor correction was made after the first weekend in the field to facilitate reporting of the number of trips per year to the area. Information collected for each topic area is identified below. A copy of the questionnaire is provided in Attachment A.

Respondent characteristics

- Residency
- Age group
- Home/camp ownership/rental on lakes
- Holding Registered Maine Guide licenses

Trip characteristics

- Whether this is the first trip to the lake
- Recreation activities, night use
- Primary reason for visiting the lake
- Using services of Registered Maine Guide
- Group size (interviewer observation)

Quality of experience

- Overall quality of experience at lake
- Effect of wind farm on quality of experience

Scenic Values

- Places in Maine with high and low scenic qualities
- Rating of current view
- Rating of simulated view
- Effect of wind farm on likelihood to return to lake in the future

Repeat visitation

- Likelihood to return
- Effect of wind farm on likelihood to return
- Effect of wind farm on enjoyment
- Importance of wind power development for Maine

A 7-point Likert-type scale was used for all ratings. Information on respondent and trip characteristics was collected to aid our understanding of who uses the lakes and how.

4.2 SAMPLE

The sampling plan for surveys accommodated both temporal and geographic components. It included consideration of day type (weekday, weekend, and holidays) and location (lake). Interviews occurred on 12 days of the 78 available days between May 25 and August 11, 2012 (Table 3). The schedule included Memorial Day weekend and the weekend after July 4, which fell on a Wednesday in 2012. All interviews were conducted on Fridays and Saturdays in order to capture parties that might be concluding weeklong vacations while also capturing weekends, which, in our experience conducting recreational surveys, typically see the most activity, compared to weekdays. This period also covers part of May and the month of June, when fishing guides are most active in the study area (Rebuttal to Comments on Procedural Order #9, submitted on July 27, 2011 in DP 4889 pages 20-22).

TABLE 3
SAMPLE FRAME FOR INTERCEPT SURVEYS
MAY 25 THROUGH AUGUST 11, 2012

	TOTAL AVAILABLE			SAMPLE		
	WEEK DAYS	WEEKEND DAYS	TOTAL	WEEK DAYS	WEEKEND DAYS	TOTAL
MAY	5	2	7	1	1	2
JUNE	21	9	30	2	2	4
JULY	22	9	31	2	2	4
AUGUST	8	2	10	1	1	2
	56	22	78	6	6	12

Collectively, the four lakes comprise too large an area to survey entirely within a single day. Based on the approximate day length computed for June, July and August in Lincoln ME, we assumed a 15-hour workday for the study period (http://www.sunrisesunset.com/). Days were divided into two 6-hour periods, an AM period—6:00 AM to 12:00 PM—and a PM period—1:00 PM and 7:00 PM, and two lakes were sampled each day, one during the AM period and one during the PM period. The remainder of the workday was reserved for mobilization and demobilization. The time between 12:00 PM and 1:00 PM was used to transfer between lakes, which was necessary for the Group 2 lakes, described below. Transfer time between Scraggly and Junior lakes was negligible.

Lakes were grouped into two pairs. Group 1 included Scraggly and Junior lakes, and Group 2 included Pleasant and Shaw lakes. Lake sampling rotated over the summer such that each lake was sampled during both day types and both periods, and all four lakes were sampled over each two-day period.

After monitoring two full periods at Shaw Lake and finding no people, monitoring at this location was cut back to focus greater effort at the remaining three lakes where the probability of obtaining interviews was higher. This resulted in a reduced monitoring effort at Shaw Lake during the third visit (3 hours), when again, no people were observed. Monitoring at Shaw Lake was completely suspended after that and the excess time available was divided equally between the remaining three lakes.

FIGURE 5
APPROACHING BY BOAT

Approaching a boat in which people are actively recreating (paddling, motoring, fishing, etc.) takes some finesse. You must realize that you are interrupting someone else's privacy and leisure time.

- Do not approach moving boats or jet skis – especially those pulling skiers or tubers (you are unlikely to encounter this on the current job).
- Avoid open, busy water with lots of waves.
- Establish contact in as courteous a manner as possible.
- Use caution when approaching people actively fishing (gear in the water). Approach slowly and far enough away to minimize (if not eliminate) boat wake, avoid tangling an angler's gear, and frightening away fish.
- Call to the boat from a distance that does not interrupt their fishing. Ask if it is okay to move closer and then proceed. Try to gain their trust in the beginning.
- Speak loudly and clearly.
- Once the interview has agreed to the survey, move out of the line of traffic and waves if necessary.
- Because you will be sharing interview material with a respondent, you will need to get close to the boat. Idle the boat and deploy boat bumpers so their boat (and yours) is protected.
- Idle the boat. The boat operator will need to work to keep the boats close but not knocking each other while the interviewer conducts the survey.

4.3 IMPLEMENTATION

Access to Junior, Scraggly, and Pleasant lakes is dispersed and somewhat informal. Users can enter a lake from a variety of locations, most commonly from campgrounds, lodging establishments, homes or camps on the shoreline, or public access areas (e.g., formal or informal areas where boats may be launched or shoreline areas used, or via boat passage from other lakes). Because of this, interviews were planned as roving surveys, a type of on-site intercept surveys commonly used to sample recreational fisheries (Pollock, Jones and Brown, 1994). In this type of survey, individuals are intercepted while participating in a recreational activity. This allowed researchers to identify and interview recreators, regardless of how or from where they accessed the lakes, whether they were along the shoreline or in a boat, or whether they were camp owners, the general public, or customers of commercial camps or guides.

This method of surveying has an advantage over mail and telephone surveys as well, since it avoids issues of recall bias, lack of addresses or valid phone numbers. It also allows use of photographs and simulations, which was identified by Palmer (2011) as an important component of surveys intended to gage the impact of a wind project on recreational uses. There are some biases, however. Malvestuto (1983) demonstrated that anglers interviewed using this method have higher mean trip lengths than all anglers in a fishery. Thus, results are thought to be subject to a length-of-stay bias, as the probability of intercepting an angler is proportional to the duration of their trip (Robson, 1961, 1991; Lucas 1963; Brown 1971). It is anticipated that the same can be inferred for this study, with the exception that respondents will not be limited to anglers. Logically, this could affect study results, as individuals who spend more time on or near the water are more likely to be intercepted and interviewed than individuals who spend less time on the water. By extension, it may be true for other recreators who are avid about their sport. For example, boaters that spend more time on the water are more likely

to be intercepted and interviewed than those that spend less time on the water.

Interviewers travelled around the lakes by boat and intercepted individuals as they were observed, either on shore or on the water. Interviews were conducted using paper surveys on the first weekend of surveying. After that, all interviews were completed electronically using a field computer, preprogrammed with the survey. Paper surveys were available as backup in the event the computer should fail. Locations of all surveys were georeferenced.

Ratings of current and simulated views were accomplished as follows. At the appropriate time in the survey, respondents were handed a photograph showing a view from the lake on which the interview was occurring, and asked to rate the view. One view per lake was used. In other words, all respondents on the same lake reviewed the same photograph. After rating the current view, the photograph was retrieved and respondents were handed a simulation to rate. Each time, respondents were asked to hold the photograph (or simulation) 19 inches from their face. Photographs and photographic simulations for each lake are provided as Attachment B.

Photographs, photographic simulations and viewing distances were provided by LandWorks. Photographs and simulations were printed in color, in 11 by 17-inch format and laminated. The photographs and photographic simulations used in the surveys were taken from areas on the lakes determined by LandWorks to have the greatest number of turbines potentially visible within 8 miles (personal communication with Natalie Steen of LandWorks, September, 2012), and are not necessarily from the location where the intercept surveys occurred.

FIGURE 6
STARTING THE SURVEY

Introduce yourself to the respondent, briefly explain that you are conducting interviews to gather information on their recreational experience today, and ask if he or she minds if you ask them a few questions about their day. The approach is important for a successful survey.

The approach is important for a successful survey. When approaching people:

- Start with Hello and a SMILE
- Provide a greeting such as "How are you today?", "Did you catch any fish?", "Hot out here today", etc.
- Politely ask if they have a few minutes.
- Explain you are conducting a survey.
- State that the survey will take 5 to10 minutes.
- If it's your first few surveys, it's okay to tell them that, and that you're just learning. Typically, people are very patient with that.

It is important to keep a record of the number of people approached, the number interviewed, and the number who refused. If someone refuses to participate, cannot participate due to a language barrier or is not of legal age, you will record that on the survey form and move on.

FIGURE 7
THE INTERVIEW

When someone agrees to be interviewed, proceed to the interview. Take your time and ask each question as it is written and in the order in which it is written.

Some interviews may be completed on paper, while others will be completed using an electronic device called a YUMA.

At all times, remember that it is your job to ask questions and collect information for Kleinschmidt. It is not your job to answer questions about our client. You will be provided with a package of Kleinschmidt business cards. If someone should ask you questions that you cannot answer, or are uncomfortable answering, simply hand out a business card and tell them they are welcome to call if they have any questions or comments regarding the study. You will also be provided with responses to Frequently Asked Questions, which you may use to respond to questions.

Likewise, it is not your job to police people's behavior. If you observe distasteful behavior, someone breaking fishing regulations, etc., make a note of it in your journal and move on. If necessary, we will see that appropriate individuals are informed.

CONCLUDING THE INTERVIEW

At the end of the survey, please thank the respondent for his or her time. Check to make sure that your survey is SAVED on the computer and your paperwork is in order before moving to the next interview.

In the event that there was a group of individuals, one person was randomly selected to participate in an interview. Individuals were eligible to complete one interview during the course of the study. Individuals encountered more than once during the summer were thanked for their input but did not complete a second survey.

Interviewers received instruction on interviewing techniques, advised of who was eligible to participate, and provided guidance on the concept of "random" selection, and safe methods for approaching other boats on the water (Figures 5 through 8). They were also asked to refrain from divulging the survey sponsor until after the survey was completed.

Interviewers were instructed as follows:

1. Each day, flip a coin to randomly determine travel direction around a lake.
2. Interview people who appear 18 years old, or older.
3. Select one person randomly among those in the boat. On one day, select people from right to left, working your way from one end to another. For example, if there are three boats and each boat has three people, interview the person farthest to your left for your first interview. On the second interview, select the person in the middle, and on the third boat, select the person farthest to the right. The next day, reverse the order. Do not allow them to self-select a representative.
4. Select one person per group on shore, within 200 feet of the lake. You will select the person in the group to interview. Do not allow them to self-select a representative. Repeat the same process as described above to randomly select a respondent from a group.

5. If there are so many boats or parties present that you cannot interview them all, you will randomly select every n^{th} person or group, depending on the density of users. If you can interview everyone, do it!
6. Conduct the interview.
7. Photograph the boat or party (after the interview).
8. Record the GPS coordinates where the contact occurred (after interview).

At random intervals during each period, interviewers completed a circuit of the lake and counted individuals observed, whether boating or along the shoreline.

Upon completion of data collection, survey data were cleaned and analyzed using IBM SPSS Statistics, Version 19.

FIGURE 8
INTERVIEWING TIPS

Matters of Form, Delivery and Style

- **Read each question exactly as it is written and in the order in which it appears in the questionnaire.** Surveys only work if everyone is asked the same question in the same manner. Therefore please read the question exactly as it is written with no substitutions, additions or deletions.
- **Ask each respondent every appropriate question.** Do not skip questions because an answer was given earlier and you "know" the response. If that is the case, you may preface your question with a phrase such as "I know we've talked about this…" or "I know you just mentioned this, but I need to ask each question as it appears in the questionnaire…"
- Avoid leading the respondent toward an answer. Remain neutral in your questioning. The quality of your delivery – your style – can affect the quality of the information you collect. Emphasize underlined word to enhance the meaning. Keep your tone neutral and avoid voice inflections that might bias results.
- Read slowly. Take your time and make sure the respondent understands the question. Read the entire question before accepting a response. Remember that although you may have read a question many times, the respondent is hearing it for the very first time.
- Use standard feedback phrases such as "thank you" and "I see" for acceptable responses. This helps "train" the respondent to know what an acceptable response is. If you need a more complete response to a question, you may need to probe for additional information. Use cues such as "Could you tell me more about that?" or "Which would be closer to the way you feel?" If an answer is different from what you expect, do not remind the respondent of an earlier remark or try to force consistency. Record the responses given.
- You should not use phrases such as "good" or "right" that imply a correct answer.
- If a respondent refuses to answer an individual question, please mark refused and proceed to the next question.
- For open ended questions, it is very important that you take the time to record the exact answer verbatim of the respondent. Do not abbreviate or edit responses. Repeat the response back to the respondent to make sure that what you recorded is accurate and acceptable to the respondent. If you do not understand a respondent's reply to an open-ended question, please ask them if they could tell you what they have in mind, what their thoughts are, or what they mean by that. If their answer is incomplete, please follow up with probing questions like "Could you please elaborate on that?" or "Would you tell me more about your thoughts on that?" If the respondent responds, "I don't know" to an open-ended question, follow up with, "What are your thoughts?", "What are your expectations?" Again, the goal is to provide as much general direction and information as necessary without unduly influencing the responses to the survey. If there is not enough space in the computer to record a complete response, you may paraphrase the response and ask the respondent if that accurately reflects his or her comment. It is not okay, however, to paraphrase the questions.

Clarifying Questions for Respondents

- Sometimes a respondent will ask you for additional information or clarification of a question. If an individual needs clarification because he or she did not accurately hear the question, please repeat it. If an individual still has trouble hearing you or understanding the question, you may show them the survey and allow them to read the question for themselves. If the individual asks you to repeat the question or response options, even if they are only questioning part of it, please repeat the entire question and list of response options to them.
- If there are items that are confusing to the individual or they do not understand the question, please provide limited additional information and guidance. We do not want to influence the individual's response but want to provide enough information to the individual to be able to accurately respond to the question. For example, the question "On a scale from 1 to 5, with 1 being light, 3 being moderate, and 5 being heavy, how would you rate the crowdedness at this recreation site today?" may cause confusion for larger recreation sites. If an individual is confused about whether you mean the site as a whole, or the area that they spent most of their time, you could repeat the question and add "Overall" as a preface.

4.4 RESULTS

A total of 486 people and 123 boats were observed during the course of the study (Table 4). Almost half of all the people observed (283 people or 49% of 486) were recorded at Pleasant Lake. Of the remaining, 158 people were observed at Junior Lake and 90 were recorded on Scraggly Lake, representing 33% and 19% of all observations, respectively. No people were observed on Shaw Lake during the study. The maximum number of people observed during any interview period was 74. That occurred on Pleasant Lake, when 28 people were observed on the water, and 46 were seen on shore. Almost all of the boats used by people intercepted on the water were motor boats.

Interviewers selected one person per group to interview. Group sizes ranged from 1 to 15 people, averaging 3 people per group. Eight people who were approached had already taken the survey, and thus were not eligible to participate a second time. Interviewers did not approach people who they recognized as having already taken the survey, however those people were counted each time they were observed and are included in the reported total number of people observed. Interviewer notes indicate that it was common to observe the same people repeatedly during the summer.

Interviews were conducted with 70 individuals within the study area (Table 4, Figure 9). All of the 70 people who were approached and who were eligible to complete the survey did so, for a response rate of 100 percent ((70/70)*100).[3]

TABLE 4
SURVEY RESPONSE RATE; BOATS AND PEOPLE OBSERVED [a]

	NUMBER	PERCENT
SURVEYS COMPLETED	70	100%
PEOPLE APPROACHED	78	
REFUSALS	0	NA
REPEATS (HAD ALREADY COMPLETED A SURVEY)	8	NA
BOATS OBSERVED	123	NA
AVERAGE NUMBER OBSERVED PER DAY	5	NA
MEDIAN NUMBER OBSERVED PER DAY	3	NA
BOAT TYPE		
MOTOR	29	94%
CANOE	1	3%
OTHER	1	3%
TOTAL	31	100%

[3] Not every respondent answered every question in the survey. Because of this, the total number of responses shown in tables may not always sum to 70.

PEOPLE OBSERVED	486	NA
AVERAGE NUMBER OBSERVED PER DAY	10	NA
MEDIAN NUMBER OBSERVED PER DAY	4	NA
AVERAGE GROUP SIZE	3 PEOPLE	NA

[a] Surveys were completed with one person per group. As a result, not all people observed were eligible to be surveyed. One individual withdrew from the survey after responding to half of the questions. That survey is included as a "completed" questionnaire because the responses obtained up to the point of withdrawal are reported herein.

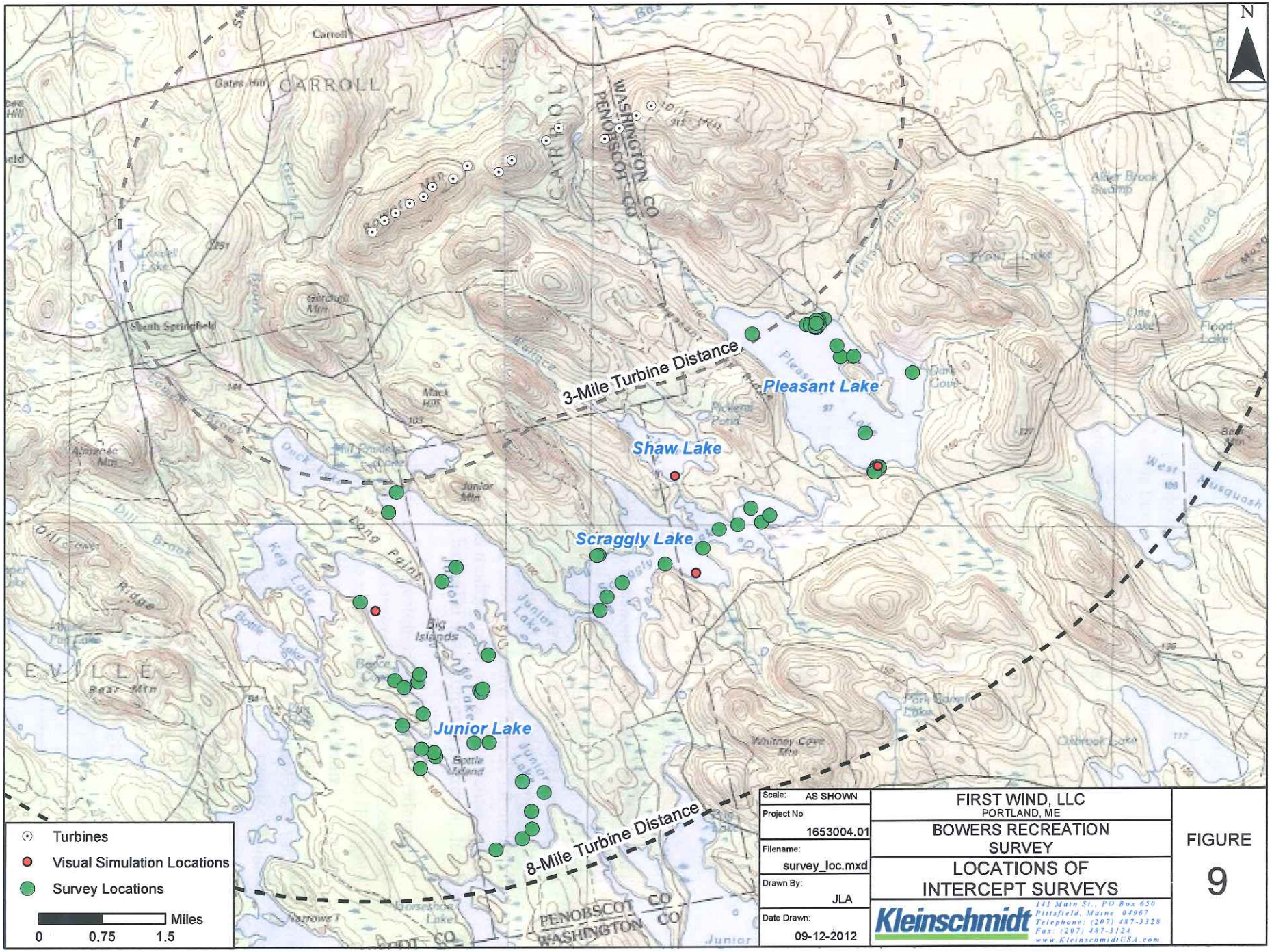

N
3-Mile Turbine Distance
8-Mile Turbine Distance
Pleasant Lake
Shaw Lake
Scraggly Lake
Junior Lake
CARROLL
WASHINGTON CO
PENOBSCOT CO
Turbines
Visual Simulation Locations
Survey Locations
Miles
0
0.75
1.5
Scale: AS SHOWN
Project No: 1653004.01
Filename: survey_loc.mxd
Drawn By: JLA
Date Drawn: 09-12-2012
FIRST WIND, LLC
PORTLAND, ME
BOWERS RECREATION SURVEY
LOCATIONS OF INTERCEPT SURVEYS
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FIGURE
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Approximately one-half of the interviews occurred between boats on the water and half occurred on the shoreline (Table 5). Twenty-six surveys were completed on Junior Lake, 31 on Pleasant Lake and 13 on Scraggly Lake. No one was observed recreating at Shaw Lake during the course of this study; therefore, no interviews occurred at the lake.

Frequencies of survey results are provided in Attachment C.

TABLE 5
INTERVIEW LOCATIONS

	RESPONDENTS	
	NUMBER	PERCENT
INTERVIEW LOCATION		
ON WATER	31	44%
ON SHORE	39	56%
TOTAL	70	100%
LAKE WHERE INTERVIEWED		
JUNIOR LAKE	26	37%
PLEASANT LAKE	31	44%
SCRAGGLY LAKE	13	19%
SHAW LAKE	0	0%
TOTAL	70	100%

The number of interviews obtained at each lake is indicative of the number of groups observed at each lake. Pleasant and Junior lakes had the highest numbers of observations. These lakes are also the most developed. Maine Wilderness Camps is a commercial facility that rents cabins and campground space on the north shore of Pleasant Lake. A second campground is located on the south shore of the lake. Both locations provide boat launches and toilets; access to both is adequate for large 5th wheel campers. The shores of Junior Lake are occupied by a number of camps, particularly around the northern and western shores (Figure 2). By comparison, development on Scraggly Lake is limited.

