Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 1:

Letters of Importance

1. Connecticut Letter to NOAA – December, 2004
2. NOAA Response to Connecticut – July, 2006
3. Connecticut Congressional Delegation Long Island Sound Support Letter to NOAA – June, 2012

STATE OF CONNECTICUT
EXECUTIVE CHAMBERS

M. JODI RELL
GOVERNOR

December 27, 2004

Vice Admiral Conrad C. Lautenbacher, Jr., USN (Ret)
Undersecretary of Commerce for Oceans and Atmosphere
Herbert C. Hoover Building, Room 5128
14th and Constitution Avenue, N.W.
Washington, DC 20230-0001

Dear Admiral Lautenbacher:

On behalf of the State of Connecticut, I am pleased to notify your agency of our interest in the creation of a National Estuarine Research Reserve for Long Island Sound through the National Estuarine Research Reserve (NERR) System as administered by the National Oceanic and Atmospheric Administration (NOAA) under Section 315 of the Coastal Zone Management Act.

A Connecticut National Estuarine Research Reserve would make a valuable addition to the NERR System and there are compelling reasons to give special consideration to the establishment of a NERR in the state's estuarine waters. Connecticut's coastline encompasses the complex of Long Island Sound, Fisher's Island Sound, and the Connecticut River (designated as Wetlands of International Importance under the Ramsar Convention), and each possesses estuarine types that would add to, or greatly complement, existing types in reserves of the Virginian biogeographic region. The biological and habitat diversity found in the state's coastal areas are unparalleled in the northeast. From rocky bluffs to sand dunes to expanses of pristine and restored tidal wetlands, these varied habitats offer excellent opportunities for long-term research, monitoring, stewardship and education.

Long Island Sound (LIS) is the largest estuary in the northeast and one of the most densely populated estuaries in the United States with 10 percent of the U.S. population (28 million people) living within 50 miles of LIS. Many challenges and needs exist with such a large and heavily populated estuary and watershed. The State of Connecticut continually strives to meet those needs, and is a national leader on many fronts regarding estuaries. Connecticut is a recognized national leader in coastal wetland restoration efforts, having completed over 60 restoration projects during the past 25 years. Connecticut is at the forefront of developing and implementing a Total Maximum Daily Load plan, the most aggressive nitrogen reduction plan in the country. The University of Connecticut and Connecticut Sea Grant developed the award-winning Non-point Education for Municipal Officials (NEMO) educational program that has been so successful it has evolved into a national network in 26 states. The State of Connecticut will bring these considerable strengths to the NERR community and national coastal program. Connecticut's coastal management efforts, in turn, would benefit in many significant ways from participation in the NERR System.

STATE CAPITOL, HARTFORD, CONNECTICUT 06106
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www.state.ct.us/governor

Currently, the State of Connecticut is at a great disadvantage without a reserve. Our coastal managers and researchers do not have access to federal funds that are available only for studies conducted at a NERR, and existing reserves do not address LIS research and monitoring needs. Also, system-wide NERR training, education and outreach programs are not available in Connecticut. A federal-state partnership between NOAA and the State of Connecticut, in the form of a NERR, would expand and improve our ability to meet current and future coastal management challenges and opportunities for research, stewardship, and education.

The establishment of a reserve in Connecticut is consistent with federal policy on expanding the reserve system. A reserve in Connecticut will:

- Create a reserve in a state currently not represented in the NERR System
- Add exemplary typologies not represented in our region
- Create a multi-site reserve from existing DEP lands and waters
- Require no acquisition funds from NOAA.

The State of Connecticut formally requests technical and financial assistance to begin site selection activities. I designate the Connecticut Department of Environmental Protection (DEP), as the lead agency under the NERR program. Charles H. Evans, Director of the DEP Office of Long Island Sound Programs, will be the contact for future correspondence regarding this request. Please see Mr. Evans' accompanying letter, which discusses in more detail the mutual benefits of a Connecticut reserve to our state and to the nation-wide system of reserves.

In preparation for this important undertaking, the DEP hosted an introductory meeting on August 10, 2004, for the numerous stakeholders who wish to participate in the site selection process. Please see enclosed letters of support from these federal, state, academic and non-profit agencies that will be our partners in the NERR designation process. We eagerly anticipate the establishment of a National Estuarine Research Reserve in Connecticut, and look forward to a strong and productive relationship with NOAA.

Sincerely,

M. Jodi Rell

M. JODI RELL
Governor

LB/RR/lb

Enclosures

CC: Connecticut Congressional Delegation
Eldon Hout, NOAA, Office of Ocean and Coastal Resource Management
Laurie McGilvray, NOAA, Office of Ocean and Coastal Resource Management
Allison Castallon, NOAA, Office of Ocean and Coastal Resource Management

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
Silver Spring, Maryland 20910

JUL 14 2006

Betsey Wingfield, Chief
Bureau of Water Resources and Land Reuse
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106

BUREAU OF WATER MANAGEMENT

JUL 27 2006

Dear Ms. Wingfield:

Thank you for your interest in participating in the National Estuarine Research Reserve System. The National Oceanic and Atmospheric Administration was unable to accept new reserve nominations due to resource constraints for several years and therefore set priorities for new reserve nominations. As indicated in the state's January 11, 2005 letter of interest, the establishment of a reserve in Connecticut meets NOAA's current priorities for new reserve designations: addition of a reserve in an unrepresented state and addition of a new estuarine typology. It is imperative that a new typology, one that does not currently exist within the reserve system, be selected in order for designation to occur.

With the recent designation of the Mission-Aransas Reserve in Texas, the Estuarine Reserves Division now has the human resources available to work with the State of Connecticut on the site selection process. Your contact in the Estuarine Reserves Division is Cory Riley. Cory can be reached at cory.riley@noaa.gov or 603-862-2813 and will be in contact shortly with your staff. As indicated previously, we currently do not have funds to support the designation process; and, future funding for designation and operation of a new reserve is uncertain. We will work within NOAA to seek resources for the site selection and designation process. We encourage you to work within your state as well to support this effort.

We look forward to working with you towards the designation of a new reserve in Connecticut. For information and assistance, please contact Cory or Erica Seiden at 301-563-1172 or erica.seiden@noaa.gov.

Sincerely,

Laurie McGilvray

Laurie McGilvray
Chief
Estuarine Reserves Division

cc: Lori Benoit

Congress of the United States
Washington, DC 20510

June 21, 2012

The Honorable Jane Lubchenco
National Oceanic and Atmospheric Administration
Under Secretary of Commerce for Oceans and Atmosphere
and NOAA Administrator
1401 Constitution Avenue, Northwest
Washington, District of Columbia 20230

Dear Dr. Lubchenco,

Long Island Sound is a multi-use natural resource encompassing vital activities that are important to economic growth and job creation. As federal legislators, we are acutely aware that a healthy Sound supports jobs in the shipping, shipbuilding, commercial fishing and aquaculture, and tourism industries, in addition to the restaurants and other service businesses serving the hundreds of thousands of people who visit each year for recreation. All have a common goal to protect and conserve an estuary of national significance.

We are writing you at this time to make you aware of our shared support for existing efforts at the state and local level regarding Coastal and Marine Spatial Planning (CMSP) in Long Island Sound. CMSP will create a comprehensive, sound science-based process and analysis to determine current and anticipated sustainable uses of the Sound. As you know, the National Ocean Council, established by Executive Order of the President, is establishing Regional Planning Bodies (RPB) to oversee regional CMSP that will guide federal agency activities. At this time, we respectfully request that you make available any obtainable funding for this effort. We recognize that budgets are tight but ongoing regional and bi-state (Connecticut and New York) efforts to create a CMSP process could greatly benefit from federal support, particularly from NOAA.

Equally important, we hope to create a Connecticut-based National Estuarine Research Reserve (NERR) within Long Island Sound, making it the twenty- ninth such reserve within NOAA's highly successful program. A NERR, a proposal supported by Connecticut's Governor Dannel Malloy, would provide invaluable assistance in developing resource data and management techniques for protecting ecological, cultural, and economic values of one of the state's most precious natural resources. Connecticut is one of only a few coastal states without a NERR. A Connecticut-based NERR would serve to coordinate science and education to directly improve the management of the Sound by working with local communities on critical natural resource management issues. This goal has been a priority for the state for several years and we're hopeful that our strong support and renewed focus on this effort will help make this a reality.

Thank you for your leadership on these issues. We look forward to hearing from you on NOAA's commitment to CMSP and the creation of a Connecticut-based NERR within the Sound.

Sincerely,

Richard Blumenthal
United States Senate

Joseph I. Lieberman
United States Senate

Rosa L. DeLauro
Member of Congress

John B. Larson
Member of Congress

Joe Courtney
Member of Congress

Christopher S. Murphy
Member of Congress

James A. Himes
Member of Congress

Connecticut National Estuarine Research Reserve Site Selection & Nomination Report - December 21, 2018
APPENDIX 2:

Connecticut National Estuarine Research Reserve
Site Selection Process Document
Final – Spring, 2016

Connecticut Department of Energy & Environmental Protection
Office of Long Island Sound Programs

Connecticut National Estuarine Research Reserve Site Selection Process Document

FINAL

Spring, 2016

Contents

1. Introduction

This document describes the selection process and criteria that will be used to select a Connecticut National Estuarine Research Reserve (NERR) based on the regulations cited below and informed by the guidance/technical expertise of other states (e.g., Texas and Wisconsin) that have recently completed the NERR site selection process. Before any site screening and selection can proceed in Connecticut, the National Oceanic and Atmospheric Administration's (NOAA) Office for Coastal Management (OCM) must review and approve this document. OCM also is the home of a number of services that provide technical assistance to the Reserve System.[1]

1.1. NERR Mission, Goals, & Enabling Framework:

The NERR System is a partnership of NOAA and coastal states to study and protect vital coastal and estuarine resources. The mission of the NERR program is to establish and manage, through federal-state cooperation, a system of estuarine research reserves representing various regions and estuary types of the United States whose goals are to:

- Ensure a stable environment for research through long-term protection of NERR resources;
- Address coastal management issues identified as significant through coordinated estuarine research within the system;
- Enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation;
- Promote Federal, State, public & private use of one or more Reserves within the system when such entities conduct estuarine research; and
- Conduct and coordinate estuarine research within the system, gathering and making available information necessary for improved understanding and management of estuarine areas.[2]

The most recent NERR Strategic Plan for 2011 – 2016[3] also identifies the following goals based on a mission to practice and promote stewardship of coasts and estuaries through innovative research, education, and training using a place-based system of protected areas:

- Protected Places Goal - Estuaries and coastal watersheds are better protected and managed by implementing place-based approaches at Reserves.
- Science Goal - NERRS scientific investigations improve understanding and inform decisions affecting estuaries and coastal watersheds.
- People Goal - NERRS education and training increases participants' environmental literacy and ability to make science-based decisions related to estuaries and coastal watersheds.

Reserves are established under Section 315 of the national Coastal Zone Management Act (see Appendix A); the regulations governing site selection for a NERR are defined in the Code of Federal Regulations (15 CFR Section 921.11; see Appendix B). In addition to these statutory requirements, NOAA-OCM provides a guidance document outlining best practices for the Site

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[1] http://www.nerrs.noaa.gov/

[2] 15 CFR Section 921.1(a), (b) : https://www.gpo.gov/fdsys/pkg/CFR-2014-title15-vol3/pdf/CFR-2014-title15-vol3-part921.pdf

[3] http://nerrs.noaa.gov/Doc/PDF/Background/StrategicPlan2011.pdf

Selection Criteria and Process.[4] This document customizes the guidance from NOAA-OCM to account for the regional differences in characteristics of the ecosystems and habitats under consideration and will serve as the basis for how sites will be evaluated in Connecticut.

1.2. Why establish a NERR in Connecticut?

Long Island Sound is among the most important and valuable estuaries in the nation, a fact made clear in 1987 when Congress designated Long Island Sound an estuary of national significance. It is home to over 1200 species of invertebrates, 170 species of fish, and has recently been calculated to provide an ecosystem-based value of approximately $5.5 billion.[5] A Connecticut NERR, working in concert with existing environmental management and educational institutions, would complement and expand science and education to greatly improve the management of Long Island Sound in the following ways:

- Reserve staff will work with local communities to address existing and evolving natural resource management issues, such as non-point source pollution, habitat restoration, invasive species, and climate change adaptation.
- Reserves will provide adult audiences with training on estuarine issues of concern in their local communities. They will also offer educational opportunities for K-12 students and support teachers through professional development programs in marine education.
- Reserves will provide critically needed long-term environmental monitoring programs as well as opportunities for both scientists and students to conduct research in a "living laboratory."
- Reserves are eligible for federal funding programs that are only available to a NERR site.

The Office of Long Island Sound Programs (OLISP) of the Connecticut Department of Energy and Environmental Protection (DEEP) has been designated by the Governor as the lead State entity for selecting and designating a Connecticut NERR. OLISP will also partner with the Marine Sciences Department of the University of Connecticut and the Connecticut SeaGrant Consortium. This collaboration between the lead state agencies for coastal resource management, marine science and research, and marine education and outreach align well with the NERR goals and will bring to bear a solid source of knowledge and experience to the process. The specific nature of the organizational structure and additional expertise is addressed in greater detail in the section "Connecticut NERR Site Selection Processes - Connecticut NERR Teams & Functions"

1.3. NERR Biogeographic Regions & Typologies:

NERR sites are chosen to reflect regional variations and ecosystem types termed "biogeographic regions." Connecticut lies within the Virginian Biogeographic region as defined by NOAA, encompassing the coastal areas from Cape Cod, MA to Chesapeake Bay, VA (areas 3 through 5 on Figure 1.) Biogeographic regions are further classified into sub-regions; the Southern New England Sub-region (area 3 on Figure 1) ranges from Cape Cod, Massachusetts to Sandy Hook,

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[4] National Estuarine Research Reserve Designation, Site Selection and Nomination. NOAA ERD, May 2005.
[5] http://longislandsoundstudy.net/about-the-sound/what-makes-it-special/

New Jersey. This distinction is important as there are currently three NERR sites in the Southern New England sub-region: Hudson River, NY, Narragansett Bay, RI, and Waquoit Bay, MA.

