April 25, 2024

John M. Burth	Erin M. Donhauser
Adirondack Park Agency	NYSDEC
PO Box 99	PO Box 296
Ray Brook NY 12977	Ray Brook NY 12977

Re: APA Project No. 2022-0218
DEC Project No. 5-1652-00216/00003
USL Marina, LLC
Proposed New Commercial Use of Upper Saranac Lake Marina
Town of Santa Clara, Franklin County

Dear Mr. Burth and Ms. Donhauser:

Protect the Adirondacks ("PROTECT") submits these comments regarding the application by USL Marina, LLC ("the Applicant") to revive a defunct marina on Lower Fish Creek Pond on lands classified Moderate Intensity Use by the Adirondack Park Land Use and Development Plan Map. These comments supplement our prior comments that have been submitted regarding this project. For the reasons set forth below, PROTECT urges the Adirondack Park Agency ("APA") and the New York State Department of Environmental Conservation ("DEC") to deny the application.

The Proposed Project Cannot be Approved Without a Carrying Capacity Study

We reiterate that a comprehensive carrying capacity study is necessary to understand and assess the impacts of this large commercial marina project on recreational users, water quality, fish and wildlife, invasive species, and nearby property owners. Notably, Fish Creek Pond was evaluated in 2011 in the *Adirondack Park Forest Preserve Carrying Capacity of Water Bodies Study: Phase I – Selecting Indicators for Monitoring Recreational Impacts* by April McEwen, Chad Dawson, and Lisa Gerstenberger, dated August 31, 2011 ("Study"). Pertinent excerpts from the Study are enclosed for your reference.

Protect the Adirondacks
PO Box 48, North Creek, NY 12853 518.251.2700
www.protectadks.org info@protectadks.org
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The Study classified Fish Creek Pond in the "High" Impact category due to the physical, chemical, and biological impacts then occurring to the waterbody. Study p. 64 (Table 11). The Study further noted:

> Fish Creek Pond had the highest concentrations of gasoline compounds out of the three pilot sites with motorized boating use. Fish Creek Pond was observed to have a much higher level of motorized use than the other pilot sites, although the exact difference in use intensity was not evaluated. The highest concentrations of o+m+p- xylene, carcinogenic compounds known to have adverse impacts on human health and cause toxicity in organisms (Adirondack Lake Survey Corporation 1987), were detected at the no-wake zone between Fish Creek Pond and Square Pond.

Study p. 53.

Benzene, toluene, ethylbenzene, and xylene compounds were measured at the three pilot sites that allow motorized boating (Fish Creek Pond, Meacham Lake, and Putnam/North Pond). *Id.* p. 52. Fish Creek Pond also had one of the highest concentrations of chloride of the waterbodies studied, which demonstrates impairment of this waterbody's water quality. *Id*. p. 46.

Additionally, the report states that daily average dissolved oxygen concentration in Fish Creek Pond (classified as AA waters) at a depth of 4 meters was 3.2 ppm (3.2 mg/L). The State standard for Class waters requires the daily average of dissolved oxygen to not be less than 6 mg/L (6 ppm) and at no time less than 4 mg/L (4 ppm). 6 NYCRR Part 703.3). Study p. 50. The Study concludes that "[u]nder the conditions detected in Fish Creek Pond at the time of measurement, fish would not be sustained at the average depth where the cooler water temperatures are and where they might escape to avoid heavy motorized boating traffic." *Id*. p. 50. The study also noted the presence of invasive plant species in Fish Creek Pond. *Id.* p. 51.

The Study demonstrates that as early as 2011 Fish Creek Pond was already impaired as a result of the high amount of motorized boating and shoreline development in the area. The project's potential exacerbation of the adverse impacts identified in the Study must be fully evaluated in a carrying capacity study, and the application cannot be approved in the absence of such a study.

The Proposed Project Cannot be Approved Because the Applicant Refuses to Avoid Impacts to Wetlands

As we have previously noted, the APA is responsible for regulating wetlands located within the Adirondack Park, and is mandated to "preserve, protect and conserve freshwater wetlands and the benefits derived therefrom" as one of its highest priorities. ECL §§ 24-0103; 24-0801(1). As our prior comment letter noted, the Applicant's refusal to mitigate impacts to wetlands located adjacent to the boat slips on Docks 3 and 4 on the project site as requested by the Agency mandates denial of the application.

Moreover, increased boat traffic from the proposed project will also negatively impact wetlands in the narrow channel connecting Fish Creek Ponds to Upper Saranac Lake. Turbulence from propellers, increased turbidity and direct damage to submerged aquatic vegetation from motorboats must be examined to determine if the project can be approved pursuant to the Freshwater Wetlands Act (Environmental Conservation Law Article 24).

The Visual Simulations are Flawed and Incomplete

We are submitting under cover of this letter an expert report from Dr. Richard Smardon pointing out serious deficiencies and flaws in the visual simulations prepared by the Applicant's engineering consultant, including that there is no characterization of the existing visual quality of Fish Creek Pond; the visual simulations omit viewpoints from which the marina project will be visible; and the materials do not include any description or characterization of the visual impacts of the marina project. This is especially critical because the proposed new piers will extend nearly 200 feet into the open water area of Lower Fish Creek Pond, and the visual simulations fail to include any proposed measures to minimize or avoid any adverse visual impacts from the marina expansion. Mr. Smardon's expert conclusion is that the proposed project, including the "four long piers which are proposed to extend up to 196 feet into Lower Fish Creek Pond will, in [his] opinion, cause substantial adverse visual impacts, especially if boats are moored to these piers during times of maximum usage."

An Adjudicatory Hearing Should be Held

Because the application cannot meet the criteria for approval set forth in the Adirondack Park Agency Act and the Freshwater Wetlands Act, the APA must hold an adjudicatory hearing on the proposed marina expansion. *See* APA Act §§ 809(3)(d); 809(9).

Even if APA determines that the project may ultimately be approvable, the APA Board should make the determination to hold an adjudicatory hearing on the application because substantive and significant issues have been raised and the regulatory criteria for holding an adjudicatory hearing have been met, including:

- the "size and/or complexity" of this project (this is a sizeable and complex project given the proposal for 92 motorboats, four docks that are 160 feet, 172 feet, 188 feet and 196 feet long, involving wetlands, with a large covered structured over the water),
- "the degree of public interest" in the project (numerous public comments have been submitted to APA by environmental groups, lake associations, and individual landowners),
- "the presence of significant issues relating to the criteria for approval" of the project (there are undue adverse impacts resulting from the marina's size and considerable motorboat activity in a small waterbody),
- "the possibility that the project can only be approved if major modifications are made or substantial conditions are imposed" (the marina's project must be reduced in size and

scope, the covered structure must be removed unless a variance is required and obtained, the wetlands impacts require denial of the project),

- "the possibility that information presented at a public hearing would be of assistance" to APA,
- there having been little opportunity for "public involvement" (notably, there was no public hearing for the shoreline variance that should have been required for this project), and
- the need for DEC to prepare an environmental impact statement for the project.

9 NYCRR § 580.2.

On behalf of the Board of Directors of Protect the Adirondacks, we thank you for considering our comments and concerns regarding this commercial marina project.

Sincerely,

Claudia K. Braymer

Claudia K. Braymer,
Deputy Director

cc: David J. Plante, AICP CEP, Deputy Director, Regulatory Programs

enc.

Adirondack Park Forest Preserve Carrying Capacity of Water Bodies Study: Phase 1 – Selecting Indicators for Monitoring Recreational Impacts

April McEwen, Chad Dawson, and Lisa Gerstenberger
SUNY College of Environmental Science and Forestry
320 Bray Hall
One Forestry Drive
Syracuse, NY 13210

August 31, 2011

as chloride also increase the conductivity of surface waters and total dissolved solids were measured at all of the pilot sites.

Increasing chloride concentrations in Adirondack water bodies primarily due to winter maintenance of nearby roads is an important human health and ecological concern (Adirondack Council 2009; Langen et al. 2006). According to NYS water quality standards, chloride concentrations in any state waters should not exceed 250 ppm (250 mg/L) (6 NYCRR Part 703.5), although the EPA recommends chloride concentrations should not exceed 25 ppm (Kedell 2009). Of the pilot sites, the highest chloride concentrations were .55 ppm (Fish Creek Pond) and .86 ppm (Chapel Pond). Both water bodies have state highways that receive winter maintenance located within a portion of their immediate riparian area. The state highway near Chapel Pond receives regular road salt in winter maintenance and chloride concentrations in Chapel Pond have increased since the ALSC data was collected (Langen et al. 2006). Generally, pilot sites without roads located nearby had a chloride concentration of .37ppm or lower (Little Jabe, Stewart, Deep, Colden).

