

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

IN RE: INVENERGY THERMAL DEVELOPMENT LLC's :
APPLICATION TO CONSTRUCT THE : DOCKET No. SB-2015-06
CLEAR RIVER ENERGY CENTER IN :
BURRILLVILLE, RHODE ISLAND :

**DIRECT TESTIMONY OF ANTHONY JAMES ZEMBA, CHMM; CERTIFIED
ECOLOGIST; CERTIFIED SOIL SCIENTIST
ON BEHALF OF THE TOWN OF BURRILLVILLE**

SUMMARY - TESTIMONY OF ANTHONY JAMES ZEMBA, CHMM

QUALIFICATIONS: My name is Anthony Zemba, I am a Sr. Ecologist with 30 years of professional experience in natural resource management and monitoring, and impact assessment.

PURPOSE OF TESTIMONY: As part of the project technical review team for the Town of Burrillville, I am testifying about the negative biodiversity impacts related to the proposed Clear River Energy Center (CREC), including site layout, utility appurtenances, and stormwater management.

FINDINGS & RECOMMENDATIONS:

Wetland Impacts: The proposed development would have significant adverse impacts to wetlands, including special aquatic sites. I recommend that the Rhode Island Energy Facility Siting Board (EFSB) reject the application. However, if the EFSB chooses to approve the application, then the site layout should be revised to reduce negative wetland impacts, including the reuse of the existing Spectra/Algonquin Access Road instead of the proposed new access road, and the use of an off-site lay down area.

Biodiversity Impacts: The proposed development would have significant adverse biodiversity impacts, including: introduction, spread and proliferation of invasive plant species; loss of habitat for area-sensitive species; loss of habitat for Neotropical migrant avifauna; loss or degradation of habitat used by state-listed fauna and likely used by state-listed flora; direct impact to forest avian specialists that currently occur on the site; loss of supporting upland habitat for facultative and obligate seasonal pool breeding herpetofauna that currently use the Special Aquatic Sites on the property; loss of connectivity to supporting lands adjacent and proximal to the site for lower mobility fauna; and potential increased mortality to migratory bird and bat species.

Stormwater Impacts: The plans supplied with the Invenergy application and supplemental information do not identify how the CREC will address stormwater discharge adverse impacts to biodiversity. I recommend that any EFSB permit not be issued until a complete stormwater management plan is submitted and evaluated, and the potential negative impacts to biodiversity from stormwater generated on the property are evaluated and mitigated.

1 **Q. Please State your Name and Business Address.**

2 A. My name is Anthony J. Zemba. My business address is 416 Asylum Street, Hartford, CT
3 06103.

4

5 **Q. Mr. Zemba, by whom are you currently employed and in what capacity?**

6 A. I am employed by Fitzgerald and Halliday, Inc. as an Environmental Specialist (Sr. Ecologist
7 & Soil Scientist).

8

9 **Q. Please describe your educational background and your professional experience.**

10 A. I received my Bachelor of Science (BS) in Biology with an Ecology Concentration in 1987
11 from Eastern Connecticut State University, in Willimantic, CT and a Master of Science (MS)
12 in Environmental Science with an Ecology Concentration from the University of New Haven
13 in West Haven, CT. I am a Certified Hazardous Materials Manager (CHMM) (Certification
14 through the Institute of Hazardous Materials Managers), a Certified Ecologist (Certification
15 from the Ecological Society of America), and a Certified Soil Scientist (New England
16 Regional Certification via the New England Land Grant Universities). I have been involved
17 in natural resource management/impact assessment for over 30 years. My resume is attached
18 as Exhibit A.

19

20 **Q. What are your technical specialties?**

21 A. My primary responsibilities are the assessment of environmental impacts to natural resources
22 (biotic and abiotic), flora and fauna inventories, biological conservation planning, and
23 ecological risk assessment.

1 **Q. Have you ever testified as an expert witness before any court or administrative body?**

2 **If so, what was the nature of your testimony?**

3 A. Yes, I have testified as an expert witness in a matter involving the potential impacts to
4 biodiversity and natural resources associated with the reconstruction of the existing State
5 Route 66 in Middlefield, CT (public hearing), and in a matter involving impacts associated
6 with unpermitted removal of bedrock from Cathole Mountain in Meriden, CT.