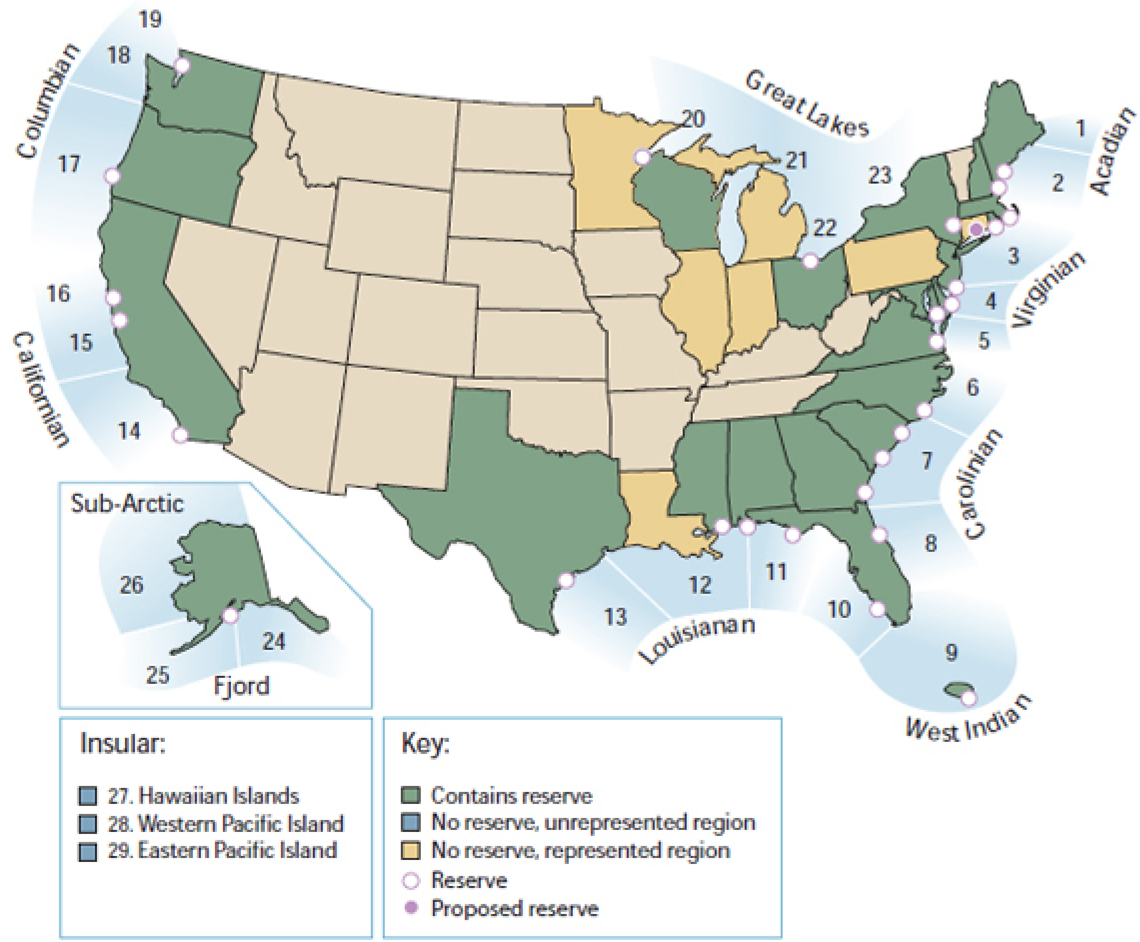

Figure 1: Biogeographic regions (named) and sub-regions (numbered) of the National Estuarine Research Reserve System.

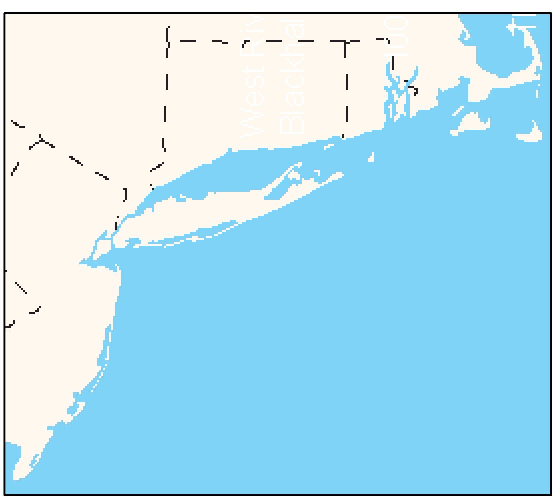

Figure 2. Southern New England Sub-region. Long Island Sound is the largest estuary in this region.

Estuaries can exhibit a variety of different characteristics – the NERR program refers to these differing characteristics as "typologies," and uses them, in part, "…to ensure that sites in the system reflect the wide range of estuarine types within the United States."[6] NOAA provides a detailed listing of typologies on their NERR web site.[7] One of the guiding principles for selecting a site, outlined in CFR Section 921.11(c)(1), refers to its "...contribution to the biogeographical and typological balance of the National Estuarine Research Reserve System. NOAA will give priority consideration to proposals to establish Reserves in biogeographic regions or sub-regions or incorporating types that are not represented in the system." Since Connecticut is in a sub-region with existing reserves, it will be imperative to evaluate and identify typological elements that are currently not represented within the Reserve system in order to enhance the likelihood of nomination and designation. As part of the site selection process, it is proposed that Connecticut work closely with the existing reserves to determine priority typologies for a Connecticut NERR. Such coordination will allow for a comprehensive typology assessment as well as the identifying other aspects such as size, distribution, and quality.

The two major estuarine complexes in Connecticut include Long Island Sound and Fishers Island Sound. Within the Southern New England Sub-region Long Island Sound is the single largest estuarine waterbody, totaling 1320 square miles. For the purposes of the NERR site selection process, the proposed area for consideration includes all estuarine waters within the Connecticut Coastal Area (as defined by Connecticut General Statute (C.G.S.) 22a-94(a)) and in the case of the Connecticut River, all tidal waters within the Ramsar Project Area.[8]

[6] 15 CFR Section 921.3(a) : https://www.gpo.gov/fdsys/pkg/CFR-2014-title15-vol3/pdf/CFR-2014-title15-vol3-part921.pdf

[7] https://www.gpo.gov/fdsys/pkg/CFR-2014-title15-vol3/pdf/CFR-2014-title15-vol3-part921-appII.pdf

[8] This area is a complex of tidal wetlands designated as "wetlands of international importance" by the Ramsar Convention, an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.

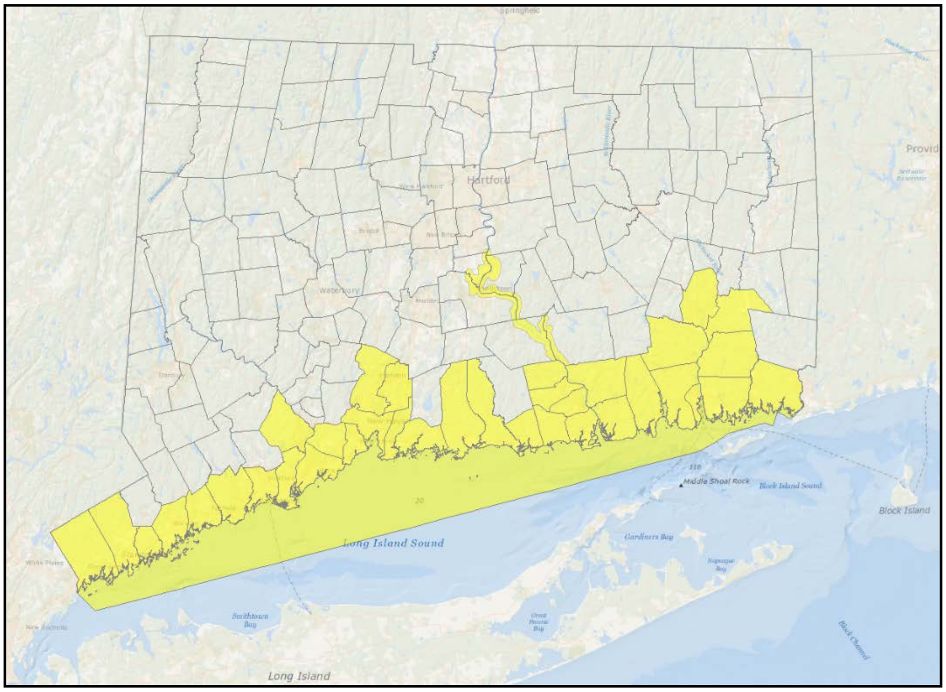

Figure 3: Proposed area (yellow) in consideration for siting a Connecticut NERR.

2. Connecticut NERR Site Selection Processes

The following sections describe the process Connecticut will follow for selecting and nominating a NERR site. This represents an overall approach that is consistent with Section 315 of the CZMA, the associated CFR regulations, and the guidelines prepared by OCM. Input from the experiences of recently added reserves (Lake Superior - WI and Mission Aransas -TX) was also used to provide more targeted process-level details.

2.1. Connecticut NERR Teams & Functions

Based on communications with other states who have recently gone through the site selection process, two general approaches were used. One involves large, all-inclusive committees representing all interested parties. The other involves creating small groups that engage external resources as needed. In evaluating the two approaches, Connecticut favors the latter and proposes to develop four topically driven entities: a state management team responsible for the overall site selection responsibilities and providing day-to-day operational oversight, coordination, and support; a team of subject-matter experts to apply and evaluate site feasibility criteria; and two supporting teams from the Federal Government and the NERR network to provide process guidance and institutional knowledge/resources. Below is a more complete description of the teams and their goals and objectives.

2.1.1. Connecticut NERR Steering Committee:

The NERR mission includes goals defined both in an overall capacity and in time-specific planning horizons with strong ties to environmental research, education, and outreach. To ensure that a Connecticut NERR is selected to meet or exceed these goals and that the process is managed in an efficient manner, a management team, the Connecticut NERR Steering Committee (Steering Committee), with proven expertise, resources, and leadership will be created with representation from the following agencies:

- DEEP-OLISP – As the State's federally approved coastal zone management program, OLISP has been designated by the Governor as the State agency tasked to coordinate and lead the effort. OLISP will also coordinate with other relevant DEEP programs (e.g., State Parks) to ensure the team's goals and objectives are met.
- University of Connecticut Marine Sciences Program – provides recognized expertise in physical, chemical, geologic, and biologic estuarine research and higher education.
- Connecticut Sea Grant – specialized expertise in education & outreach, as well as engaging in research that addresses a range of coastal management issues

The Steering Committee will operate under the following goals and objectives:

- Goal: To manage all aspects of the Site Selection process and ensure that the nominated site meets both Federal NERR goals and Connecticut's needs regarding long-term protection, research on coastal management issues, public education and outreach.
- Primary Objectives:
  - Process Management:
    - Provides overall process administration, oversight and direction.
    - Provides instructions/comments/advice to teams as needed.
    - Acts as a liaison with Federal NERR leadership.
    - Reviews and approves the output of the screening processes.
    - Recommends that the Commissioner of DEEP submit the chosen site to the Governor for formal nomination.
  - Communication:
    - Coordinates communication between and among the NERR teams, the public, municipal officials, State/Federal legislative bodies, media, etc.
    - Provides education to the public, municipal officials, State/Federal legislative delegates, media, etc., about NERR process.
    - Maintains a publically accessible website to act as a central repository for Connecticut NERR Site Selection information and provides mechanism(s) – e.g., e-mail, social media, etc. - to receive input and suggestions from interested parties at any time.
    - Organizes public and non-public meetings/workshops.
- Operates by:
  - Consensus
  - Led by OLISP designee

2.1.2. Site Screening Team:

The Site Screening Team (SST) will be responsible for inventorying, analyzing and evaluating sites for a potential Connecticut NERR. Given the level of time and commitment required to produce a decision and the ancillary material supporting it, the SST will be initially composed of at least one representative from each of the agencies on the Steering Committee to provide a consistent group of core leadership throughout the process. To this, additional members will be added by:

- A targeted invitation by the Steering Committee to state/local/regional/national individuals with recognized topical expertise or background prior to the formal commencement of the process (e.g., land managers, ecologists, wetland scientists, municipal staff, etc.,);
- A general invitation to interested parties as part of or in support of the initial public engagement.

Both invitations will provide an outline of the duties and anticipated timelines, and ask that a reasonable level of direct involvement can be counted on.

During the course of its duties, the SST will be empowered to identify and engage outside experts who will not be part of any formal decision making processes, but will serve to provide the information needed to fully and completely apply the evaluation criteria. Examples of outside experts could include but not be limited to: educators, published researchers, NGO members, municipal leaders, or members of local or regional commissions/boards/offices, etc. Special coordination between the SST and land managers will be required during specific phases of the evaluation, and the SST will be required to engage these at the proper times.