While primary data was not collected on this water quality indicator at each pilot site, standardized methods and recommendations are given by Eaton et al. (2005) regarding standardized methods used to measure chloride concentration in surface waters. The method used depends upon the clarity of water being sampled and management objectives, although measurement of chloride by ion chromatography is preferred (Eaton et al. 2005). More rapid assessment methods taken to detect increases in sodium chloride added by de-icing agents may require the direct measurement of electrical conductivity or total dissolved solids (TDS). TDS can increase due to a number of factors including a large watershed to water body surface area ratio (WA:SA) as there is more runoff and in watersheds with higher amounts of development and agricultural use (Wetzel 2001). Therefore, while rapidly assessed measurements such as TDS may not be completely sensitive or representative of chloride concentrations, there is a positive statistical correlation between increases in sodium chloride from application of de-icing salts and increases in conductance and total dissolved solids or salts (Langen et al. 2006). An easily measured indicator such as conductivity or TDS is a cost-effective indicator to help detect increases or high levels in salts but chloride should be measured directly at sites where managers wish to pinpoint the periodic increases in chloride content or have discriminative evidence to back management actions.

In order to increase efficiency, water samples should be collected for chloride concentration analysis when other water sampling takes place at the site, preferably before summer use at water bodies. Springtime sampling is recommended to capture increases in chloride concentration that may occur with spring runoff. However, increased chloride concentrations in groundwater and from soil contamination may take years to reach surface water bodies (Langen et al. 2006). As a result, managers may decide to monitor chloride annually at some sites but analyze results to detect spikes or trends over longer periods of time. Chloride concentrations are generally uniform spatially and seasonally throughout water bodies (Eaton et al. 2005, Wetzel 2001). Therefore, it is recommended a set of samples be taken at each water body inlet and at the water body outlet at a depth of one to five meters. Standard protocols for the collection and handling of water samples should be followed (Eaton et al. 2005).

Total phosphorous was chosen as a core indicator because it is considered the primary limiting macronutrient to productivity within many water bodies (Wetzel 2001) and is recommended by the USEPA (2003) as an indicator for aquatic life. Recreational activities that increase external or internal phosphorous loading to water bodies may alter the productivity levels within the water subsequently affecting the rate of eutrophication (Yousef et al. 1980, Dickman and Dorais 1977). Secondary data were obtained from a water chemistry survey conducted by the ALSC (1987).

Internal (e.g., re-suspension of sediments) and external loading (e.g., campfire ash inputs) of phosphorous from recreational uses of surface waters could cause undesirable algal growth, increase eutrophication rates, and have important implications for resource conditions and natural resource managers (Abell, Allan, Lehner 2007; Dickman and Dorais 1977; McEwen 2010; Yousef, McLellon, Zebuth 1980). NYS standards for phosphorous are qualitative and phosphorous inputs should not be such that they result in algal growth, slime, or weeds, or impair the water for its intended use (6 NYCRR Part 703.2). Ecoregion 58 (Adirondack Park) phosphorous guidance values based on aesthetic effects for primary and secondary contact recreation are 20µg/L (.02mg/L) (NYSDEC 2008). Although primary sampling of phosphorous concentration at pilot sites was not conducted in 2009, secondary data was collected from the Adirondack Lake Survey Corporation (1987). Colden, Deep and Stewart Lakes had the lowest phosphorous ratings and were three of the pilot sites with the lowest recreation use and development of facilities.

Phosphorous is the primary limiting nutrient for many Adirondack water bodies making the monitoring of phosphorous concentrations important, especially in water bodies with many types of uses and high use intensity such as Fish Creek Pond and sensitive oligotrophic (low productivity) lakes in remote areas such as Lake Colden. Natural site-specific risk factors such as elevation, the position of the water body within the watershed, depth, and volume may contribute to the amount of phosphorous contributed by external sources and the response of the aquatic ecosystem to increases in phosphorous concentration (Wetzel 2001).

Standardized methods and recommendations are given by Eaton et al. (2005) regarding measurement of phosphorous concentration in surface waters. Eaton et al. (2005) suggest the persulfate oxidation method be used to analyze water samples as it is simple, cost-effective, and total nitrogen as well as total phosphorous can be analyzed from the same sample. Total nitrogen is also an important measure of lake productivity as it often becomes the limiting nutrient in highly productive (eutrophic) water bodies or high elevation water bodies where phosphorous levels are naturally low (Wetzel 2001).

Similar to the sampling design discussed for chloride measurement, a set of water samples should be collected at the main water body inlet and tributaries. Monitoring phosphorous concentration in tributaries is useful to determine if sources of external P are originating from the greater catchment area outside the critical management zone or if internal loading (e.g., re-suspension of sediments from motorized boating) is the main source of elevated P levels. Routine targeted sampling near areas of high use at developed campgrounds would help managers identify elevated P levels in that area perhaps from sources such as leaching from wastewater or soil erosion from access points (Chen 1988).

Phosphorous may not be distributed uniformly throughout water bodies, especially in deeper water bodies, which thermally stratify in the summer (Wetzel 2001). Therefore, water samples collected within the water body should be taken from the upper and bottom water layers using a water collection device (e.g., Van Dorn sampler). It is recommended that standard protocols for the collection and handling of water samples be followed (Eaton et al. 2005).

Total Dissolved Solids, Dissolved Oxygen, Temperature -- The USEPA (2003) recommends the use of several indicators for aquatic life including dissolved oxygen, temperature, conductivity, pH, and nutrients. Dissolved oxygen, temperature, and total dissolved solids (TDS) were chosen as core water quality indicators in this study because they also may change as a result of pressures created by shore and water based recreation activities and development (Hammitt and Cole 1998). Also, pH and oxidation-reduction potential were measured as supplemental indicators.

These indicators collectively represent several important aquatic conditions that are important in sustaining aquatic life. Dissolved oxygen content in water is important in regulating biotic functions as it is required for aquatic organism metabolism and affects the growth, distribution, and behavior of aquatic organisms (Wetzel 2001). Temperature affects the solubility of gases (including dissolved oxygen) in water and several coldwater species require lower temperatures to survive. Dissolved oxygen content and water temperature naturally fluctuate throughout the season as a result of changes in atmospheric temperature, photosynthesis, elevation, salinity, depth, decomposition of organic material, and respiration of aquatic organisms (Wetzel 2001). Therefore, pressures caused by anthropogenic activity on land and in the water including effects of recreation activities and development can affect dissolved oxygen content and temperature directly or indirectly (e.g., added macro-nutrients increases the amount of decomposing organic matter and lowers dissolved oxygen levels).

TDS levels increase with increases in ionic concentration from salts and sediments. While TDS is a way to express ionic concentration (electrical conductivity), it is not a discriminative measure of suspended solids, which studies have shown to be a result of water-based recreational use, especially in shallow water bodies. Measurements of turbidity or total suspended solids (TSS) should be used to quantify fluctuations in important parameters related to the disturbance of sediments before and after use as well as before use begins/ends.

Levels of TDS and TSS may also be determined or fluctuate in response to natural variation such as windy conditions as sediments are stirred up and on site characteristics such as the geology of the basin and watershed characteristics (Wetzel 2001). TDS concentrations and especially total suspended solids (TSS) are also affected by activities that induce turbidity (e.g., swimming, boating, shoreline erosion) (Hammitt and Cole 1998; Mosisch and Arthington 1998). Generally, the purer the water, the lower the TDS and TSS levels (Wetzel 2001).

These water quality parameters were measured using a multi-parameter waterproof handheld meter (Hanna Instruments 9828, Woonsocket, RI). The meter was calibrated at the site according to manufacturer's instructions. Measurements were taken at four different depths (1-4 meters) at various sampling stations. Generally, measurements were spaced to gather a water quality representation of the entire water body and to determine changes that might occur at different depths. In deeper lakes that potentially thermally stratify (e.g., Meacham Lake), there may have been minimal variation in parameters across depth due to the relatively shallow depth of measurement. A sampling station was chosen on each side of the lake and in the middle of the lake depending on the size. Deep Lake, Stewart Lake, and Lake Colden were located in remote areas that required an extended hike. Therefore, a kayak could not be carried in and a single measurement was taken at the most convenient access point.

NYS water quality standards differ depending on the water quality parameter according to intended use classification. Descriptions of use classifications were found in 6 NYCRR Part 701. Water quality standards according to various use classifications were found in 6 NYCRR Parts 805, 830, and 941. The daily average dissolved oxygen concentration in Fish Creek Pond (classified as AA waters) at a depth of 4 meters were lower than the NYS AA use standards at 3.2ppm. Class AA and C standards require the daily average of dissolved oxygen to not be less than 6 mg/L (6 ppm) and at no time less than 4 mg/L (6 NYCRR Part 703.3).