7
8 **Q. What is the purpose of your testimony today?**

9 A. I am here to provide testimony on biodiversity issues pertaining to the proposed Clear River
10 Energy Center (CREC), including site layout and utility interconnection alignments.

11

12 **Q. What materials have you reviewed in this matter?**

13 A. I have reviewed the application that Invenergy submitted to the EFSB for the CREC and
14 supplemental information submitted to the EFSB, including Invenergy's responses to Data
15 Requests.

16

17 **Q. Please summarize the impacts of the proposed CREC within your area of expertise.**

18 A. The application and supplemental documents indicate that the project would be built on a 67
19 acre site on Wallum Lake Road adjacent to the Spectra Energy Gas Compressor Station. The
20 project would permanently and adversely impact a majority of the habitats on the 67 acre
21 site, including approximately 2.4 acres of wetlands. The impacts are expected to be
22 generated by the construction of the facility and utility appurtenances with additional impacts

1 during construction from construction equipment and material staging areas, and other
2 permanent impacts due to ongoing facility operation.

3
4 The application and supplemental documents show that development of the site, including
5 construction of roads, buildings and equipment, would result in expected direct and indirect
6 impact to rare species and other species of conservation concern as identified by state and
7 federal regulators.

8
9 **ADVERSE BIODIVERSITY IMPACTS**

10
11 **Q: Have you had the opportunity to observe the habitats on the site?**

12 A: Yes. I was afforded the opportunity to see the site and walk the property on two occasions,
13 once on June 2nd and the second on July 26th, 2017.

14
15 **Q. Has the biodiversity of the property been sufficiently and accurately characterized in
16 the Invenergy Application?**

17 A. No. Certain taxa are under-represented by the data presented. Some taxa are omitted
18 altogether. Still others have been identified only down to family or genus level. Here are a
19 few examples:

20
21 **Insecta:** Identification to species level is not always necessary to determine significant
22 impacts, but in the case of CREC, macroinvertebrate analysis down to the genus level
23 identified the presence of an Odonata Genus *Cordulegaster* at one station. The species of
24 *Cordulegaster* was not determined. In Rhode Island, the Arrowhead Spiketail is listed as a

1 rare species. It is found in semi-permanent streams and seeps in forested areas¹. The
2 presence of a *Cordulegaster* species at station ID 1/1 needs to be further investigated to
3 determine species.

4
5 The oak/lowbush blueberry community present on site in the uplands is a habitat that is
6 typically known to harbor rare Lepidoptera. The listing of just three observed insect species
7 in the application under the terrestrial invertebrate section provides very little useful
8 information. Information regarding invertebrate taxa, esp. Lepidoptera and Odonata needs
9 to be greatly expanded.

10
11 **Avifauna:** A number of indicator species are missing from the list of observed and expected
12 fauna. For instance, among the avifauna, Pileated Woodpecker should be added as well,
13 based upon signs of their activity on the site. Additional forest interior species or bird
14 species of conservation concern (BCC) likely occur on the site as well.

15
16 **Herpetofauna:** One would expect to find additional herpetofauna than what was reported in
17 the application as observed from incidental site visits. For instance the Red Eft (terrestrial
18 form of the Eastern Newt) may be expected to occur on the site as well, as would the Pickerel
19 Frog. Most snakes were omitted from the characterization as well.

20
21 **Mammalia:** Similarly, a number of additional mammal species are expected to occur on the
22 site as well due to the large forested habitat that lies contiguous to the site. Bobcat and Black

¹ Nikula, et al., 2003

1 Bear should also be added to the expected list of mammals. Also more representatives of the
2 family Mustellidae should be included in the list, besides just Fisher. Given the size of the
3 habitat block and surrounding supporting resource areas one would likely expect to find
4 weasels, Mink, and Possibly River Otter as well.

5
6 Small mammals are under-represented in the list. No representatives of Order Insectivora
7 are included, nor are any species of jumping mice (Dipodidae), or moles (Talpidae).

8
9 Additional members of the Order Chiroptera should be included to address arboreal roosting
10 species which could be impacted by tree clearing.