- Goal: To manage and carry out the Site Screening Process to select a Connecticut NERR site nominee.
- Primary Objectives:
  - To understand and apply the preliminary and detailed screening criteria.
  - Organizes meetings/workshops.
  - Identifies and engages outside experts to provide input to the decision-making processes.
  - Provides updates on progress to the Steering Committee.
  - Presents findings of preliminary screening as a workshop/meeting & report.
  - Presents findings of detailed screening as a workshop/meeting & report.
  - Reviews and addresses public comments on preliminary/detailed screening as needed.
- Operates by:
  - Majority
  - Led by self-selected team chair.

2.1.3. Regional NERR Team:

The Regional NERR Team (RNT) will be comprised of invited representatives from each of the three existing NERR's in the Southern New England sub region. These individuals will bring key knowledge to the process regarding typology, experience in management of a NERR site, and implementation of required programs.

- Goal: To provide existing and anticipated knowledge and expertise in NERR selection and operation to the Connecticut NERR selection process.
- Objectives:
  - Help SST evaluate regional typology and identify salient differences between sites with similar typologies.
  - Advise SST on how candidate sites can best reflect the NERR System goals.
  - Identify potential issues/strategies for consideration during site selection (e.g., suitability/limitations for education, research, monitoring, stewardship, management, etc.,) based on their own experiences or those of other NERRs.

  - Provide knowledge/insights about NERR operations that might be relevant or important to consider during a selection process.
  - Participates in meetings/workshops as needed.
- <u>Operates by:</u>
  - Advisory capacity only

2.1.4. <u>Federal NERR Leadership:</u>

In order to assist in the site selection process, NOAA-OCM has dedicated staff to function as a liaison between established NERR leadership and Connecticut. While not participating in any decision making capacity, these staff will provide general counsel/guidance to the Connecticut teams during the process and assistance in communication and education on the NERR program.

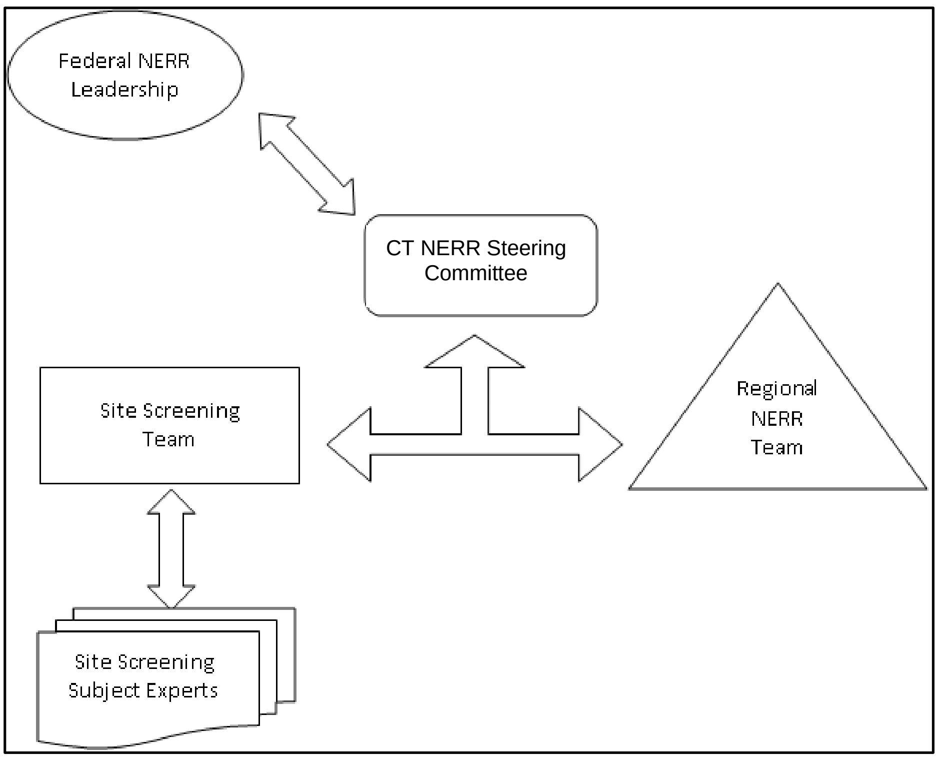

Figure 4: NERR Teams organization

2.2. Site Screening

In order to critically evaluate locations for the Connecticut NERR, a two-tier evaluation system will be used. The first tier, or Preliminary Screening, is designed to reduce the suite of potential sites to a manageable number. The second tier or Detailed Screening (included in Appendix C), will then apply a set of robust, well-vetted criteria to determine the best site for a Connecticut NERR. Within the context of the overall screening process, several points should be noted.

<u>Public Involvement:</u>

Ensuring the public is adequately involved and engaged has been identified as a critical element both from NOAA OCM as well as from states that have recently gone through the selection process. It is particularly important in the early stages where explanation and information on what a NERR is (and is not) should form the basis of a common framework of understanding, mitigate areas of potential conflict, and set reasonable expectations. Efforts to engage the public and stakeholders will be led by the Steering Committee.

Multiple Sites:

In an ideal scenario, Connecticut would identify and nominate a single location providing suitable facilities and resources for research and educational activities rather than consider multiple sites that comprise a whole Reserve. Connecticut acknowledges the fundamental challenges multi-site NERRs can bring and understands that the logistical, financial, and management issues are not to be trivialized. However, there may be sufficient value in a multi-site approach in Connecticut, particularly with respect to providing the necessary typology to the southern New England NERR system. Therefore, a multi-site NERR may be considered as part of the site selection process. In evaluating a multi-site NERR, one site will be considered the "primary site," representing the main facility and estuarine reserve complex while other "secondary site(s)" would represent additional viable areas for research, monitoring, etc. The multi-site configuration should only be seriously considered when there is no apparent way a single-site NERR could be viable.

Climate Change:

The NOAA OCM guidelines currently contain no specific provisions for considering climate change resiliency/adaptability, yet climate change is one of three strategic areas of focus for the reserve system and important to consider. Connecticut believes that climate change criteria should be used to create a stronger list of potential sites. Connecticut's preliminary and detailed screening will therefore factor in climate change adaptability/resiliency into the process to assure that any Connecticut NERR site can remain intact and functional, both now and in the foreseeable future and be a laboratory for evaluating the impact of climate change and vetting adaptation and mitigation strategies.

2.2.1. Preliminary Screening Process:

NOAA OCM guidelines allow for the use of preliminary screening criteria to reduce the number of candidate sites for consideration. Specifically, the guidelines state:

> *"Prior to the application of the full suite of site selection criteria…it may be appropriate for the state, in consultation with [OCM], to utilize a simplified procedure to screen proposed sites to eliminate those areas that are clearly not suitable candidates. A preliminary screening is desirable to reduce the sites considered to three to five sites, thereby reducing the amount of time and effort required to apply the full suite of criteria. A candidate site that does not appear to meet each of the following criteria should be eliminated from the site selection process."*

Connecticut plans to employ this procedure to identify 3 to 5 formal candidates from an initial inventory within the project region identified in Section 1.3. This will begin with a series of possible sites based on selections by the core group of the SST inventory to create a straw-man that can expand to include any other similarly viable sites that are suggested from the broader

SST invitations and public meetings. The SST will then compile a final version of the initial inventory and apply the preliminary screening criteria. These criteria, taken from NOAA OCM guidelines, are:

1. The site is a representative estuary in the biogeographic region or sub-region (i.e., Southern New England sub-region).
2. The proposed boundaries of the site include sufficient land and water area to maintain the integrity of the ecosystem.
3. The candidate site consists of publicly owned lands and/or demonstrates sufficient potential for land acquisition and adequate land use control to meet NERRS objectives.
4. The candidate site is accessible by normal modes of transportation.
5. The candidate site is suitable for research, monitoring, and resource protection activities.
6. The candidate site is suitable for education, training, and interpretation activities.
7. The candidate site is suitable to address key local, state, and regional coastal management issues.

Preliminary Site Scoring Matrix	
3 Points	The site is **well suited** for preliminary criteria.
2 Points	The site is **moderately suited** for preliminary criteria.
1 Point	The site is **marginally suited** for preliminary criteria.
0 Points	The site is **not suited** for preliminary criteria

Prior to applying the criteria, the SST will first assess the initial inventory of sites based on their suitability as either:

1. A single, self-contained site.
2. The primary component[9] of a multi-site
3. A secondary component[10] of a multi-site (note: secondary site(s) may be associated to multiple primary sites.)

Where necessary, the individual sites will be assembled into multi-sites. Once any single and multi-sites sites have been suitably finalized, the SST members will then individually apply the above criteria to evaluate and rank them, keeping track of how the effects of climate change might impact their viability. The SST will then aggregate scoring results to identify 3 to 5 candidates to move forward. NOTE: at this stage the process will be flexible enough allow for a discussion of the final ranking in the event there are questions on the quality of the top 3 to 5 sites. For instance, a site outside of the initial top 5 could replace one, but to do so a majority of the SST members must agree to modify the list.

2.2.2. Preliminary Screening Outreach:

During Preliminary Screening there will be two formal outreach components. The first will be an initial public information meeting prior to the beginning of the process to present an overview of the Goals/Mission of a NERR, why Connecticut is undertaking this, how the process will function, and in general serve as a question and answer forum for the public. Additionally, the

[9] as defined in the Screening Overview – Multiple Site section above
[10] as defined in the Screening Overview – Multiple Site section above

SST will seek voluntary membership from interested parties to assist in the preliminary screening.

In addition, there will be a similarly structured public meeting at the end of the Preliminary Screening so that members of the SST can present the candidates and the contents of their summary report for comment and discussion.
After the event, the preliminary screening report and a summary of the discussions and comments will be publically posted to solicit further feedback from a potentially broader audience. At the conclusion of the comment period, the SST will consider the input received from the public meeting and comment period and finalize their recommendations.

2.2.3. Detailed Screening Process:

The top 3 to 5 sites resulting from the preliminary screening process will be subject to a more rigorous evaluation outlined in Appendix C.[11] The SST will be the primary team leading this effort and will also expand to encompass the knowledge and expertise of local, regional, and national experts. These outside experts should have a suitable background in the topical areas represented by the Detailed Site Assessment criteria and could be represented by, but not necessarily limited to:

- Municipal officials
- Property owners
- Appropriate municipal commissions (e.g., planning and zoning, conservation, etc.,)
- Trade associations
- NGO's
- Subject matter experts in areas of ecology, wildlife, forestry, natural resource management, land-use management, etc., from academic institutions or similar organizations.

The Steering Committee, based on recommendations from the SST, will approve the composition of the outside experts.

In order to properly evaluate the prime candidate sites, the SST, along with any necessary outside experts, will conduct at least one or more visits to each candidate site to become familiar with the layout, assess ecological/typological values, and evaluate potential resource conflicts and coastal management issues. The site visit(s) are intended to complement meetings, conference calls, webinars, etc., the SST should use to discuss and assess the relative merits of the sites as they relate to the criteria identified in Appendix C. Once these are complete, the SST members will then individually score the sites based on their findings by using a common ratings sheet designed for this purpose. (NOTE: any outside experts will only provide information; they will not be involved in the final scoring.)

The SST Chair must convene a meeting of the Committee where members share and discuss their individual ratings of each proposal. A member may, but is not required to, change any individual rating as a result of the Committee's discussions.

When the members are satisfied with their ratings, no further changes will be permitted on the rating sheet. Members shall print out each site's rating sheet and sign and date the certification

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[11] The depth and breadth of the detailed evaluation criteria prevent their inclusion here; please refer to Appendix C to review their scope

portion. For each site, the Chair shall calculate the average score (to two decimal places) for each criterion provided by the reviewers. The average scores for each site will then be totaled and divided by the total possible points. The result shall constitute the final rating for a site. In the event that two sites receive the same final rating, a simple majority vote of the Committee must break the tie. In the event that more than two sites receive the same final rating, the Committee must determine by unanimous vote a fair and equitable method to break the tie.

The SST shall prepare a preliminary report with recommendations for the Steering Committee. The report must include, at a minimum, the names and ratings of the sites. It should also include a summary of any noteworthy issues, discussions, or points of interest that arose during the review process. The report shall be reviewed, adopted and signed by the full SST Committee. The Chair shall then present the contents of report as part of the final public meeting, described below.

2.2.4. Detailed Screening Outreach:

During the Detailed Screening process, the chief elected official in each site's town will be notified about the assessment process and the SST will schedule a meeting(s) with municipal officials to seek their input and help identify experts who can help evaluate the sites with respect to areas where local expertise is required. If deemed necessary by the SST, workshops may be held in the town to seek further information from the public and local experts about the site.

Once the SST has arrived at a final site to nominate as the Connecticut NERR site, a public meeting will be held in accordance with CFR 921.11(d) which states:

> *"Early in the site selection process the state must seek the views of affected landowners, local governments, other State and Federal agencies and other parties who are interested in the area(s) being considered for selection as a potential National Estuarine Research Reserve. After the local government(s) and affected landowner(s) have been contacted, at least one public meeting shall be held in the vicinity of the proposed site. Notice of such a meeting, including the time, place, and relevant subject matter, shall be announced by the state through the area's principal newspaper at least 15 days prior to the date of the meeting and by NOAA in the Federal Register."*

At this public meeting the SST will present the results of their detailed screening effort and solicit feedback. The results of the preliminary report will then be made available on the web for wider review/comment for one month. All comments received through public meetings and the website postings will be summarized and included as part of the site selection submission to NOAA, although the SST can choose to address/evaluate comments for inclusion in the report at their discretion.

2.2.5. Final Evaluation & Nomination:

After reviewing and evaluating all final comments, the SST will submit the final report with the ranking and site recommendation to the Steering Committee. The Steering Committee, upon review and concurrence by consensus, then will recommend to the Commissioner of the Connecticut Department of Energy & Environmental Protection that the site should be formally nominated by the Governor of Connecticut to NOAA OCM as the Connecticut NERR site.