Dissolved oxygen levels in the uppermost layer of water in Fish Creek Pond met NYS criteria while anoxic (low dissolved oxygen levels) conditions existed at the average FCP depth (3.7m). Under the conditions detected in Fish Creek Pond at the time of measurement, fish would not be sustained at the average depth where the cooler water temperatures are and where they might escape to avoid heavy motorized boating traffic. Furthermore, anoxic conditions cause sediments to release P (Wetzel 2001). This process is known as internal loading and can be the largest source of P input to a water body (Mehner et al. 2008). Anoxic conditions in the hypolimnetic (deepest) layer have important implications for aquatic organisms.

Deeper lakes that thermally stratify in the summer or dimictic lakes may require measurements be drawn from multiple water layers including the epilimnion, metalimnion, and hypolimnion. At the minimum in shallow lakes, measurements should be taken above and below the thermocline. When possible, measurements should also be taken at all tributaries to target external sources of sediment (turbidity, TSS) and ionic contributions (conductivity, TDS).

Tributaries are affected by changes in the watershed and may be a major source of pollutants to water bodies, especially those located in relatively developed watersheds.

Interpretation of actual physical water quality parameter values was limited because the parameters were only measured one day at each pilot study site. Primary measurements taken at pilot sites were meant to explore feasibility and sampling design concerns, but not to determine accurate estimations of each indicator value or predict recreational impacts.

Non-Native Aquatic Plant Species -- Secondary data collected from Adirondack Park Invasive Plant Program (APIPP) (2004) surveys was used to identify nuisance aquatic plant species at pilot sites. Aquatic surveys conducted by the APIPP aim to identify the following aquatic nuisance aquatic plant species: Eurasian watermilfoil, water chestnut, curlyleaf pondweed, and fanwort. Use of secondary data from an established program that trains personnel to identify aquatic nuisance plant species made this data collection easy and cost-effective.

Surveys conducted by the APIPP (Griffin and others 2001) identified Eurasian water milfoil as a non-native aquatic plant found in Fish Creek Pond, Meacham Lake, and Putnam/North Pond. These three pilot sites are intensive use areas, which allow motorized boating and have state highways leading to them. Wash stations for boat trailers were not present at the pilot site boat launches, although management signage was placed at the Fish Creek Pond and Meacham Lake boat launches to prompt visitors to remove plant materials from boat trailers.

Routine monitoring of waters should be surveyed with protocols used by the Adirondack Park Invasive Plant Program (APIPP) (2004). Since the APIPP uses volunteers to conduct surveys, they are capable of conducting more detailed surveys at more locations. Therefore, use of the APIPP as a secondary data source is recommended as a cost-effective and reliable way to obtain data.

No standards currently exist for this indicator. Unfortunately, many non-native nuisance species are difficult to eradicate after introduction. However, this indicator was included as the presence of non-native aquatic plant species is a major concern for recreational area managers due to the implications nuisance species have for the ecological integrity and structure of water bodies (Johnson, Ricciardi, Carlton 2001) and the socio-economic (e.g., decreased recreational opportunities and costs to taxpayers) impacts these nuisance species create (Pimentel 2000). The spread and productivity of non-native aquatic species can adversely affect aquatic ecosystem condition by reducing the amount of light that can penetrate the water to be used in photosynthesis by other native aquatic plants as well as reduce dissolved oxygen concentrations needed for respiration by aquatic organisms and plants (Wetzel 2001).

Gasoline Compounds -- Benzene, toluene, ethylbenzene, and xylene compounds, were measured in situ at the three pilot sites that allowed motorized boating (Fish Creek Pond, Meacham Lake, Putnam/North Pond) through deployment of Passive In-Situ Concentration/Extraction Samplers (PISCES) in several sampling locations. PISCES are capable of collecting gasoline compounds introduced into the water column. PISCES can be used fairly discriminatively to detect gasoline compounds introduced from motorized boating, especially in mainly forested watersheds (Adirondack Lake Survey Corporation 1985). There are other ways to measure gasoline compounds in the water column but PISCES were cost effective and easy to use in the field with appropriate preparation of materials and adherence to sampling guidelines. Obtaining indicator values for gasoline compounds required preparing and cleaning equipment in a laboratory, deployment of PISCES at three sampling locations, collection of PISCES, and laboratory analysis at SUNY-ESF.

Methods used to complete these tasks replicated methods detailed by Avallone (2003). Individual PISCES bodies were washed with soap and water, dried, and solvent rinsed with acetone and hexane prior to use. Materials used in PISCES, including membranes, filters, and o-rings, were cleaned through Soxhlet extraction then assembled. Assembled PISCES were wrapped in aluminum foil to avoid contamination until deployment at the site. Glass sampling bottles (250mL) with Teflon lids were washed with soap and water, solvent rinsed, dried, and tightly capped to prevent contamination until PISCES contents were collected in the field.

After preparation of PISCES and collection of needed materials (e.g., hexane), two PISCES were deployed at a 1-1.5m depth at each sampling station in Fish Creek Pond, Putnam Pond, and Meacham Lake. PISCES duplicates were used for quality assurance and as a backup in case of sample loss at a particular sampling station. At each site, one set of PISCES was placed at the main boat launch access point, and the other two sets were attached to existing buoys.

PISCES were left at each site for seven days including two weekend days when use generally intensifies. A kayak was used to deploy and collect PISCES. Upon collection, PISCES contents were emptied into pre-cleaned 250mL glass bottles, and placed on ice until they could be returned to the laboratory for analysis. The content collection bottles were pre-labeled with the date, unique site, and sampling station ID for later identification.

A chemistry laboratory at SUNY-ESF was used to analyze the gasoline compounds following developed and standardized procedures (Avallone 2003). Samples taken in the field were concentrated down to 10mL using a Kuderna-Danish apparatus. Nitrogen was then bubbled through the sample in order to further concentrate it down to approximately 1mL. A gas chromatography-mass spectrometry instrument (GC-MS) was used to analyze the following gasoline compounds: ethylbenzene, isopropylbenzene, propylbenzene, 1,2,4- trimethylbenzene, 1,3,5- trimethylbenzene, and sec-butyl benzene, xylenes (o-, m-, p-), and p-isopropyl toluene (1-methylethyl benzene). Avallone (2003) should be referred to detailed methods used in analyzing gasoline compound concentrations.

PISCES were left at each site for seven days including two weekend days when motorized use is generally higher. The reported concentrations represent the average compound concentration in the water as sampled by two PISCES at each sampling station (the average of concentrations analyzed from two samplers) over the seven days the sampler was in the water. Peak compound concentrations were obtained as NYS water quality standards should never be exceeded for these toxic compounds. The PISCES sampled approximately 40mL of water per day at Fish Creek Pond, Putnam Pond, and Meacham Lake. Fish Creek Pond had the highest concentrations of gasoline compounds out of the three pilot sites with motorized boating use. Fish Creek Pond was observed to have a much higher level of motorized use than the other pilot sites, although the exact difference in use intensity was not evaluated. The highest concentrations of o+m+p- xylene, carcinogenic compounds known to have adverse impacts on human health and cause toxicity in organisms (Adirondack Lake Survey Corporation 1987), were detected at no-wake zone between Fish Creek Pond and Square Ponds. NYS standards exist for all of the gasoline compounds (6 NYCRR Part 703). Concentration of o+m+p- xylene was the highest compound detected but far below the state standard of 5 µg/L (5,000 ng/L).

Fecal Coliforms -- A kayak was used to collect water samples in all locations except at sites where boating access was remote and not feasible (i.e., Deep Lake, Stewart Lake, Lake Colden). At these remote sites, samples were collected at the most accessible point. For all other sites where a boat was able to be carried in, sampling stations were selected to obtain an accurate representation of the entire water body. Sampling stations were at least 2 meters from the shoreline in all locations except remote locations. The total amount of samples at each site varied with the size of the water body. Three samples were taken at each sampling station but the amount of sampling stations varied between lakes. Generally, the most samples were selected at larger water bodies or water bodies with more intensive use.

Water grab samples were collected in 100mL Whirl-pak bags at each sampling station by inverting and plunging the bag approximately 30 cm below the surface. The sample was collected according to standard protocol to avoid inclusion of surface water, which contains more bacteria (Eaton et al. 2005). Samples were transported on ice and processed within 6 to 24 hours.