The number of interviews completed at Junior (26) and Pleasant (31) lakes allows us to draw lake-specific insights from those results. The lower number of completed surveys from Scraggly Lake (13) reflects the lower number of people observed at this lake. Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this specific lake. It is, however, appropriate to combine the data with results from Junior and Pleasant lakes and use the combined data to draw conclusions about the larger group. Figure 9 shows the locations where surveys occurred on and around the lakes.

Almost all survey respondents are Maine residents 45 years old or older (Table 6). Fully 45 percent of respondents reported owning or renting property on Junior, Scraggly, and/or Pleasant Lake, primarily on Junior and Pleasant. In reviewing Figure 2, it is notable that most lakeshore development identified is outside of the viewshed of the proposed project. No one reported owning or renting property on Shaw Lake. Only one survey respondent reported using

Registered Maine Guide services during their trip. Almost all respondents (86%) have been to the lake where interviewed before.

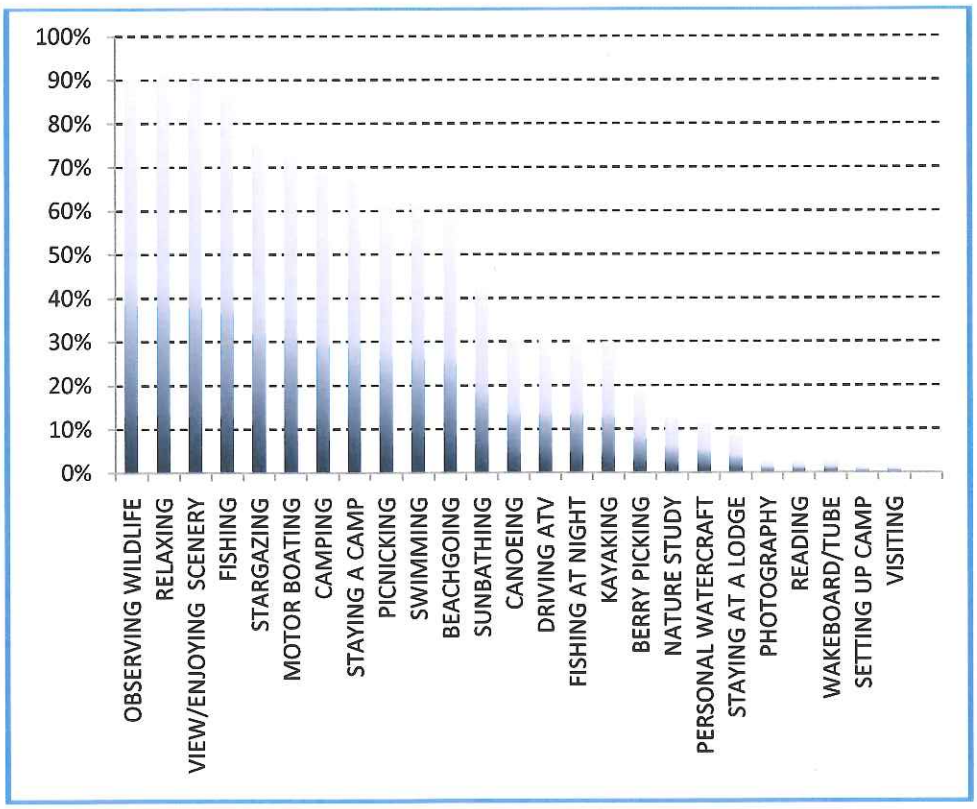
The primary recreation activities in which people participate are relaxing, fishing and camping (Table 6). Only 3% of all respondents stated "viewing the scenery" as a primary activity. Nevertheless, respondents do participate in more than one activity on their trips (Figure 10). Approximately 90 percent of respondents reported observing wildlife, relaxing, viewing the scenery and fishing as among other activities in which they engage.

TABLE 6
RESPONDENT AND TRIP CHARACTERISTICS

	RESPONDENTS	
	NUMBER	PERCENT
RESPONDENT CHARACTERISTICS		
AGE		
18-24	3	4%
25-34	5	7%
35-44	9	13%
45-54	15	22%
55-64	22	32%
65 OR OLDER	15	22%
TOTAL	69	100%
RESPONDENT IS A REGISTERED MAINE GUIDE	0	0%
	(n=70)	
RESIDENCY		
YEAR ROUND MAINE RESIDENT	56	81%
PART TIME MAINE RESIDENT	4	6%
NONRESIDENT	9	13%
TOTAL	69	100%
OWN OR RENT PROPERTY ON		
JUNIOR LAKE	14	20%
SCRAGGLY LAKE	2	3%
PLEASANT LAKE	15	22%
SHAW LAKE	0	0%
TOTAL	31	45%
FIRST VISIT TO LAKE WHERE INTERVIEWED	10	14%
	(n=70)	
TRIP CHARACTERISTICS		
USING GUIDE SERVICES	1	1%
	(n=69)	

PRIMARY ACTIVITY		
RELAXING	28	40%
FISHING	21	32%
CAMPING	10	13%
STAYING AT CAMP	2	4%
MOTOR-BOATING	2	3%
VIEWING THE SCENERY	2	3%
OTHER	3	4%
TOTAL	68	100%

FIGURE 10
OTHER ACTIVITIES IN WHICH PEOPLE REPORTED PARTICIPATING



4.4.1 QUALITY OF EXPERIENCE

All survey respondents rated the overall quality of the experience they expected on their visit as "High" (Table 7). This result is true regardless of where the survey occurred (Table 8).

TABLE 7
RATING OF OVERALL QUALITY OF THE EXPERIENCE EXPECTED ON TRIP
ALL LAKES COMBINED
(SURVEY QUESTION 10)

	RESPONDENTS	
	NUMBER	PERCENT
RATING		
1-VERY LOW QUALITY	0	0%
2	0	0%
3	0	0%
4-NEITHER HIGH NOR LOW QUALITY	0	0%
5	7	10%
6	12	17%
7-VERY HIGH QUALITY	51	73%
TOTAL	70	100%

TABLE 8
RATING OF OVERALL QUALITY OF THE EXPERIENCE EXPECTED ON TRIP
BY LAKE
(SURVEY QUESTION 10)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-VERY LOW QUALITY	0	0%	0	0%	0	0%
2	0	0%	0	0%	0	0%
3	0	0%	0	0%	0	0%
4-NEITHER HIGH NOR LOW QUALITY	0	0%	0	0%	0	0%
5	3	12%	1	3%	3	23%
6	4	15%	8	26%	0	0%
7-VERY HIGH QUALITY	19	73%	22	71%	10	77%
TOTAL	26	100%	31	100%	13	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.

4.4.2 SCENIC VALUES

Prior to rating the scenic value of views at the lake, survey respondents identified places in Maine that they feel have "Very Highly Scenic Value" and "Very Low Scenic Value." Respondents identified a range of places, with most citing various "Downeast Lakes and Mountains" or areas in and around "Baxter State Park" (Table 9). A scenic view was the reason most often cited for rating a place as having "Very High Scenic Values."

Locations identified as having "Very Low Scenic Value" included Bangor, Portland Area, Southern Maine, and Lincoln (Table 10). For the first three locations, respondents explained the low ratings as being due to development, cities or people. For Lincoln, however, responses were more specific, attributing the low rating to "Too Many Camps," "Too Many People," and "Wind Turbines," cited by 10%, 6%, and 8% of respondents, respectively.

TABLE 9
PLACES IN MAINE RATED AS HAVING VERY HIGH SCENIC VALUE
ALL LAKES COMBINED
(CROSS TABULATION OF SURVEY QUESTIONS 12 AND 13)

	CHARACTERISTICS THAT MAKE PLACES SCENIC												
HIGHLY SCENIC PLACES IN MAINE	VIEWS, SCENIC	QUIET, PEACEFUL	MOUNTAINS	WILDLIFE	LACK OF DEVELOPMENT, UNDEVELOPED	MAINE	REMOTE, PRIVATE, FEW PEOPLE, FEW SIGNS OF MAN	BEAUTIFUL	NATURE	CLEAN AREA	BIG WATER	OTHER CHARACTERISTICS[c]	TOTAL
DOWNEAST LAKES AND MTNS[a]	6	2	2	3	1	0	1	1	2	0	0	1	19
BAXTER STATE PARK	4	0	2	1	1	0	2	2	0	0	1	0	13
BAR HARBOR AREA	1	0	0	0	0	1	0	0	1	0	0	2	5
MOOSEHEAD LAKE AREA	1	1	0	0	1	0	1	0	0	1	0	0	5
ACADIA NATIONAL PARK	2	1	0	0	0	0	0	0	0	1	0	0	4
NORTHEAST PISCATAQUIS CO.	2	0	1	0	0	0	0	0	0	0	0	0	3
RANGELEY LAKE AREA	2	0	1	0	0	0	0	0	0	0	0	0	3
OTHER PLACES[b]	2	2	0	1	2	4	1	0	0	0	1	1	14
TOTAL	20	6	6	5	5	5	5	3	3	2	2	4	66
PERCENT OF TOTAL	30%	9%	9%	8%	8%	8%	8%	5%	5%	3%	3%	8%	100%

[a] Includes West Grand, Pleasant, Scraggly, West Musquash, and Junior lakes: Almanac and Stetson mountains; Junior Lake area, and; ridge 3 miles east of Pleasant Ridge.
[b] Other places, listed once for each occurrence, include: anywhere north of Bangor, Belgrade area, Chemo Pond, Cobscook Bay State Park, all of Maine, Lubec, Madawaska Lake, Maine River, Millinocket, Petit Manan Island, Sebago Lake, Silver Lake, Sugarloaf, Boothbay Harbor.
[c] Other characteristics, listed once each, included: activity in all seasons, see ships, little boat traffic, and trail options by ocean.

TABLE 10
PLACES IN MAINE RATED AS HAVING VERY LOW SCENIC VALUE
ALL LAKES COMBINED
(CROSS TABULATION OF SURVEY QUESTIONS 14 AND 15)

	CHARACTERISTICS THAT MAKE PLACES HAVE LOW SCENIC VALUE							
PLACES IN MAINE WITH VERY LOW SCENIC QUALITY	TOO MANY CAMPS	DEVELOPMENT, CITY	TOO MANY PEOPLE	WIND TURBINES	DIRTY, RUN DOWN, OLD	NOT MANY SCENIC VIEWS	OTHER	TOTAL
BANGOR	0	7	0	0	0	0	0	7
PORTLAND AREA	0	6	1	0	0	0	0	7
SOUTHERN MAINE	0	6	0	0	0	0	0	6
LINCOLN AREA	1	0	1	2	0	0	1	5
DOWNEAST LAKES AND MOUNTAINS	2	0	0	1	0	0	0	3
LEWISTON	0	0	0	0	2	0	1	3
PUSHAW LAKE	1	1	0	0	0	1	0	3
BAR HARBOR	0	2	0	0	0	0	0	2
OTHER PLACES[a]	1	4	1	1	1	2	6	16
TOTAL	5	26	3	4	3	3	8	52
PERCENT OF TOTAL	10%	50%	6%	8%	6%	6%	15%	100%

[a] Other places, listed once for each occurrence include: Rural Areas, Augusta, Calais, Caribou Pond, Chemo Pond, Elton, Green Lake, Greenland Cove Campground, Lakeville Dump, Wind Towers In Lee, Mattawamkeag, Old Orchard Beach, Stud Mill Road, Wassookeag Lake, Millinocket, Lee Area.

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All survey respondents (100%) rate the scenic value of the photograph of current conditions as a "Typical Scenic Value" or higher (Table 11 and Table 12). Almost half (42%) rate a photograph of the same scene showing simulated conditions with wind turbines as having a "Typical Scenic Value" or higher (Table 11 and Table 13). Just over half (58%) report the simulated conditions as having a "Low Scenic Value."

TABLE 11
SCENIC VALUE RATINGS UNDER CURRENT AND SIMULATED CONDITIONS
ALL LAKES COMBINED
(SURVEY QUESTIONS 16 AND 17)

	CURRENT CONDITIONS		SIMULATED CONDITIONS	
	NUMBER	PERCENT	NUMBER	PERCENT
RATING				
1-LOWEST SCENIC VALUE	0	0%	27	39%
2	0	0%	4	6%
3	0	0%	9	13%
4-TYPICAL SCENIC VALUE	7	10%	6	9%
5	16	23%	7	10%
6	20	29%	5	7%
7-HIGHEST SCENIC VALUE	26	38%	11	16%
TOTAL	69	100%	69	100%

TABLE 12
SCENIC VALUE RATINGS UNDER CURRENT CONDITIONS
BY LAKE
(SURVEY QUESTION 16)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-LOWEST SCENIC VALUE	0	0%	0	0%	0	0%
2	0	0%	0	0%	0	0%
3	0	0%	0	0%	0	0%
4-TYPICAL SCENIC VALUE	5	19%	2	7%	0	0%
5	6	23%	5	16%	5	39%
6	9	35%	8	27%	3	22%
7-HIGHEST SCENIC VALUE	6	23%	15	50%	5	39%
TOTAL	26	100%	30	100%	13	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.

TABLE 13
SCENIC VALUE RATINGS UNDER SIMULATED CONDITIONS
BY LAKE
(SURVEY QUESTION 17)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-LOWEST SCENIC VALUE	12	46%	7	23%	8	61%
2	2	8%	1	3%	1	8%
3	5	19%	4	13%	0	0%
4-TYPICAL SCENIC VALUE	1	4%	4	13%	1	8%
5	1	4%	4	13%	2	15%
6	1	4%	4	13%	0	0%
7-HIGHEST SCENIC VALUE	4	15%	6	20%	1	8%
TOTAL	26	100%	30	98%	13	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.
Percentages may not sum to 100 due to rounding.

4.4.3 REPEAT VISITATION

When asked about the effect of the proposed development on enjoyment of their visit, the largest number of respondents stated there would be no effect (Table 14 and Table 16), stating they did not mind the turbines, that renewable energy is beneficial, and that it would not change why they visit the lakes (Table 15, Table 16). The next largest number of respondents stated the development would negatively affect their enjoyment. While the reasons for the negative rating were more diverse, they commonly touched on the subject of being unpleasant to look at, detracting from the view, scenery or nature and having the added detractions of noise and lights (Table 15). Overall, 55% of respondents stated that the presence of the wind farm would have "No Effect" (36%) or a "Positive Effect" (19%) on their enjoyment of visiting the lake.

TABLE 14
EFFECT OF PROPOSED DEVELOPMENT ON ENJOYMENT OF VISIT
ALL LAKES COMBINED
(QUESTION 18)

	NUMBER	PERCENT
RATING		
1-VERY NEGATIVE EFFECT	21	31%
2	3	4%
3	6	9%
4-NO EFFECT	24	36%
5	4	6%
6	3	4%
7-VERY POSITIVE EFFECT	6	9%
TOTAL	67	99%

Percentages may not sum to 100 due to rounding.

TABLE 15
EFFECT OF PROPOSED DEVELOPMENT ON ENJOYMENT OF VISIT
ALL LAKES COMBINED
(CROSS TABULATION OF SURVEY QUESTIONS 18 AND 19)

	EFFECT OF PROPOSED DEVELOPMENT ON ENJOYMENT							
REASON	VERY NEGATIVE EFFECT 1	2	3	NO EFFECT 4	5	6	VERY POSITIVE EFFECT 7	TOTAL
DO NOT MIND THEM	0	0	0	13	2	1	3	19
RENEWABLE ENERGY IS BENEFICIAL	0	0	0	4	1	1	1	7
AESTHETICALLY UNPLEASING, AKIN TO DEVELOPMENT & INDUSTRY	4	1	1	1	0	0	0	7
WILL NOT CHANGE WHY WE COME HERE	0	1	0	3	0	0	0	4
POWER DOES NOT BENEFIT US LOCALLY	2	1	1	0	0	0	0	4
TAKES AWAY FROM NATURE	2	0	0	0	0	0	1	3
DETRACTS FROM SCENERY	0	0	2	1	0	0	0	3
NOISY	3	0	0	0	0	0	0	3
RUINS VIEW	2	0	1	0	0	0	0	3
DO NOT WANT TO SEE THEM	1	0	1	0	1	0	0	3
LIKES THE LOOK OF THE TURBINES	0	0	0	1	0	0	1	2
FLASHING LIGHTS, LIGHTS	2	0	0	0	0	0	0	2
INCREASE IN PEOPLE	1	0	0	0	0	1	0	2
PUBLIC OPINION DOES NOT MATTER	1	0	0	0	0	0	0	1
UNATTRACTIVE	1	0	0	0	0	0	0	1
NOT NATURAL	1	0	0	0	0	0	0	1
WE LIKE LOOKING AT MOUNTAINS	1	0	0	0	0	0	0	1
TOTALS	21	3	6	23	4	3	6	66
PERCENT OF TOTAL	32%	5%	9%	35%	6%	5%	9%	100%

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TABLE 16
EFFECT OF PROPOSED DEVELOPMENT ON ENJOYMENT OF VISIT
BY LAKE
(SURVEY QUESTION 18)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-VERY NEGATIVE EFFECT	12	48%	6	20%	3	25%
2	2	8%	0	0%	1	8%
3	1	4%	3	10%	2	17%
4-NO EFFECT	6	24%	16	53%	2	17%
5	1	4%	2	7%	1	8%
6	1	4%	1	3%	1	8%
7-VERY POSITIVE EFFECT	2	8%	2	7%	2	17%
TOTAL	25	100%	30	100%	12	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.

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Prior to being provided with information on the proposed development, nearly all (98%) of respondents are likely to return to the lake where they were interviewed in the future (Table 17, Table 19). When subsequently asked how the wind farm would affect their likelihood to return, 80% of respondents said the proposed wind farm would have "No Effect" (19%) on their likelihood of returning to the lake or they would be "Likely to Return" (61%) in the future. Twenty percent of respondents are "Unlikely" to return in the presence of the wind farm.

Responses most commonly cited for returning in the future were that the development had no effect on enjoyment of the lake, ownership of homes and camps on the lake, ties with family and friends, liking the lake area, and enjoying the fishing (Table 18). For respondents indicating they were less likely to visit in the future, the most common response was that the development would change the view making it visually unappealing.

TABLE 17
LIKELIHOOD OF RETURNING UNDER CURRENT AND SIMULATED CONDITIONS
ALL LAKES COMBINED
(SURVEY QUESTIONS 11 AND 20)

	CURRENT CONDITIONS		SIMULATED CONDTIONS	
	NUMBER	PERCENT	NUMBER	PERCENT
RATING				
1-VERY UNLIKELY TO VISIT	1	1%	9	13%
2	0	0%	2	3%
3	0	0%	3	4%
4-NEITHER LIKELY NOR UNLIKELY / NO EFFECT	0	0%	13	19%
5	1	1%	2	3%
6	3	4%	3	4%
7-VERY LIKELY TO VISIT	65	93%	37	54%
TOTAL	70	99%	69	100%

Percentages may not sum to 100 due to rounding.
The scale for current conditions used "neither likely nor unlikely" for the 4 rating. Under simulated conditions, item 4 was labeled as "no effect."

TABLE 18
EXPLANATION FOR RETURNING OR NOT RETURNING UNDER SIMULATED CONDITIONS
ALL LAKES COMBINED
(CROSS TABULATION OF SURVEY QUESTIONS 20 AND 21)

	LIKELIHOOD OF RETURNING IF WIND FARM WERE DEVELOPED							
REASON	VERY UNLIKELY TO VISIT 1	2	3	NO EFFECT 4	5	6	VERY LIKELY TO VISIT 7	TOTAL
NO EFFECT ON ENJOYMENT OF LAKE	0	0	0	3	0	3	12	18
VISUALLY UNAPPEALING, CHANGES VIEW	3	2	3	1	0	0	1	10
OWN HOME OR CAMP HERE	0	0	0	0	0	0	7	7
FAMILY & FRIEND TIES, TRADITION, HISTORY HERE	0	0	0	2	0	0	4	6
LIKE THE LAKE, AREA	0	0	0	0	0	0	5	5
ENJOY FISHING	0	0	0	2	0	0	2	4
CHANGES EXPERIENCE	2	0	0	1	1	0	0	4
IT IS POSTIVE, UNIQUE, I SUPPORT WIND	0	0	0	1	0	0	2	3
BETTER WIND THAN OTHER	0	0	0	0	0	0	2	2
LIKE IT HERE	0	0	0	1	0	0	1	2
WOULD STILL COME HERE	0	0	0	1	0	0	1	2
ENJOY THE EXPERIENCE	0	0	0	1	0	0	0	1
LIKES THE VIEW	1	0	0	0	0	0	0	1
TURBINE NOISE	1	0	0	0	0	0	0	1
WIND TURBINES	1	0	0	0	0	0	0	1
INCREASE IN CIVILIZATION	0	0	0	0	1	0	0	1
TOTALS	8	2	3	13	2	3	37	68
PERCENT OF TOTAL	12%	3%	4%	19%	3%	4%	54%	100%

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TABLE 19
LIKELIHOOD OF RETURNING UNDER CURRENT CONDITIONS
BY LAKE
(SURVEY QUESTION 11)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-VERY UNLIKELY TO VISIT	0	0%	1	3%	0	0%
2	0	0%	0	0%	0	0%
3	0	0%	0	0%	0	0%
4-NEITHER LIKELY NOR UNLIKELY	0	0%	0	0%	0	0%
5	1	4%	0	0%	0	0%
6	1	4%	1	3%	1	8%
7-VERY LIKELY TO VISIT	24	92%	29	94%	12	92%
TOTAL	26	100%	31	100%	13	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.

TABLE 20
LIKELIHOOD OF RETURNING UNDER SIMULATED CONDITIONS
BY LAKE
(SURVEY QUESTION 20)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-VERY UNLIKELY TO VISIT	5	19%	2	7%	2	15%
2	0	0%	2	7%	0	0%
3	2	8%	0	0%	1	8%
4-NO EFFECT	2	8%	9	30%	2	15%
5	2	8%	0	0%	0	0%
6	1	4%	2	7%	0	0%
7-VERY LIKELY TO VISIT	14	54%	15	50%	8	62%
TOTAL	26	101%	30	101%	13	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.
Percentages may not sum to 100 due to rounding.

Respondents were almost evenly split in their rating of the importance of wind power development for Maine (Table 21 and Table 23). Reasons in favor of wind power in Maine included the need to develop alternative and/or more energy and reduce dependency on foreign oil (Table 22). In contrast, reasons for rating wind power in Maine as unimportant or has no effect were the belief that wind power does not benefit Maine, uncertainty as to its effectiveness, and the fact that it is out of place.