3. Connecticut NERR Major Task Milestones:

Below is list of anticipated major project milestones (and sub-milestones) for the Site Selection process after approval from NOAA OCM and the Steering Committee is assembled:

- Initial Administrative Meetings – *Steering Committee, Federal NERR Leadership Team*
  - Identify & organize personnel from various sectors to create Site Selection, and Regional NERR teams;
  - Create initial inventory of potential sites;
  - Compile/create educational and outreach materials;
  - Set up Connecticut NERR web site and create master contact lists.
- NERR Project Kickoff Meeting – *Steering Committee, Federal NERR Leadership Team & invitees*
  - Letters, press releases, e-mails, etc., to broad base of interest levels (general public, municipal officials, academic institutions, NGO's, etc.,) advertising the process, advocating benefits, soliciting contact information.
  - Initial Public Meeting to frame the process.
  - Finalize Site Selection Team.
- Preliminary Site Screening – *SST, Regional NERR Team*
  - Assorted Meetings/workshops to inventory/assess/evaluate initial list of sites.
  - Provide listing of 3-5 candidate sites to other Connecticut NERR teams.
  - Draft preliminary process report.
- Preliminary Site Screening Public Meeting – *All Teams*
  - Public meeting explaining screening justification to the public, opportunity to react to/answer questions, solicit feedback on candidate sites.
  - Seek and recruit outside experts for Detailed Selection Process.
  - Final preliminary process report identifying final sites to assess.
- Detailed Site Selection - *SST, Regional NERR Team, outside experts*
  - Assorted meetings & site visits to apply the full site selection criteria to candidate sites. (Meetings should include municipal officials/interested parties from site towns.)
  - Score and rank the candidate sites.
  - Draft Detailed Process Report.
- Detailed Site Selection Public Meeting – *All Teams*
  - Public meeting explaining assessment justification to the public, opportunity to react to/answer questions, solicit feedback on nominee.
- Public Comment Period – *public*
  - Solicit feedback from the public for 30 days.
  - Final Detailed Process Report.
- Formal Connecticut NERR Site Nomination Announcement – *Steering Committee*
  - Release of Connecticut NERR Site Nomination to all stakeholders.

Appendices

Appendix A: Section 315 of the Federal Coastal Zone Management Act

Appendix B: 15 CFR Section 921.11 – Site Selection and Feasibility

Appendix C: Detailed Connecticut Site Selection Criteria

Appendix D: 15 CFR Section 921 – Appendix II – NERR Typology

Appendix A: Section 315 of the Coastal Zone Management Act

16 U.S.C. § 1461. National Estuarine Research Reserve System (Section 315)

(a) Establishment of System

There is established the National Estuarine Research Reserve System (hereinafter referred to in this section as the "System") that consists of--

(1) each estuarine sanctuary designated under this section as in effect before April 7, 1986; and

(2) each estuarine area designated as a national estuarine reserve under subsection (b) of this section.

Each estuarine sanctuary referred to in paragraph (1) is hereby designated as a national estuarine reserve.

(b) Designation of national estuarine reserves

After April 7, 1986, the Secretary may designate an estuarine area as a national estuarine reserve if--

(1) the Governor of the coastal state in which the area is located nominates the area for that designation; and

(2) the Secretary finds that--

(A) the area is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographical and typological balance of the System;

(B) the law of the coastal state provides long-term protection for reserve resources to ensure a stable environment for research;

(C) designation of the area as a reserve will serve to enhance public awareness and understanding of estuarine areas, and provide suitable opportunities for public education and interpretation; and

(D) the coastal state in which the area is located has complied with the requirements of any regulations issued by the Secretary to implement this section.

(c) Estuarine research guidelines

The Secretary shall develop guidelines for the conduct of research within the System that shall include--

(1) a mechanism for identifying, and establishing priorities among, the coastal management issues that should be addressed through coordinated research within the System;

(2) the establishment of common research principles and objectives to guide the development of research programs within the System;

(3) the identification of uniform research methodologies which will ensure comparability of data, the broadest application of research results, and the maximum use of the System for research purposes;

(4) the establishment of performance standards upon which the effectiveness of the research efforts and the value of reserves within the System in addressing the coastal management issues identified in paragraph (1) may be measured; and

(5) the consideration of additional sources of funds for estuarine research than the funds authorized under this chapter, and strategies for encouraging the use of such funds within the System, with particular emphasis on mechanisms established under subsection (d) of this section.

In developing the guidelines under this section, the Secretary shall consult with prominent members of the estuarine research community.

(d) Promotion and coordination of estuarine research

The Secretary shall take such action as is necessary to promote and coordinate the use of the System for research purposes including--

(1) requiring that the National Oceanic and Atmospheric Administration, in conducting or supporting estuarine research, give priority consideration to research that uses the System; and

(2) consulting with other Federal and State agencies to promote use of one or more reserves within the System by such agencies when conducting estuarine research.

(e) Financial assistance

(1) The Secretary may, in accordance with such rules and regulations as the Secretary shall promulgate, make grants--

(A) to a coastal state--

(i) for purposes of acquiring such lands and waters, and any property interests therein, as are necessary to ensure the appropriate long-term management of an area as a national estuarine reserve,

(ii) for purposes of operating or managing a national estuarine reserve and constructing appropriate reserve facilities, or

(iii) for purposes of conducting educational or interpretive activities; and

(B) to any coastal state or public or private person for purposes of supporting research and monitoring within a national estuarine reserve that are consistent with the research guidelines developed under subsection (c) of this section.

(2) Financial assistance provided under paragraph (1) shall be subject to such terms and conditions as the Secretary considers necessary or appropriate to protect the interests of the United States, including requiring coastal states to execute suitable title documents setting forth the property interest or interests of the United States in any lands and waters acquired in whole or part with such financial assistance.

(3)

(A) The amount of the financial assistance provided under paragraph (1)(A)(i) with respect to the acquisition of lands and waters, or interests therein, for any one national estuarine reserve may not exceed an amount equal to 50 percent of the costs of the lands, waters, and interests therein or $5,000,000, whichever amount is less.

(B) The amount of the financial assistance provided under paragraph (1)(A)(ii) and (iii) and paragraph (1)(B) may not exceed 70 percent of the costs incurred to achieve the purposes described in those paragraphs with respect to a reserve; except that the amount of the financial assistance provided under paragraph (1)(A)(iii) may be up to 100 percent of any costs for activities that benefit the entire System.

(C) Notwithstanding subparagraphs (A) and (B), financial assistance under this subsection provided from amounts recovered as a result of damage to natural resources located in the coastal zone may be used to pay 100 percent of the costs of activities carried out with the assistance.

(f) Evaluation of System performance

(1) The Secretary shall periodically evaluate the operation and management of each national estuarine reserve, including education and interpretive activities, and the research being conducted within the reserve.

(2) If evaluation under paragraph (1) reveals that the operation and management of the reserve is deficient, or that the research being conducted within the reserve is not consistent with the research guidelines developed under subsection (c) of this section, the Secretary may suspend the eligibility of that reserve for financial assistance under subsection (e) of this section until the deficiency or inconsistency is remedied.

(3) The Secretary may withdraw the designation of an estuarine area as a national estuarine reserve if evaluation under paragraph (1) reveals that--

(A) the basis for any one or more of the findings made under subsection (b)(2) of this section regarding that area no longer exists; or

(B) a substantial portion of the research conducted within the area, over a period of years, has not been consistent with the research guidelines developed under subsection (c) of this section.

(g) Report

The Secretary shall include in the report required under section 1462 of this title information regarding--

(1) new designations of national estuarine reserves;

(2) any expansion of existing national estuarine reserves;

(3) the status of the research program being conducted within the System; and

(4) a summary of the evaluations made under subsection (f) of this section.

Appendix B: 15 CFR Section 921.11 - Site selection and feasibility

(a) A coastal state may use Federal funds to establish and implement a site selection process which is approved by NOAA.

(b) In addition to the requirements set forth in subpart I, a request for Federal funds for site selection must contain the following programmatic information:

(1) A description of the proposed site selection process and how it will be implemented in conformance with the biogeographic classification scheme and typology (§ 921.3);

(2) An identification of the site selection agency and the potential management agency; and

(3) A description of how public participation will be incorporated into the process (see § 921.11(d)).

(c) As part of the site selection process, the state and NOAA shall evaluate and select the final site(s). NOAA has final authority in approving such sites. Site selection shall be guided by the following principles:

(1) The site's contribution to the biogeographical and typological balance of the National Estuarine Research Reserve System. NOAA will give priority consideration to proposals to establish Reserves in biogeographic regions or subregions or incorporating types that are not represented in the system. (see the biogeographic classification scheme and typology set forth in § 921.3 and appendices I and II);

(2) The site's ecological characteristics, including its biological productivity, diversity of flora and fauna, and capacity to attract a broad range of research and educational interests. The proposed site must be a representative estuarine ecosystem and should, to the maximum extent possible, be an estuarine ecosystem minimally affected by human activity or influence (see § 921.1(e)).

(3) Assurance that the site's boundaries encompass an adequate portion of the key land and water areas of the natural system to approximate an ecological unit and to ensure effective conservation. Boundary size will vary greatly depending on the nature of the ecosystem. Reserve boundaries must encompass the area within which adequate control has or will be established by the managing entity over human activities occurring within the Reserve. Generally, Reserve boundaries will encompass two areas: Key land and water areas (or ''core area'') and a buffer a zone. Key land and water areas and a buffer zone will likely require significantly different levels of control (see § 921.13(a)(7)). The term ''key land and water areas'' refers to that core area within the Reserve that is so vital to the functioning of the estuarine ecosystem that it must be under a level of control sufficient to ensure the longterm viability of the Reserve for research on natural processes. Key land and water areas, which comprise the core area, are those ecological units of a natural estuarine system which preserve, for research purposes, a full range of significant physical, chemical and biological factors contributing to the diversity of fauna, flora and natural processes occurring within the estuary. The determination of which land and water areas are ''key'' to a particular Reserve must be based on specific scientific knowledge of the area. A basic principle to follow when deciding upon key land and water areas is that they should encompass resources representative of the total ecosystem, and which if compromised could endanger the research objectives of the Reserve. The term *buffer zone* refers to an area adjacent to or surrounding key land and water areas and essential to their integrity. Buffer zones protect the core area and provide additional protection for estuarine-dependent species, including those that are rare or endangered. When determined appropriate by the state and approved by NOAA, the buffer zone may also include an area necessary for facilities required for research and interpretation. Additionally, buffer zones should be established sufficient to accommodate a shift of the core area as a result of biological, ecological or geomorphological change which reasonably could be expected to occur. National Estuarine Research Reserves may include existing Federal or state lands already in a protected status where mutual benefit can be enhanced. However, NOAA will not approve a site for potential National Estuarine Research Reserve status that is dependent primarily upon the inclusion of currently protected Federal

lands in order to meet the requirements for Reserve status (such as key land and water areas). Such lands generally will be included within a Reserve to serve as a buffer or for other ancillary purposes; and may be included, subject to NOAA approval, as a limited portion of the core area;
(4) The site's suitability for longterm estuarine research, including ecological factors and proximity to existing research facilities and educational institutions;
(5) The site's compatibility with existing and potential land and water uses in contiguous areas as well as approved coastal and estuarine management plans; and
(6) The site's importance to education and interpretive efforts, consistent with the need for continued protection of the natural system.

(d) Early in the site selection process the state must seek the views of affected landowners, local governments, other state and Federal agencies and other parties who are interested in the area(s) being considered for selection as a potential National Estuarine Research Reserve. After the local government(s) and affected landowner(s) have been contacted, at least one public meeting shall be held in the vicinity of the proposed site. Notice of such a meeting, including the time, place, and relevant subject matter, shall be announced by the state through the area's principal newspaper at least 15 days prior to the date of the meeting and by NOAA in the FEDERAL REGISTER.

(e) A state request for NOAA approval of a proposed site (or sites in the case of a multi-site Reserve) must contain a description of the proposed site(s) in relationship to each of the site selection principals (§ 921.11(c)) and the following information:
(1) An analysis of the proposed site(s) based on the biogeographical scheme/ typology discussed in § 921.3 and set forth in appendices I and II;
(2) A description of the proposed site(s) and its (their) major resources, including location, proposed boundaries, and adjacent land uses. Maps are required;
(3) A description of the public participation process used by the state to solicit the views of interested parties, a summary of comments, and, if interstate issues are involved, documentation that the Governor(s) of the other affected state(s) has been contacted. Copies of all correspondence, including contact letters to all affected landowners must be appended;
(4) A list of all sites considered and a brief statement of the reasons why a site was not preferred; and
(5) A nomination of the proposed site(s) for designation as a National Estuarine Research Reserve by the Governor of the coastal state in which the state is located.

(f) A state proposing to reactivate an inactive site, previously approved by NOAA for development as an Estuarine Sanctuary or Reserve, may apply for those funds remaining, if any, provided for site selection and feasibility (§ 921.11a)) to determine the feasibility of reactivation. This feasibility study must comply with the requirements set forth in § 921.11 (c) through (e).

Appendix C: Detailed Connecticut Site Screening Criteria

The following section identifies the detailed site screening criteria proposed for evaluating potential Connecticut NERR sites. This list is derived from NOAA OCM recommendations, and modified by OLISP to address issues relevant to Connecticut.