Coliform Count Plates of 3M Petri-film (3M Corporation, St. Paul, MN) were used to identify and enumerate coliforms. 3M Petri-film Coliform Count Plates have been tested in a study to determine their reliability in detecting fecal coliforms in water (Schraft and Watterworth 2005). A Hach Portable Incubator (Hach Laboratories, Loveland, CO) was used to incubate Petri-film plates at $44 \pm 1^{o}C$ (temperature recommended for enumeration of therotolerant (fecal) coliforms) for 24 ± 2 hours. Coliform counts were enumerated within 1-2 hours of incubation according to manufacturer's instructions.

Quantitative NYS standards exist for total and fecal coliforms (6 NYCRR Part 703.4). Fecal coliforms should not exceed an average of 200 CFU/100mL according to standards for class C waters at any sampling occasion (6 NYCRR Part 703.4). Class AA waters do not have a fecal coliform standard but a total coliform standard: monthly median value (50 CFU/100 mL) and 20% of monthly samples must not exceed 240 CFU/100mL.

Although bacteria indicators are widely used in monitoring by managers, their use as an indicator related to recreation use and development is clouded with uncertainty regarding the source of the bacteria (e.g., wildlife or humans), the amount of time bacteria remains in the water column before it is diluted, the ability of bacteria indicators to be indicative of harmful pathogens, and the number of samples that should be taken (Bennear, Jessoe, Olmstead 2009; Griffin et al. 2001; Schwab 2007). While this indicator can be rapidly assessed, the source of bacterial contamination cannot be rapidly analyzed and may take extensive experiments to determine.

At several remote pilot sites (i.e., Stewart Lake and Little Jabe Pond), a large quantity of wildlife feces was observed along the shoreline. Both of these lakes had minimal signs of visitor use at one or two points along the shoreline and no recreationists were observed at either water body when they were visited on a sunny summer day. As part of a suite of indicators designed to represent recreation use and development related adverse impacts to water bodies, a high fecal coliform count in both of these lakes was likely partially caused both by wildlife and by recreational use add lack of any restroom facilities (that is, wildlife and humans are both sources of contamination). Therefore, it is recommended that bacteria indicators be used as an indicator of the suitability of the waters to sustain recreational uses for human health concerns in accordance with USEPA (2003) recommendations.

In areas with heavy use, Hammitt and Cole (1998) suggest use levels may decrease the amount of wildlife using the area. Therefore, in areas with heavy use, increased levels of bacteria indicators may be associated with an increase in visitor usage. Macronutrients such as phosphorous are also associated with the introduction of waste and fecal effluent. Therefore, increases in bacteria indicators (e.g., fecal coliforms, E.coli) and macronutrients at water bodies that receive higher levels of seasonal use may be a good indication of visitor related fecal contamination. Cost-effective rapid assessment methods (e.g., Coliscan Easygel method, Micrology Labs, LLC) for assessing fecal coliforms or E.coli may cause these bacterial indicators to be the most cost-effective indicators until advanced indicators for pathogen contamination is developed in the future (Griffin et al. 2001; Schwab 2007).

Of the water quality indicators, measurement of fecal coliforms proved to be the most difficult. The lack of strict adherence to handling considerations such as the way water samples should be collected and the time in which samples should be transported and analyzed may create data quality and issues when comparing samples collected at different times, especially in remote water bodies where such considerations may not be as controllable. Eaton et al. (2005) recommends analyzing water samples within six hours of the time they are collected. Therefore, fecal coliform counts should be interpreted cautiously, especially if the time between water sample collection and enumeration of fecal coliforms varies. It is also useful to collect water samples for fecal coliform analysis using a water sampling device (e.g., Van Dorn sampling bottle) to avoid contamination of the sample. Standardized protocols should be referred to for other handling considerations (Eaton et al. 2005).

- Hiking, including backpacking and mountain biking, on trails is most often estimated using self-reported counts of **persons-at-one-time (PAOT)** or Visitor Days using trailhead registers that are checked for compliance by electronic trail counters or by staff observation or electronic photography along a trail. The unit of measure is individual visitors per day and not groups per day.
- Camping at designated campsites on public lands or in state campgrounds is most often estimated by camper self registration or campground entry registrations. Estimation is in **Visitor-Nights** and the unit of measure is individual visitors per night and not groups per night. Some roadside camping areas and sites in the backcountry or wilderness are dispersed and must be counted by observation; counting camper occupancy at these during boater counts is a cost effective approach.

Recreation Use and Development Indicators

Based on possible direct physical, chemical, or biological impacts, categories of recreational use and development were scored (Table 10). Each type of possible impact was given an equivalent point value (e.g., physical = 1, chemical = 1, biological = 1) and then each activity or type of development was given an impact score based on the number of possible impacts. For example, if an activity creates physical impacts and biological impacts, it would receive an aggregated score of two. The highest impact score is three, which means an activity or type of development is capable of having physical, chemical, and biological impacts. The score for each type of impact at a pilot site was summed to produce an overall impact score for each pilot site. For example, overall impact scores were highest for developed campgrounds around Meacham Lake, Fish Creek Pond, and Putnam Pond that had on-site wastewater treatment systems, roads leading to them, concentrated or widespread visible shoreline disturbance (e.g., soil erosion and vegetation impacts), and had facilities to accommodate a greater number of visitors than the other sites. In contrast, primitive campsites around pilot sites with camping (Lake Lila, Lake Colden) were only accessible by trails and had setback requirements for pit privies as mandated in the APSLMP (APA and NYSDEC 2001) so they had lower overall impact scores.

Table 10. Recreational use and development impact scores.

Activities	Direct Impacts (B=Biological, P=Physical, C=Chemical)	Impact Score
Fishing	B	1
Hiking	P	1
Primitive Camping/Campsites	P	1
Recreational Bathing/Swimming	P	1
Non-motorized Boating	B,P	2
Motorized Boating	B,P,C	3
Development		
Designated campgrounds	B,P,C	3
Buildings (e.g., bathrooms, cabins, picnic shelters)	P	1
Impervious surfaces (e.g., roads, paved parking lots)	B,P,C	3

To illustrate the use of this indicator approach, impact scores were determined at each pilot site based on the impact they were capable of producing: physical, chemical, and biological impacts. Overall impact scores were calculated by aggregating the sum of individual impact scores at each pilot site (Table 11).

Table 11. Pilot study area recreation use and development impact scores.

Pilot Study Water Body	Type of Recreation Impacts									Study Area Impact Score	Impact Category
	Fishing	Hiking	Rec Bathing	Motor Boating	Non-motorized Boating	Developed Campground	Primitive Camping	Buildings	Impervious Surfaces		
Stewart										**0**	**Low**
Deep	1									**1**	
Little Jabe	1	1								**2**	
Colden		1					1			**2**	
Lila	1	1			2		1			**5**	**Med**
Chapel	1	1	1		2				3	**8**	
Fish Creek Ponds	1	1	1	3		3		1	3	**13**	**High**
Meacham	1	1	1	3		3	1	1	3	**14**	
Putnam	1	1	1	3		3	1	1	3	**14**	

Shoreline disturbance has been used as an indicator of increasing ecological stress in Northeastern water bodies (Whittier et al. 2002). As shore-based recreational use and development can have a tremendous impact on the vegetation, soils, and water body near-shore areas, an indicator of shoreline disturbance was developed to represent the following multiple recreation related impacts: removal of riparian vegetation, soil compaction, and habitat fragmentation. An indicator for recreation related shoreline disturbance was developed based on types of recreational development surrounding Forest Preserve water bodies known to cause vegetation removal, soil impacts (e.g., erosion), and hydrological impacts (e.g., less infiltration and more overland runoff). Five factors were assessed to gain information on the proportion of shoreline disturbance at each study site including the area taken up by: (1) campsites, (2) trails, (3) roads, (4) parking lots, and (5) buildings (Green 1998; Whittier 2002).

This indicator is based on research conducted by recreation ecologists on impacts to soil and vegetation caused by shore-based recreational activities such as camping, hiking, and development of facilities for recreational use (Cole 1982; Cole and Spildie 1998; Cole 1987; Leung and Marion 2000; Liddle 1997; Manning 1979; Marion and Cole 1996). Impacts associated with vegetation removal by recreational use and alteration of natural surfaces by recreational development can affect the ability of the shoreline area to provide shade, habitat, and nutrients as well as retain runoff, sediment, and excessive nutrients (Manning 1979; Johnson and Carother 1982). While detailed vegetation loss and soil impact assessments (e.g., Cole 1989) could be used to estimate the impacts in each pilot site and may fulfill other management objectives, they would be time consuming, more expensive, and would not meet the objectives of this study to explore feasible and cost-effecient methods given funding, personnel, and time constraints.

