

**ATTACHMENT A.**  
**RESUME OF SARAH D. ALLEN**

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## SARAH D. ALLEN, PWS, NHCWS

### Principal Scientist, Wetlands/Terrestrial

Ms. Allen has a broad background in wetland and wildlife services, gained from over 25 years in natural resource consulting and research. She has technical experience in coastal and inland wetland delineation, functional assessment, mitigation design, botanical and wildlife surveys, and rare species surveys. As her project experience indicates, she has been involved for many years in various terrestrial aspects of large projects including hydroelectric relicensings, transmission lines, wind projects, ski area expansion, and transportation projects. Her work has included all stages of local, state and federal permitting, including agency coordination, permit preparation and regulatory review. Ms. Allen has managed numerous projects during her long career at Normandeau; participated in NEPA EA/EIS preparation; given presentations to professional and public audiences; and provided expert testimony at regulatory hearings.

#### SELECTED PROJECT EXPERIENCE

**Seacoast Reliability Project, Public Service of NH, Seacoast Region, NH (2013-Present).** Normandeau is providing permitting assistance to PSNH for a proposed 115kw, 13-mile transmission project. The project is sited along an existing distribution corridor and includes a 1-mile submarine crossing of Great Bay. Normandeau has mapped and evaluated impacts to all natural resources and has subcontractors providing visual, historic and cultural analyses. Permit applications include a Certificate for Site and Facility from the NH Site Evaluation Committee, and NH and US Army Corps of Engineers wetland permits, among others. Project Manager.

**The Balsams Grand Resort, Dixville Capital, LLC, Dixville, NH (2014-Present).** Dixville Capital is proposing to restore the existing deteriorating Balsams Grand Resort, and upgrade and expand the Balsams Wilderness Ski Area. The expansion area includes approximately 4,000 acres of largely undeveloped mountainous terrain. Normandeau identified wetland resources using a combination of jurisdictional ground delineations in specific locations and aerial photointerpretation for the majority of the project area. Other field work included a partial vernal pool survey, general wildlife habitat assessment, and rare species surveys including several plants and an acoustic survey for northern long eared bats. Normandeau coordinated with state and federal regulatory agencies during the wetland permitting process, and developed a wetland mitigation plan that satisfied the requirements for NH Department of Environmental Services and a general permit from the US Army Corps of Engineers. A permit was issued in late 2015, with conditions requiring field wetland resource delineations in impact areas as part of the final design process. Project Manager

#### EDUCATION

M.S., Natural Resources Science,  
(Wetland Ecology), University of Rhode  
Island

B.S., Wildlife Biology, University of  
Vermont

#### PROFESSIONAL EXPERIENCE

1989-Present Normandeau Associates

1985-1986 K-V Associates, Inc.

1983-1985 Woods Hole  
Oceanographic Institution

1979-1985 Boston University Marine  
Program

#### PROFESSIONAL CERTIFICATIONS

- Professional Wetlands Scientist.  
Society of Wetlands Scientists (1995)
- Certified Wetlands Scientist. NH  
Association of Natural Resource  
Scientists (1999)

#### PROFESSIONAL AFFILIATIONS

- Society of Wetland Scientists
- Estuarine Research Federation
- New Hampshire Association of  
Natural Resource Scientists
- Maine Association of Wetland  
Scientists

**Connecticut River Dam Relicensing, TransCanada Hydro Northeast Inc., NH-VT, (2012-Present).**

This FERC hydropower relicensing effort on three dams on the Connecticut River followed the Integrated Licensing Process. Ms. Allen managed preparation of the terrestrial/wetlands components of the Preliminary Application Documents, study plan preparation, and stakeholder review. She also managed the field studies for the terrestrial habitat mapping, and rare species surveys, including cobblestone tiger beetle, odonates, Fowlers toad, and approximately 250 records of rare plant species. A specialized rare plant study included detailed surveys and habitat studies for the federally endangered Jesup's milk vetch. Terrestrial/ Wetland Task Manager.