1. Environmental Representativeness: Ecosystem Types/Physical Characteristics

In order to determine the representativeness of a candidate site relative to ecosystem type as defined in Appendix II of NERRS Program Regulations (15 CFR Part 921)[12], the site will be evaluated using the following suite of ecological, biological, physical, and chemical characteristics that fall under the general category of "ecosystem & physical characteristics". The first six criteria focus primarily on factors concerning a site's diversity and balance in regard to the types of ecosystems and habitats present, as well as any significant and/or unique biotic traits. The remaining criteria for physical/chemical characteristics focus on a site's position within its watershed, geological and salinity characteristics, water quality and the degree to which it is developed. (NOTE: The link provided in the footnote provides detailed descriptions/definitions of the general terminology used in this section. These are also included within this document as Appendix D)

1.1. Ecosystem Composition: A measure of the diversity of ecosystem types present within the boundaries of the site. Sites having a high diversity of major ecosystem types are considered to have a higher relative value for protection and management. Use the following ecosystem type designations as modified from Appendix II of NOAA Regulations 15 CFR Part 921.

Class I: Group I – Shorelands (upland habitats and non-tidal wetlands)
1. Maritime Forest-Woodland
2. Coastal Shrublands
3. Coastal Grasslands
4. Coastal non-tidal wetlands
5. Coastal Cliffs/bluffs

Class I: Group II - Transition Areas (intertidal habitats)
1. Coastal Marshes
3. Intertidal Beaches
4. Intertidal Mud and Sand Flats
5. Intertidal Algal Flats

Class I: Group III – Submerged Bottoms (submerged habitats)
1. Subtidal Soft Bottoms
2. Subtidal Plants
3. Subtidal Hard bottoms (Rocky substrate and Oyster Reefs)

[12] https://www.gpo.gov/fdsys/pkg/CFR-2014-title15-vol3/pdf/CFR-2014-title15-vol3-part921-appII.pdf

Table 1.1: *Ecosystem Composition Scoring*

3 Points	The site has **a high diversity** of ecosystem composition, possessing at least one representative habitat from each of the three ecosystem groups.
2 Points	The site has a **moderate diversity** of ecosystem composition, possessing at least one representative habitat from two of the three ecosystem groups.
1 Point	The site has a **low diversity** of ecosystem composition, possessing at least two representative habitats from only one of the three main ecosystem groups.
0 Points	The site has a **very low diversity** of ecosystem composition, possessing only a single habitat type within any one of the three main ecosystem groups.

1.2. Balanced Ecosystem Composition: A measure of the relative composition of ecosystem types within the boundaries of a site. This criterion is based on the assumption that sites with a balanced proportion of ecosystem types are of higher relative value for protection and management. High, moderate, and low values are assigned to sites that contain variations in the proportions of the three ecosystem types. A value of zero is assigned to a site that is dominated by one ecosystem type or contains less than three ecosystem types.

Table 1.2: *Balanced Ecosystem Composition Scoring:*

3 points	The site contains representative upland, intertidal, and subtidal habitats in relatively equal proportions so that **the area covered by any one ecosystem type is not less than 25%** of the total area.
2 points	The site contains representative upland, intertidal, and subtidal habitats, with **the area covered by any one type is not less than 10%** of the total area.
1 point	The site contains representative upland, intertidal, and subtidal habitats, with **the area covered by any one type is less than 10%** of the total area.
0 points	The site contains representative upland, intertidal, and subtidal habitats, with **the area covered by two types being less than 10% of the total area or the site consists of habitats from only one or two of the three major ecosystem types.**

1.3. Habitat Composition/Complexity: This is a measure of the diversity of habitat types present within the major ecosystem type found within the boundaries of the site. This criterion is based on the assumption that sites that have a high diversity of habitat types are of higher relative "value" for protection and management than those with a low diversity of habitat types. Major ecosystem type is defined here as that type that comprises approximately 40% of the site. Use the habitat designation listed above for "ecosystem composition".

Table 1.3: *Habitat Composition/Complexity Scoring*

3 points	The candidate site has a **high diversity** of habitat composition within its major ecosystem type, i.e. it contains three or more habitat types or subtypes within its major ecosystem type (e.g. site consists of a combination of swamps, coastal marshes, and mud flats) or has a combination of multiple coastal marsh types (e.g., high, mid, and low marsh zones).
2 points	The site has a **moderate diversity** of habitat composition within its major ecosystem type, i.e., it contains only two habitat types or subtypes within its major ecosystem type (e.g., consists of a combination of swamps and a single coastal marsh type).

1 point	The site has **a low diversity** of habitat composition within its major ecosystem type, i.e., its major ecosystem type consists of a single habitat type (e.g., maritime forest or Juncus marsh).

1.4. Uniqueness of Habitat: A measure of the presence of rare or unique habitat types within a candidate site. Although high value is placed on ecological representativeness it is also important to protect, manage and study rare habitats. Unique habitat is defined as a habitat type of limited known occurrence within the Southern New England biogeographic subregion.

Table 1.4: *Uniqueness of Habitat Scoring:*

3 Points	The site contains **more than one** unique or rare habitat types within its boundaries.
1 Point	The site contains **one** unique or rare habitat type within its boundaries.
0 Points	The site contains **no** unique or rare habitat types within its boundaries.

1.5. Importance of Habitat for Significant Flora and Fauna: A measure of the degree to which a site supports significant floral and faunal components. This criterion focuses on a site's contribution (i.e. function) toward supporting critical activities (e.g. feeding, nesting) of the following suite of significant floral and faunal components. The list includes groups of organisms that are known to be dependent upon estuarine habitats for part or all of their life cycle.

- Fish and shellfish spawning and nursery grounds (includes use by freshwater, resident estuarine, or estuarine-dependent marine species)
- Migratory bird and/or waterfowl habitats
- Bird nesting and/or roosting area
- Critical mammal habitat
- Non-game animals (amphibians, reptiles, etc.)
- State or federally listed species (animal or plant; including candidate species)

Table 1.5: *Importance of Habitat for Significant Flora and Fauna Scoring*

3 Points	The site supports at least **four to six** of the above faunal and floral components, and/or is a very important site for any threatened or Endangered species.
2 Points	The site supports **at least three** of the above faunal and floral components.
1 Point	The site supports **one or two** of the above faunal and floral components.
0 Points	The site **does not** support significant faunal and floral components.

1.6. New or Exemplary Typology: An assessment of whether one or more habitats at a site add a new or exemplary typology to the suite of ecosystem types of existing reserves in the Southern New England biogeographic subregion. When considering a nomination for a new reserve, NOAA's first priority is given to nominations that incorporate both a biogeographic subregion and an estuary type not represented by existing or developing reserves. NOAA gives second priority to nominations that incorporate ***either*** a biogeographic subregion ***or*** an estuary type not represented by existing or developing reserves. Since there are three existing reserves in the Southern New England biogeographic subregion, a site nominated in Connecticut should rank higher if it adds a new estuarine ecosystem type to the region.

Table 1.6: *New or Exemplary Typology Scoring*

3 Points	The site supports **one or more ecosystem types that are not found in existing reserves** in the Southern New England biogeographic subregion.
1 Point	The site supports **a large area of an exemplary ecosystem type that is represented in existing reserves by only a limited or marginal example** of such type.
0 Points	The site **does not support any new typologies** in the subregion **and does not have a large area of an exemplary type that is underrepresented** in existing reserves of this subregion.

1.7. Site's Relationship to its Tidally Influenced Drainage Basin: A measure of relative proportion and/or juxtaposition of a site relative to the greater tidally influenced drainage basin to which it belongs. This factor assumes that, except for the deltaic portions of major river systems, most coastal drainage basins are relatively small, tidally influenced, coastal plain drainages, and that a site's value increases as a function of how much of the overall drainage basin is encompassed within its boundaries.

Table 1.7: *Site's Relationship to its Tidally Influenced Drainage Basin Scoring*

3 Points	The site encompasses a **relatively large percentage (>75%)** of the tidally influenced portion of the drainage basin to which it belongs.
2 Points	The site is **not large** relative to the overall drainage basin (<75%) **but is situated either near the mouth or headwaters** of the drainage basin.
1 Point	The site is **small** relative to the overall drainage basin (<25%) **but is situated either near the mouth or headwaters** of the drainage basin.
0 Points	The site is **small** relative to the overall drainage basin (<25%) **and does not encompass either the mouth or headwaters** of the drainage basin.

1.8. Geologic Uniqueness/Diversity of the Site: An indication of the uniqueness of the geological characteristics that define part or the whole of a candidate site, including surface and subsurface features. This criterion attempts to consider both the surface and subsurface geologic formations that may be unique within a site, particularly as they affect and/or define associated biotic habitats. Included in these considerations are the ways that local geology affects surface hydrology, such as drainage systems, and subsurface hydrology, such as shallow water aquifers.

Table 1.8: *Geologic Uniqueness/Diversity of the Site Scoring*

3 Points	The site **has many** unique geologic characteristics and contains a large number of formation types or strata within its boundaries.
2 Points	The site **has at least one** unique geologic characteristic and contains a moderate number of formation types or strata within its boundaries.
1 Point	The site **has no** unique geologic characteristics and contains a moderate number of formation types or strata within its boundaries.
0 Points	The site **has no** unique geologic characteristics or contains few or only one formation type or strata within its boundaries.

1.9. Hydrographic Uniqueness/Diversity of the Site: An indication of the uniqueness of the hydrographic characteristics that define the site or the immediate offshore vicinity that could impact or affect a site. This criterion attempts to consider characteristics such as circulation, tidal regime, and freshwater sources/amounts that can affect biotic habitats and ecosystem functions.

Table 1.9: *Hydrographic Uniqueness/Diversity Scoring*

3 Points	The site **has many** unique hydrographic characteristics within the site or in the immediate offshore vicinity.
2 Points	The site **has a moderate** of unique hydrographic characteristics within the site or in the immediate offshore vicinity.
1 Point	The site **has at least one** unique hydrographic characteristic within the site or in the immediate offshore vicinity.
0 Points	The site **has no** unique hydrographic characteristics within the site or in the immediate offshore vicinity.

1.10. Salinity Gradient: A measure of the range of salinity within a site's boundaries. This criterion recognizes the effect of salinity on the biotic structure of estuarine habitats and assumes that a site with a greater range of salinity will support a broader range of habitat types and organisms.

Table 1.9: *Salinity Gradient Scoring*

3 Points	Site encompasses a **25 ppt or greater range** of salinity within site boundaries (e.g., 0-25 ppt, 5-30 ppt).
2 Points	Site encompasses a **15-24 ppt range** of salinity within site boundaries (e.g., 0-15 ppt, 5-25 ppt, 10-30 ppt).
1 Point	Site encompasses a **6-14 ppt range** of salinity within site boundaries (e.g., 0-8 ppt, 10-22 ppt, 25-32 ppt).
0 Points	Site encompasses a **5 ppt or less range** of salinity within its boundaries.

1.11. Degree Developed and Potential Impacts to Water Quality: This is a measure of the degree to which the site and its surrounding area are developed and the relative impacts to surface waters from human activities. This criterion is based on the assumption that human impacts to a site are directly proportional to the degree of development. Exceptions to this assumption may need to be considered where development at a site and its surrounding area have been subject to high levels of control. Data on land use and water quality measurements from local, county, and state government agencies should be used to judge this criterion.

Table 1.10: *Degree Developed and Potential Impacts to Water Quality Scoring*

3 Points	The site is **relatively undisturbed** and the watershed contains **low intensity development** (e.g., few residences, minimal agricultural or silvicultural activity) and/or the **land is in protected status**.
2 Points	The site is **relatively undisturbed** and the watershed contains **moderate development** (e.g., relatively few residences, moderate agricultural or silvicultural activity, minimal commercial development).
1 Point	The site has been **moderately disturbed** and the watershed contains **relatively intensive development** (e.g., moderate density of residences, and/or the presence of industrial activity).
0 Points	The site has been **extremely disturbed** and the watershed contains **very intensive development** (e.g., high density residential, and/or commercial or industrial activity).

2. Value of the Site for Research, Monitoring, and Stewardship

2.1. Suitability of Site for Long-Term Research: This criterion measures the types of long-term estuarine research a site can support, as defined by the following six research areas:

- Ecologyl
- Physical and chemical processes
- Geology
- Biology
- Archeology and/or paleontology
- Habitat restoration and resource management issues

Table 2.2: *Suitability of Site for Long-Term Research Scoring*

3 Points	The site can support **five to six** of the research areas.
2 Points	The site can support **four or five** of the six.
1 Point	The site can support **two or three** of the six.
0 Points	The site can support **one or none** of the six.

2.2. Previous and Current Research Efforts: This criterion is a measure of the degree to which the site has been or is being used for past or current research, including considerations of the diversity of inquiry (fields of research), and the availability of data (the form and availability of documentation, e.g. peer reviewed papers, unpublished theses, grey literature). The assumption is that an area with previously established research interest offers greater opportunity for future projects to build on an existing knowledge base than an area that has not sparked such an interest in the past.

Table 2.2: *Previous and Current Research Efforts Scoring*

3 Points	The site has a **long history of well-documented research** projects in a wide variety of topics. Data is readily available.
2 Points	The site has had **some major and well-documented research** projects, generating data that is readily available, **but does not have a long history** of research.
1 Point	The site has had **only minor research projects** generating limited data that may be difficult to obtain.
0 Points	The site has **no known history** of research.

2.3. Suitability of Site for Environmental Monitoring: Research Reserves are ideally and uniquely suited to conduct large scale and long-term environmental monitoring. Existing and developing monitoring programs within the NERRS include the System-Wide Monitoring Program (SWMP), aquatic invasive species monitoring, monitoring of long-term climate and environmental trends including sea level rise and global climate change, and additional monitoring driven by local issues. Considerations include the accessibility of the site and the overall logistical ease of installing and maintaining environmental monitoring equipment, and the suitability of a site to serve as a reference area for assessing long-term trends.