TABLE 21
HOW WOULD YOU RATE THE IMPORTANCE OF WIND POWER IN MAINE?
ALL LAKES COMBINED
(QUESTION 22)

	NUMBER	PERCENT[a]
RATING		
1-VERY NEGATIVE EFFECT	16	25%
2	3	5%
3	8	13%
4-NO EFFECT	8	13%
5	12	19%
6	3	5%
7-VERY POSITIVE EFFECT	14	22%
TOTAL	64	102%

[a]Percentages may not round to 100 due to rounding.

TABLE 22
IMPORTANCE OF WIND POWER IN MAINE
ALL LAKES COMBINED
(CROSS TABULATION OF SURVEY QUESTIONS 22 AND 23)

REASON	IMPORTANCE OF WIND POWER IN MAINE							TOTAL
	VERY UNIMPORTANT 1	2	3	NO EFFECT 4	5	6	VERY IMPORTANT 7	
NO RESPONSE[a]	10	3	6	6	6	2	7	40
NEED FOR ALTERNATIVE ENERGY, MORE ENERGY, OFF FOREIGN OIL	0	0	0	0	5	0	5	10
DOES NOT HELP OR BENEFIT MAINE	5	0	1	0	1	0	2	9
UNSURE OF EFFECTIVENESS	0	0	0	2	0	0	0	2
OUT OF PLACE, DISLIKE IT	1	0	1	0	0	0	0	2
NOTHING AGAINST THEM	0	0	0	0	0	1	0	1
TOTAL	16	3	8	8	12	3	14	64
PERCENT OF TOTAL	25%	5%	13%	13%	19%	5%	22%	100%

[a] Due to a programming error, a number of respondents did not receive the question asking them to explain their rating of the importance of wind power in Maine.

TABLE 23
IMPORTANCE OF WIND POWER IN MAINE
BY LAKE
(SURVEY QUESTION 22)

	JUNIOR LAKE		PLEASANT LAKE		SCRAGGLY LAKE[a]	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
RATING						
1-VERY UNIMPORTANT	7	30%	5	17%	4	33%
2	0	0%	1	3%	2	17%
3	3	13%	2	7%	3	25%
4-NO EFFECT	2	9%	6	21%	0	0%
5	5	22%	4	14%	3	25%
6	0	0%	3	10%	0	0%
7-VERY IMPORTANT	6	26%	8	28%	0	0%
TOTAL	23	100%	29	100%	12	100%

[a] Given the low number of surveys obtained for Scraggly Lake, we advise using caution in drawing conclusions from the data for this lake.

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5.0 DISCUSSION

Survey respondents are primarily Maine residents with some kind of familiarity with the lake at which they were interviewed, and all anticipated having a quality experience on their trip. Popular activities are relaxation, fishing and camping.

Survey methods developed for this study were designed in part to increase chances of intercepting guided trips, but no guides were interviewed and only one respondent reported using guide services. Combined with the low numbers of Grand Lakers observed in Junior Stream, results indicate a low level of use by guides during the study period.

While a majority of respondents (58%) rate the photographic simulation as having a low value, 55% report the wind farm would have no effect (36%) or a positive effect (19%) on enjoyment of their visits and most (80%) state it would have no effect on their likelihood of returning (19%) or they were likely to return (61%). Respondents will continue to visit for a variety of reasons, ranging from indications they support wind power or it has no effect on their enjoyment of the lakes, to having some kind of tie to the area such as family, history, home or camp. Respondents are almost evenly split in their opinions on the importance of wind power in Maine, with 43% stating it is unimportant and 46% stating it is important. Overall, results indicate that conditions represented in the photographic simulation result in lower scenic ratings, but respondents will continue to enjoy recreation in and return to the study area.

Respondents rate a mix of wooded, lightly populated areas, and coastal tourist areas as having high scenic value in Maine, including locations in and around the study area, collectively referred to as "Downeast lakes and mountains". Areas rated as having low scenic value tend to share the characteristics of having high population levels (for Maine) and being developed.

Looking at results by lake reveal some differences between Junior and Pleasant lake respondents. Respondents interviewed at Pleasant Lake provide higher scenic ratings for photographs of the current view and the simulated view. They are more likely to indicate the wind farm would have no effect on the enjoyment of their visit, and are more likely to return if the wind farm were developed (Table 20). Finally, they give the importance of wind power in Maine a higher rating than respondents at Junior Lake.

6.0 REFERENCES

Brown, B.E., 1971. Implications from the Oklahoma State lake creel survey to improve creel survey design. Proceedings of the Annual Conference Southeastern Association of Game and Fish Commissioners 24(1970):577-591.

Kleinschmidt, 1997. Recreation Resources Assessment. Draft. West Branch Project. FERC No. 2618. Prepared for Georgia-Pacific Corporation.

Kleinschmidt, 2009. Application for New License, Major Water Power Project Under 5 MW—Existing Dam. West Branch Project. FERC No. 2618. Prepared for Domtar Maine Corp., Baileyville, Maine.

LandWorks, 2011. Visual Impact Assessment for the Proposed Bowers Wind Project. Prepared for Champlain Wind, LLC, Boston, MA.

Lucas, R.C. 1963. Bias in estimating recreationists' length of stay from sample interviews. Journal of Forestry 61:912-914.

Maine Department of Conservation, 1987. Maine Wildlands Lake Assessment. Land Use Regulation Commission.

Malvestuto, S.P. 1983. Sampling the recreational fishery. Pages 397-419 in L.A. Nielson and D. L. Johnson, editors. Fisheries Techniques. American Fisheries Society, Bethesda Maryland.

Palmer, J.F., 2011. Review of the Bowers Wind Project Visual Impact Assessment. Prepared for Maine Land Use Regulation Commission, Augusta, Maine by Scenic Quality Consultants, Burlington, Vermont.

Pollock, K.H., C.M. Jones, and T.L. Brown 1994. Angler survey methods and their applications in fisheries management. American Fisheries Society Special Publication 25.

Portland Research Group, 2011a. Bowers Mountain Wind Project Outdoor Activities Users Research Telephone Survey. Prepared for First Wind, Portland, ME.

Portland Research Group, 2011b. Bowers Mountain Wind Project Outdoor Activities Users Research Snowmobile Survey. Prepared for First Wind, Portland, ME.

Robson, D.S., 1961. On the statistical theory of a roving creel census. Biometrics 17;415-437.

Robson, D.S., 1991. The roving creel survey. American Fisheries Society Symposium 12:19-24

Wilson, A. and J. Hayes. 2005. Quiet Water Maine Canoe & Kayak Guide. 2nd Edition. Appalachian Mountain Club Books. Boston, MA.306pp.

ATTACHMENT A

QUESTIONNAIRE

SURVEY ID _____

BOWERS WIND
QUESTIONNAIRE
JUNIOR, SCRAGGLY, PLEASANT AND SHAW LAKES

1. Is this your first visit to _____Lake? (SELECT ONE NUMBER)

   1 YES→ SKIP TO Q5
   2 NO
   9 REFUSED→ SKIP TO Q5

2. Do you have a home or a camp on this lake? (SELECT ONE NUMBER)

   1 YES
   2 NO→ SKIP TO Q4
   9 REFUSED→ SKIP TO Q4

3. How many months do you live here during the year? (FILL IN THE BLANK)

   _____ MONTHS→ SKIP TO Q5
   99 REFUSED→ SKIP TO Q5

4. During the past year, how many times have you visited _____ Lake? If you cannot recall exactly, please give us your best estimate. (FILL IN THE BLANK.)

   _____ Trips

5. Think about your activities on _____ Lake. What are your plans for today? (HAND LAMINATED CARD TO RESPONDENT; READ LIST AND CHECK ALL THAT APPLY)

   1 Canoeing
   2 Kayaking
   3 Motor boating
   4 Personal watercraft
   5 Berry picking
   6 Viewing the scenery
   7 Camping
   6 Fishing from a boat or shore
   9 Relaxing

SURVEY ID _____

10 Stargazing / enjoying the night sky
12 Swimming
13 Enjoying the scenery / scenic viewing
14 Beach going / Using the beach
15 Observing wildlife or nature
16 Staying at a lodge
17 Staying at a camp
18 Driving an ATV
19 Picnicking
20 Sunbathing
21 Nature study
22 Fish at night
23 Anything else? _____

6. What is your primary reason for coming here today? (HAND LAMINATED CARD TO RESPONDENT; READ LIST AND CHECK ALL THAT APPLY)

1 Canoeing
2 Kayaking
3 Motor boating
4 Personal watercraft
5 Berry picking
6 Viewing the scenery
7 Camping
6 Fishing from a boat or shore
9 Relaxing
10 Stargazing / enjoying the night sky
12 Swimming
13 Enjoying the scenery / scenic viewing
14 Beach going / Using the beach
15 Observing wildlife or nature
16 Staying at a lodge
17 Staying at a camp
18 Driving an ATV
19 Picnicking
20 Sunbathing
21 Nature study
22 Fish at night
23 Other _____

SURVEY ID _____

7. IF ON LAKE: I'm going to hand you a map. To the best of your ability, please show us the route you have taken on the lake today by drawing directly on the map. Start where you launched your boat and draw the route you took to get to the location where we are now. Use an "x" to indicate places where you may have stopped for a period of time to take a break or go ashore.

   IF ON SHORE: I'm going to hand you a map. Please show us the places that you've visited that are on or around the lake today by drawing directly on the map. Use an "x" to indicate where you are now, as well as other places where you have been today. If you have been on the water today, simply draw the route you took on the water. Use an "x" to mark places where you may have stopped for a period of time to take a break or go ashore.

   HAND RESPONDENT MAP AND BLACK MARKER. THEN ASK:

   Where else on or around _____ Lake do you think you will go today?

   HAND RESPONDENT RED MARKER TO RECORD FUTURE TRAVEL TODAY. RECORD RESPONDENT ID ON THE MAP WHEN IT IS RETURNED

8. How long do you expect to visit the lake today? (RECORD RESPONSE)

   _____ _____ : _____ _____
   HH : MM

   9 REFUSED

9. On this trip, do you use or visit the lake at night for..... (READ LIST; RECORD ALL THAT APPLY)

   1 Star gazing
   2 Fishing
   3 Boating
   4 Canoeing
   5 Kayaking
   6 Camping
   7 Other _____

SURVEY ID _____

10. On a scale of 1 to 7, where a 1 is very low quality, a 7 is very high quality, and a 4 is is neither high nor low quality, what was the overall quality of experience you expected on your visit to ____Lake today? (SELECT ONE NUMBER)

VERY LOW QUALITY			NEITHER HIGH NOR LOW QUALITY			VERY HIGH QUALITY	REFUSED
1	2	3	4	5	6	7	9

11. On a scale of 1 to 7, where 1 is very unlikely, 7 is very likely, and 4 is neither unlikely nor likely, how likely is it that you will visit _____ Lake in the future? (SELECT ONE NUMBER)

VERY UNLIKELY			NEITHER UNLIKELY NOR LIKELY			VERY LIKELY	REFUSED
1	2	3	4	5	6	7	9

12. Now I'd like to ask you to think of an outdoor place in Maine that you would rate as having very high scenic quality or outstanding views and which—on a scale of 1 to 7—you would rate as a 7 for the highest scenic quality. What place are you thinking about? (RECORD RESPONSE)

_____

_____

8 DO NOT KNOW OF PLACES IN MAINE → SKIP TO Q14
9 REFUSED

13. What is it about this place that makes it highly scenic? (RECORD RESPONSE)

_____

_____

9 REFUSED

SURVEY ID _____

14. Next, can you think of an outdoor place in Maine that you would rate as having a very low scenic quality or views which—on a scale of 1 to 7—you would rate as a 1 for the lowest scenic quality. What place are you thinking about? (RECORD RESPONSE)

_____

_____

8 DO NOT KNOW OF PLACES IN MAINE → SKIP TO Q16
9 REFUSED

15. What is it about this place that gives it a low scenic value? (RECORD RESPONSE)

_____

_____

9 REFUSED

16. We would like you to think about the scenic value of _____ Lake. I am going to show you two photographs, and I would like you to rate the scenic value of the views depicted in the photographs.

If you hold the photograph 19 inches from your face, it will make everything the in the photograph the same size that it would be if you were looking at it from where the photograph was taken.

PLEASANT LAKE: Please take a look at this photograph. It shows a view from Pleasant Lake looking north, northwest.
SHAW LAKE: Please take a look at this photograph. It shows a view from Shaw Lake looking north, northwest.
SCRAGGLY LAKE: Please take a look at this photograph. It shows a view from Scraggly Lake looking north, northwest.
JUNIOR LAKE: Please take a look at this photograph. It shows a view from Junior Lake looking north, northeast.

This is the approximate location on _____ Lake where this photograph was taken. (POINT TO AREA ON MAP – ON BACK OF PHOTOGRAPH)

SURVEY ID _____

On a scale of 1 to 7, where 1 is the lowest scenic value in Maine, a 4 is the typical scenic value in Maine, and 7 is the highest scenic value in Maine, how would you rate this view? (SELECT ONE NUMBER)

LOWEST SCENIC VALUE			TYPICAL SCENIC VALUE			HIGHEST SCENIC VALUE	REFUSED
1	2	3	4	5	6	7	9

17. Recently, a wind farm was proposed to be developed near here. A wind farm is a group of wind turbines that capture energy from the wind to generate electricity. This photograph shows how the same view would look if a wind farm was developed. How would you rate the scenic value of this view using the same 7-point scale where 1 is the lowest, 4 is typical and 7 is the highest scenic value? (SELECT ONE NUMBER)

LOWEST SCENIC VALUE			TYPICAL SCENIC VALUE			HIGHEST SCENIC VALUE	REFUSED
1	2	3	4	5	6	7	9

18. Now I'd like you to think about how your enjoyment of visiting the lake would be affected if you were to see the proposed wind project during your visit today. On a scale of 1-7, where a 1 is a very negative effect, a 4 means that it would not change your enjoyment at all, and a 7 is a very positive effect on your enjoyment, how would your enjoyment be affected? (SELECT ONE NUMBER)

VERY NEGATIVE EFFECT			NO EFFECT			VERY POSITIVE EFFECT	REFUSED
1	2	3	4	5	6	7	9

19. Why do you say that? (RECORD RESPONSE)

_____

_____

9 REFUSAL

SURVEY ID _____

20. Now I'd like you to think about your trip here today. Imagine the proposed wind project was built. On a scale of 1 to 7, where a 1 means you are very unlikely to return, a 4 means the change in view would have no effect on your return, and a 7 means you are very likely to return, how likely are you to return to _____ Lake given the presence of the wind turbines? (SELECT ONE NUMBER)

VERY UNLIKELY TO VISIT			NO EFFECT			VERY LIKELY TO VISIT	REFUSED
1	2	3	4	5	6	7	9

21. Why is that? (RECORD RESPONSE)

_____

_____

9 REFUSAL

22. Thinking about wind power development in general, please rate how important it is for Maine, on a scale of 1 to 7, where a 1 means wind power is generally very unimportant and a 7 means it is generally very important. (SELECT ONE NUMBER)

VERY UNIMPORTANT			NO EFFECT			VERY IMPORTANT	REFUSED
1	2	3	4	5	6	7	9

23. Why do you feel that way? (RECORD RESPONSE)

_____

_____

9 REFUSAL

INTERVIEWER INITIALS:_____

REVIEWED BY:_____

SURVEY ID _____

24. Have you visited any of the following lakes in the area ....? (READ LIST; DO NOT READ NAME OF LAKE WHERE INTERVIEW IS OCCURRING; CIRCLE ALL THAT APPLY)

	ON THIS TRIP?	AT ALL?
PLEASANT LAKE	1	1
SHAW LAKE	1	1
JUNIOR LAKE	1	1
SCRAGGLY LAKE	1	1
REFUSED	9	9

25. Do you own or rent property on.....? (SELECT ALL THAT APPLY)

1 PLEASANT LAKE
2 SHAW LAKE
3 JUNIOR LAKE
4 SCRAGGLY LAKE
5 DO NOT OWN OR RENT PROPERTY ON ABOVE LAKES
9 REFUSED

26. Are you...? (SELECT ONE NUMBER)

1 A YEAR-ROUND RESIDENT OF MAINE
2 PART TIME RESIDENT OF MAINE
3 VISITOR TO MAINE
9 REFUSED

27. What is the zip code of your primary residence? (RECORD RESPONSE)

_ _ _ _ _
9 9 9 9 9 REFUSED

28. Had you heard of this survey before we asked you to participate? (SELECT ONE NUMBER)

1 YES
2 NO
3 NOT SURE
9 REFUSED

SURVEY ID _____

29. Are you using the service of a Registered Maine Guide today? (SELECT ONE NUMBER)

1 YES
2 NO
9 REFUSED

30. Please tell me the number that best represents your age group. (HAND CARD TO RESPONDENT. SELECT ONE NUMBER)

1
2
3
4
5
6
9 REFUSED

Those are all the questions that I have for you today. Thank you very much for your time and enjoy your visit to the lake!

RESPONSE CARD FOR Q5

CURRENT TRIP CHARACTERISTICS

5. Think about your activities on _____ Lake. What are your plans for today?

1 Canoeing
2 Kayaking
3 Motor boating
4 Personal watercraft
5 Berry picking
6 Viewing the scenery
7 Camping
8 Fishing from a boat or shore
9 Relaxing
10 Stargazing / enjoying the night sky
12 Swimming
13 Enjoying the scenery / scenic viewing
14 Beach going / Using the beach
15 Observing wildlife or nature
16 Staying at a lodge
17 Staying at a camp
18 Driving an ATV
19 Picnicking
20 Sunbathing
21 Nature study
22 Fish at night
23 Anything else? _____

RESPONSE CARD FOR Q6

6. What is your primary reason for coming here today?

1 Canoeing
2 Kayaking
3 Motor boating
4 Personal watercraft
5 Berry picking
6 Viewing the scenery
7 Camping
8 Fishing from a boat or shore
9 Relaxing
10 Stargazing / enjoying the night sky
12 Swimming
13 Enjoying the scenery / scenic viewing
14 Beach going / Using the beach
15 Observing wildlife or nature
16 Staying at a lodge
17 Staying at a camp
18 Driving an ATV
19 Picnicking
20 Sunbathing
21 Nature study
22 Fish at night
23 Other _____

RESPONSE CARD FOR Q30

30. Please tell me the number that best represents your age group.

1	18-24
2	25-34
3	35-44
4	45-54
5	55-64
6	65 or older

ATTACHMENT B

PHOTOGRAPHS AND PHOTOGRAPHIC SIMULATIONS

Existing View

0798

Junior Lake

Simulated View

0799

Junior Lake

Existing View

Scraggly Lake

Simulated View

Scraggly Lake

Existing View

Pleasant Lake

0802

Simulated View

Pleasant Lake

0803

Existing View

0804

Shaw Lake

Simulated View

Shaw Lake

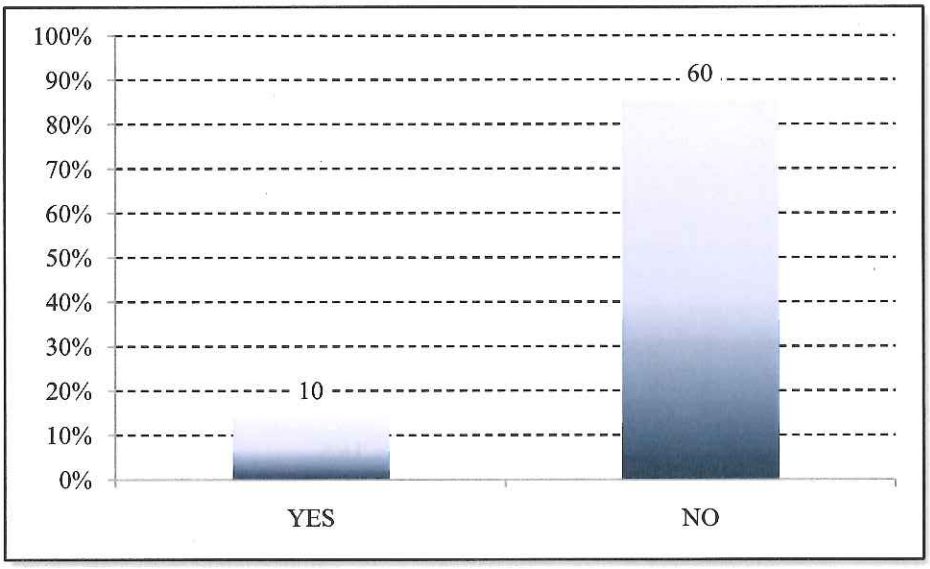
0805

ATTACHMENT C

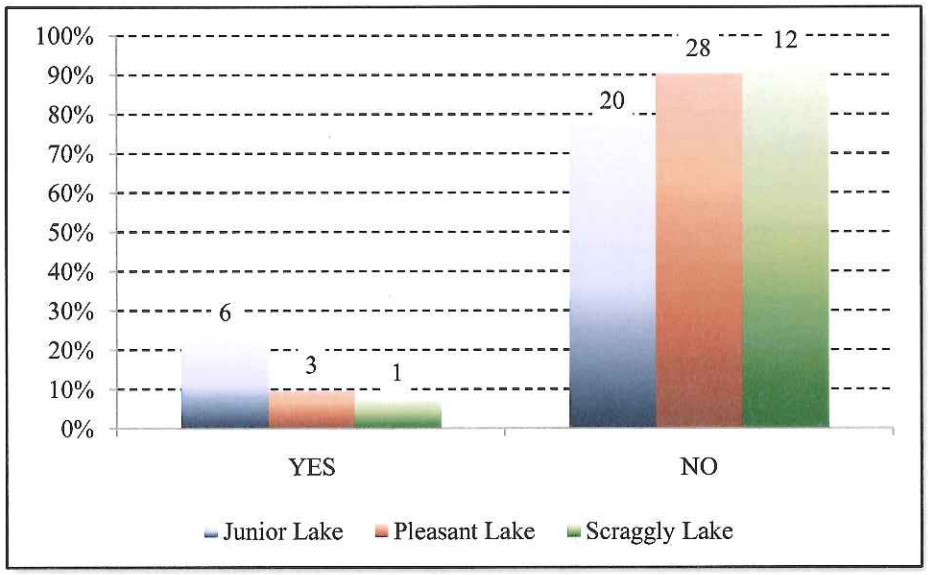
BASIC FREQUENCIES

Bowers Wind Project Intercept Survey Results

Q1: Is this your first visit to the lake?