Secondary and primary data were entered into a GIS or used in calculations for analysis of the five types of disturbance indicators within the CMZ (McEwen 2010). Each of the five indicators was estimated using GIS information and ground estimates of the total area impacted. The CMZ area for each pilot site was determined by obtaining the area within the 50 meter buffer of each pilot site. Since polygon data needed correction, this CMZ area was verified by taking the shoreline length (meters) and multiplying it by the 50 meter (160 ft) buffer from the shoreline.

Review of Proposed Upper Saranac Lake Marina Expansion Visual Simulations
By Richard Smardon PhD CEP April 25, 2024

Project Description
This report reviews the visual simulation prepared by North Woods Engineering PLLC (North Woods) for the proposed Upper Saranac Lake Marina Expansion on Lower Fish Creek Pond (the Project). The Project will eliminate a number of existing decrepit wooden docks at the marina along the shoreline of Lower Fish Creek Pond and replace these with four metal piers extending up to 196 feet from the shoreline. The Project would also replace an existing wooden boat shelter with a metal flat roofed shelter partially covering one of the piers.

Regulatory Context for Review
The relevant background includes Section 809(9) of the Adirondack Park Agency Act, which requires the Adirondack Park Agency to find, before approving a proposed project, that the project will not have an undue adverse impact on, among other things, the Park's scenic and aesthetic resources. In addition, because the Project may impact waters that are part of the Forest Preserve and are included in the Saranac Lake Wild Forest (SLWF), the Adirondack Park State Land Master Plan (Master Plan) and the Unit Management Plan (UMP) for the SLWF must be considered. The Master Plan provides that "The primary wild forest management guideline will be to protect the natural wild forest setting and to provide those types of outdoor recreation that will afford public enjoyment without impairing the wild forest atmosphere." Master Plan p. 35.

The SLWF UMP states:

> The natural landscape of the SLWF is an important visual element, with multiple scenic views of the lakes, ponds, open spaces and forests. These views are dramatic and diverse. One does not have to hike great distances to enjoy the beauty of the region. The SLWF is best described as an expansive region with a networked terrain of state roads providing public access, a mixture of private and public lands, and a multitude of different types of waterbodies and waterways. Scenic vistas and regional vistas frequently occur in stretches of roadway that offer exceptional views across waterbodies, wetlands, open lands or other features such as mountains and fall foliage. Key qualities of the SLWF should be managed toward inventorying and monitoring these resources in order to preserve, protect or enhance these visual resources.

(NYS DEC 2019, 45-46). The UMP also states that a management objective of the UMP is to "Protect the character of the waterways in the SLWF." (NYS DEC 2019, 165).

Visual Simulations Review Process
The documents that I have reviewed in order to prepare this report on the North Woods visual simulations include site plans for the proposed marina expansion and three sets of photographs and simulations for viewpoints (i) from the Route 30 bridge looking northeast toward the Project; (ii) from the south shore looking north from one of Donaldson's camps toward the Project; and (iii) from the middle of Lower Fish Creek Pond looking west towards the Project. The photos

depicting existing conditions were taken with both 55mm and 85 mm camera lens. The visual simulations appear to be a wire frame CAD overlaid on top of the 55mm photos.

I traveled to the Project site on April 22, 2024, and visited the areas from which the Project would be visible. I took a number of photographs that are attached to this report as Appendix A. My education and professional experience and qualifications are set forth in the curriculum vitae attached as Appendix B to this report. As set forth in Appendix B, my general expertise is in visual impact analysis. Pertinent to this review is that I was the primary author of the section on aesthetic impacts of docks and piers in the NOAA publication "Environmental and Aesthetic Impacts of Small Docks and Piers (Kelty and Bliven 2003).

Shortcomings of the Project's Visual Simulations

My review of the North Woods visual simulations reveals the following significant omissions and shortcomings regarding the Project:

1. There is no characterization of the visual exposure or visibility of the expanded marina for surrounding residents and seasonal recreational users of the Lower Fish Creek Pond area. Year-round residents see the existing and proposed Project site from the Route 30 bridge and the causeway north of the bridge (see Appendix A, Figures 2 and 3). Summer residents will see the existing marina and the proposed Project from Route 30 plus from Donaldson's camps along the south shore (see Appendix A, Figures 1 and 4). Boaters will see the existing and proposed Project site when approaching from east to west.

2. There is no description of the existing visual quality of the Lower Fish Creek Pond area or the Route 30 travel corridor or of the proposed change in visual quality resulting from the proposed Project as compared to existing conditions.

3. Only three viewpoints were utilized for the visual simulations. On my field inspection I noted that there are continuous views of the marina north of the Route 30 bridge (see Appendix A, Figure 2). There also appears to be a good deal of visual exposure from Donaldson's Camp Boat launch (see Appendix A, Figure 4).

4. The visual simulations appear to be wire frame line drawings overlaid using CAD to display the new covered structure and the piers. There appears to be no description of the nature of the construction materials to be used. Is the material reflective metal, core ten steel, or some other material? This is critical information that is needed to judge light reflectivity or absorption, which in turn affects visibility and visual contrast. Also, for a worst-case scenario, which is what is normally included and should be required here, the simulations should show the maximum number of boats that would be tied up to the new piers during the peak season. It is not clear that the simulations depict boats or rectilinear objects.

5. The visual simulations do not include any description or characterization of the visual impacts of the proposed Project. This is especially critical because the proposed new

piers will extend nearly 200 feet into the open water area of Lower Fish Creek Pond. This will negatively affect the visual character of the shoreline.

6. The visual simulations fail to include any proposed measures to minimize or avoid any adverse visual impacts from the proposed Project, such as use of nonreflective building materials, increasing the shoreline setback of structures, and reducing pier length.

For all of the reasons above this reviewer finds the visual simluations lacking sufficient detail regarding existing landscape character, viewer characterization/visibility, number of selected viewpoints, simulation construction detail, description of visual impact and visual mitigation measures. The proposed Project will eliminate some of the shorter dilapidated docks; however, the four long piers which are proposed to extend up to 196 feet into Lower Fish Creek Pond will, in my opinion, cause substantial adverse visual impacts, especially if boats are moored to these piers during times of maximum usage.

References cited

Adirondack Park Agency Act, Executive Law Article 27.

Kelty R. and Bliven S. 2003. Environmental and Aesthetic Impacts of Small Docks and Piers. NOAA Coastal Zone Program Decision Analysis Series Number 22, Silver Spring MD. https://coastalscience.noaa.gov/data_reports/environmental-and-aesthetic-impacts-of-small-docks-and-piers/

North Woods Engineering 2023. Visual Simulation. Saranac Lake, New York

NYS APA. 2019. Adirondack Park State Land Master Plan. Ray Brook, New York

NYS DEC. 2019. Saranac Lakes Wild Forest and Lake Placid Boat Launch, Lake Flower Boat Launch, Upper Saranac lake Boat Launch, Raquatte River Boat Launches Unit Management Plan, Final Environmental Impact Statement. NYS DEC Region 5, Division of Lands and Forests, Raybrook, New York

APPENDIX A

Appendix A: Photos taken from to Upper Saranac Marina April 22, 2024

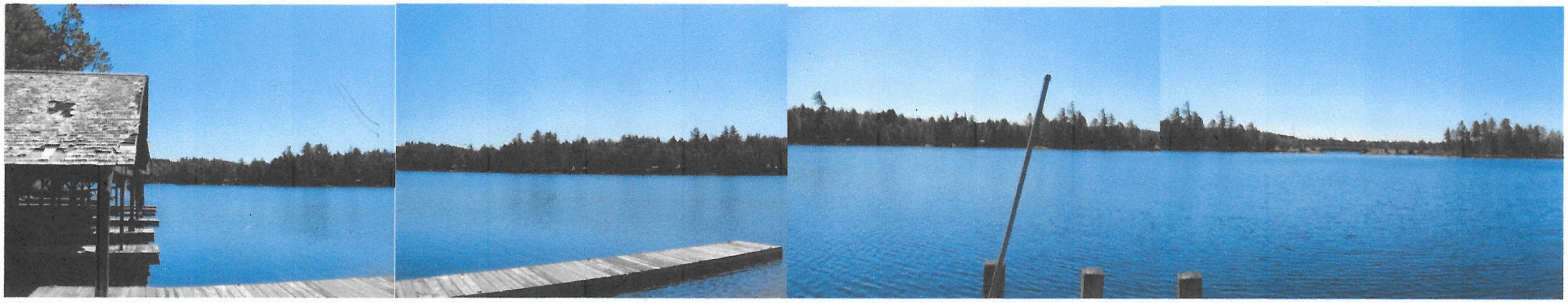

Figure 1: Panoramic looking south southeast to southwest from the end of the dock at the Upper Saranac Lake Marina