Table 2.3: *Suitability of Site for Environmental Monitoring Scoring*

3 Points	The site is **ideally suited** for providing environmental data to assess long-term resource trends or ecological characteristics for a wide range of needs.
2 Points	The site is **adequate** for providing environmental data to assess long-term resource trends or ecological characteristics for many needs.

1 Point	The site is **marginal** for providing environmental data to assess long-term resource trends or ecological characteristics.
0 Points	The site is **unsuitable** for providing environmental data.

2.4. Suitability of the Site for Stewardship Program Development: Research Reserve stewardship programs integrate science, monitoring and communities to protect, manage, and restore coastal habitats. The Long Island Sound Study, EPA's National Estuary Program, currently advances similar stewardship initiatives to conserve natural areas, increase access to the Sound, protect important habitats, and plan for multiple uses. Using this context, sites that can augment stewardship efforts by adding to existing inventories or extending the capacity for stewardship activities at current stewardship locations would be highly valued.

Table 2.4: *Suitability of the Site for Stewardship Program Development Scoring*

3 Points	The site **creates a new** stewardship opportunity in CT.
2 Points	The site **significantly extends** stewardship goals at an existing site.
1 Point	The site **moderately extends** stewardship goals at an existing site.
0 Points	The site **does not extend** any opportunities to advance stewardship goals at an existing site.

2.5. Ability to Address Local, State, & Regional Coastal Management Issues: A goal of the NERR system is to improve coastal management through research, education, and interpretation, thus it is important that a site be relevant to local, state, and regional coastal management issues. Solutions to these issues may require either application of land management practices or limited habitat manipulations consistent with 15 CFR 921.1(d) to perform meaningful research and assessment. The site should offer both adequate control areas plus areas where appropriate demonstration projects and habitat manipulations can be accommodated to study many of the issues of concern.[13] Thus, a site where coastal management issues arise and can be addressed will be of greater value than sites where these issues do not arise. Significant coastal management issues include the following:

- Climate change and sea-level rise
- Habitat restoration (e.g. wetlands, SAV, coastal forests, beaches and dunes)
- Nutrient enrichment (hypoxia, SAV loss, other changes in biotic communities)
- Energy development impacts
- Shoreline erosion
- Commercial and/or recreational fisheries
- Waterfowl and other wildlife management
- Best management practices for habitat protection and restoration
- Best management practices to limit impacts from agricultural or development
- Best methods to control invasive species
- Pollutant effects on water quality and living resources
- Dredging and spoil disposal
- Prehistoric and early historic settlement and land use

[13] While the range of coastal management issues includes a variety of potential study topics, it should be noted that some may not be appropriate to address within the site itself, e.g., commercial fishing activities, dredging, energy infrastructure impacts. However, a NERR site can be useful as a control to examine against other areas in these instances.

- o Freshwater inflow effects

Table 3.5: *Ability to Address Local, State, & Regional Coastal Management Issues Scoring*

3 Points	The site **is highly appropriate** for investigating coastal zone management issues consistent with 15 CFR 921.1(d).
2 Points	The site is **appropriate** for investigating coastal zone management issues.
1 Point	The site is **minimally appropriate** for investigating coastal zone management issues consistent with 15 CFR 921.1(d).
0 Points	The site is **not appropriate** for investigating coastal zone management issues consistent with 15 CFR 921.1(d).

3. Suitability of the Site for Training, Education, & Interpretation

3.1. Value of Site for Environmental Education, Interpretation, and Training Programs: Well-developed education and outreach programs are critical to consider when selecting a site. On-going and new education and outreach programs should also be considered, including the Coastal Training Program, translation of research studies and results, and integration with other education and outreach programs.

- o Kindergarten through high school education programs
- o High school and undergraduate students working independently or in small groups
- o Graduate students
- o Professional development programs for teachers
- o Training programs and workshops for coastal decision-maker audiences
- o Interpretation targeted to the general public

Table 4.1: *Value of Site for Environmental Education and Interpretation Programs Scoring*

3 Points	The site **is well suited to provide numerous, high quality** training, education, and interpretation opportunities for all of the groups listed.
2 Points	The site is **suitable for several good quality** training, education, and interpretation opportunities for four or more of the groups listed.
1 Point	The site is **well suited only for very limited** educational and/or training opportunities for some of the groups listed
0 Points	The site is **not well suited** to support education, interpretation, and training programs.

3.2. Diversity and Quality of Education and Interpretation Opportunities: Another important consideration is the degree to which a site can provide a well-rounded education program, with the ability to emphasize each of the following disciplines within an estuarine system:

- o Ecology
- o Physics and chemistry
- o Geology
- o Biology
- o Archeology and/or paleontology
- o Habitat restoration and/or coastal resource management

Table 3.2: *Diversity and Quality of Education and Interpretation Opportunities Scoring*

3 Points	The site is **well suited** for education in **all of these areas**.
2 Points	The site is **well suited** for education in **4 or 5 of these areas**.
1 Point	The site is **well suited** for education in **1-3 of these areas**.
0 Points	The site is **not well suited** for education **in any of these areas**.

3.3. **Previous and Current Education and Outreach Efforts:** This criterion is a measure of the degree to which the site has been or is being used for past or current education and outreach programs or initiatives, including considerations of the type and form of education and outreach (traditional training and education programs versus inquiry-based educational awareness workshops, or passive education through trail brochures or interpretive signage installation), and the availability of the program curricula (e.g. curricula on beach seining and species identification activities at the site, or interpretive trail markers, and whether or not information is readily available, such as on a public website or physically installed at the site). The assumption is that an area with previously established educational activities and interest from educators as an outdoor classroom offers greater opportunity for future projects and educational initiatives, based on the physical site characteristics and the availability of educational curricula, interpretive signage or trail brochures, or other unique characteristics that lend themselves to quality outdoor learning experiences.

Table 3.3: *Previous and Current Education and Outreach Efforts Scoring*

3 Points	The site has a **long history of well-documented education and outreach** projects in a wide variety of disciplines. Curricula and brochures/guides are readily available.
2 Points	The site has had **some major and well-documented education and outreach** projects, generating curricula and/or passive educational tools that are readily available, but **does not have a long history** of education and outreach activities.
1 Point	The site has had **only minor education and outreach projects** and use generating limited curricula or other educational resources that may be difficult to obtain.
0 Points	The site has **no known history of use** for education and outreach activities.

3.4. **Diversity and Availability of Target Audiences:** No matter how well suited a site may be for education and interpretation programs, it is useless in this regard if the audiences do not exist, or the site is inaccessible. The ideal site should be well suited for programs directed at students and adults of all ages. Thus, the value of a site correspondingly increases with the size and availability of its target audiences.

- Kindergarten through high school students
- Undergraduate students
- Graduate students
- Teachers
- Coastal decision-makers
- Interpretation targeted to the general public

Table 3.3: *Diversity and Availability of Target Audiences Scoring*

3 Points	**All** of these audiences exist and can **easily access the site**.
2 Points	**Some** of these audiences exist, and/or **most can access the site**.

1 Point	**Only a few** of these audiences exist, and/or **some would have difficulty accessing the site**.
0 Points	**Only one or two** of these audiences exist and the **site is largely inaccessible.**

4. Acquisition & Management Considerations

4.1. Land Ownership: It has been demonstrated that research reserves are easier to acquire and manage if they have few property owners. Thus, it is a valuable consideration to assess the number of property owners of a site.

Table 4.1: *Land Ownership Scoring*

3 Points	The property is **relatively undivided**.
2 Points	The property is **divided with few property owners**.
1 Point	The property is **divided with many property owners**

4.2. Publicly Owned Lands and Feasibility of Land Acquisition: The ease of land acquisition and management increases correspondingly to the proportion of area that is in public or non-governmental organizations (NGOs) ownership and the degree to which there is interest in transferring properties or management control. Note: Federal lands already in protected status may not comprise a majority of the key land and water areas of a research reserve (15 CFR 921.1(g)).

Table 4.2: *Publicly Owned Lands and Feasibility of Land Acquisition Scoring*

3 Points	**Greater than 50%** of the site is currently owned by the state, federal, or local governments, or by NGOs, **and these entities have an interest** in participating in a reserve.*
2 Points	State, federal, or local governments, or NGOs **own 25-50%** of the site **with the remainder in the hands of a few owners who have an interest** in participating in a reserve.
1 Point	State, federal, or local governments, or NGOs **own less than 25%** of the site with the **remainder in the hands of a few owners who have an interest** in participating in a reserve.
0 Points	The site is owned by a **large number of owners with little potential interest** in sale, donation, or environmental easement.

**Note: Per 15 CFR 921.11 Federal land should not comprise greater than 50% of reserve site.*

4.3. Availability of Facilities: Given that sites with existing facilities and facility-related infrastructure may meet the objectives of the research reserve more quickly, it is of benefit for sites to have established facilities. However, consideration also should be given to sites with excellent potential that do not have facilities.

Table 4.3: *Availability of Facilities Scoring*

3 Points	The site has **existing structures and facilities** that can be used for reserve activities.
2 Points	The site has **proximity to or limited existing structures and/or facilities** that can be used for reserve activities.
1 Point	The site is **away from existing facilities, but has excellent potential** for the development of facilities for reserve activities.

0 Points	The site has **limited potential for the development facilities** for reserve activities.

4.4. Proximity and Accessibility of Site to Researchers, Educators, and Resource Management Decision Makers: This criteria is a measure of (1) the relative proximity of the site to urban centers, K-12 schools, research and education institutions, and resource management agencies which may routinely utilize the site and (2) the availability, adequacy and potential for roads, boat access, boardwalks, docks etc. at the site. The underlying assumption is that the proximity and accessibility of the site will enhance it utilization for education, research, monitoring, and resource protection purposes.

Table 4.4: *Proximity and Accessibility of Site to Researchers, Educators, and Resource Management Decision Makers Scoring*

3 Points	The site **can be accessed by user groups during a single day trip**. There are **good roads, points for boat access**, etc. at the site.
2 Points	The site is **relatively isolated and utilization would require an overnight stay, but accommodations are readily available**. There are **adequate roads, points for boat access**, etc. at the site.
1 Point	The site is **relatively isolated and reasonable accommodations for an overnight stay are limited**. There are **limited roads, points for boat access**, etc. at the site.
0 Points	The site is **extremely isolated and accommodations to utilize the site are not available**.

4.5. Controlled Land and Water Access: It is beneficial to research reserve management if site characteristics naturally limit access to certain degrees. This allows the research reserve to better direct public use toward program goals in appropriate areas of the site. Thus, by strategically placing roads, boat ramps, docks, camping areas, reserve facilities, etc. the research reserve establishes and maintains some control over how the site is used. Historical control of public use through state or federal regulation also is a useful consideration. The overall goal is to ensure a balance of public access with research, education, and stewardship.

Table 4.5: *Controlled Land and Water Access Scoring*

3 Points	The site is well protected **and of a size that can be controlled**. Historically, access has been controlled, and can easily be controlled in the future due to the presence of limited access points by boat or vehicle.
2 Points	The site **has a limited number of access points**. Historically, site access has not been controlled, but the site is of a size that it can be controlled in the future.
1 Point	Site access **will be difficult to control due to the large number of access points**. Historically, site access has not been controlled and it is unclear whether it can be controlled in the future.
0 Points	Site access **cannot be controlled due to the large number of access points**, lack of historical controls, the size of the area, and/or dense adjacent development.

4.6. Site Security: In order for a potential site to properly function, it is important that there be adequate surveillance and enforcement to assure that restrictions on uses are adhered to, or evidence that resources are being damaged or destroyed can be prevented or mitigated.

Table 4.8: *Site Security Scoring*

3 Points	The site **currently has** provisions for adequate surveillance and enforcement
2 Points	The **does not have but could easily provide** provisions for adequate surveillance and enforcement
0 Points	The site **does not have nor could easily provide** provisions for adequate surveillance and enforcement

4.7. Compatibility with Existing Management Practices and Consumptive and Non-Consumptive Uses: It is possible that existing management practices such as habitat manipulation, best management practices, and historic and current consumptive (fishing, hunting, shellfishing etc.) and non-consumptive (walking, biking, camping etc.) uses might be in conflict with foreseeable management practices implemented by a reserve. Therefore, sites with fewer management practice issues are more likely to maintain both public support and the integrity of the site.

Table 4.6: *Compatibility with Existing Management Practices and Consumptive and Non-Consumptive Uses Scoring*

3 Points	Existing management practices and consumptive and non-consumptive uses **would not be in conflict with any foreseeable management policy** of a research reserve.
2 Points	Small areas of unique habitat, endangered species, or threats to the integrity of the ecosystem exist at the site, creating the potential for **limited restrictions on existing management practices** and/or consumptive and non-consumptive uses.
1 Point	Due to the presence of areas of unique habitat, endangered species, and threats to the integrity of the ecosystem, **some restrictions on existing management practices** and/or consumptive and non-consumptive uses would likely be needed.
0 Points	Large areas of unique habitat and threats to the integrity of the ecosystem at the site **will require restrictions on existing management practices** and/or consumptive and non-consumptive uses.

4.8. Compatibility With Adjacent Land and Water Use: It is more likely that research reserve programs will be successful if a site is located adjacent to lands and waters where compatible land and water use practices are employed. Thus it is useful to assess the degree to which adjacent land use is compatible with research reserve programs.