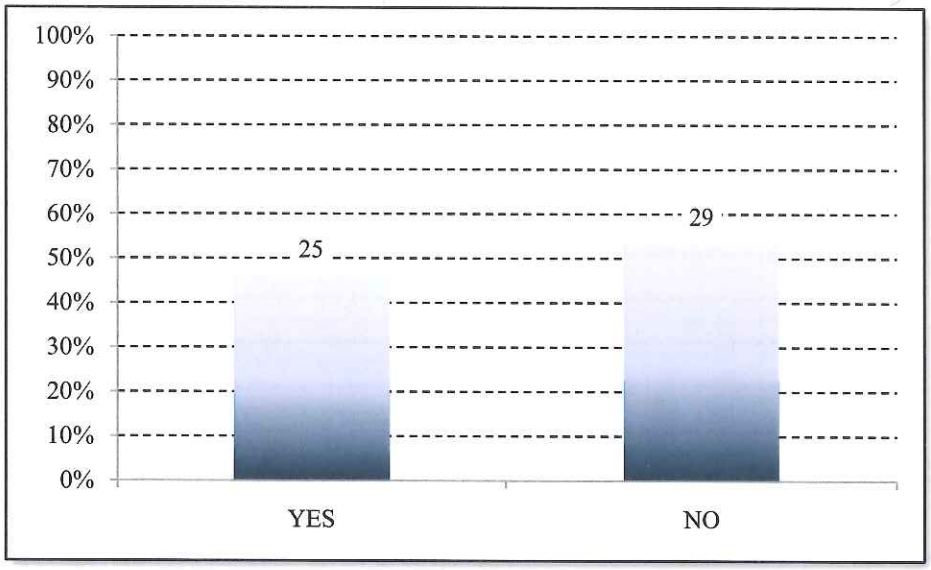


n = 70

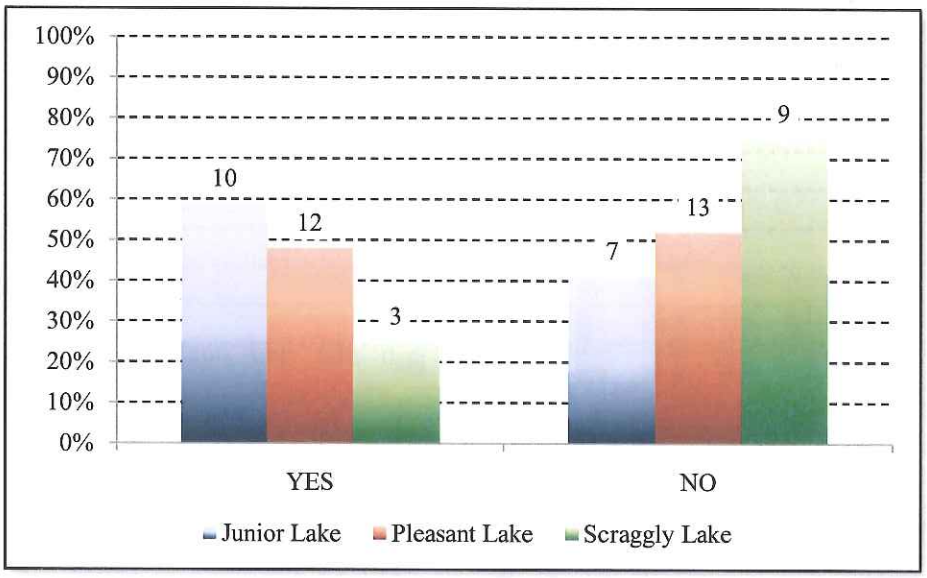


n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q2: Do you have a home or camp on this lake?

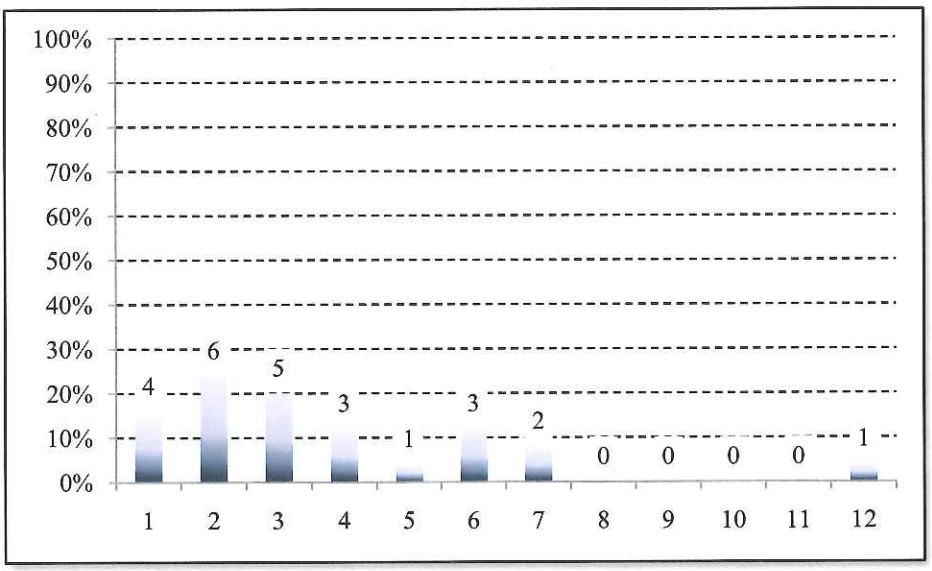


n = 54

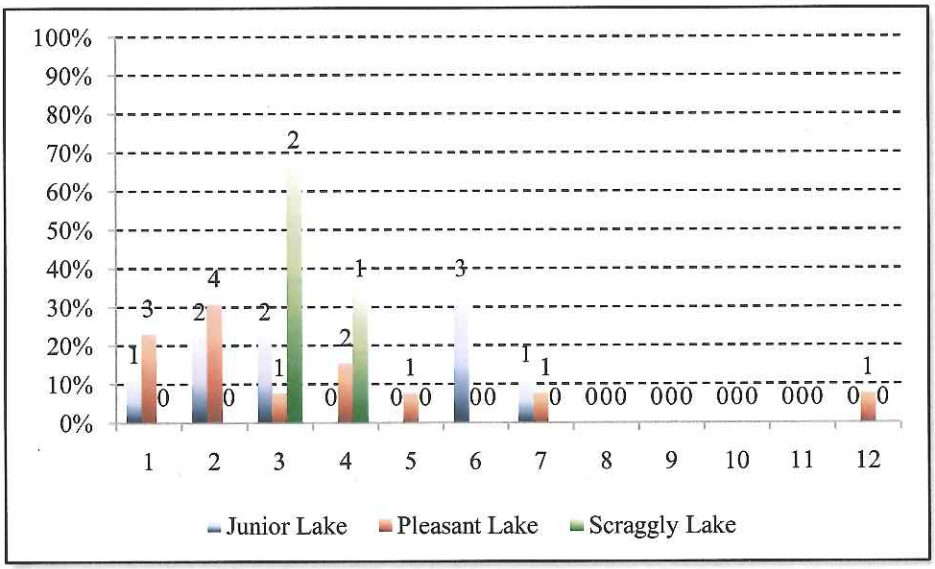


n = 17 (Junior Lake)
n = 25 (Pleasant Lake)
n = 12 (Scraggly Lake)

Q3: How many months do you live here during the year?

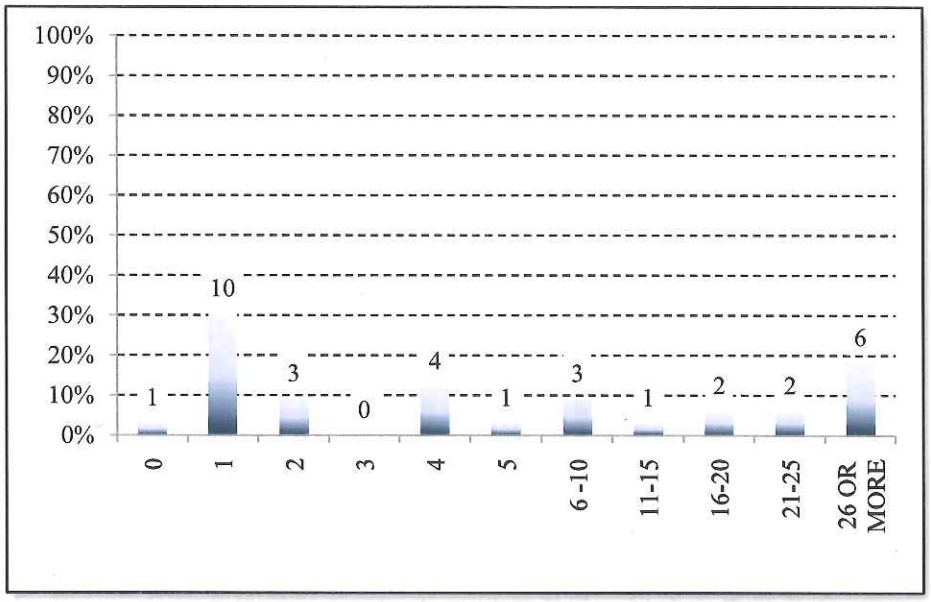


n = 25

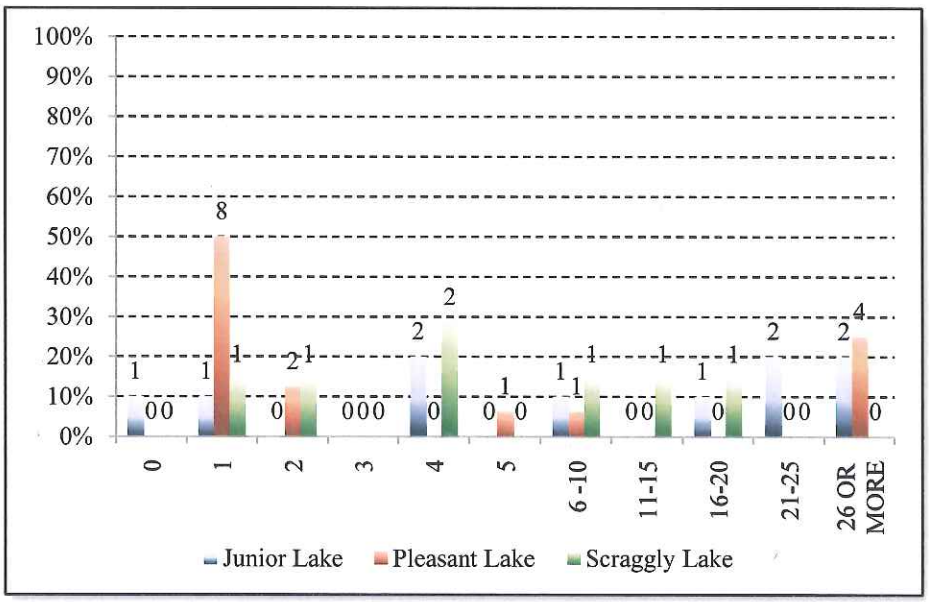


n = 9 (Junior Lake)
n = 13 (Pleasant Lake)
n = 3 (Scraggly Lake)

Q4: During the past year, how many times have you visited the lake?

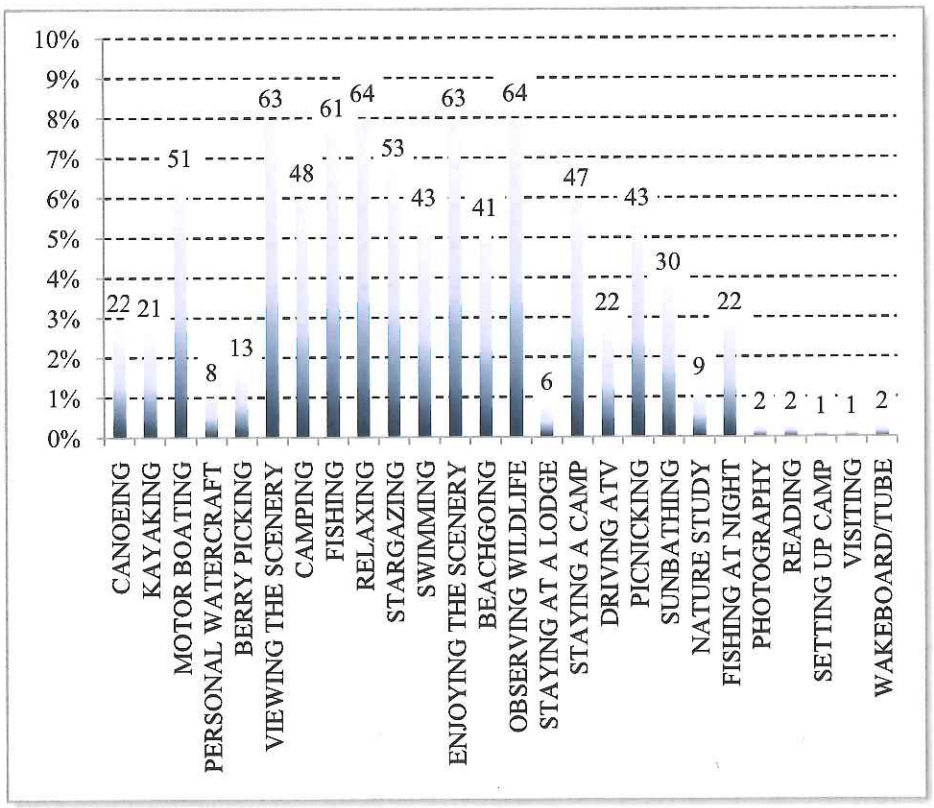


n = 33



n = 10 (Junior Lake)
n = 16 (Pleasant Lake)
n = 7 (Scraggly Lake)

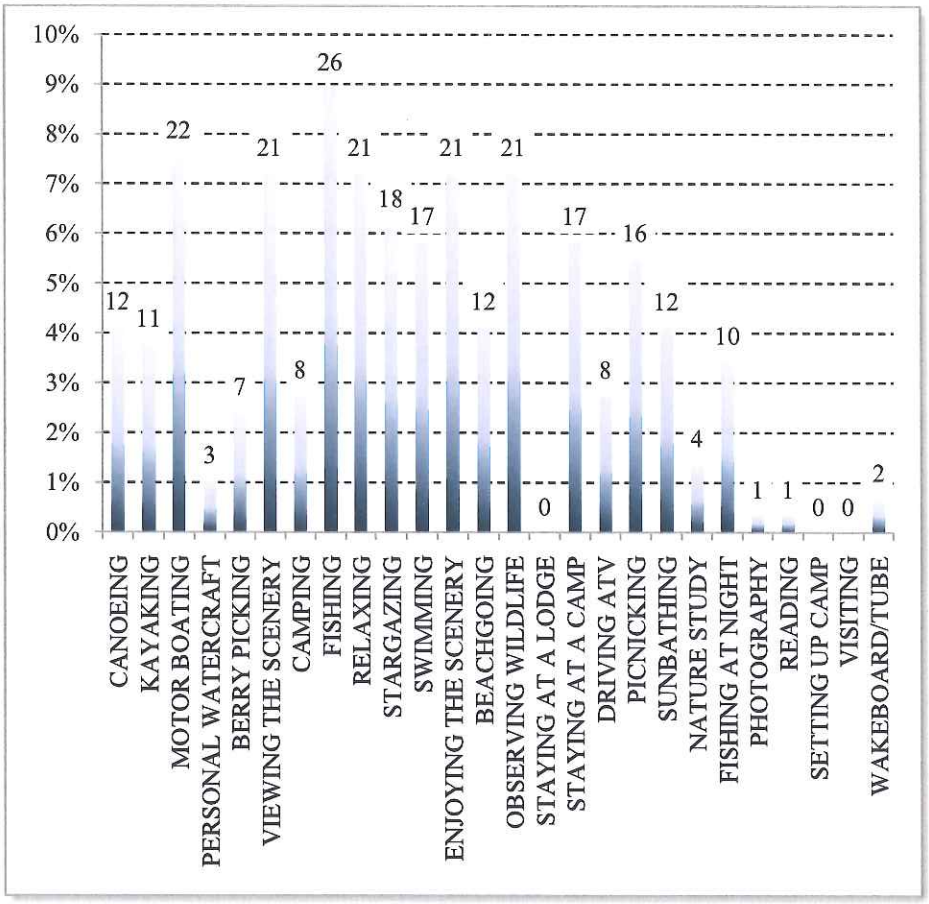
Q5: Think about your activities on the lake. What are your plans for today?



n = 802

Note: Due to multiple responses being allowed for this question, the scale of the frequencies (x-axis) is reduced to a maximum of 10% rather than 100%.

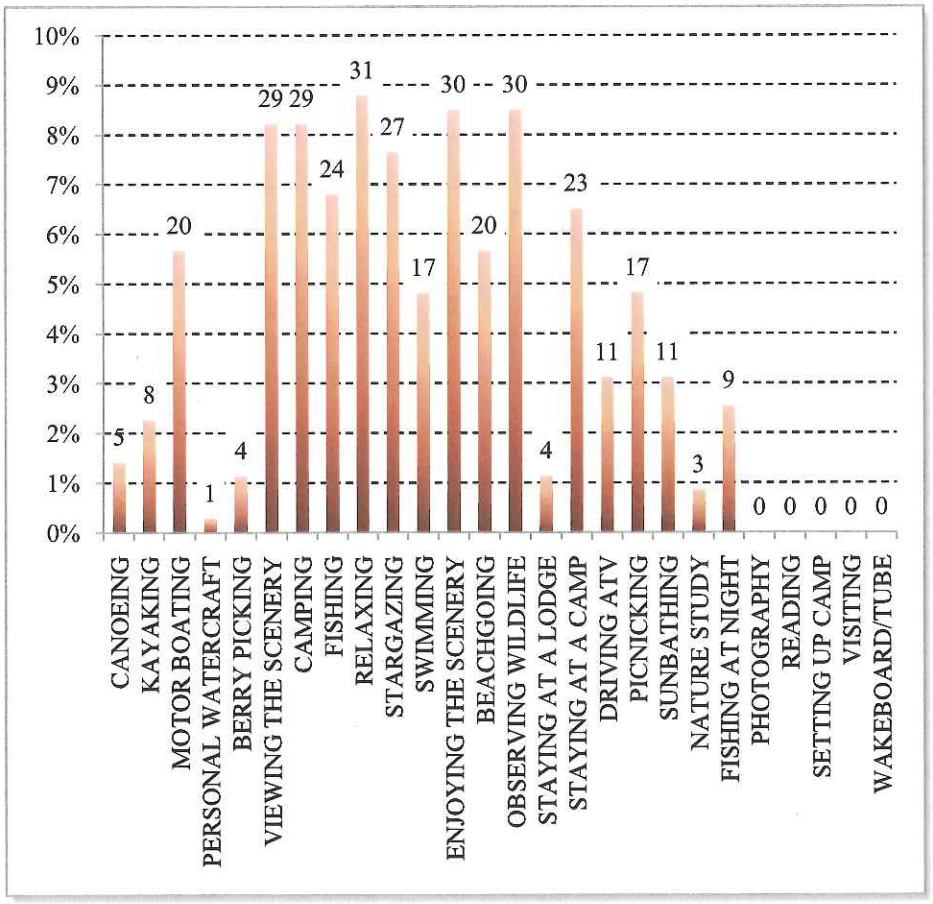
Junior Lake



n = 291

Note: Due to multiple responses being allowed for this question, the scale of the frequencies (x-axis) is reduced to a maximum of 10% rather than 100%.

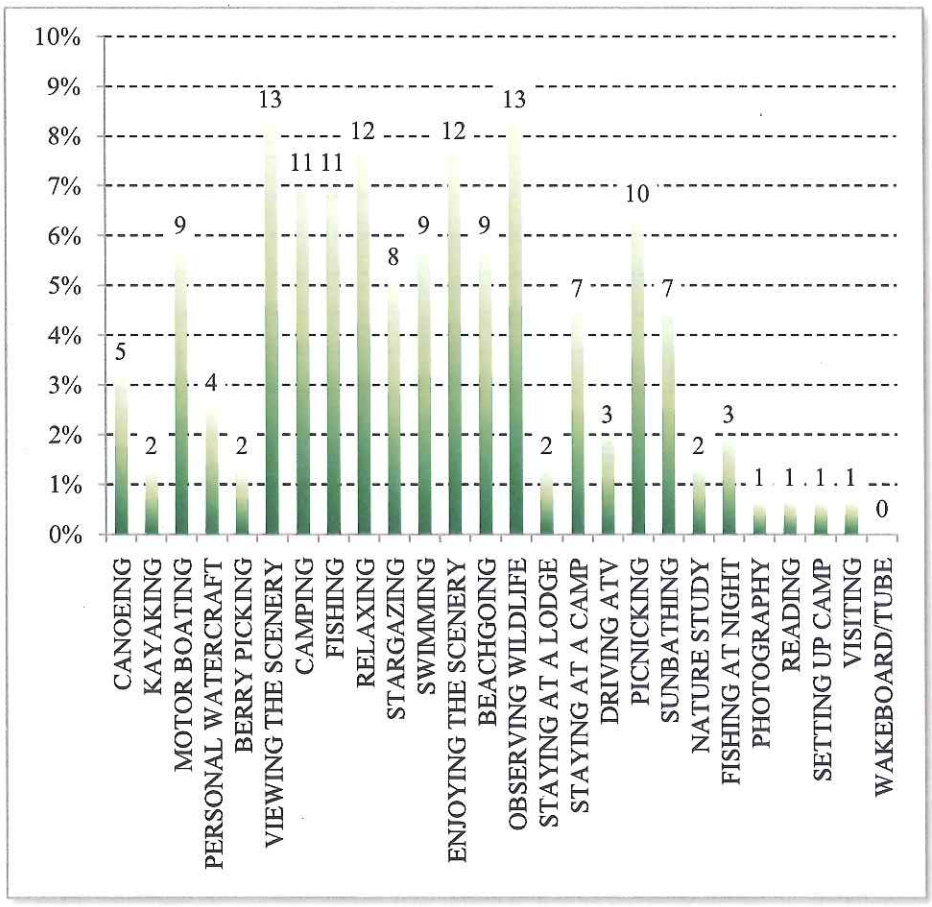
Pleasant Lake



n = 353

Note: Due to multiple responses being allowed for this question, the scale of the frequencies (x-axis) is reduced to a maximum of 10% rather than 100%.