Figure: 2 Route 30 north of bridge

Figure 3: Route 30 Bridge view

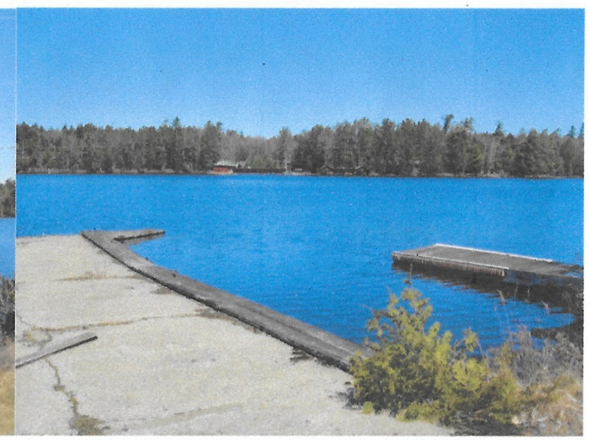

Figure 4: from Donaldson's boat launch

APPENDIX B

Resume for Richard C. Smardon, MLA, PhD, Certified Environmental Professional (CEP)

706 Fellows Avenue, Syracuse, New York cell 315 391-0248
Email address: rsmardon@esf.edu and Smardon.richard0@gmail.com

EDUCATION

1970 University of Massachusetts: BS in Environmental Design, cum laude
1973 University of Massachusetts: Masters in Landscape Architecture
1982 University of California: Ph.D. in Environmental Planning

PROFESSIONAL PRACTICE

Certified Environmental Professional post 2013
Independent consultant post 2002
Vice-President, Integrated Site, Landscape Architects, PC from 1990-2002
Intermittent Faculty appointment, USCOE Water Exp. Station, Vicksburg 1988-90
Chief technical Consultant, Ecology Compliance Ltd., Syracuse 1981-83
Intermittent Faculty appointment, US Geological Survey, Reston VA 1980-82
Post Graduate Research Landscape Architect, UC Berkeley 1977-79
Landscape Architect, USDA Pacific SW For. & Range Exp. Station 1977
Environ. Impact Assessment Specialist, USDA Ext. Serv. OSU Corvallis 1975-76
Associate Planner, Executive Office of Environmental Affairs, Boston and Amherst MA 1973-75
Environmental Planner/Landscape Architect with Wallace, Floyd, Ellenzweig and Moore 1972-73

PROFESSIONAL AWARDS

2018 Vermont Chapter of the American Society of Landscape Architects Award of Excellence for the book **The Renewable Energy Landscape; Preserving scenic values in our sustainable future** by Apostel, Palmer, Pasqualetti, Smardon and Sullivan
2018 Environmental Design and Research Association national book award for research and education for the book **The Renewable Energy Landscape; Preserving scenic values in our sustainable future** by Apostel, Palmer, Pasqualetti, Smardon and Sullivan
2015 Finalist for Research and Service award from **National Wetlands Newsletter** Environmental Law Institute Washington DC
2013 Appointed as SUNY Distinguished Service Professor –system wide.
2010 President's Leadership award for work with the NAEP education, research and science-working group
2001- Strathmore's Who's Who - Leadership and Achievement in their Occupation, Industry or Profession
1990- Who's Who in the East, Who's Who in America, Who's Who in American Education, Who's Who in Engineering and Science
1993 Scenic America Award for Scenic Road Management Plans for Red Hook & Rhinebeck, New York under NY Scenic Roads Program.
1992 The New Public Realm Award Winner, **Progressive Magazine** for work on the Third Chicago Airport, Southeast Chicago and Environmental Opportunities: Ideas, Concepts and Suggestions
1975 Design Award Recipient, **Design & Environment Magazine** for work on the Project: Evaluation of Freshwater Wetlands- Northeastern US
1971 ASLA Certificate of Honor for Excellence in the Study of Landscape Architecture - Graduate School MLA degree at UMass.

FACILITATION & STATEGIC PLANNING RELATED WORK

1990 Facilitated the Great Lakes Wetlands Policy Consortium Goals Statement
1990-1996 Chair of the Onondaga Lake Cleanup Citizen Advisory Committee and facilitated most meetings
2005-2008 Facilitated most meetings of the citizen steering committee for the Onondaga Creek Revitalization Plan
2008 Co-wrote the Great Swamp Conservancy Strategic Plan
2005 -2021 Involved with two rounds of strategic planning for the Central NY Land Trust plus facilitating board meetings for the past three years

2009-2015 Co-creator and instructor for the Graduate Certificate for Advanced Studies for Sustainable Enterprise (CASSE) at Syracuse University and SUNY/ESF

2011-2012 Technical adviser to the SUNY/ESF college MSCE reaccreditation study entitled" Advancing Sustainability at SUNY/ESF"

2010-2021 Chair of NYS Great Lakes Basin Advisory Council- chaired most meetings and facilitated work sessions when needed.

WETLAND ASSESSMENT WORK

1970-1973 Worked with Joseph Larson et al all on the Massachusetts Multi-Criteria Wetland Assessment Methodology for the Glaciated Northeast as part of my master's thesis work. Work is published in my book the **Future of Wetlands-Assessing Visual Cultural Values**, which is on the web site http://www.esf.edu/via

1974-1976 Worked for the Executive Office of Environmental Affairs in Boston MA. Many cases were wetland versus development cases and I was the only technically trained person in the office.

1988-1990 Worked as an Intermittent Faculty appointment, USCOE Water Exp. Station, Vicksburg on wetland assessment methodology as part of the Wetland Evaluation Technique (WET).

1988-89 Worked for the City and Borough of Juneau Alaska on wetland evaluation as part of a regional wetland assessment and results on are on my site at **ResearchGate**

1988-1992 Was on the technical advisory board for the Des Plaines River Wetland Demonstration project north of Chicago.

1990-2002 Was Vice-President of Integrated Site Inc. Syracuse NY and was project manager for 6-8 Wetland delineation projects and two projects involving wetland assessment and actual design and construction of mitigation wetlands.

1986- 2013 Taught wetland assessment and management courses at SUNY/ESF and designed a wetland practicum course, which included wetland delineation, assessment and mitigation skills.

1997 Developed and delivered with other SUNY/ESF faculty Wetland and Watershed Management Short course for NYS agency employees (about 25).

2009 Published my second wetland book **Sustaining the Worlds Wetlands: Setting Policy and Resolving Conflicts** with Springer Scientific- over 2000 chapter downloads by 2014.

2010 Mitigation wetland review for Herkimer-Oneida landfill for Barton & Loguidice

2000 –2006 Continued to work on wetland water quality treatment research for wetlands as "green infrastructure" – multiple research publications on **ResearchGate**.

2018 Wetland Mitigation strategy for CCPUSA Eco-Industrial Park Enterprise Project 8797 West Loop Road and Fox Ridge, Town of Montezuma

VISUAL IMPACT ASSESSMENT PROJECTS: Recent projects - post ISLA, PC

2019 *Cedar River Bridge Visual Impact Assessment* Adirondack Park for the Adirondack Wild: Friends of the Forest Preserve

2019 *Visual Impact Assessment review for the Proposed Telecommunication Cell Tower* at 50 Vineyard Road Philipstown NY for the Town of Philipstown Planning Board and Council

2019 *Visual Impact Ratings for the South Fork offshore wind farm* for Environmental Design and Research

2018 *Visual Impact Ratings for Bull Run Energy Center* for Saratoga Associates in the towns of Altona, Champlain, Clinton, Dannemora, Ellenburg, Hemingford, and Moors NY

2017 *Visual Impact Ratings for Number Three Wind farm* for Saratoga Associates in the Towns of Denmark, Harrisburg, Lowville, New Brennan, and the Village of Copenhagen NY

2017 *Review of PB-16-0287-93 North Chestnut Street Zero Place Visual Analysis* for the Village of New Paltz NY Planning Board

2016 Consultant to legal counsel for critiquing opposition VIA for *Antrim wind farm project* in New Hampshire

2015 Consultant to Scenic Hudson for assessing multiple electric transmission line corridor impacts in the Hudson River Valley [online] http://www.7.2.15_Landscape-Analysis-Richard_Smardon_for_TransmissionLine-Proceedings.pdf