Table 4.7: *Compatibility With Adjacent Land and Water Use Scoring*

3 Points	**All or most land and water use adjacent** to the site is compatible with reserve programs, and will impose **no negative impacts** on the reserve.
2 Points	**A large to moderate amount of the land and water** adjacent to the site **is compatible** with reserve programs. Incompatible land- and water-use practices on adjacent lands either could be negotiated or would have **only minor impacts** on reserve programs.
1 Point	**Some of the land and water** adjacent to the site **is currently used for activities that would have negative impacts on** a reserve and may not be negotiable.
0 Points	**A large percentage of the land and water** adjacent to the site **is currently used for activities that would have negative impacts** on a reserve and would lead to conflicts.

4.9. Future Development Plans: Future development plans on or adjacent to research reserves can have major effects on research reserve programs, thus it is important to assess the likelihood that a site will remain undisturbed following designation of a reserve.

Table 4.9: *Future Development Plans Scoring*

3 Points	A **majority** of the land adjacent to the site is currently **undeveloped** and is **very unlikely to be developed** in the future.
2 Points	**Up to half** of the land adjacent to the site is currently **undeveloped** and is *not likely to be developed* in the future.
1 Point	**A small amount** of the land adjacent to the site is currently **undeveloped** and is not likely to be developed in the future, with **limited levels of development** on other lands.
0 Points	**A majority** of the land adjacent to the site **is developed** and the area is **likely to continue to be developed** in the future.

5. Climate Change Considerations

These criteria provide for considerations on two aspects of climate change. The first relates to the resiliency of current and potential facilities and locations thereof. The second relates to the resiliency of the natural resources that are present.

In considering climate change the SST will focus on sea-level rise as this represents the most likely climate change threat to a Connecticut NERR site. Recent efforts in estimating marsh migration in LIS provide a reasonable starting point. The Steering CommitteeSteering Committee, in collaboration with the SST will have the flexibility to adjust these values as needed if better scientifically valid estimates are available at the time of site selection.

Sea Level Rise Scenarios (in inches)*	Low (by ~2025)	Medium (by ~2055)	High (by ~2085)
Global Climate Model (max)	5	12	23
1m by 2100	5	17	32

** Values used by Warren Pinnacle Consulting in preparation for developing 2014 Sea-level rise Affecting Marsh Migration (SLAMM) models for CT and NY. Values derived from recent climate change adaptation efforts outlined in the 2011 New York State ClimAid report[14].*

5.1 Facility Resiliency - Accessibility

This criterion focuses on the expected access to an existing facility by land-based vehicles under the effects of sea level rise. We are using this particular criterion since coastal flooding and sea level rise was ranked as the highest risk to infrastructure from

[14] Rozenzweig, C., Solecki, W., DeGaetano, A., O'Grady, M., Hassol, S., and Grabhorn, P. (2011). Responding to Climate Change in New York State: the ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State. New York State Energy Research and Development Authority (NYSERDA), Albany, New York.

the Infrastructure Adaptation Subcommittee of the Connecticut Governor's Steering Committee on Climate Change. If reasonable adaptive management strategies can be employed to enhance accessibility (i.e., simple flood proofing, enhanced drainage, etc.,) these factors can and should be used in the scoring.

3 Points	Facility likely accessible (or adaptable) under all scenarios.
2 Points	Facility likely accessible (or adaptable) under low & medium scenarios.
1 Point	Facility likely accessible (or adaptable) only under low scenario.
0 Points	Facility not likely accessible (or adaptable) under all scenarios.

5.2 Facility Resiliency - Vulnerability

This criterion focuses on the expected vulnerability of an existing facility to sea level rise since it is possible that, while accessible, it may be negatively impacted by inundation. Again, we use this particular criterion since coastal flooding and sea level rise was ranked as the highest risk to infrastructure from the Infrastructure Adaptation Subcommittee of the Connecticut Governor's Steering Committee on Climate Change. As before, if reasonable adaptive management strategies can be employed to reduce facility vulnerabilities (i.e., simple flood proofing, elevation, enhanced drainage, etc.,) these factors can and should be used in the scoring.

3 Points	Facility likely not vulnerable (or adaptable) under all scenarios.
2 Points	Facility likely not vulnerable (or adaptable) under low and medium scenarios.
1 Point	Facility likely not vulnerable (or adaptable) under only low scenario.
0 Points	Facility likely vulnerable under all scenarios.

5.3 Resource Resiliency

Ecosystem resiliency with respect to climate change can be thought of as the ability of an intact, interacting ecological unit to withstand climatic challenges to its continuing function. This criterion is an assessment of how the resources at the site may fare in light of several measures of resiliency identified in the Natural Resource Adaptation Subcommittee of the Connecticut Governor's Steering Committee on Climate Change, notably:

- *Conservation of key habitat features;*
- *Maintaining or reestablishing connectivity between habitats;*
- *Restoring degraded habitats;*
- *Relocating populations of species at risk; and*
- *Ensuring that representative area(s) of each habitat persist*

Additionally, if reasonable adaptive management strategies can be employed to enhance resource resiliency (i.e., adequate land for marsh migration, rolling easements, conservation easements, etc.,) these factors can and should be used in the scoring.

3 Points	Resources are expected to exhibit a high measure of resiliency under natural conditions or with reasonable adaptive management.
2 Points	Resources are expected to exhibit a moderate measure of resiliency under natural conditions or with reasonable adaptive management.
1 Point	Resources are expected to exhibit a low measure of resiliency under natural conditions or with reasonable adaptive management.

0 Points	Resources likely to be completed destroyed under natural conditions or with reasonable adaptive management.

Appendix D: 15 CFR Section 921 – Appendix II: NERR Typology

Class I—Ecosystem Types:

Group I—Shorelands

A. Maritime Forest-Woodland. That have developed under the influence of salt spray. It can be found on coastal uplands or recent features such as barrier islands and beaches, and may be divided into the following biomes:

> *1. Northern coniferous forest biome:* This is an area of predominantly evergreens such as the sitka spruce (Picea), grand fir (Abies), and white cedar (Thuja), with poor development of the shrub and herb leyera, but high annual productivity and pronounced seasonal periodicity.
> *2. Moist temperate (Mesothermal) coniferous forest biome:* Found along the west coast of North America from California to Alaska, this area is dominated by conifers, has relatively small seasonal range, high humidity with rainfall ranging from 30 to 150 inches, and a well-developed understory of vegetation with an abundance of mosses and other moisture-tolerant plants.
> *3. Temperate deciduous forest biome:* This biome is characterized by abundant, evenly distributed rainfall, moderate temperatures which exhibit a distinct seasonal pattern, well-developed soil biota and herb and shrub layers, and numerous plants which produce pulpy fruits and nuts. A distinct subdivision of this biome is the pine edible forest of the southeastern coastal plain, in which only a small portion of the area is occupied by climax vegetation, although it has large areas covered by edaphic climax pines.
> *4. Broad-leaved evergreen subtropical forest biome:* The main characteristic of this biome is high moisture with less pronounced differences between winter and summer. Examples are the hammocks of Florida and the live oak forests of the Gulf and South Atlantic coasts. Floral dominants include pines, magnolias, bays, hollies, wild tamarine, strangler fig, gumbo limbo, and palms.

B. Coast shrublands. This is a transitional area between the coastal grasslands and woodlands and is characterized by woody species with multiple stems and a few centimeters to several meters above the ground developing under the influence of salt spray and occasional sand burial. This includes thickets, scrub, scrub savanna, heathlands, and coastal chaparral. There is a great variety of shrubland vegetation exhibiting regional specificity:

> *1. Northern areas:* Characterized by Hudsonia, various erinaceous species, and thickets of Myricu, prunus, and Rosa.
> *2. Southeast areas:* Floral dominants include Myrica, Baccharis, and Iles.
> *3. Western areas:* Adenostoma, arcotyphylos, and eucalyptus are the dominant floral species.

C. Coastal grasslands. This area, which possesses sand dunes and coastal flats, has low rainfall (10 to 30 inches per year) and large amounts of humus in the soil. Ecological succession is slow, resulting in the presence of a number of seral stages of community development. Dominant vegetation includes mid-grasses (5 to 8 feet tall), such as Spartina, and trees such as willow (Salix sp.), cherry (Prunus sp.), and cottonwood (Pupulus deltoides.) This area is divided into four regions with the following typical strand vegetation:

1. *Arctic/Boreal:* Elymus;
2. *Northeast/West:* Ammophla;
3. *Southeast Gulf:* Uniola; and
4. *Mid-Atlantic/Gulf:* Spartina patens.

D. Coastal tundra. This ecosystem, which is found along the Arctic and Boreal coasts of North America, is characterized by low temperatures, a short growing season, and some permafrost, producing a low, treeless mat community made up of mosses, lichens, heath, shrubs, grasses, sedges, rushes, and herbaceous and dwarf woody plants. Common species include arctic/alpine plants such as Empetrum nigrum and Betula nana, the lichens Cetraria and Cladonia, and herbaceous plants such as Potentilla tridentate and Rubus chamaemorus. Common species on the coastal beach ridges of the high arctic desert include Bryas intergrifolia and Saxifrage oppositifolia. This area can be divided into two main subdivisions:

1. *Low tundra:* Characterized by a thick, spongy mat of living and undecayed vegetation, often with water and dotted with ponds when not frozen; and
2. *High Tundra:* A bare area except for a scanty growth of lichens and grasses, with underlaying ice wedges forming raised polygonal areas.

E. Coastal cliffs. This ecosystem is an important nesting site for many sea and shore birds. It consists of communities of herbaceous, graminoid, or low woody plants (shrubs, heath, etc.) on the top or along rocky faces exposed to salt spray. There is a diversity of plant species including mosses, lichens, liverworts, and ‘‘higher’’ plant representatives.

GROUP II—TRANSITION AREAS

A. Coastal marshes. These are wetland areas dominated by grasses (Poacea), sedges (Cyperaceae), rushes (Juncaceae), cattails (Typhaceae), and other graminoid species and is subject to periodic flooding by either salt or freshwater. This ecosystem may be subdivided into:

(a) Tidal, which is periodically flooded by either salt or brackish water;
(b) nontidal (freshwater); or
(c) tidal freshwater.

These are essential habitats for many important estuarine species of fish and invertebrates as well as shorebirds and waterfowl and serve important roles in shore stabilization, flood control, water purification, and nutrient transport and storage.

B. Coastal swamps. These are wet lowland areas that support mosses and shrubs together with large trees such as cypress or gum.

C. Coastal mangroves. This ecosystem experiences regular flooding on either a daily, monthly, or seasonal basis, has low wave action, and is dominated by a variety of salt-tolerant trees, such as the red mangrove (Rhizophora mangle), black mangrove (Avicennia Nitida), and the white mangrove (Laguncularia racemosa.) It is also an important habitat for large populations of fish, invertebrates, and birds. This type of ecosystem can be found from central Florida to extreme south Texas to the islands of the Western Pacific.

D. Intertidal beaches. This ecosystem has a distinct biota of microscopic animals, bacteria, and unicellular algae along with macroscopic crustaceans, mollusks, and worms with a detritus-based nutrient cycle. This area also includes the driftline communities found at high tide levels on the beach. The dominant organisms in this ecosystem include crustaceans such as the mole crab (Emerita), amphipods (Gammeridae), ghost crabs (Ocypode), and bivalve mollusks such as the coquina (Donax) and surf clams (Spisula and Mactra.)

E. Intertidal mud and sand flats. These areas are composed of unconsolidated, high organic content sediments that function as a short-term storage area for nutrients and organic carbons. Macrophytes are nearly absent in this ecosystem, although it may be heavily colonized by benthic diatoms, dinoflaggellates, filamintous blue-green and green algae, and chaemosynthetic purple sulfur bacteria. This system may support a considerable population of gastropods, bivalves, and polychaetes, and may serve as a feeding area for a variety of fish and wading birds. In sand, the dominant fauna include the wedge shell Donax, the scallop Pecten, tellin shells Tellina, the heart urchin Echinocardium, the lug worm Arenicola, sand dollar Dendraster, and the sea pansy Renilla. In mud, faunal dominants adapted to low oxygen levels include the terebellid Amphitrite, the boring clam Playdon, the deep sea scallop Placopecten, the Quahog Mercenaria, the echiurid worm Urechis, the mud snail Nassarius, and the sea cucumber Thyone.

F. Intertidal algal beds. These are hard substrates along the marine edge that are dominated by macroscopic algae, usually thalloid, but also filamentous or unicellular in growth form. This also includes the rocky coast tidepools that fall within the intertidal zone. Dominant fauna of these areas are barnacles, mussels, periwinkles, anemones, and chitons. Three regions are apparent:

> *1. Northern latitude rocky shores:* It is in this region that the community structure is best developed. The dominant algal species include Chondrus at the low tide level, Fucus and Ascophylium at the mid-tidal level, and Laminaria and other kelplike algae just beyond the intertidal, although they can be exposed at extremely low tides or found in very deep tidepools.
> *2. Southern latitudes:* The communities in this region are reduced in comparison to those of the northern latitudes and possesses algae consisting mostly of single-celled or filamentour green, blue-green, and red algae, and small thalloid brown algae.
> *3. Tropical and subtropical latitudes:* The intertidal in this region is very reduced and contains numerous calcareous algae such as Porolithon and Lithothamnion, as well and green algae with calcareous particles such as Halimeda, and numerous other green, red, and brown algae.

GROUP III—SUBMERGED BOTTOMS

A. Subtidal hardbottoms. This system is characterized by a consolidated layer of solid rock or large pieces of rock (neither of biotic origin) and is found in association with geomorphological features such as submarine canyons and fjords and is usually covered with assemblages of sponges, sea fans, bivalves, hard corals, tunicates, and other attached organisms. A significant feature of estuaries in many parts of the world is the oyster reef, a type of subtidal hardbottom. Composed of assemblages of organisms (usually bivalves), it is usually found near an estuary's mouth in a zone of moderate wave action, salt content, and turbidity. If light levels are sufficient, a covering of microscopic and attached macroscopic algae, such as keep, may also be found.