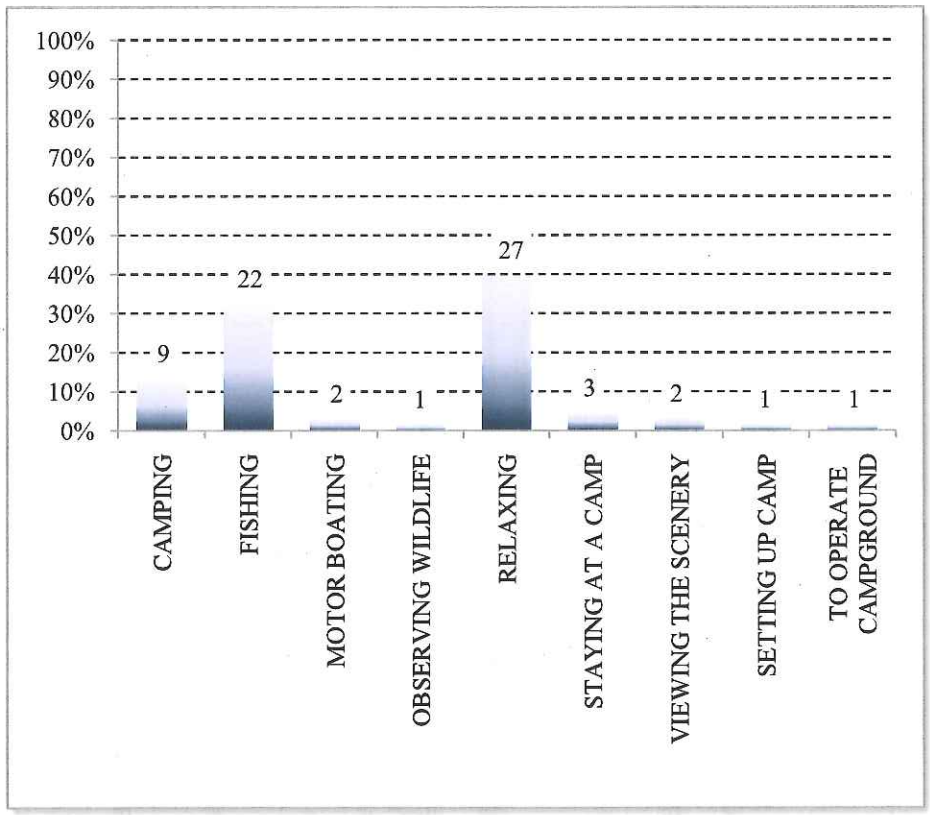
Scraggly Lake



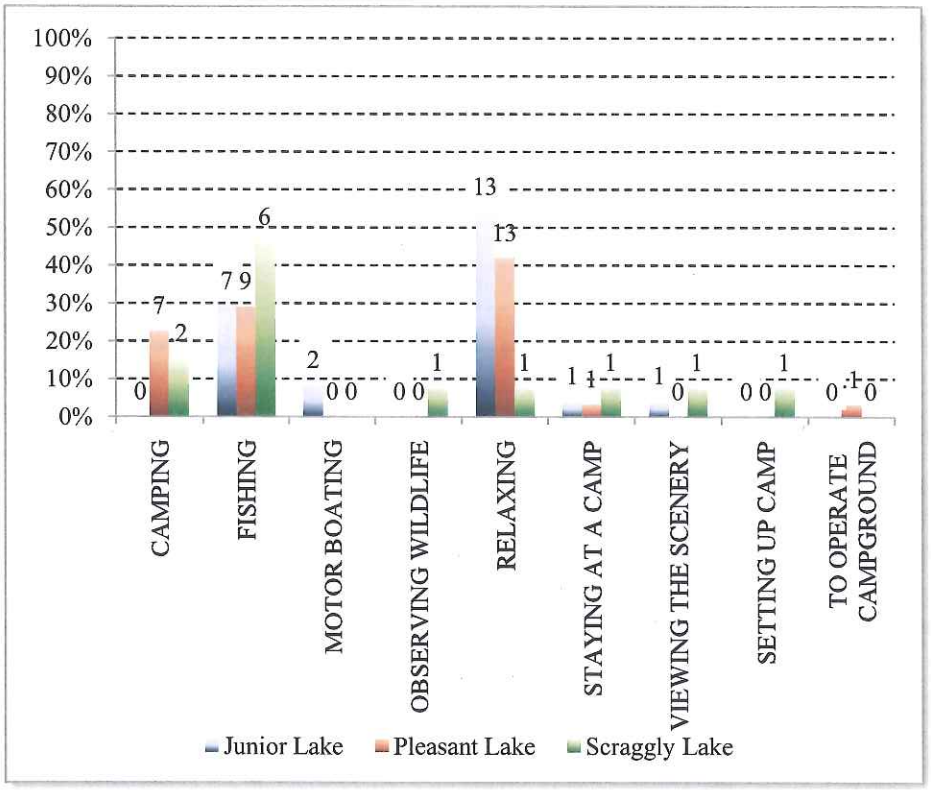
n = 158

Note: Due to multiple responses being allowed for this question, the scale of the frequencies (x-axis) is reduced to a maximum of 10% rather than 100%.

Q6: What is your primary reason for coming here today?



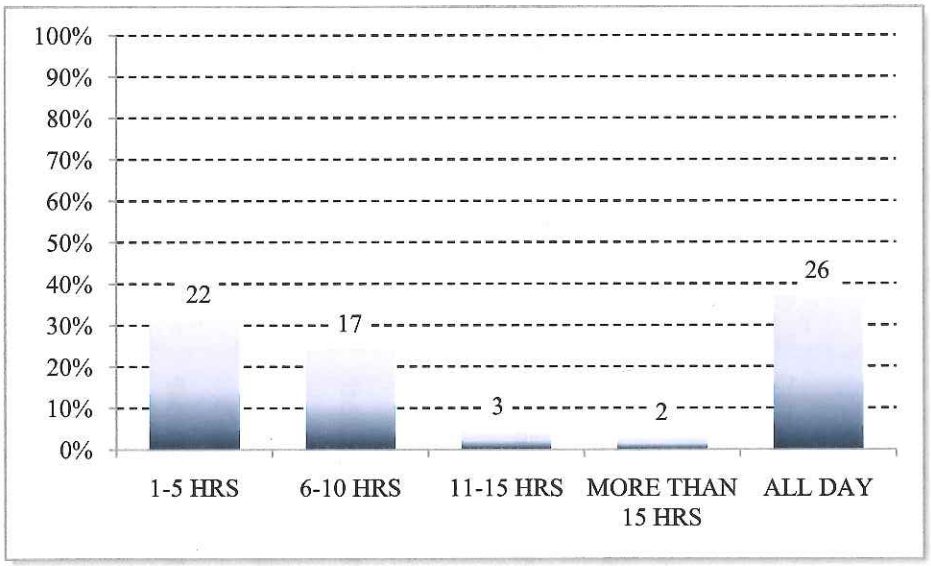
n = 68



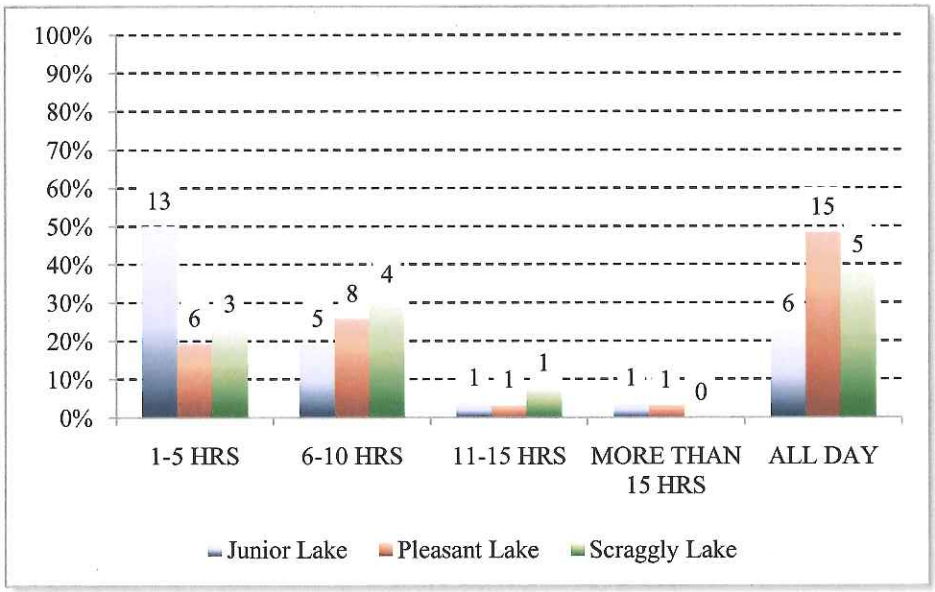
n = 24 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q7: Map

Q8: How long do you expect to visit the lake today?

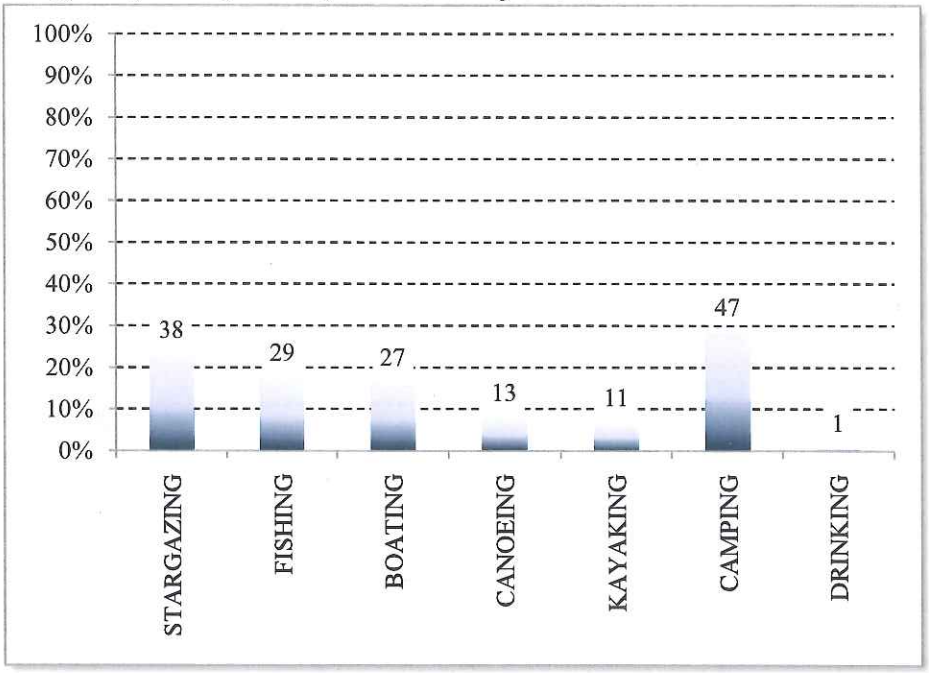


n = 70

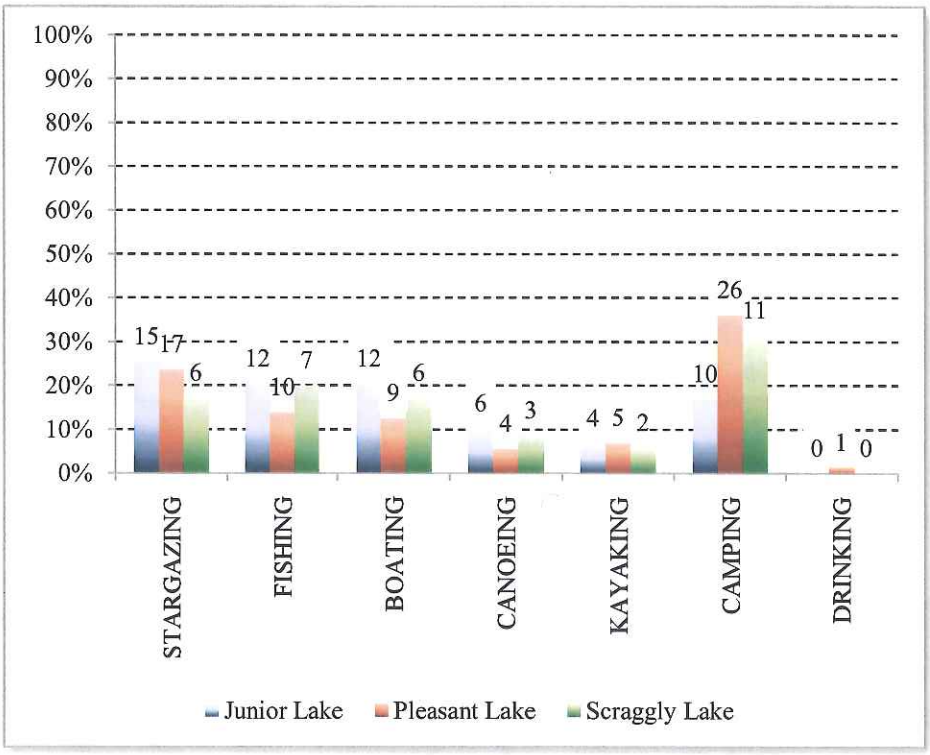


n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q9: On this trip, did you use, or visit, the lake at night for…?

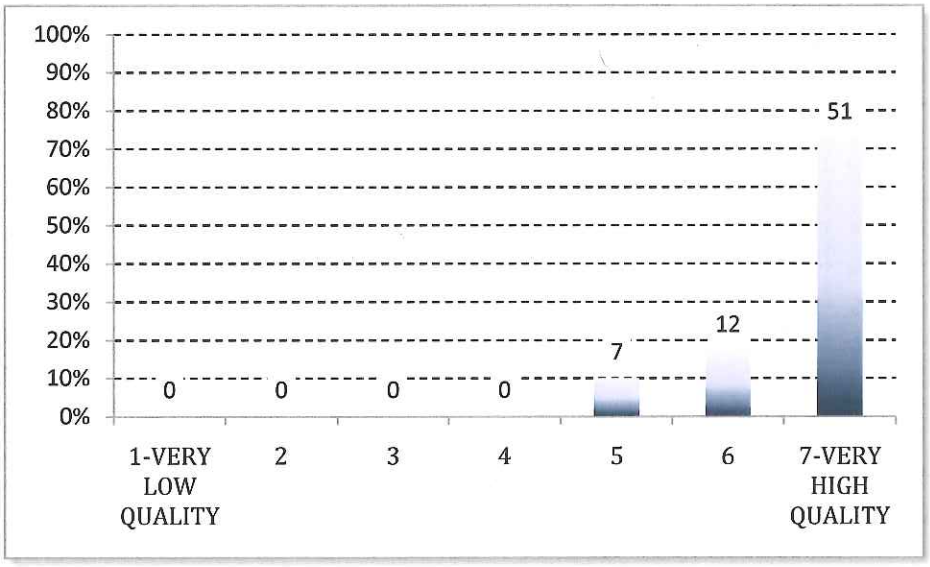


n = 166

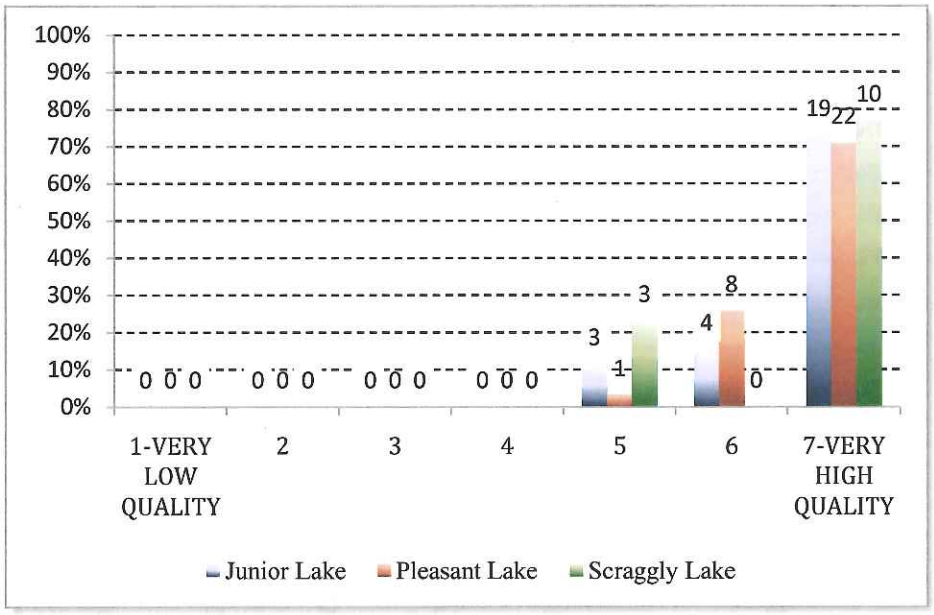


n = 59 (Junior Lake)
n = 72 (Pleasant Lake)
n = 35 (Scraggly Lake)

Q10: On a scale of 1 to 7, where 1 is very low quality, a 7 is very high quality, and a 4 is neither high nor low quality, what is the overall quality of the experience you expected on your visit to the lake today?

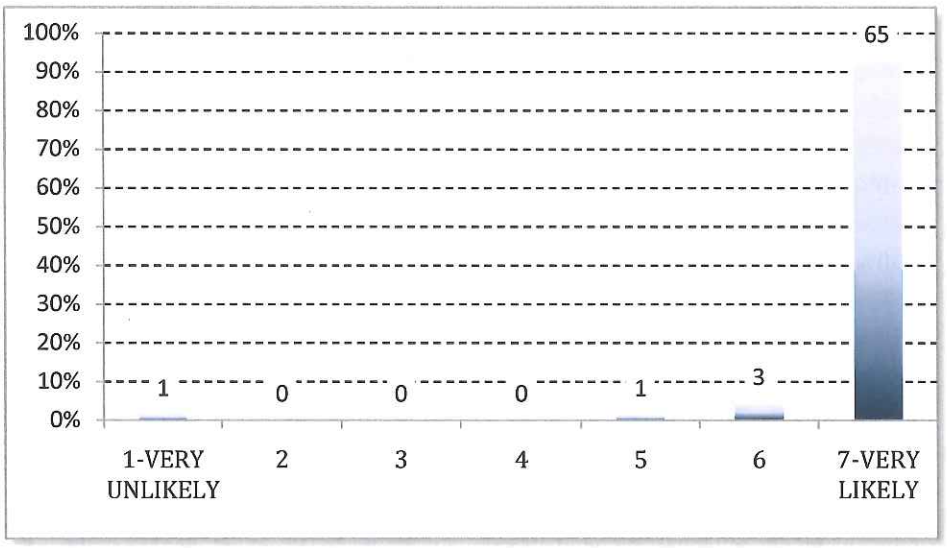


n = 70

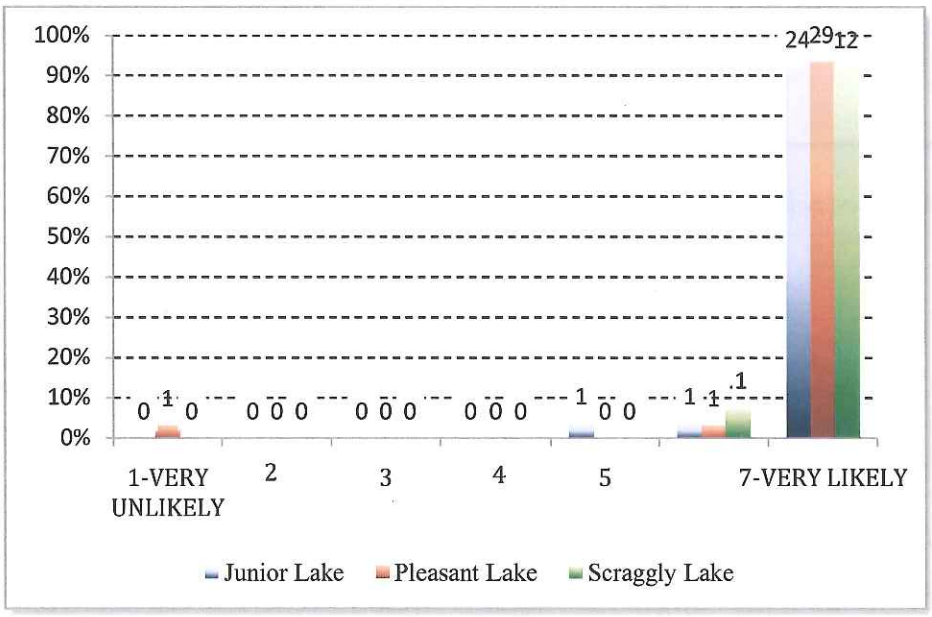


n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q11: On a scale of 1 to 7, where 1 is very unlikely, a 7 is very likely, and a 4 is neither unlikely nor likely, how likely is it that you will visit the lake in the future?