11
12 **Flora:** In regard to plants, there is no discussion about plant species of conservation concern.
13 Biodiversity conservation is not just the preservation of species that are listed as Threatened
14 or Endangered in the State and (by default) Federal Endangered Species Acts, it is also about
15 the conservation of species identified in the state's wildlife action plan as "Greatest
16 Conservation Need" and are vulnerable to threat impacts such as land development. A
17 comprehensive list of all plants at the site should have been provided. A comprehensive list
18 of flora could only be composed as a result of multiple field excursions across different
19 seasons and within each of the habitats since the identification of many plants is dependent
20 upon flowering parts and different species of plants flower at different time periods.

21
22 **Q. Has an adequate or reasonable assessment of adverse biodiversity impacts been**
23 **presented in the Application?**

1 A. No. A complete biodiversity impact assessment cannot be provided until the majority of
2 plant and animal species known to occur on the property is provided to stakeholders for
3 review and assessment. Furthermore, the effects penetration distance into the forest interior
4 from the edge impacts a number of resources to a varying degree so a more complete
5 identification of the biodiversity is imperative to understanding the effects penetration
6 distance into the forest.

7

8 **Q. Is there enough evidence presented by Invenergy to ascertain whether or not the site**
9 **contains significant biodiversity resources of conservation concern?**

10 A. Yes. Indicators of Biological Integrity, Diversity, and Ecosystem Health (BIDEH) that
11 occur on site include, but are not necessarily limited to, the following:

- 12 ▪ Presence of Top Carnivores
- 13 ▪ Use of the site by area-sensitive species
- 14 ▪ Use of the site by species of varying trophic levels
- 15 ▪ Use of the site by wetland-dependent species
- 16 ▪ Use of the site by species indicative of excellent water quality
- 17 ▪ Presence of rare plant and animal species representative of multiple taxa
- 18 ▪ Presence of additional biota with regional conservation status designations
- 19 ▪ Low incidence and distribution of invasive plant species across the site
- 20 ▪ Presence of varying physiographic features, soils, and plant structure, resulting in
21 abundant microhabitat formation, and
- 22 ▪ The landscape position of the site adjacent to other conservation lands and a
23 contiguous forested landscape.

1 **Q. Does the proposed construction of the CREC Facility pose a threat to the site's**
2 **biodiversity?**

3 A. Yes. Threats to biodiversity associated with the proposed CREC facility at Algonquin Drive
4 include but are not necessarily limited to the following:

- 5 ▪ Introduction, spread and proliferation of invasive plant species
- 6 ▪ Loss of habitat for area-sensitive species
- 7 ▪ Loss of habitat for Neotropical migrant avifauna
- 8 ▪ Loss or degradation of habitat used by state-listed flora and fauna
- 9 ▪ Direct impact to forest avian specialists that currently occur on the site
- 10 ▪ Loss of supporting upland habitat for facultative and obligate seasonal pool breeding
11 herpetofauna that currently use the Special Aquatic Sites on the property
- 12 ▪ Loss of connectivity to supporting lands adjacent and proximal to the site for lower
13 mobility fauna, and
- 14 ▪ Potential increased mortality to migratory bird and bat species.

15
16

WETLAND IMPACTS

17
18 **Q. Is the site layout shown on the plan supplied by Invenenergy adequate to avoid adverse**
19 **impacts upon wetland dependent species of conservation concern?**

20 A. No. The plans indicate that there will be direct, significant impacts to wetlands due to facility
21 construction, access road construction, and temporary laydown areas, and likely indirect
22 impacts from groundwater drawdowns during construction, and loss of the wetland's
23 associated upland review area ("buffer"). If the plant is approved, we recommend that the
24 site layout be revised to reduce direct and indirect impacts to wetlands. We also recommend

1 the use of a shared access road with Spectra Energy/Algonquin to further reduce wetland
2 impacts. Furthermore, use of an off-site lay down area should be required. Appropriate
3 investigations of those sites for ecological resources of concern (e.g., wetlands, rare plants
4 and animals, etc.) should also be conducted to inform the site selection process.

5
6 **STORMWATER**

7
8 **Q. Will the stormwater generated by the CREC pose a threat to biodiversity?**

9 A. Yes. Development of the site would include increasing the impervious surface area resulting
10 in increased stormwater run-off from the site. This runoff could include chemical
11 constituents that are toxic to aquatic organisms. If the plant is approved, the developer must
12 be required to treat and detain the run-off to avoid adverse impacts to the areas receiving the
13 run-off. Untreated stormwater poses a threat to water quality and the wetland dependent
14 species that require a clean water supply. Sediment deposited from runoff is often colonized
15 by invasive plant species that can rapidly proliferate in the site's environmental setting.
16 James Jackson of CDR Maguire has also evaluated the environmental issues associated with
17 stormwater.