**Whittier Bridge/I-95 Improvement Project, Massachusetts Department of Transportation, Amesbury, MA (2009-Present).** This bridge replacement over the Merrimack River and I-95 highway widening project was named as one of the FHWA's 14 High Priority Infrastructure Projects nationwide to be expedited through the Federal permitting and review process; thus the project had to meet a NEPA document and permit review timeline of six months. Ms. Allen provided wetland and vernal pool surveys, wildlife and rare species assessments and mitigation design and assisted in preparation of an Environmental Assessment, permit applications for the MA Wetlands Protection Act and Corps of Engineers Section 404. We continue to provide long-term hydrologic monitoring at pre- and post-construction at a compensatory mitigation site. Wetlands Task Manager.

**Wild Meadows Wind Project, Iberdrola Renewables, Danbury and Alexandria, NH (2010-2014).**

Normandeau provided natural resource studies and permitting for a proposed 23-turbine, 75.9 MW wind project. Field surveys included wetlands, vernal pools, and general wildlife habitat. During numerous agency meetings, we negotiated consensus on vernal pool functional rankings and a mitigation package. Normandeau prepared a wetlands permit application for the NH Department of Environmental Services Wetlands Bureau, and compiled and produced an application for a Certificate of Site and Facility to the NH Site Evaluation Committee. Project Manager.

**Ragged Mountain Resort Expansion, RMR Pacific, LLC. Danbury, NH (2008-Present).**

Normandeau provided natural resource delineation and comprehensive evaluation of environmental effects of Ragged's proposed expansion of its ski terrain, snowmaking capacity residential units and golf course. Normandeau also helped Ragged negotiate a mitigation solution and provided permit applications for a major permit from the NH DES Wetlands Bureau and an Individual Permit from the U.S. Army Corps of Engineers Section 404. Both regulatory agencies agreed to issue a 10-year permit, based on detailed design for the early phases of the project and master-plan level design on later phases. On-going work includes expanded impact areas and permit amendments as the economic environment shifts, with proposed modifications to ski and golf areas, and snow-making water supply and storage issues. Project Manager.

**Bulls Bridge and Falls Village Critical Habitat Monitoring, FirstLight Power Resources, Northwestern CT (2006-Present).** Normandeau implemented a FERC license requirement of long-term monitoring and management recommendations for 26 listed rare plant and terrestrial invertebrate species occurring within the study limits of two hydroelectric projects on the Housatonic River. Normandeau's efforts included establishing permanent sampling plots, annual sampling, and active habitat management of canopy thinning and control of multiple woody invasive species. Project Manager.

**Crossroads Landfill, Waste Management, Inc., Norridgewock, ME (1990-Present).** Normandeau has provided long-term natural resource permitting and mitigation design, construction oversight and long-term monitoring for four landfill expansions. Over 18 acres of wetland mitigation has been successfully created, restored and enhanced as compensatory mitigation for impacts related to the landfill expansions. Other site work has included vernal pool surveys, semi-quantitative surveys of state-mapped Deer Wintering Areas and an Inland Wading and Waterbird Habitat, fish and macroinvertebrate surveys in Mill Stream, state-listed upland sandpiper surveys, and surveys for rare plants. Ms. Allen provided expert testimony for two sets of hearings in front of the Maine Board of Environmental Protection. Project Manager

**Lake Horace Marsh Restoration Monitoring, Piscataquog Land Conservancy, Weare, NH (2004-2014).** Normandeau provided baseline and long-term monitoring for freshwater wetlands behind a low dam constructed to minimize winter drawdown on the impoundment. Project Manager.

**Loon Mountain Ski Resort Expansion, US Forest Service, Lincoln, NH (2011-2014).** Natural resource review was required as part of the proposed expansion of the Loon Mountain Ski Resort. Ms. Allen oversaw wetland delineations, vernal pool surveys, and wildlife surveys on approximately 150 acres of proposed ski trails and associated infrastructure. She was also the NEPA lead for wetlands, rare plant and invasive plant for the Environmental Assessment for the US Forest Service. The EA included a Biological Assessment of rare plants and communities which followed the strict format of the US Forest Service. Wetland Scientist.

**Waterville Valley Resort Green Peak Expansion, US Forest Service, Waterville Valley, NH (2011-2013).** Natural resource surveys were required as part of the proposed expansion of the Waterville Valley Resort. Ms. Allen oversaw wetland delineations, vernal pool surveys, bird and mammal surveys, and soil characterizations on approximately 230 acres of proposed ski trails and associated infrastructure. She was also the NEPA lead for wetlands, rare plant and invasive plant for the Environmental Assessment for the US Forest Service. The EA included a Biological Assessment of rare plants and communities which followed the strict format of the US Forest Service. Task Manager.