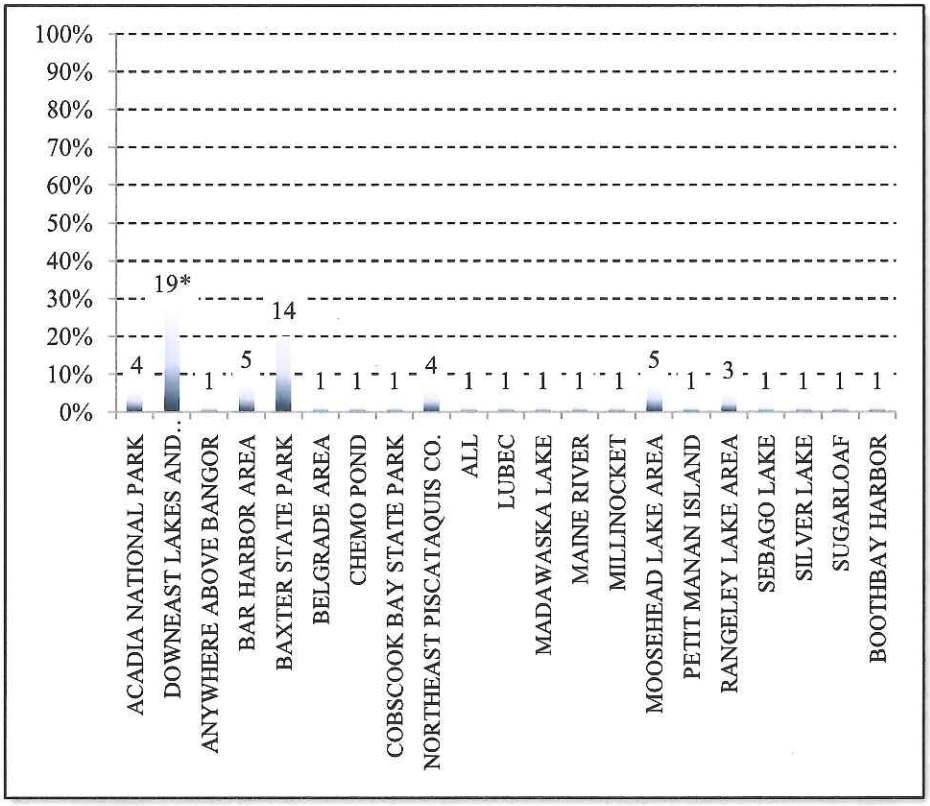


n = 70



n = 24 (Junior Lake)
n = 29 (Pleasant Lake)
n = 12 (Scraggly Lake)

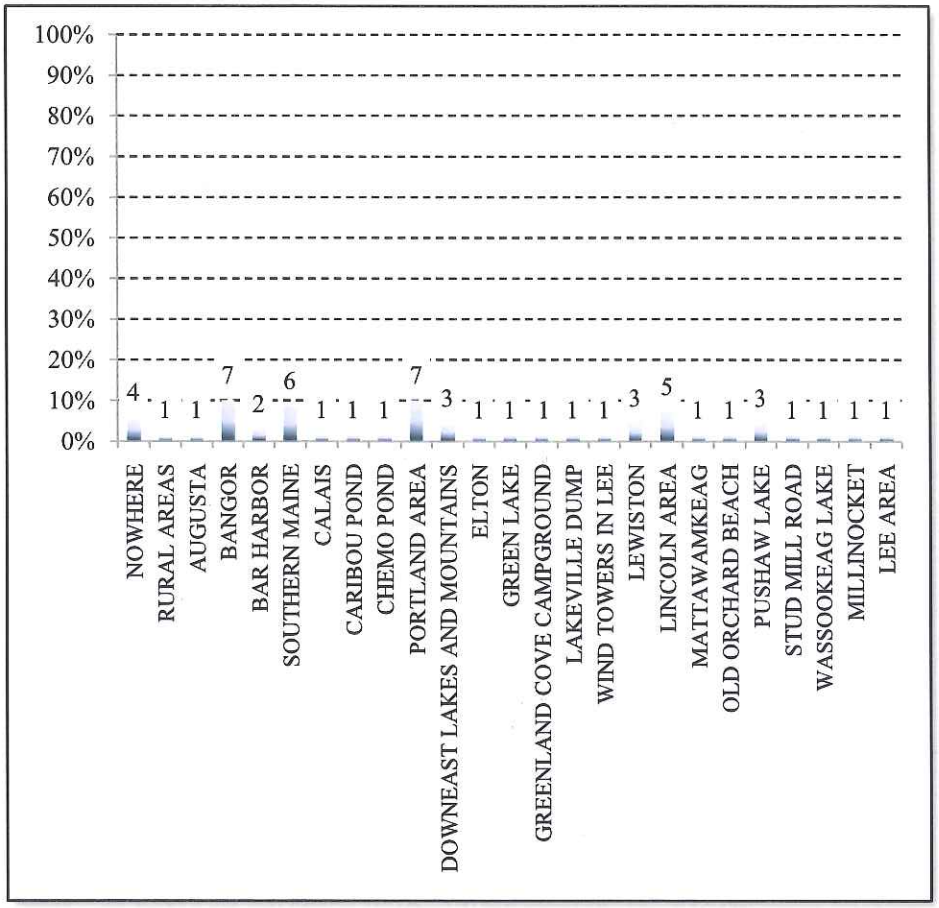
Q12: What is a place in Maine with very high scenic quality?



n=68

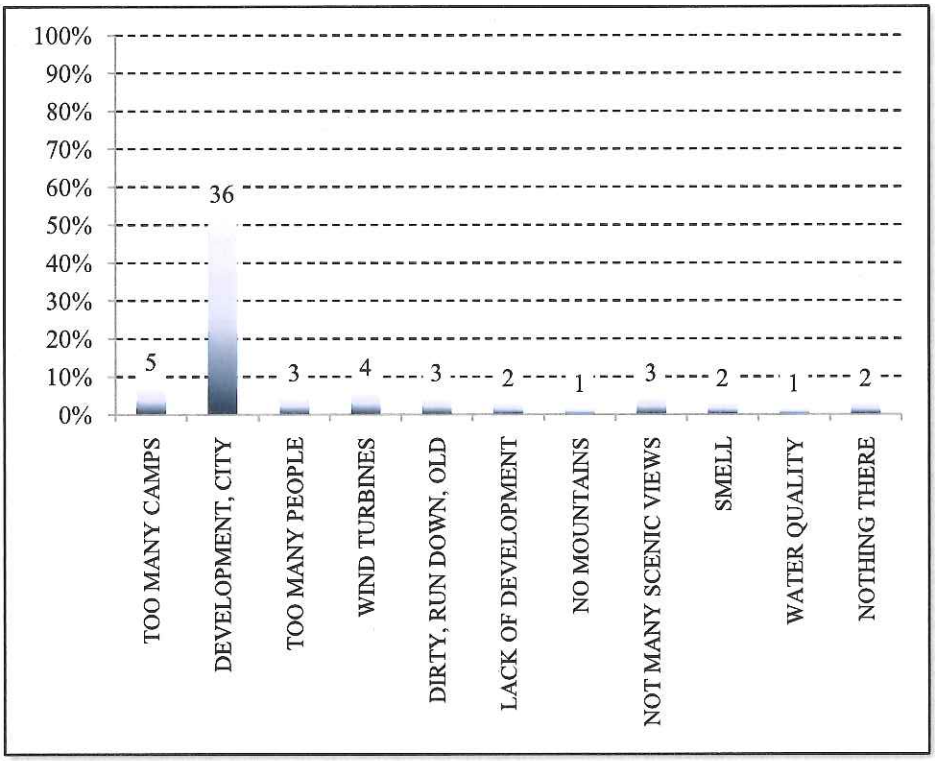
*Category is Downeast Lakes and Mountains

Q14: What is a place in Maine with a very low scenic quality?



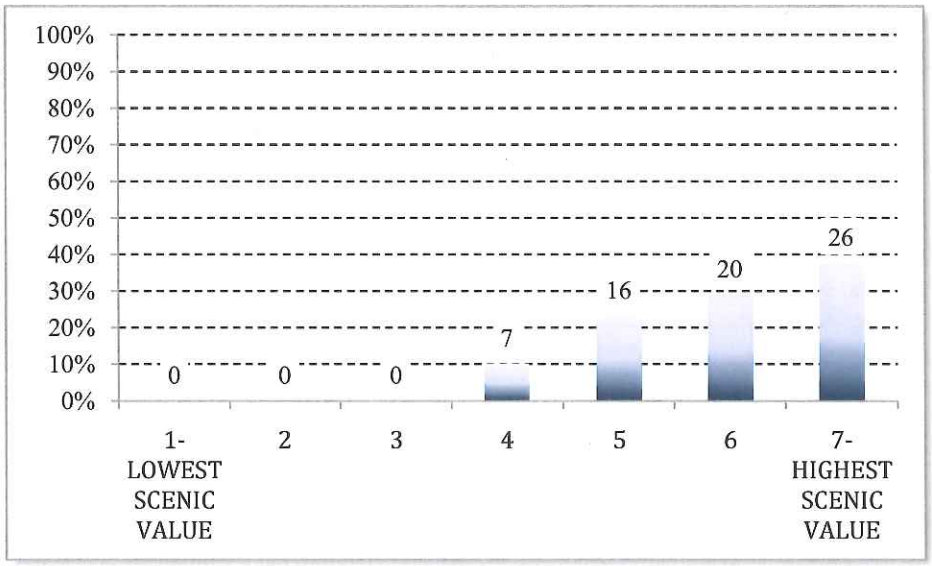
n=56

Q15: What is it that gives it a low scenic value?

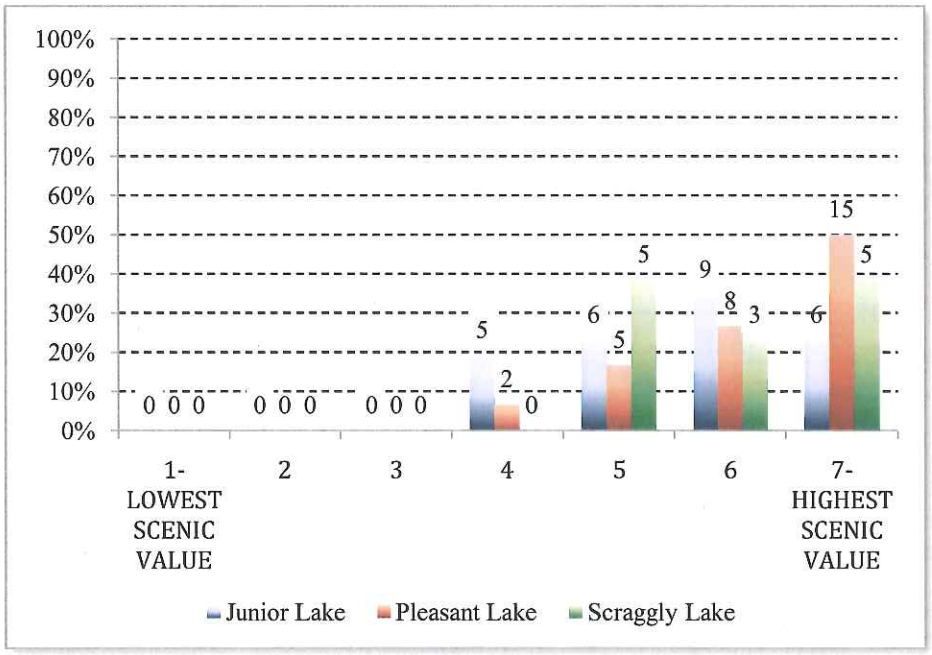


n=62

Q16. We would like you to think about the scenic value of the lake. I am going to show you two photographs and I would like you to rate the scenic value of the views depicted in the photographs. If you hold the photograph 19 inches from your face, it will make everything in the photograph the same size that it would be if you were looking at it from where the photograph was taken. On a scale of 1 to 7 where a 1 is the lowest scenic value in Maine, a 4 is the typical scenic value in Maine, and a 7 is the highest scenic value in Maine, how would you rate this view?

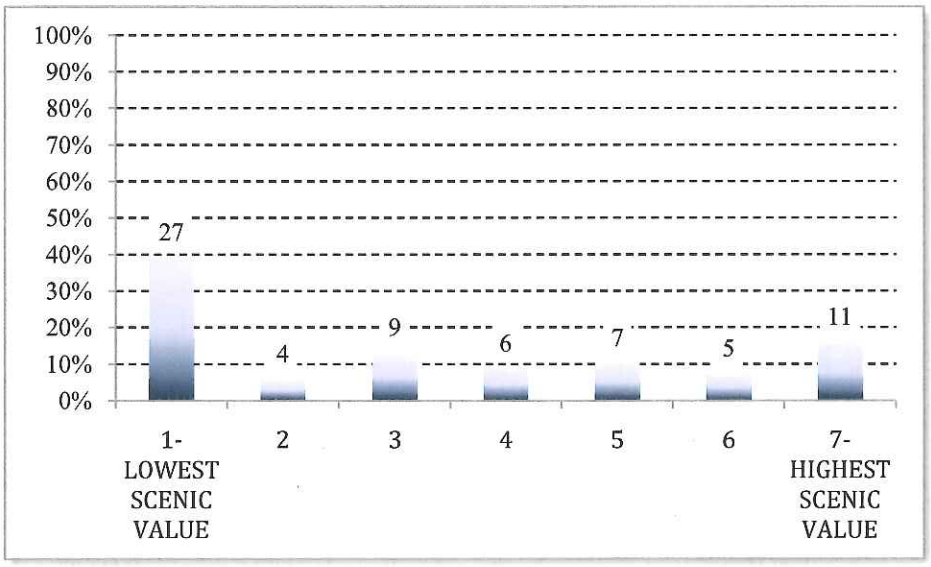


n = 69

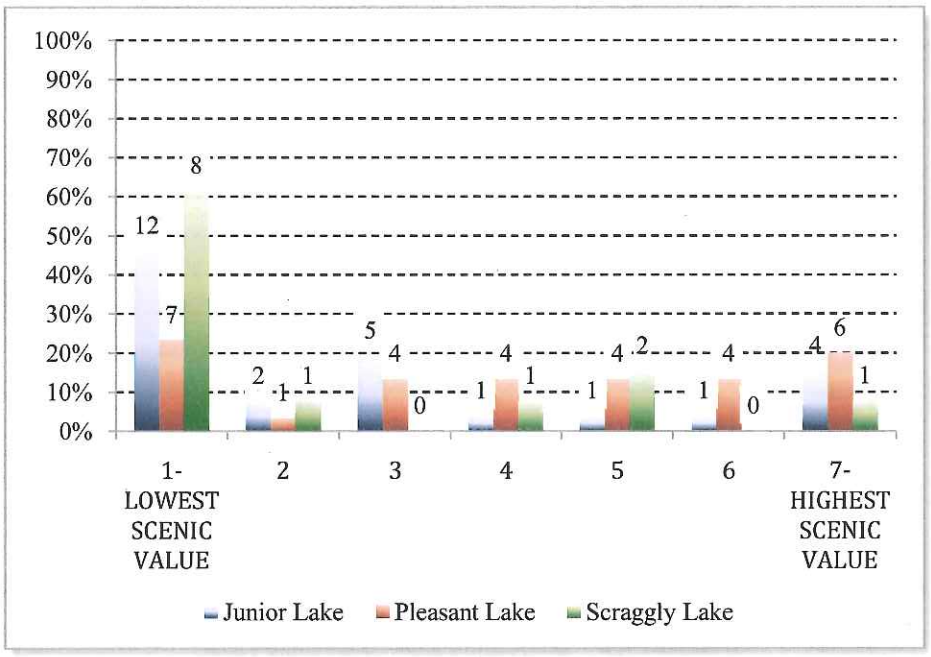


n = 26 (Junior Lake)
n = 30 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q17: Recently, a wind farm was proposed to be developed near here. A wind farm is a group of wind turbines that capture energy from the wind to generate electricity. This photograph shows how the same view would look if a wind farm was developed. How would you rate the scenic value of this view using the same 7-point scale, where 1 is the lowest, 4 is typical, and 7 is the highest scenic value?

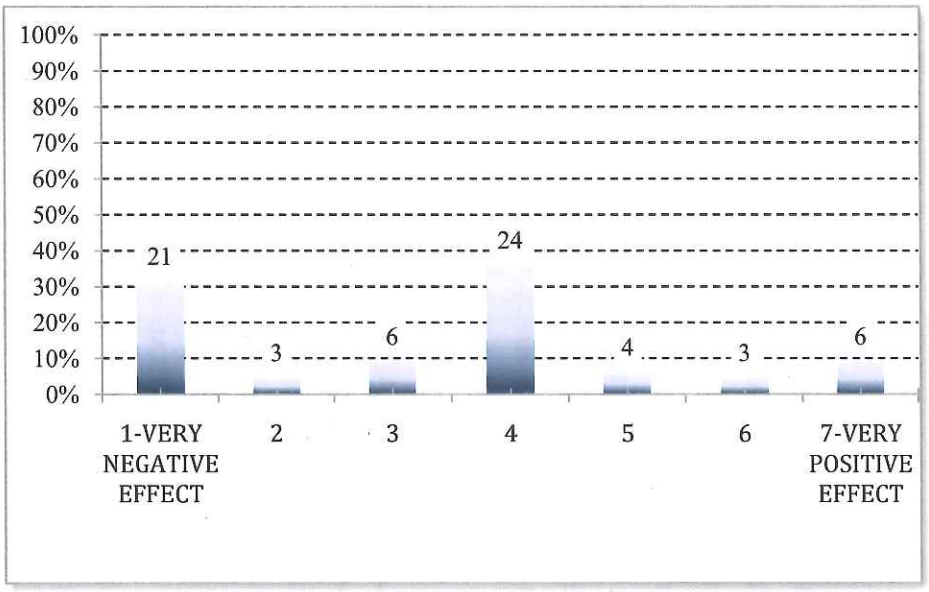


n =69

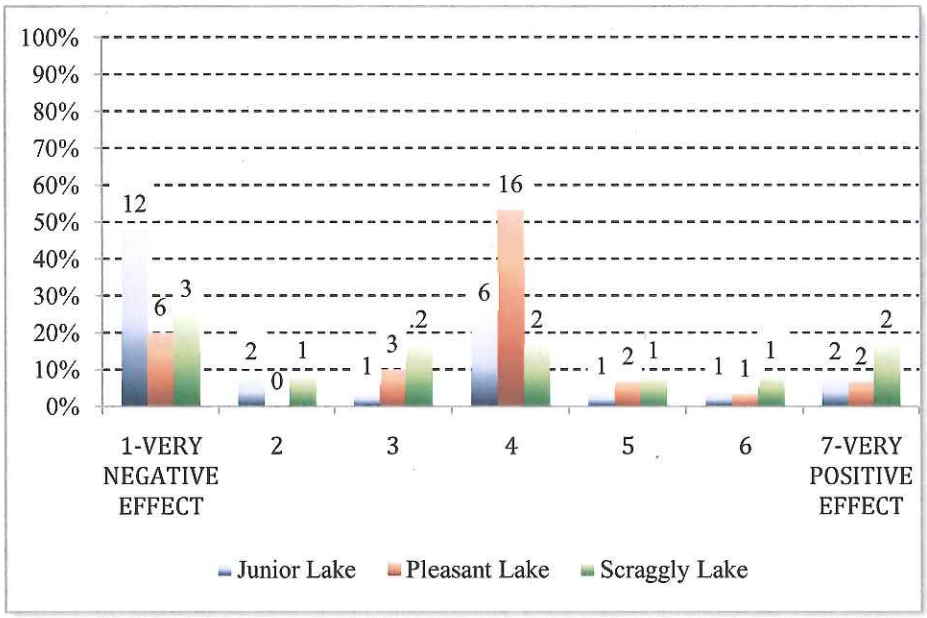


n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q18: Now, I'd like you to think about how your enjoyment of visiting the lake would be affected if you were to see the proposed wind project during your visit today. On a scale of 1 to 7, where a 1 is a very negative effect, a 4 means that it would not change your enjoyment at all, and a 7 is a very positive effect on your enjoyment, how would your enjoyment be affected?

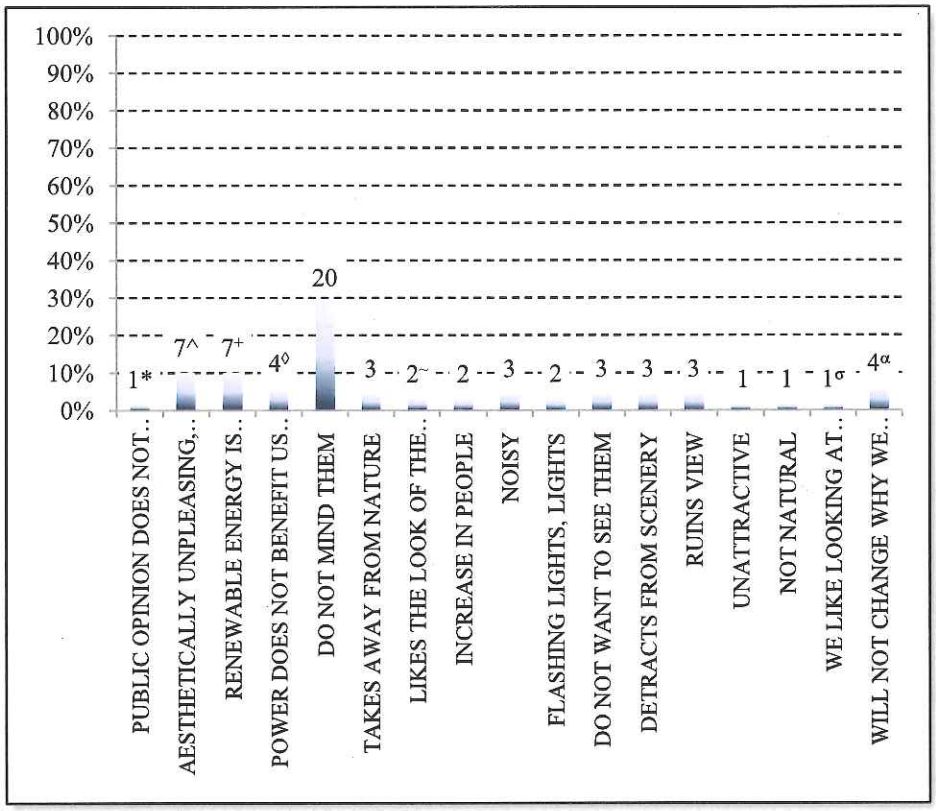


n = 68



n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

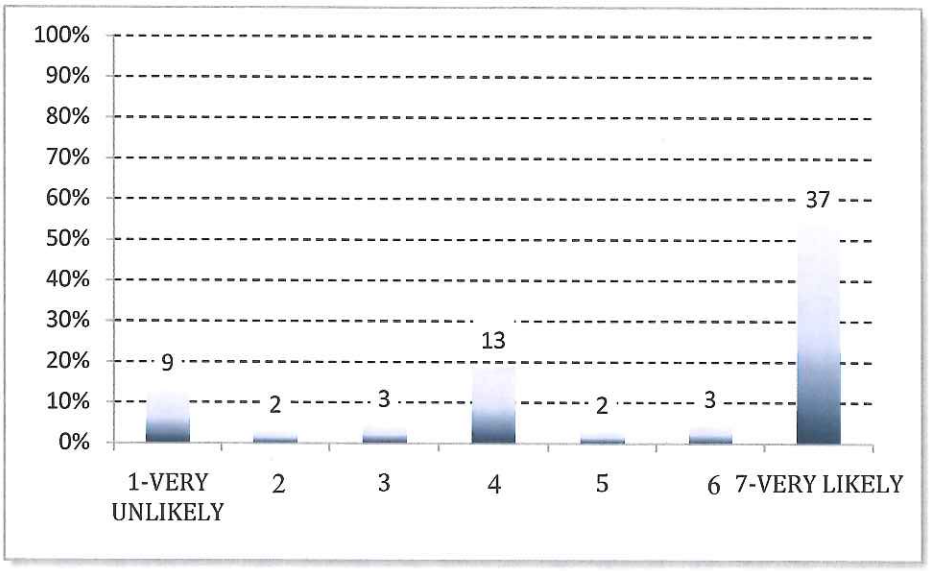
Q19: Why do you say that (enjoyment)?