2014-15	Sub consultant to ESS Group for review visual simulations of offshore wind off Massachusetts for BOEM
2014	*Loveless Farm sub division* In Skaneateles NY –Review of Supplemental Visual and Environmental Impact Mitigation Measures
2010	Sub consultant to C & S for methodology for *Portageville Rail Bridge Visual Impact Assessment*
2009-2011	Consultant to Cape Cod Commission to develop visual impact assessment methodology for offshore wind farms within Massachusetts state jurisdiction {online] http://www.esf.edu/via
2008	*Review of Visual Resource Evaluation Report for Proposed Wireless Telecommunication Facility* in Town of Livingston NY for Scenic Hudson.
2008	*Review of Visual Resources and Community Character, Carvel Property Development* Towns of Pine Plains, Milan, Dutchess County NY.
2008	Review of visual impacts associated with *proposed Route of the New York Regional Interconnect (NYRI)* from Marcy NY to Orange County NY supported by multi county association
2007-2008	Consultant to Plum Creek for visual quality control work for 26,000-acre development in the Moosehead Lake region Maine.
2007	Critique and review of *Archer Mine* in the Town of Milan, NY
2007	Expert Reviewer for NYS Department of State for visual portions of *LNG Terminal proposed for Long Island Sound* – included written response in regard to NYS CZM considerations plus Long Island Sound visual landscape compatibility issues.
2006	Visual quality control expert for *Long Island offshore wind farm* working with several other firms - project tabled.
2006	Consultant to Save Our Schoharie for review of visual impact section of *Cobleskill Stone quarry expansion project*.
2005	Expert reviewer for Tahoe Regional Planning Agency for *Visual Shoreline Development Standards* for Lake Tahoe, California and Nevada.
1991	External Reviewer to California Energy Commission for revamping Visual Impact Assessment Procedures
2003	Neutral third party VIA overview for the *Cape Wind Turbine Farm* –[online] http://www.publicdisputes.net/smardon/CAPEWIND_files/framehtm
2003	Assessment of *aesthetic impacts of small docks and piers for* NOAA - see website at http://www.cop.noaa.gov
2003	Thalle Quarry Expansion. Review of VIA of dolomite quarry expansion in Fishkill, NY for Scenic Hudson, Inc. resulted in negotiated mitigation measures.
2003	Neutral third party overview of VIA for *St. Lawrence Cement facility* proposed for Hudson, New York
2002-3	External reviewer for NYS Department of Environmental Conservation *Policy Procedure Memorandum on Visual Resource Assessment*

Projects with Integrated Site Landscape Arch., PC

2005	Review of visual impact of housing development in West Nyack, NY for the Village of West Nyack including mitigation measures.
2001-	Review and Critique of VIA for *Bowline 3 Proposed Co-generation Plant* in Haverstraw, NY. Work included visual inventory of key viewpoints, computer visibility analysis, simulations from river edge viewpoints and direct testimony. Visual plus fisheries impacts resulted in dry cooling recommended by the administrative law judge and the NYSDEC Commissioner.
1999-	*Bescicorp Newsprint Recycling and Co-Generation Facility*. Project manager for VIA work for three different sites. Completed PSC/DEC joint hearings in fall of 2003.
1999-	*Torne Valley Energy Center* - Project manager for VIA quality control for Black and Veatch, Kansas City.
	Bethlehem Energy Center - Project manager for VIA critique for NYSDEC, Albany
1998	Twin Tier Co-generation power Plant in Loundsbury, NY – assisted in VIA for this project with Young Associates (Green, NY). Work in included visual inventory, visibility assessment and landscape classification within a 5-mile radius along the Susquehanna River.

1998 *Athens Co-generation Facility* on Hudson River- Project manager for counter VIA for Scenic Hudson, Poughkeepsie, NY. Included redo of VIA, simulations and testimony in PSC hearings. Resulted in major new visual mitigation measures.

1998 *Route 8 (Riparius) over the Hudson River* - Project Manager for VIA, section 4(f) plus wild and scenic river assessment-subcontractor to Barton and Loguidice, Syracuse.

1995 *Route 219- Visual corridor analysis methodology* for 19-mile corridor, Springfield to Salamanca, NY. Subconsultant to Deleuw Cather, Buffalo, NY.

1995 *Route 17, Five-Mile Point to Occanum, NY* -Project Manager for VIA. Subconsultant to Harza Northeast, Utica, NY.

1994 *Hoosick Mine* - Project Manager for VIA of proposed limestone mine near Bennington, Vermont. Subcontractor to Spectra, Latham. NY- included testimony in joint NYSDEC hearings.

1994 Limited visual analysis of *proposed recreational vehicle park for Association Island* in Henderson Harbor, NY.

1993 *Visual analysis of proposed small hydroelectric facility in Barbarsville Falls. NY* for Nature Conservancy, Troy, NY. Resulted in one of the few projects refused a FPC license because of aesthetic and economic grounds.

1992 Niagara Mohawk Power Corporation Public Involvement Plan – qualified as one of the consulting firms assisting Niagara Mohawk in environmental planning, public relations, public participation, visual analysis and innovative design solutions for electronic transmission facilities throughout the State of New York.

1992 *Project Independence Cogeneration facility* in Scriba, NY. Project Manager for VIA redo with Environmental Design and Research for Sithe Energies, Oswego, NY.

1991 *Snoqualmie Falls Relicensing* - aesthetic & visual impact review for existing hydro facility in Snoqualmie, WA. Subconsultant to EBASCO, Bellingham WA. Very controversial project involving low flow maintenance. Native American sacred significance of the falls plus regular VIA issues.

1992 St. Elizabeth's Hospital Proposed Medical Office Complex-as Project manager we developed a scoping process for assessing aesthetic impact for this project as part of the State Environmental Quality Review Act (SEQRA) > Outcome was a more fully tuned site and landscaping plan that incorporated visual mitigation to minimize impact to surrounding residences.

1991 Proposed Deerfield Landfill site evaluation – Project manager for a VIA, wetland assessment and wild life species review was conducted for a proposed land fill site in upstate New York for a local citizens group (CALIS). This contributed toward elimination of the site from consideration as a landfill.

MAJOR PUBLICATIONS: Book Chapters, Special Journals & Monographs

Smardon, R. C. (ed.). 2021. **Selected Papers from the 6th Fábos Conference on Landscape and Greenway Planning.** MDPI Publishers Basel Switzerland

Focht, W., M. A. Reiter, P. A. Barresi, R. C. Smardon 2019. **Education for Sustainable Human and Environmental Systems: From Theory to Practice.** CRC/Routledge/ Taylor and Francis, London and NY (co-wrote 6 of 12 chapters)

Gobster, P. H. and R. C. Smardon (eds.) 2018. Visual Resource Stewardship Conference Proceedings; Landscape and Seascape Management in a Time of Change. US Forest Service Northern Research Station General technical Report NRS-P-183, Newton Square PA [online] https://doi.org/10.2737/NRS-GTR-P-183

Smardon, R.C., S. Moran, A. Baptiste. 2018. **Revitalizing Urban Waterway Communities: Streams of Environmental Justice.** Earthscan/Routledge/Taylor & Francis, NY and London

Apostol D., R.C. Smardon, R. Sullivan, J. Palmer and M. Pasqualetti. 2017. **The Renewable Energy Landscape: Preserving Scenic Values in Our Sustainable Future**. Routledge/Taylor and Francis (co-wrote 6 out of 11 chapters and won EDRA National book award in 2018).

Smardon, RC. 2009. **Sustaining the Worlds Wetlands; Setting Policy and Resolving Conflicts**. Springer Press, NY and London.

Smardon, R.C. and J. Karp. 1993. **The Legal Landscape: Guidelines for Regulating Environmental and Aesthetic Quality**. Van Nostrand Rhinehold, 287pp. Now available at http://www.esf.edu/via

Smardon, R.C. (ed.) 1992. *Aesthetics and Visual Quality*. In **Environmental research Needs in Transportation**. TRB Transportation Research Circular No. 389, Wash., DC, pp. 36-40.

Smardon, R.C. 1990. *Community Control versus the Elitist Landscape*. In Paul Growth (ed.). **Vision, Culture and Landscape: Working Papers from Berkeley Symposium on Cultural Landscape Interpretation**. Yale University Press, New Haven. pp. 133-156.

Smardon, R.C., T. R. Day, J. F. Palmer, T. Redway and L. Reichardt. 1988. *Historical Overview and Landscape Classification of Vistas and Rural Landscape Along the Blue Ridge Parkway*. In F. Noe (ed.) **Visual Preferences of Travelers Along the Blue Ridge Parkway**. Scientific Monograph Series No. 18, USDI, National Park Service, Wash. D.C., pp. 105-141.

Palmer, J. F., T. Day, R. C. Smardon, T. Redway and L. Reichardt. 1988. *Simulating and Evaluating Management Practices*. In F. Noe (ed.) **Visual Preferences of Travelers Along the Blue Ridge Parkway**. Scientific Monograph Series No. 18, USDI, National Park Service, Wash. D.C., pp. 142-157.