18
19 **RECOMMENDATIONS**

20
21 **Q. What are your recommendations?**

22 A. I am of the strong opinion that this proposed facility presents an unacceptable risk of harm
23 to the environment as described above, and therefore the application should be rejected by
24 the EFSB. However, if the plant is approved, I recommend:

- 1 • An alternatives analysis be conducted of other potential sites within a “zone of siting
2 feasibility” to assess whether there is a site that could be used which would lessen the
3 negative biodiversity impacts. Such alternatives analysis should also include
4 alternatives that assessed revised existing site layouts/building configurations and
5 footprints sufficient to avoid, minimize, and reduce wetland and biodiversity impacts.
- 6 • Reuse the existing Spectra/Algonquin Access Road instead of the proposed new access
7 road that will adversely impact wetlands and wetland-dependent species, and use an
8 off-site lay down area.
- 9 • That any EFSB permit not be issued until a complete biodiversity assessment has been
10 conducted and the results of such a study are made available for review and analysis
11 by all stakeholders.
- 12 • Any EFSB permit issued should be contingent upon a wetland and biodiversity
13 mitigation plan reviewed and approved by state and federal regulators with
14 jurisdictional authority to conserve the site’s biodiversity. The mitigation plan should
15 address unavoidable impacts to all species, habitats, and ecological communities of
16 conservation concern found to occur on the site, the ecosystem services they provide,
17 and the biotic and abiotic processes that sustain them.

18

19 **Q. Are the opinions you have expressed in your testimony based upon your education,**
20 **training, experience and the materials you have reviewed to prepare for this testimony,**
21 **and are those opinions all based upon a reasonable degree of certainty or probability**
22 **in your fields of expertise?**

23 A. Yes.

1

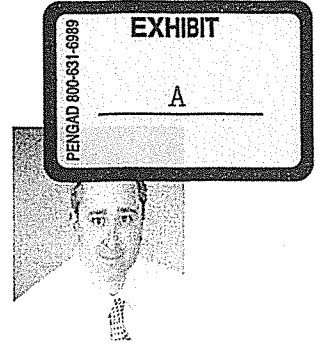
2 **Q. Does this conclude your testimony?**

3 **A. Yes.**



ANTHONY J. ZEMBA, CHMM

ENVIRONMENTAL SPECIALIST



OVERVIEW

Mr. Zemba has over 30 years of professional natural resource management and assessment experience. Areas of expertise include environmental impact statements/assessments; environmental permitting; fish and wildlife inventories and monitoring; fish and wildlife habitat assessments/characterizations, management, planning, and restoration; wetland functions and values assessments; conservation planning; property assessments for hazardous material impact, and environmental compliance monitoring for hazardous and regulated materials handling. Currently, Mr. Zemba is working on a variety of projects involving rare species assessment, environmental permitting, conservation planning, and habitat enhancement/restoration. During his professional career, Mr. Zemba has gained notable experience in forest health issues (as a former employee with USDA Forest Service), natural resource management planning (as senior ecologist with a full service engineering firm), and NEPA policy (as adjunct professor at the University of New Haven Graduate Program in Environmental Science). Representative projects follow.

REPRESENTATIVE PROJECT EXPERIENCE

NEW HAVEN-HARTFORD-SPRINGFIELD CONSTRUCTION – NORTH HAVEN TO HARTFORD, CT: Conducted Avian and Bat Surveys along Phase 3A North (Hartford to Windsor). Currently conducting turbidity monitoring and providing invasive species identification and control feasibility assessment from North Haven to Hartford, as well as listed plant species mitigation and monitoring services during the construction of this multi-state, rail enhancement project.

CT WETLAND IN-LIEU FEE (ILF) PROGRAM MANAGEMENT: Currently providing program management services for AudubonCT (sponsor organization) of Connecticut’s ILF Program authorized by the Army Corps of Engineers (Corps). Conduct public outreach to promote the program, Convened a Project Advisory Committee (PAC) consisting of federal and state regulators to review applications for release of credits, fulfill administrative needs of the PAC, orchestrate site visits for PAC, organize project scoring and compose recommendation report to Corps’ Interagency Review Team.