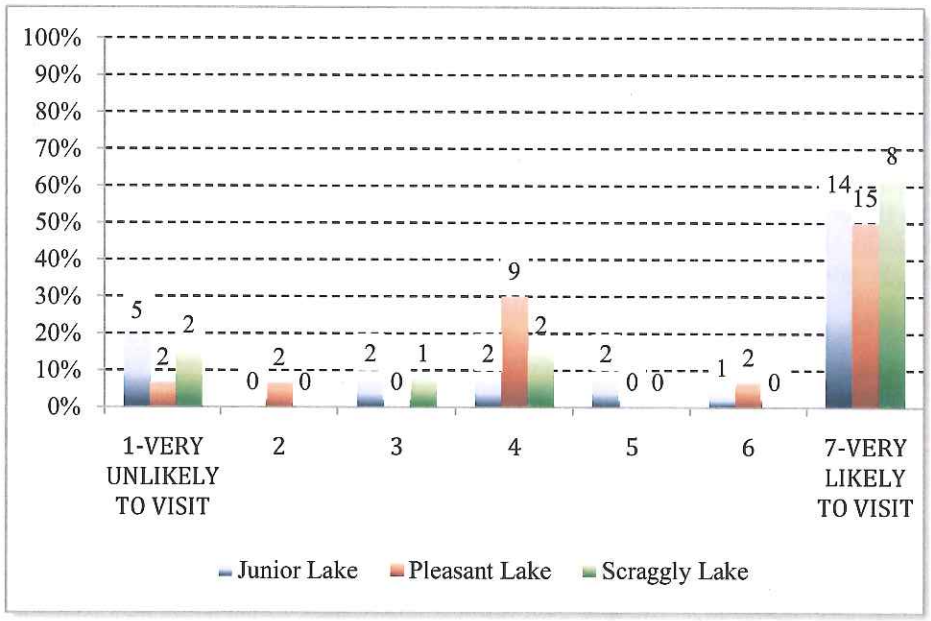
n=67

*Category is Public Opinion Does Not Matter
^Category is Aesthetically Unpleasing, Akin to Development & Industry
+Category is Renewable Energy is Beneficial
◊Category is Power Does Not Benefit Us Locally
~Category is Likes the Look of the Turbines
σCategory is We Like Looking at Mountains
αCategory is Will Not Change Why We Come Here

Q20: Now, I'd like you to think about your trip here today. Imagine the proposed wind project was built. On a scale of 1 to 7, where a 1 means you are very unlikely to return, a 4 means the change in view would have no effect on your return, and a 7 means you are very likely to return, how likely are you to return to given the presence the wind turbines?

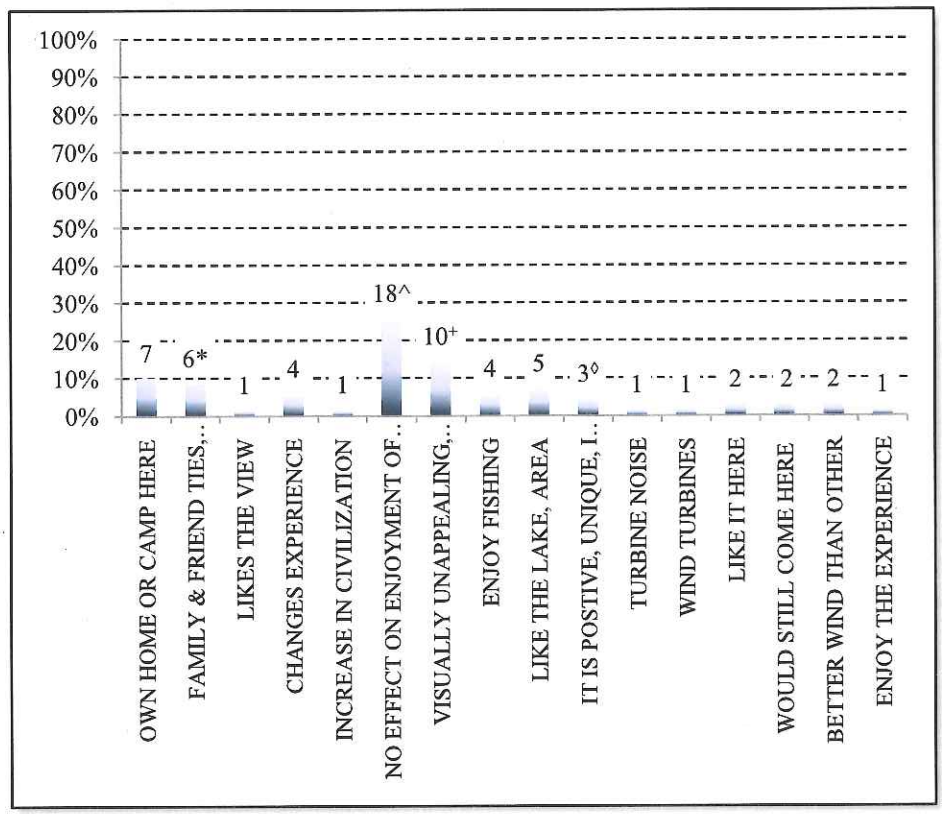


n = 69



n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

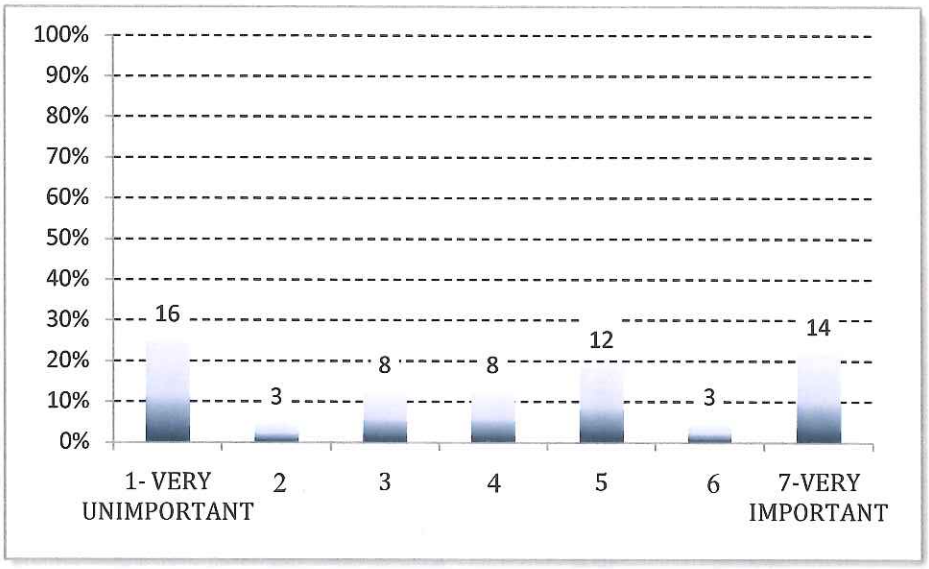
Q21: Why is that (likelihood of return)?



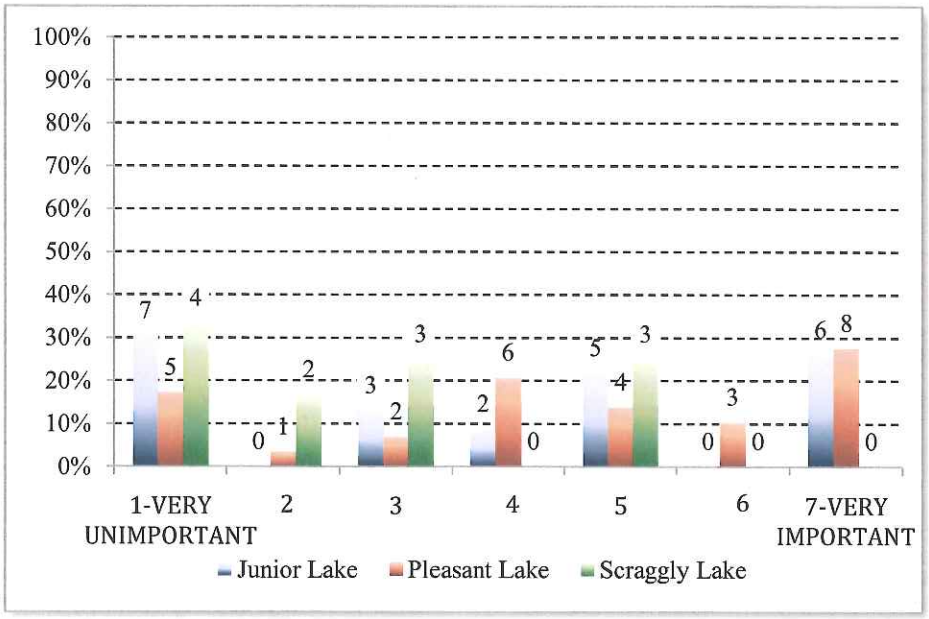
n=68

*Category is Family & Friend Ties, Tradition, History
^Category is No Effect on Enjoyment of Lake
+Category is Visually Unappealing, Changes View
◊Category is It is Positive, Unique, I Support Wind

Q22: Thinking about wind power development in general, please rate how important it is for Maine, on a scale of 1 to 7, where a 1 means wind power is generally very unimportant and a 7 means it is generally very important.

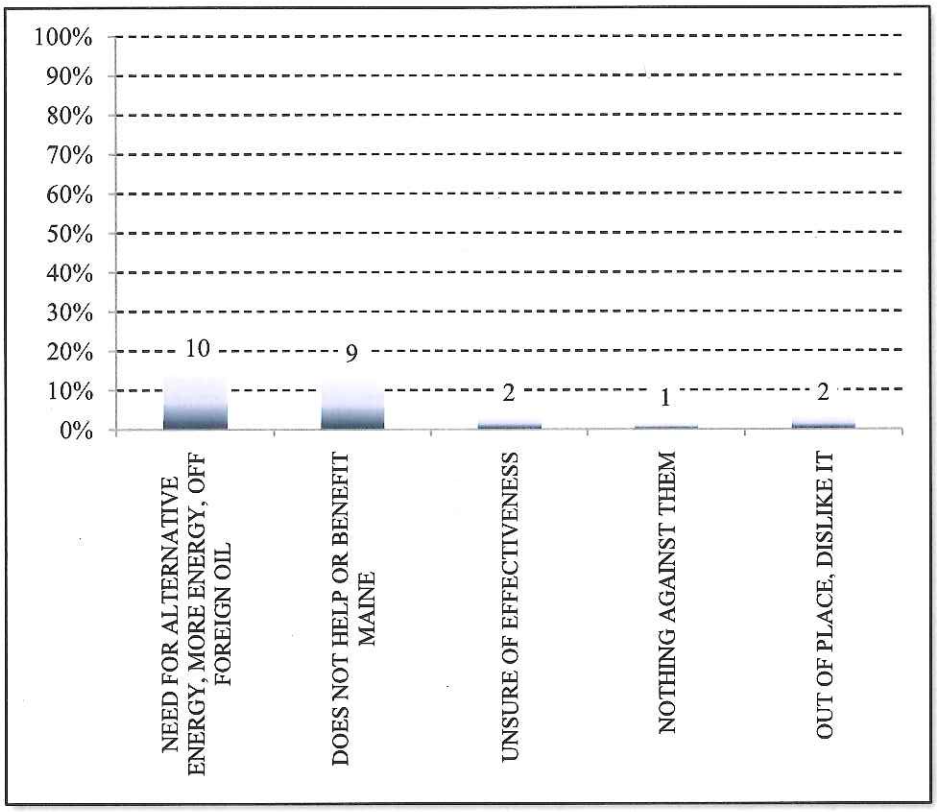


n = 64



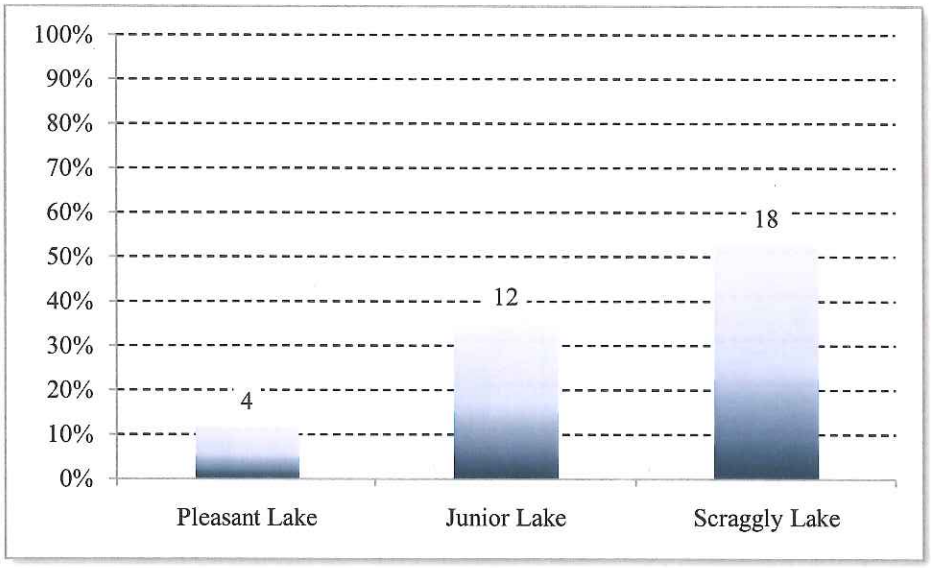
n = 26 (Junior Lake)
n = 31 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q23: Why do you feel that way (wind power for Maine)?

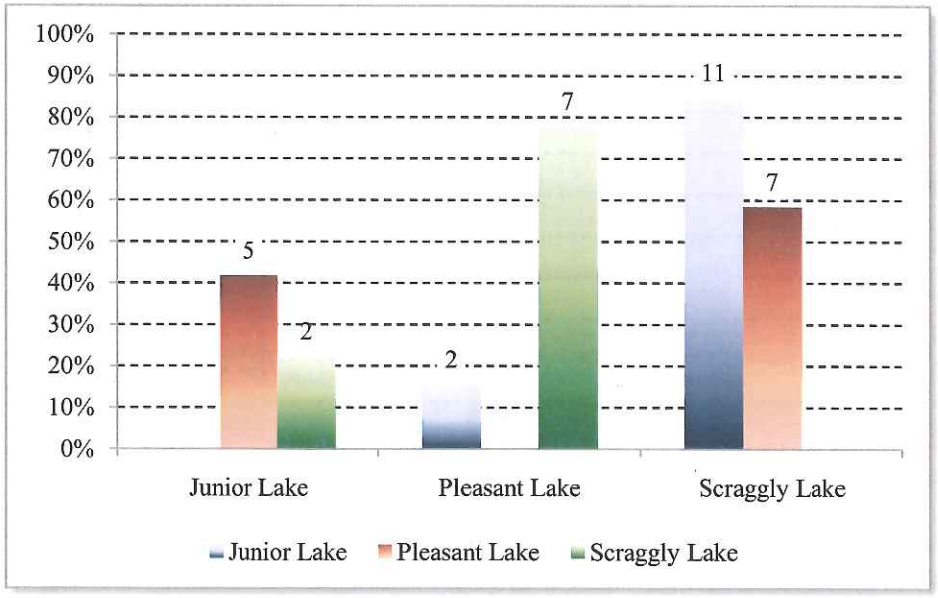


n=24

Q24: Have you visited any of the following lakes in the area on this trip...?

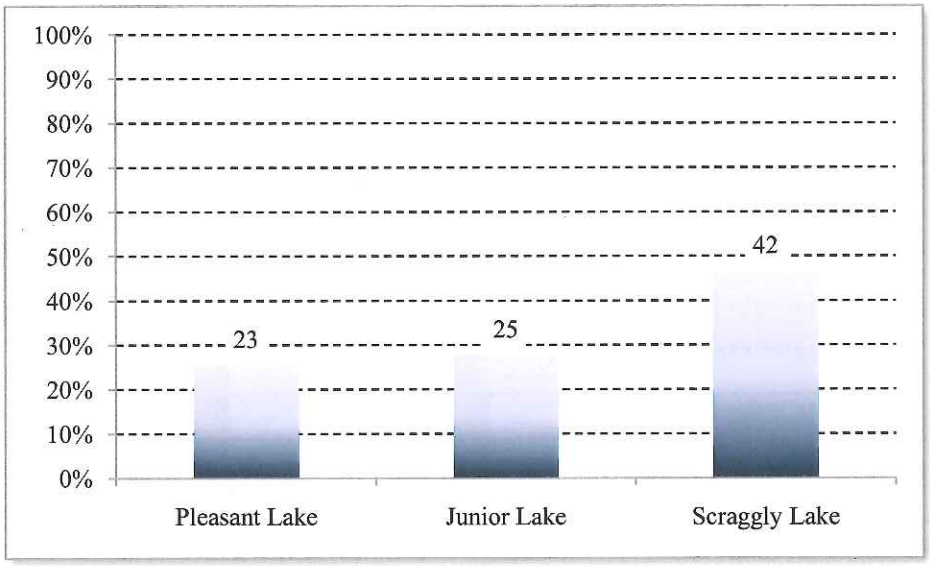


n = 34

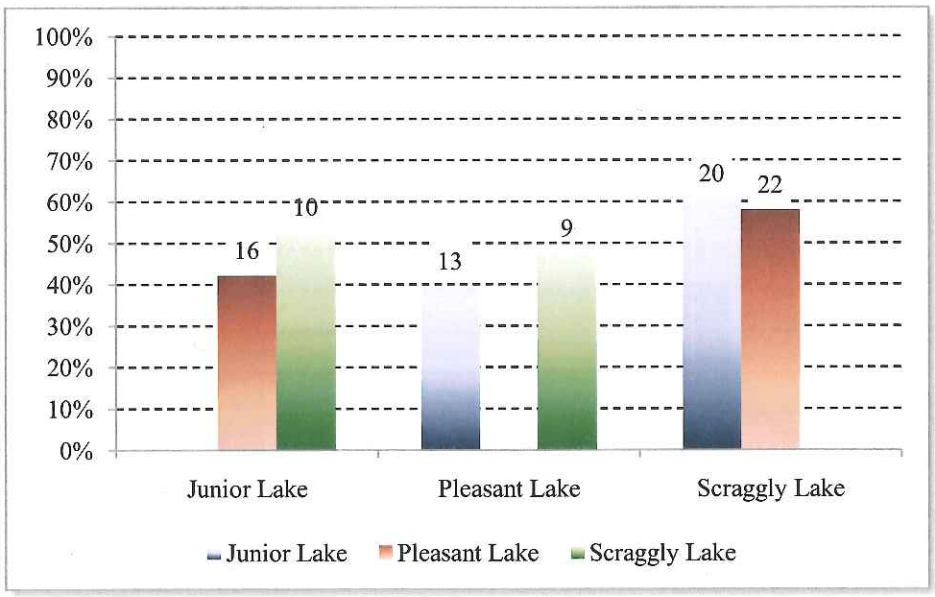


n = 13 (Junior Lake)
n = 12 (Pleasant Lake)
n = 9 (Scraggly Lake)

Have you visited any of the following lakes in the area at all...?

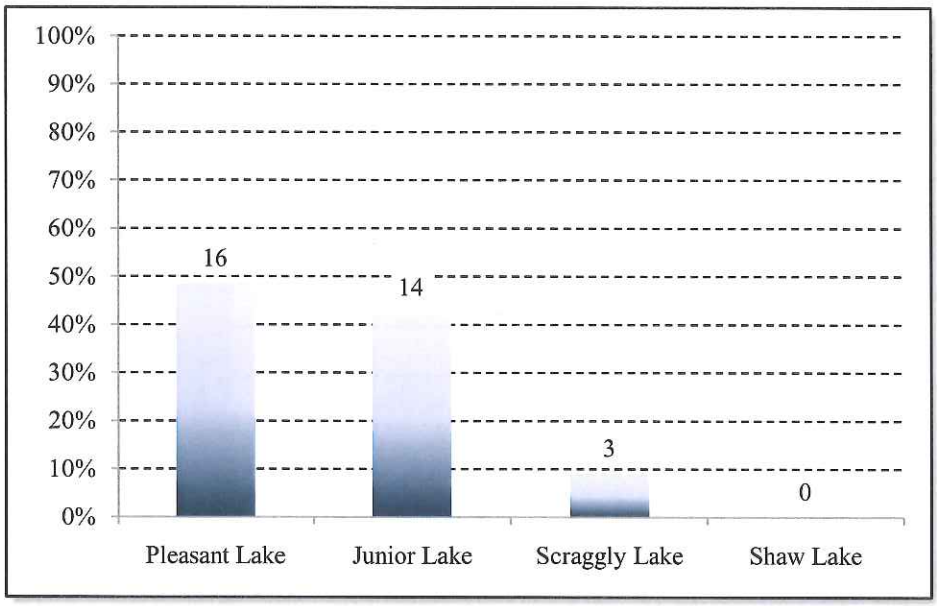


n = 90

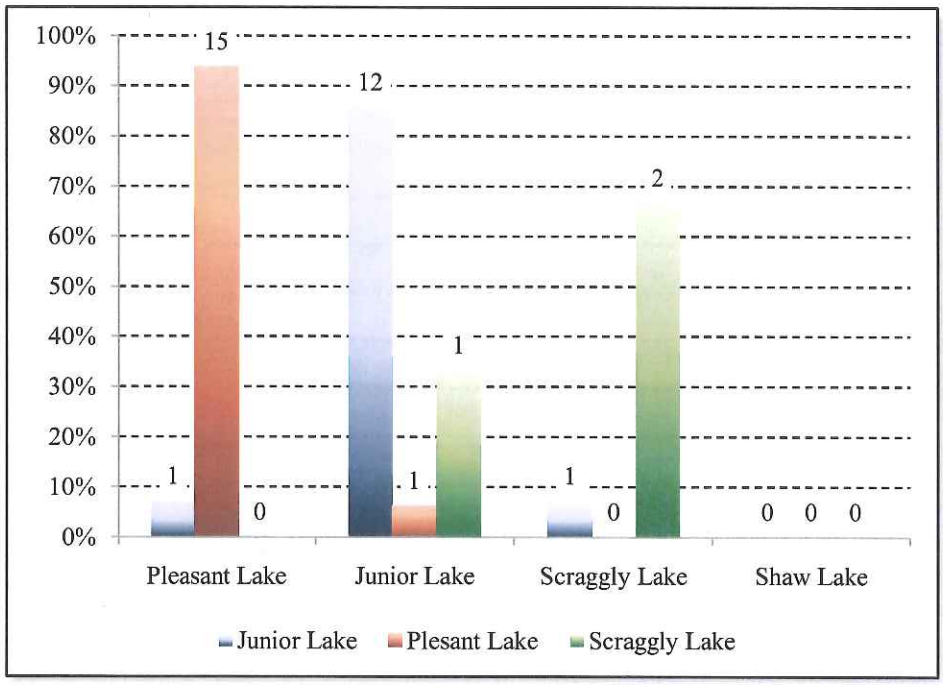


n = 33 (Junior Lake)
n = 38 (Pleasant Lake)
n = 19 (Scraggly Lake)

Q25: Do you own or rent property on…?