Smardon, R.C., J. F. Palmer and J. P. Felleman (eds.). 1986. **Foundations for Visual Project Analysis.** John Wiley and Sons, New York, NY, 374 pp. Now available at http://www.esf.edu/via
.
Smardon, R.C. (ed.) 1983. **The Future of Wetlands; Assessing Visual-Cultural Values**. Allanheld-Osmun Press, Totowa, NJ, 226pp. Now available at http://www.esf./via

Smardon, R.C. and J. P. Felleman (eds.). 1982. *Special Issue on Visual Resources Management*. **Coastal Zone Mgmt. Journal** vol. 9, No.3/4, 200pp.

Smardon, R.C., M. Hunter, J. Resue and M. Zoelling. 1982. **Our National Landscape: Annotated Bibliography and Expertise Index**. Special Publication 3279, Agricultural Science Publications. UC Berkeley, CA, 193pp. Now available at http://www.esf.edu/via

Elsner, G. H. and R.C. Smardon (Tech. Coord.) 1979. **Our National Landscape: A Conference on Applied Techniques for Analysis and Management of the Visual Resource** [April 23-25, 1979, Incline Village, Nev.] Gen. Tech. Rpt. PSW-35. US Forest Service Pacific SW For. and Range Exp. Stn., Berkeley, CA. 752pp. Now available at http://www.esf.edu/via

Visual Impact Assessment Handbooks and Training Materials

B. Cownover, L. Kling, J. McCarty, and R. Smardon plus others. 2012. NAEP **Advanced Topics in Visual Resources Management Training Symposium**, Portland Oregon- over 100 participants.

J. F. Palmer, J.F. Felleman and R.C. Smardon 2009. **Visual Impact Assessment for Transportation Projects**. VIA training course for NYS Department of Transportation in Poughkeepsie NY – 35 participants from state agencies.

J. F. Palmer, J. F. Felleman and R.C. Smardon. 2001. **Visual Impact Assessment: Recent Advances in VIA Methods and Techniques**. Multi-sectioned workbook for Public Employees Federation /Public Service Training course in Syracuse, NY January 11, 2001 – 28 participants from several state agencies.

J. F. Palmer, J. P. Felleman and R.C. Smardon. 1997. **Visual Impact Assessment Short Course**. Multi-sectional workbook produced for Public Employees Federation short course December 9-10, Albany, NY, 32 enrollees.

J. F. Palmer, S.R.J. Sheppard and R. C, Smardon. 1989. **Visual Assessment Technology for Transportation Projects: A Short Course for California Department of Transportation Environmental Design Professionals**. Multi-sectional workbook produced for University of California Extension, July 11-13 San Francisco, CA., 50 enrollees

M. Potteiger, J. F. Palmer and R.C. Smardon. Undated. **Visual Assessment Procedures Short Course**. Multi-sectional workbook produced for short course at the University of Southern Maine, Portland, and 35 enrollees.

Smardon, R.C., J. F. Palmer, A. Knopf, K. Grinde, J. E. Henderson and L. D. Peyman-Dove. 1988. **Visual Resources Assessment Procedure for US Army Corps of Engineers**. Instruction Report EI-88-1, Environmental Lab, US Army Waterways Exp. Stn., Vicksburg, Miss. 71pp. plus appendices. Now available on line at http://www.esf.edu/via

Smardon, R.C., S.R. J. Sheppard and S. Newman. 1984. **Visual Impact Assessment Manual**. School of Landscape Architecture Occasional paper ESF 84-009, SUNY/ESF, Syracuse, NY. Now available on line at http://www.esf.edu/via. This manual was produced for USDI Bureau of Land management as part of a three-year project to assess the reliability and validity of BLM's contrast rating VIA method.

Felleman, J.P., R. S. Hawks, R. A. Lambe, J. F. Palmer and R. C. Smardon. 1983. **Aesthetic Resources: Inventory, Analysis and Evaluation**. A multi-section short course reader prepared for US Corps of Engineers short courses in Ft. Belvoir, Vicksburg Mississippi and San Francisco, CA. Various versions used by about 150 trainees aver 3 years.

LEGAL WORK & EXPERT WITNESS TESTIMONY

2019 Affidavit for Cedar River Bridge Visual Impact Assessment Adirondack Park for Supreme Court of NYS, County of Warren

2019 Affidavit and Deposition for Visual Impact Assessment review for the Proposed Telecommunication Cell Tower at 50 Vineyard Road Philipstown NY for Federal District Court case; Verizon Wireless v. Town of Philipstown

2013-14 Review of proposed residential development Loveless Farms on Lake Skaneateles New York

2013 Expert witness for Save the Ozarks for landscape impacts of 50-mile powerline in Northwestern Arkansas before the Arkansas Power Commission In Little Rock Arkansas [online] http://www.apscservices.info/pdf/13-041-u-186-1.pdf

2007 Gravel mine visual impact critique and testimony in SEQRA hearings in Milan, NY

2006 Cobleskill Stone quarry visual review and testimony in SEQRA Hearings in Schoharie, NY

2003 Defense of VIA process used for *Besicorp Newsprint Recycling and Co-Generation Facility.* Direct and cross examination testimony for PSC Title 10 hearings in fall of 2003. Subcontract to ENSR by Integrated Site Landscape Architects, PC (ISLA).

2001 Review and Critique of VIA for Bowline 3 Proposed co-generation Plant in Haverstraw, NY. Work included visual inventory of key viewpoints, computer visibility analysis, simulations from river edge viewpoints and direct testimony. Visual plus fisheries impacts resulted in dry cooling recommended by the administrative law judge and the NYSDEC Commissioner.

1998-1999 Critique of visual analysis for *Athens Co-Generation Plant*. Direct and cross-examination testimony for PSC Title 10 hearings in 1998-99 thru ISLA for Scenic Hudson, Inc.
Sour Mountain Quarry VIA and Mine Reclamation critique in Fishkill. NY Project involved VIA redo and critique, direct, and cross-examination testimony for Scenic Hudson thru ISLA 1995-97.

Preparation of literature review for potential litigation involving coastal zone development and wetland impacts for *South Carolina Coastal Commission* in 1990 thru ISLA.

Preparation of direct testimony and conceptual arguments for statewide *review for undergrounding utility lines* in New York State for PSC hearings in 1989 for Scenic Hudson as an independent consultant.

Consultation on potential litigation in *Harper's Ferry, West Virginia*. Case involved analysis of visual impacts of mining activity visible from a national park -prepared for National Park Service, Wash., DC as independent consultant.

Testimony at the St. Lawrence-Eastern Ontario Commission hearing on *visual impact of proposed amusement park structure* in Alexandria Bay in 1988 as an independent consultant.

SEQRA joint hearing testimony and cross examination (Pottsdam, NY) on *visual impact of Iroquois Gas Pipeline* running through New York State. Also designed VIA methodology for the corridor as an independent contractor under contract to Environmental Design and Research, Syracuse.

SEQRA joint hearing testimony and cross-examination (Oswego, NY) on visual impact of proposed new storage facility within the Port of Oswego across from historic Fort Ontario. Project approved but mitigation measures imposed by the St. Lawrence-Eastern Ontario Commission.

Consultant to Environmental Design and Research for SEQRA joint hearing on *visual impact of microwave transmission facility* in Skaneatles, NY.

Deposition testimony and preparation of exhibits on *visual impact of off-road-vehicle use on Cape Cod National Seashore* for Conservation Law Foundation of New England, Boston in 1982-84. In the **Legal Landscape** Book Chapter 15: Litigation and Aesthetic Analysis on the web at http://www.esf.edu/via

Testimony and presentation in quasi-judicial hearing on *environmental impact of proposed gravel extraction and reclamation project* in Preble, NY in 1983 under Ecology Compliance Ltd.

Preparation of exhibits and VIA of Corps of Engineers *jetty (Oregon Inlet, Cape Hatteras, North Carolina)* for National Park Service, SE Regional Office (Atlanta) for Secretary of the Interior cross-agency hearing in 1982 through SUNY/ESF contract. Also appears in the **Legal Landscape** book, Chapter 11: Aesthetic Project Review via http://www.esf.edu/via
.
Direct and cross examination testimony in Federal District Court on visual and recreational impacts of *I-220 highway viaduct bridge structure* in Cross Lake, Shreveport Louisiana for Louisiana Environmental Society as an independent consultant in 1979. Also appears in the **Legal Landscape** book, Chapter 15: Litigation and Aesthetic Analysis via http://www.esf.edu/via