**Atlantic White Cedar Swamp Monitoring, Town of Mansfield, MA (2001-2013).** The Town of Mansfield is required to perform long-term monitoring of an Atlantic white cedar swamp as part of the permit conditions for two municipal groundwater wells. After initial surveys in 2001, vegetation monitoring has been conducted at approximately 7 year intervals. Monitoring is conducted in permanent plots and is associated with piezometers outfitted with water level data loggers. Project Manager.

**Eelgrass Assessment, Great Bay Municipal Coalition, Coastal NH (2012-2013).** Normandeau provided a third-party review of 2012 eelgrass mapping in Great Bay (performed by others), and partially groundtruthed the mapped boundaries and densities using underwater videography. Ecologist.

**Brassua Dam Relicensing, FPL Energy Hydro Maine, Rockwood Strip, ME (2008-2011).** This FERC hydropower relicensing effort on the Moose River/Brassua Lake followed the Integrated Licensing Process. Ms. Allen managed the mapping of terrestrial, aquatic and wetland vegetation, as well as

mammalian, avian and amphibian studies to support relicensing. Report preparation included agency consultation and assessment of impacts from impoundment fluctuation. Task Manager.

**Aquatic Vegetation Sampling Protocol, Wisconsin Valley Improvement Company, Wausau, WI (2009).** Normandeau analyzed aquatic vegetation data from WVIC's Spirit Reservoir and developed a statistically robust, repeatable sampling protocol modified from WI Department of Natural Resources methods. This protocol will be applied to all of WVIC's five reservoirs for their upcoming relicensing efforts. Project Manager.

**Moosehead Lake Water Level Fluctuation Assessment, FPL Energy Hydro Maine, Rockwood, ME (2008).** Normandeau assessed the likely impact of water level fluctuations on lake trout populations and breeding success. The work included compiling bathymetry from several existing data sets and estimating the percentage of suitable lake trout spawning habitat exposed at various drawdown levels.

**Spaulding Turnpike Widening, NH Department of Transportation, Rochester, NH (2006- 2008).** Ms. Allen's role was to review and modify mitigation plans for a created/restored 15-acre forested and open-water wetland in an old gravel pit. We assessed potential impacts of a large-withdrawal municipal well proposed adjacent to the site, and identified an alternative mitigation site to replace a portion of original wetland. Project Manager/Ecologist

**Claytor Dam Relicensing, Appalachian Power Company, Western VA (2006-2008).** Normandeau provided natural resource surveys for this FERC hydropower relicensing effort on Claytor Lake on the New River. Ms. Allen managed habitat mapping of wetlands, riparian zones and eagles, and field surveys for rare and invasive plant species. Normandeau's products included assessments of impoundment fluctuation on the various resources, invasive aquatic species management recommendations, and technical presentations to stakeholders. Ecologist/Task Manager.

**Inventory and Analysis of Tidal Wetlands, New Hampshire Coastal Program, NH Seacoast (2004-2006).** Normandeau delineated all tidally-influenced wetlands along the New Hampshire seacoast. The purpose of the project was to map and quantify all emergent tidal wetlands, with an emphasis on the invasives Phragmites (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). This map currently serves as the state GIS data set for coastal wetlands. An analysis of spatial accuracy and trend analysis was conducted to determine the source of discrepancies between three existing data sets and to determine the positional accuracy of the final product. Project Manager.

**Libby River Salt Marsh Restoration Monitoring, Friends of Scarborough Marsh, Scarborough, ME (2001-2010).** Normandeau provided baseline and long-term monitoring of vegetation and hydrology for a culvert replacement on the Libby River to restore a 100-acre degraded section of salt marsh. Project Manager.

**Yadkin River Dam Relicensing, ALCOA Power, Western NC (2003-2005).** Normandeau provided natural resource surveys for this FERC hydropower relicensing effort on four reservoirs on the Yadkin River. Ms. Allen managed the wetlands and terrestrial habitat mapping, an assessment of water willow and shoreline development, and surveys for rare and invasive plant species. Our products included assessments of impoundment fluctuation on the various resources and technical presentations to stakeholders. Ecologist/Task Manager.