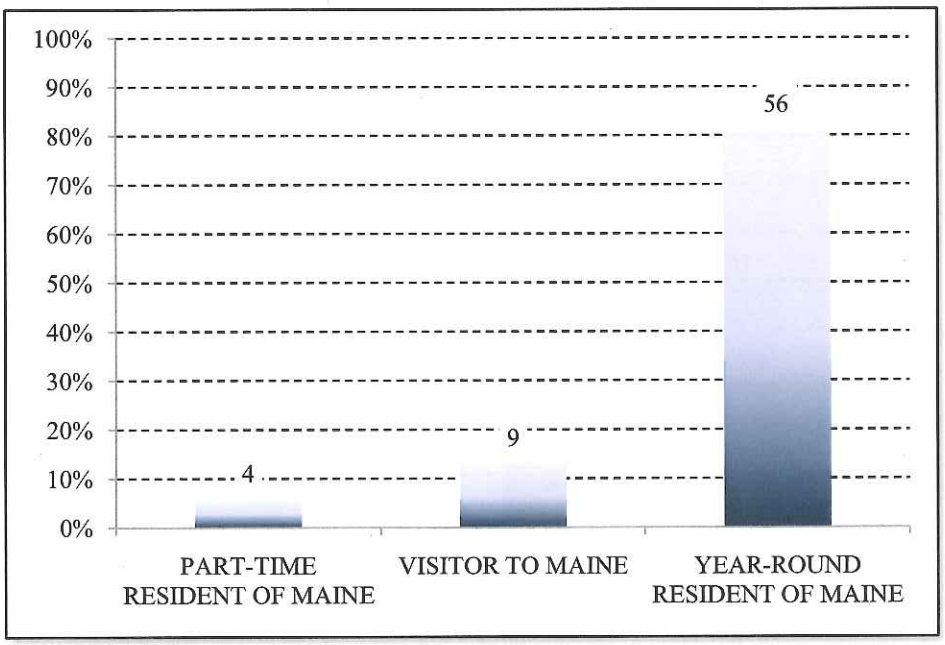


n = 33

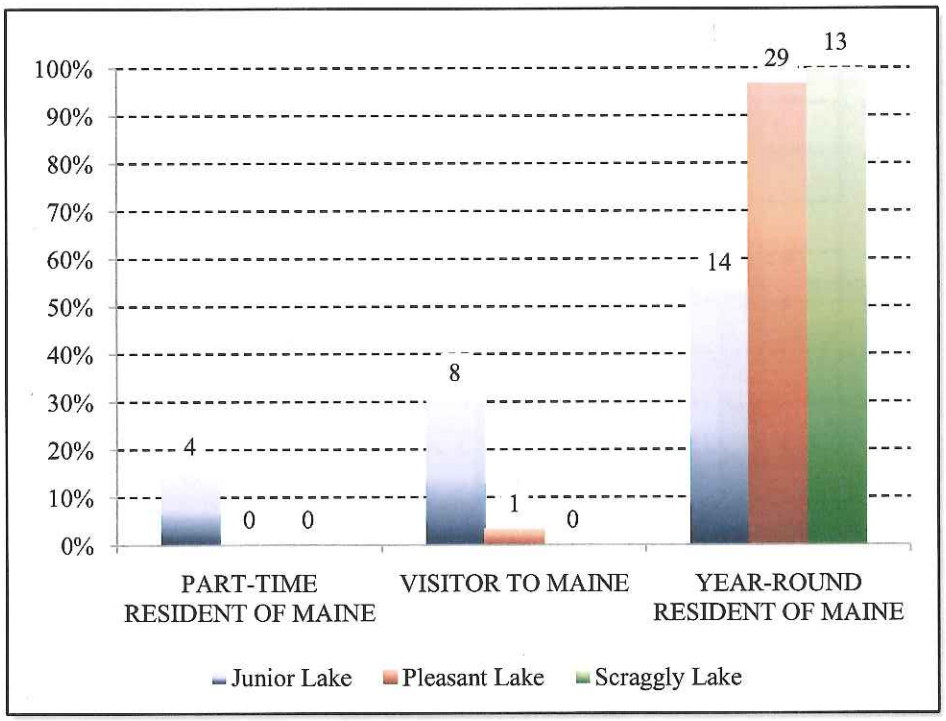


n = 14 (Junior Lake)
n = 16 (Pleasant Lake)
n = 3 (Scraggly Lake)

Q26: Are you…?



n = 69



n = 26 (Junior Lake)
n = 30 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q27: What is the zip code of your primary residence?

	Frequency	Valid Percent
00487	1	1.5
01403	1	1.5
02351	1	1.5
04008	1	1.5
04062	1	1.5
04062	1	1.5
04093	1	1.5
04096	2	2.9
04096	1	1.5
04103	1	1.5
04164	1	1.5
04352	2	2.9
04355	1	1.5
04405	1	1.5
04419	1	1.5
04438	1	1.5
04448	1	1.5
04455	3	4.4
04457	5	7.4
04458	1	1.5
04461	4	5.9
04467	1	1.5
04468	1	1.5
04473	2	2.9
04487	5	7.4
04487	1	1.5
04490	2	2.9
04495	1	1.5
04495	1	1.5
04496	1	1.5
04619	2	2.9
04652	1	1.5
04694	1	1.5
04730	1	1.5
04769	1	1.5
04930	1	1.5
04937	1	1.5
04967	1	1.5
04971	1	1.5
05262	1	1.5

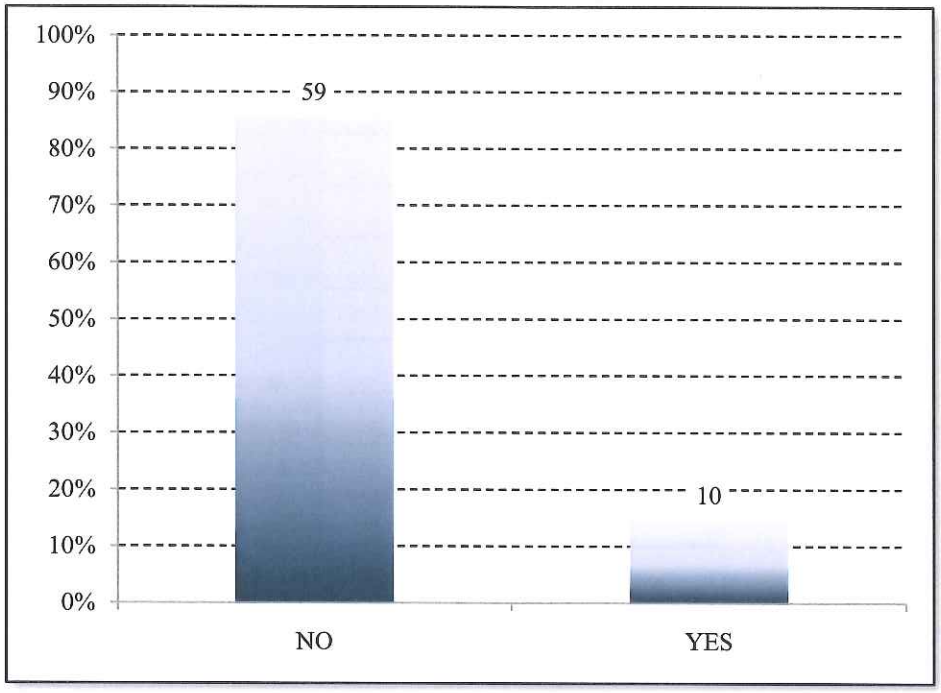
06419	1	1.5
06492	1	1.5
06534	1	1.5
11379	1	1.5
12550	1	1.5
16925	1	1.5
21874	1	1.5
34108	1	1.5
34187	1	1.5
45224	1	1.5
Total	68	100.0
Missing	2	
	70	

What is the zip code of your primary residence?

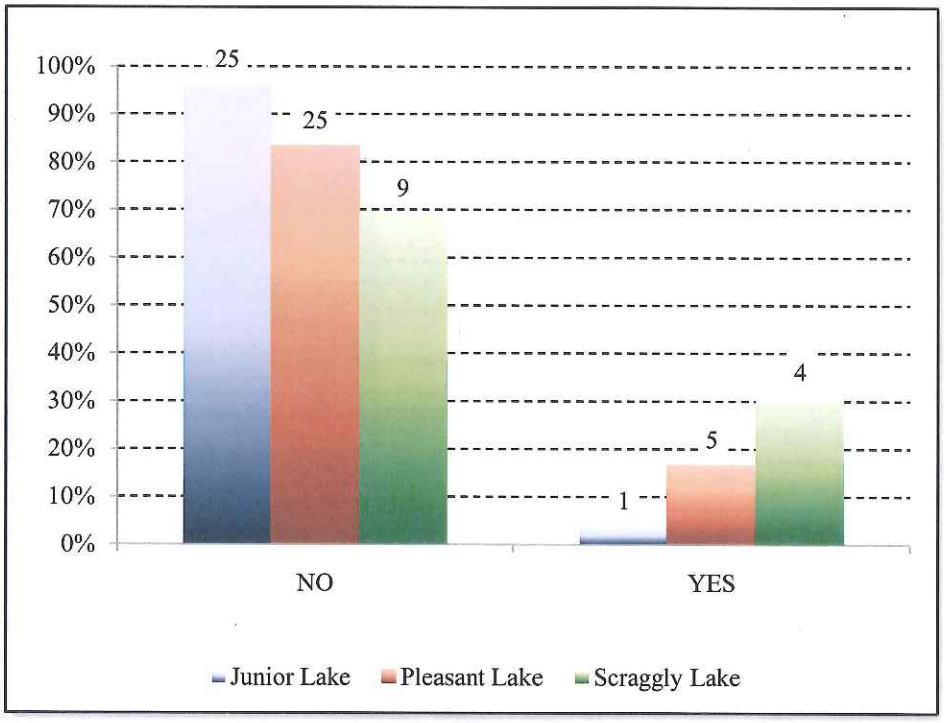
LAKE		Frequency	Valid Percent
JUNIOR LAKE	01403	1	4.0
	04008	1	4.0
	04103	1	4.0
	04164	1	4.0
	04355	1	4.0
	04438	1	4.0
	04457	1	4.0
	04458	1	4.0
	04461	1	4.0
	04468	1	4.0
	04487	1	4.0
	04495	1	4.0
	04937	1	4.0
	05262	1	4.0
	06419	1	4.0
	06492	1	4.0
	06534	1	4.0
	11379	1	4.0
	16925	1	4.0
	21874	1	4.0
	34108	1	4.0
	34187	1	4.0
	02351	1	4.0
	04496	1	4.0
	45224	1	4.0
	Total	25	100.0
	Missing	1	
		26	
PLEASANT LAKE	00487	1	3.3
	04062	1	3.3
	04093	1	3.3
	04419	1	3.3
	04448	1	3.3
	04455	2	6.7
	04457	2	6.7
	04461	2	6.7
	04467	1	3.3
	04473	1	3.3

	04487	2	6.7
	04490	1	3.3
	04619	2	6.7
	04652	1	3.3
	04694	1	3.3
	04730	1	3.3
	04769	1	3.3
	04930	1	3.3
	04967	1	3.3
	04971	1	3.3
	12550	1	3.3
	04062	1	3.3
	04096	1	3.3
	04487	1	3.3
	04495	1	3.3
	Total	30	100.0
	Missing	1	
		31	
SCRAGGLY LAKE	04096	2	15.4
	04352	2	15.4
	04405	1	7.7
	04455	1	7.7
	04457	2	15.4
	04461	1	7.7
	04473	1	7.7
	04487	2	15.4
	04490	1	7.7
	Total	13	100.0

Q28: Had you heard of this survey before we asked you to participate?

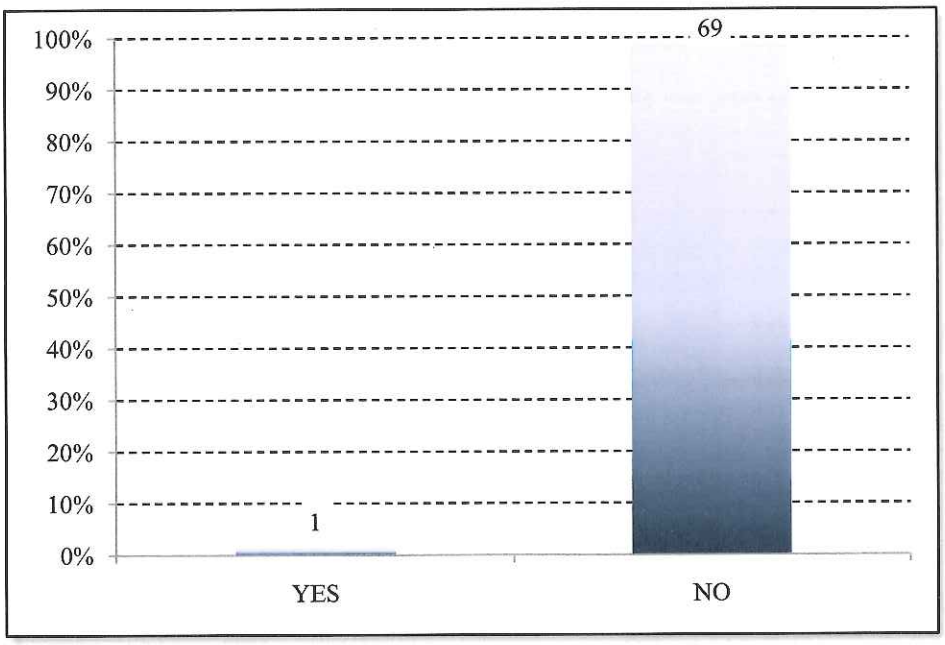


n = 69

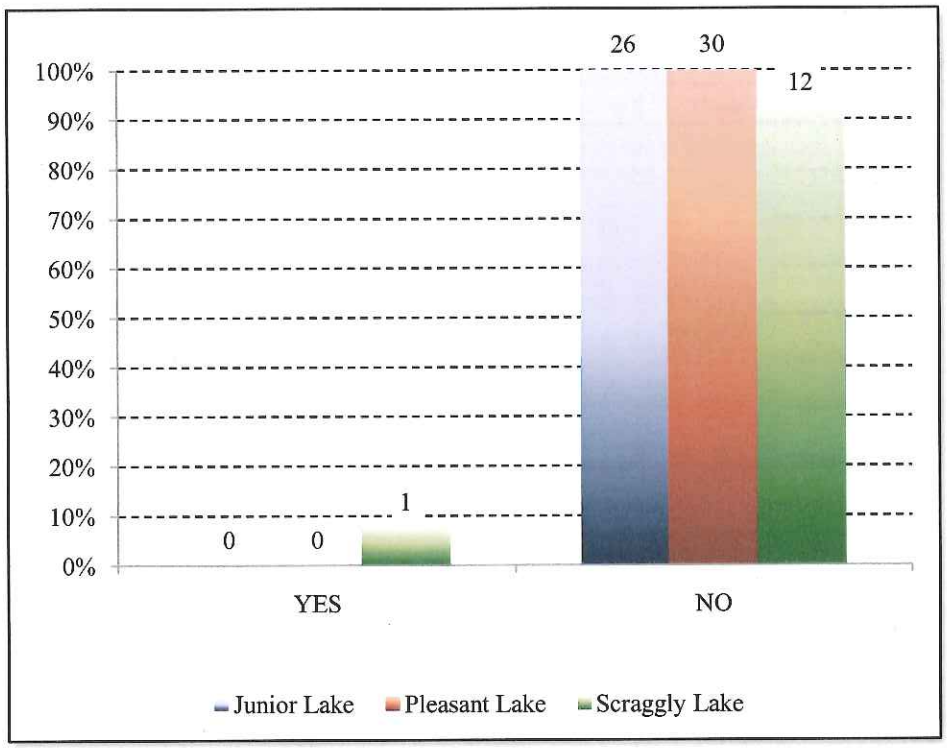


n = 26 (Junior Lake)
n = 30 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q29: Are you using the service of a Registered Maine Guide today?

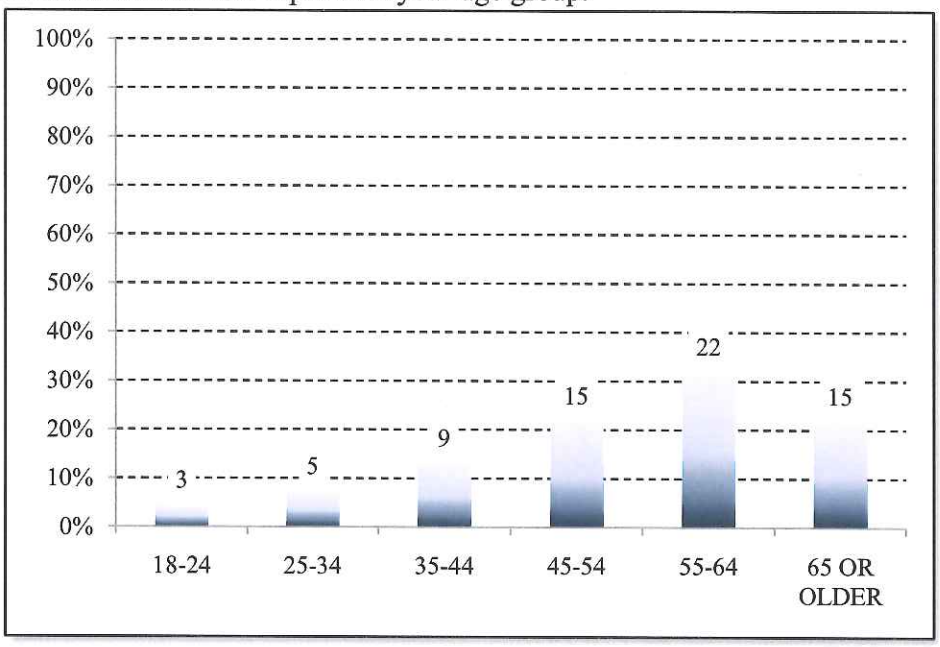


n = 69

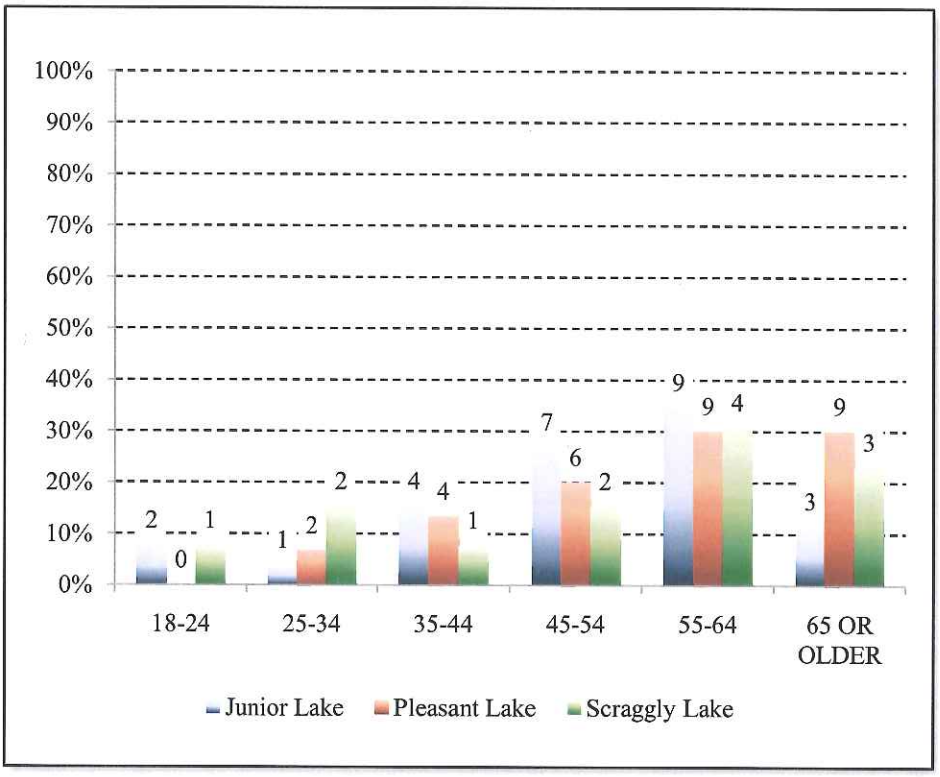


n = 26 (Junior Lake)
n = 30 (Pleasant Lake)
n = 13 (Scraggly Lake)

Q30: Please tell me which best represents your age group.



n = 69



n = 26 (Junior Lake)
n = 30 (Pleasant Lake)
n = 13 (Scraggly Lake)

Exhibit 30B-2: Baskahegan User Surveys by Kleinschmidt Associates