RAPID ECOLOGICAL ASSESSMENTS OF 10 PRESERVES | FAIRFIELD COUNTY, CT: Conducted rapid (one – two day) ecological assessments of 10 preserves owned and managed by the Aspetuck Land Trust in Easton, Weston, Westport, and Fairfield, CT. Identified goals and objectives for land management for passive recreation, biodiversity conservation, access and security, and natural resource management.

EDUCATION

- B.S., 1987, Biology/Ecology, - Eastern CT State University
- M.S., 1996, Ecology/Environmental Science - University of New Haven
- Regional Soil Science Certificate Program, 2006 - University of Massachusetts

PROFESSIONAL AFFILIATIONS

- Certified Ecologist (Ecological Society of America)
- Certified Soil Scientist (New England Land Grant Universities)
- Certified Hazardous Materials Manager (Institute of Hazardous Materials Management)
- OSHA 40-Hr. Hazardous Waste Operations and Emergency Response Certification
- PADI Open Water Diver No. 87126484
- CT Safe Boating Certification

YEARS EXPERIENCE

- 2 Years with firm
- 28+ Years in industry



WETLAND DELINEATION AND LISTED SPECIES SCREENING ASSESSMENTS | WINDSOR-BLOOMFIELD, CT: Conducted habitat surveys and evaluations for species listed in the CT Endangered Species Act. Surveys were conducted along multiple miles of linear existing sewer pipe in order to identify high habitat conservation priority areas. Collected information was reported to design team in order to avoid or reduce impact of proposed sewer access and maintenance activities.

IMPACT ASSESSMENT – BRIDE BROOK, BRIDE LAKE, AND WELLFIELD NO. 3 | EAST LYME, CT: Conducted baseline flora and faunal surveys of Bride Brook, Bride Lake and bordering vegetated wetlands systems to assess impact of increased groundwater withdrawal during summer peak demand.

ASH CREEK RIPARIAN HABITAT RESTORATION | FAIRFIELD, CT: Orchestrated habitat restoration efforts of a riverine tidal system including invasive plant species control, re-establishing native coastal wetland and riparian vegetation associations, special habitat attributes, educational signage, and coastal access improvement elements.

WETLAND DELINEATION AND BIOLOGICAL SURVEYS FOR EIS, S.R. 82/85/11 | SALEM TO WATERFORD, CT: Coordinated and conducted biological surveys and wetland delineations along an 11-mile proposed highway corridor. Identified and negotiated appropriate survey protocols for target taxa with state and federal regulators. Organized and managed team of expert biologists to conduct multi-taxa seasonal surveys for aquatic organisms, avifauna, herpetofauna “vernal” pools, winter and spring animal tracks, Odonata, and New England Cottontail.

WETLAND DELINEATION BIOLOGICAL SURVEYS FOR EA, STATE ROUTE 66 | MERIDEN TO MIDDLETOWN, CT: Coordinated and conducted biological surveys and wetland delineations along a 3-mile proposed corridor widening project. Identified and negotiated appropriate survey protocols for target taxa and state and federal regulators (USEPA, USFWS, USACOE, FHWA, CTDEEP). Organized and managed team of expert biologists to conduct seasonal surveys for aquatic invertebrates, breeding birds, herpetofauna, and rare flora.

IDENTIFICATION OF GLOBALLY IMPORTANT BIRD AREAS IN THREE EASTERN STATES (RI, WV, AL). For Audubon’s National Science Office in Ivyland, PA: identified sites that met Audubon and Birdlife International’s criteria of Globally Important Bird Areas in the states of Rhode Island, Alabama, and West Virginia. Prepared reports that included site descriptions of the resources and documented species criteria, ownership, habitat, threats, and land use. Results of planning process identified approximately 19 sites in Rhode Island, 19 in West Virginia, and approximately 26 sites in West Virginia.

IMPORTANT BIRD AREA (IBA) CONSERVATION PLANNING – AUDUBON CT (NATIONAL AUDUBON SOCIETY): Provided conservation planning services for Audubon’s state office in Southbury, CT. Audubon administers Birdlife International’s Important Bird Area Program in the United States. Prepared IBA plans for the following CT IBAs:

- Cove Island Park - Stamford, CT
- Good Hill Farm - Woodbury/Roxbury, CT
- Salt Meadow Unit of the Stewart B. McKinney National Wildlife Refuge - Westbrook, CT
- Great Meadow Unit of the Stewart B. McKinney National Wildlife Refuge - Stratford, CT
- Connecticut Audubon Society’s Baffin Preserve - Pomfret, CT

OTHER REPRESENTATIVE PROJECTS - ECOLOGICAL STUDIES, RESTORATION PROJECTS, CONSERVATION & MANAGEMENT PLANNING

- Igor I. Sikorsky Airport Avian, Vegetation and Invertebrate Listed Species Surveys in Stratford, CT



- Winter Bald Eagle Surveys, MDC South Conveyance Tunnel Construction Monitoring in Hartford, CT
- Eastern Box Turtle and Eastern Worm Snake Restoration Plan, Agawam, MA
- Long-eared Owl & Bald Eagle Winter Avian Monitoring – MDC Sewer Outfall Rehabilitation in Rocky Hill, CT
- Flora and Fauna Inventory, Stratford Point Preserve in Lordship, Stratford, CT
- Conservation & Management Plan – Randall’s Farm Preserve in Easton, CT
- Baseline Documentation Report for 331 Harbor Road Southport, CT
- United Illuminating Renewable Energy Project Listed Species Field Surveys, Bridgeport, CT
- Conservation & Management Plan - Earthplace the Nature Discovery Center, Westport, CT
- Ecological Attributes and Baseline Documentation of Natural Resources at Southport Park, Southport, CT
- New Bedford Harbor Roseate Tern Surveys, New Bedford, MA
- Conservation & Management Plan for Hoyt’s Island, South Norwalk, CT
- Conservation & Management Plan for the Turkey Hill Preserve, Orange, CT
- Conservation & Management Plan for the Connecticut Audubon Edwin Way Teale Sanctuary, Hampton, CT
- Conservation & Management Plan for the Trout Brook Valley Conservation Area, Easton and Weston, CT
- Conservation & Management Plan for 21 Preserves owned by the Steep Rock Association, Washington, CT
- New England Cottontail Habitat Restoration, Connecticut Audubon Society’s Croft Preserve, Goshen, CT
- Crescent Beach Restoration Third Party Review, Niantic, CT
- Conservation and Management Plan for the Shorehaven Golf Course, East Norwalk, CT
- Town of Trumbull Open Space Conservation Prioritization Plan, Trumbull, CT
- Identification of Biological Indicators of Diversity and Ecosystem Health at Ten Units of the Stewart B. McKinney National Wildlife Refuge, various coastal locations in CT
- Rentschler Field Grassland Bird Monitoring, and Warm Season Grassland Restoration, East Hartford, CT
- Marine Corps Reserve Center Integrated Natural Resource Management Plan and EA, Syracuse, NY
- WASS Meadow Pumpfield Wetland Functions & Values assessment and hydromorphic zone characterization, Leominster, MA
- Intertidal Zone assessment for New London Waterfront Revitalization Plan/Opsail 2000, New London, CT
- Flora and Fauna Surveys Historic Fry Farm in Coventry, RI
- Route 99 Wetland Mitigation Monitoring, Woonsocket, RI
- Audubon Alliance for Coastal Waterbirds Summer Monitoring for Piping Plover, Least Tern, and American Oystercatcher

REPRESENTATIVE VOLUNTEER BIOLOGICAL INVENTORY, CENSUSING, AND SURVEY PROJECTS

- CTDEEP Wetland Call Back Surveys for Secretive Marsh Birds
- CTDEEP Shrubland Bird Surveys
- CTDEEP Forest Bird Surveys
- CTDEEP Owl and Nocturnal Bird Surveys
- CTDEEP/USGS Winter Eagle Surveys
- Quinnipiac University BioBlitz, Hamden, CT
- Rhode Island Natural History Survey BioBlitz, Jamestown, RI
- Quinnipiac Valley Audubon Society Christmas Bird Count (multiple years)
- Hartford Audubon Society Christmas Bird Count (multiple years)
- Watch Hill Christmas Bird Count – Napatree Point in Westerly, RI
- New London, CT Christmas Bird Count