B. Subtidal softbottoms. Major characteristics of this ecosystem are an unconsolidated layer of fine particles of silt, sand, clay, and gravel, high hydrogen sulfide levels, and anaerobic conditions often existing below the surface. Macrophytes are either sparse or absent, although a layer of benthic microalgae may be present if light levels are sufficient. The faunal community is dominated by a diverse population of deposit feeders including polychaetes, bivalves, and burrowing crustaceans.

C. Subtidal plants. This system is found in relatively shallow water (less than 8 to 10 meters) below mean low tide. It is an area of extremely high primary production that provides food and refuge for a diversity of faunal groups, especially juvenile and adult fish, and in some regions, manatees and sea turtles. Along the North Atlantic and Pacific coasts, the seagrass Zostera marina predominates. In the South Atlantic and Gulf coast areas, Thalassia and Diplanthera predominate. The grasses in both areas support a number of epiphytic organisms.

Class II—Physical Characteristics

GROUP I—GEOLOGIC

A. Basin type. Coastal water basins occur in a variety of shapes, sizes, depths, and appearances. The eight basic types discussed below will cover most of the cases:

> *1. Exposed coast:* Solid rock formations or heavy sand deposits characterize exposed ocean shore fronts, which are subject to the full force of ocean storms. The sand beaches are very resilient, although the dunes lying just behind the beaches are fragile and easily damaged. The dunes serve as a sand storage area making them chief stabilizers of the ocean shorefront.
> *2. Sheltered coast:* Sand or coral barriers, built up by natural forces, provide sheltered areas inside a bar or reef where the ecosystem takes on many characteristics of confined waters-abundant marine grasses, shellfish, and juvenile fish. Water movement is reduced, with the consequent effects pollution being more severe in this area than in exposed coastal areas.
> *3. Bay:* Bays are larger confined bodies of water that are open to the sea and receive strong tidal flow. When stratification is pronounced the flushing action is augmented by river discharge. Bays vary in size and in type of shorefront.
> *4. Embayment:* A confined coastal water body with narrow, restricted inlets and with a significant freshwater inflow can be classified as an embayment. These areas have more restricted inlets than bays, are usually smaller and shallower, have low tidal action, and are subject to sedimentation.

5. Tidal river: The lower reach of a coastal river is referred to as a tidal river. The coastal water segment extends from the sea or estuary into which the river discharges to a point as far upstream as there is significant salt content in the water, forming a salt front. A combination of tidal action and freshwater outflow makes tidal rivers well flushed. The tidal river basin may be a simple channel or a complex of tributaries, small associated embayments, marshfronts, tidal flats, and a variety of others.
6. Lagoon: Lagoons are confined coastal bodies of water with restricted inlets to the sea and without significant freshwater inflow. Water circulation is limited, resulting in a poorly flushed, relatively stagnant body of water. Sedimentation is rapid with a great potential for basin shoaling. Shores are often gently sloping and marshy.
7. Perched coastal wetlands: Unique to Pacific islands, this wetland type found above sea level in volcanic crater remnants forms as a result of poor drainage characteristics of the crater rather than from sedimentation. Floral assemblages exhibit distinct zonation while the faunal constituents may include freshwater, brackish, and/or marine species. EXAMPLE: Aunu's Island, AmericanSamoa.
8. Anchialine systems: These small coastal exposures of brackish water form in lava depressions or elevated fossil reefs have only a subsurface connection in the ocean, but show tidal fluctuations. Differing from true estuaries in having no surface continuity with streams or ocean, this system is characterized by a distinct biotic community dominated by benthis algae such as Rhizoclonium, the mineral encrusting Schiuzothrix, and the vascular plant Ruppia maritima. Characteristic fauna which exhibit a high degree of endemicity, include the mollusks Theosoxus neglectus and Tcariosus. Although found throughout the world, the high islands of the Pacific are the only areas within the U.S. where this system can be found.

B. Basin structure. Estuary basins may result from the drowning of a river valley (coastal plains estuary), the drowning of a glacial valley (fjord), the occurrence of an offshore barrier (bar-bounded estuary), some tectonic process (tectonic estuary), or volcanic activity (volcanic estuary).

1. Coastal plains estuary: Where a drowned valley consists mainly of a single channel, the form of the basin is fairly regular forming a simple coastal plains estuary. When a channel is flooded with numerous tributaries an irregular estuary results. Many estuaries of the eastern United States are of this type.
2. Fjord: Estuaries that form in elongated steep headlands that alternate with deep U-shaped valleys resulting from glacial scouring are called fjords. They generally possess rocky floors or very thin veneers of sediment, with deposition generally being restricted to the head where the main river enters. Compared to total fjord volume river discharge is small. But many fjords have restricted tidal ranges at their mouths due to sills, or upreaching sections of the bottom which limit free movement of water, often making river flow large with respect to the tidal prism. The deepest portions are in the upstream reaches, where maximum depths can range from 800m to 1200m while sill depths usually range from 40m to 150m.
3. Bar-bounded estuary: These result from the development of an offshore barrier such as a beach strand, a line of barrier islands, reef formations a line of moraine debris, or

the subsiding remnants of a deltaic lobe. The basin is often partially exposed at low tide and is enclosed by a chain of offshore bars of barrier islands broken at intervals by inlets. These bars may be either deposited offshore or may be coastal dunes that have become isolated by recent seal level rises.
4. Tectonic estuary: These are coastal indentures that have formed through tectonic processes such as slippage along a fault line (San Francisco Bay), folding or movement of the earth's bedrock often with a large inflow of freshwater.
5. Volcanic estuary: These coastal bodies of open water, a result of volcanic processes are depressions or craters that have direct and/ or subsurface connections with the ocean and may or may not have surface continuity with streams. These formations are unique to island areas of volcanic origin.

C. Inlet type. Inlets in various forms are an integral part of the estuarine environment as they regulate to a certain extent, the velocity and magnitude of tidal exchange, the degree of mixing, and volume of discharge to the sea.

1. Unrestricted: An estuary with a wide unrestricted inlet typically has slow currents, no significant turbulence, and receives the full effect of ocean waves and local disturbances which serve to modify the shoreline. These estuaries are partially mixed, as the open mouth permits the incursion of marine waters to considerable distances upstream, depending on the tidal amplitude and stream gradient.
2. Restricted: Restrictions of estuaries can exist in many forms: Bars, barrier islands, spits, sills, and more. Restricted inlets result in decreased circulation, more pronounced longitudinal and vertical salinity gradients, and more rapid sedimentation. However, if the estuary mouth is restricted by depositional features or land closures, the incoming tide may be held back until it suddenly breaks forth into the basin as a tidal wave, or bore. Such currents exert profound effects on the nature of the substrate, turbidity, and biota of the estuary.
3. Permanent: Permanent inlets are usually opposite the mouths of major rivers and permit river water to flow into the sea.
4. Temporary (Intermittent): Temporary inlets are formed by storms and frequently shift position, depending on tidal flow, the depth of the sea, and sound waters, the frequency of storms, and the amount of littoral transport.

D. Bottom composition. The bottom composition of estuaries attests to the vigorous, rapid, and complex sedimentation processes characteristic of most coastal regions with low relief. Sediments are derived through the hydrologic processes of erosion, transport, and deposition carried on by the sea and the stream.

1. Sand: Near estuary mouths, where the predominating forces of the sea build spits or other depositional features, the shore and substrates of the estuary are sandy. The bottom sediments in this area are usually coarse, with a graduation toward finer particles in the head region and other zones of reduced flow, fine silty sands are deposited. Sand deposition occurs only in wider or deeper regions where velocity is reduced.

2. Mud: At the base level of a stream near its mouth, the bottom is typically composed of loose muds, silts, and organic detritus as a result of erosion and transport from the upper stream reaches and organic decomposition. Just inside the estuary entrance, the bottom contains considerable quantities of sand and mud, which support a rich fauna. Mud flats, commonly built up in estuarine basins, are composed of loose, coarse, and fine mud and sand, often dividing the original channel.
3. Rock: Rocks usually occur in areas where the stream runs rapidly over a steep gradient with its coarse materials being derived from the higher elevations where the stream slope is greater. The larger fragments are usually found in shallow areas near the stream mouth.
4. Oyster shell: Throughout a major portion of the world, the oyster reef is one of the most significant features of estuaries, usually being found near the mouth of the estuary in a zone of moderate wave action, salt content, and turbidity. It is often a major factor in modifying estuarine current systems and sedimentation, and may occur as an elongated island or peninsula oriented across the main current, or may develop parallel to the direction of the current.

GROUP II—HYDROGRAPHIC

A. Circulation. Circulation patterns are the result of combined influences of freshwater inflow, tidal action, wind and oceanic forces, and serve many functions: Nutrient transport, plankton dispersal, ecosystem flushing, salinity control, water mixing, and more.

1. Stratified: This is typical of estuaries with a strong freshwater influx and is commonly found in bays formed from ‘‘drowned’’ river valleys, fjords, and other deep basins. There is a net movement of freshwater outward at the top layer and saltwater at the bottom layer, resulting in a net outward transport of surface organisms and net inward transport of bottom organisms.
2. Non-stratified: Estuaries of this type are found where water movement is sluggish and flushing rate is low, although there may be sufficient circulation to provide the basis for a high carrying capacity. This is common to shallow embayments and bays lacking a good supply of freshwater from land drainage.
3. Lagoonal: An estuary of this type is characterized by low rates of water movement resulting from a lack of significant freshwater influx and a lack of strong tidal exchange because of the typically narrow inlet connecting the lagoon to the sea. Circulation whose major driving force is wind, is the major limiting factor in biological productivity within lagoons.

B. Tides. This is the most important ecological factor in an estuary as it affects water exchange and its vertical range determines the extent of tidal flats which may be exposed and submerged with each tidal cycle. Tidal action against the volume of river water discharged into an estuary results in a complex system whose properties vary according to estuary structure as well as the magnitude of river flow and tidal range. Tides are usually described in terms of the cycle and their relative heights. In the United States, tide height is reckoned on the basis of average low tide, which is referred to as datum. The tides, although complex, fall into three main categories:

1. Diurnal: This refers to a daily change in water level that can be observed along the shoreline. There is one high tide and one low tide per day.
2. Semidiurnal: This refers to a twice daily rise and fall in water that can be observed along the shoreline.
3. Wind/Storm tides: This refers to fluctuations in water elevation to wind and storm events, where influence of lunar tides is less.

C. Freshwater. According to nearly all the definitions advanced, it is inherent that all estuaries need freshwater, which is drained from the land and measurably dilutes seawater to create a brackish condition. Freshwater enters an estuary as runoff from the land either from a surface and/or subsurface source.

1. Surface water: This is water flowing over the ground in the form of streams. Local variation in runoff is dependent upon the nature of the soil (porosity and solubility), degree of surface slope, vegetational type and development, local climatic conditions, and volume and intensity of precipitation.
2. Subsurface water: This refers to the precipitation that has been absorbed by the soil and stored below the surface. The distribution of subsurface water depends on local climate, topography, and the porosity and permeability of the underlying soils and rocks. There are two main subtypes of surface water:
a. Vadose water: This is water in the soil above the water table. Its volume with respect to the soil is subject to considerable fluctuation.
b. Groundwater: This is water contained in the rocks below the water table, is usually of more uniform volume than vadose water, and generally follows the topographic relief of the land being high hills and sloping into valleys.

GROUP III—CHEMICAL

A. Salinity. This reflects a complex mixture of salts, the most abundant being sodium chloride, and is a very critical factor in the distribution and maintenance of many estuarine organisms. Based on salinity, there are two basic estuarine types and eight different salinity zones (expressed in parts per thousand- ppt.)

1. Positive estuary: This is an estuary in which the freshwater influx is sufficient to maintain mixing, resulting in a pattern of increasing salinity toward the estuary mouth. It is characterized by low oxygen concentration in the deeper waters and considerable organic content in bottom sediments.
2. Negative estuary: This is found in particularly arid regions, where estuary evaporation may exceed freshwater inflow, resulting in increased salinity in the upper part of the basin, especially if the estuary mouth is restricted so that tidal flow is inhibited. These are typically very salty (hyperhaline), moderately oxygenated at depth, and possess bottom sediments that are poor in organic content.
3. Salinity zones (expressed in ppt):
a. Hyperhaline—greater than 40 ppt.
b. Euhaline—40 ppt to 30 ppt.
c. Mixhaline—30 ppt to 0.5 ppt.

(1) Mixoeuhaline—greater than 30 ppt but less than the adjacent euhaline sea.
(2) Polyhaline—30 ppt to 18 ppt.
(3) Mesohaline—18 ppt to 5 ppt.
(4) Oligohaline—5 ppt to 0.5 ppt.

d. Limnetic: Less than 0.5 ppt.

B. pH Regime: This is indicative of the mineral richness of estuarine waters and falls into three main categories:

1. Acid: Waters with a pH of less than 5.5.
2. Circumneutral: A condition where the pH ranges from 5.5 to 7.4.
3. Alkaline: Waters with a pH greater than 7.4.

Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 3:

Preliminary Screening Assessment:
Property List and Summaries

Data Summaries for CTNERR Initial Inventory of Potential Sites: June, 2016

In order to help support an initial assessment of several possible NERR sites/site configurations identified in the map below (*CT NERR Potential Site Inventory: Initial Draft for Preliminary Assessment – Spring 2016*), the following summary pages were developed by looking at the following sources:

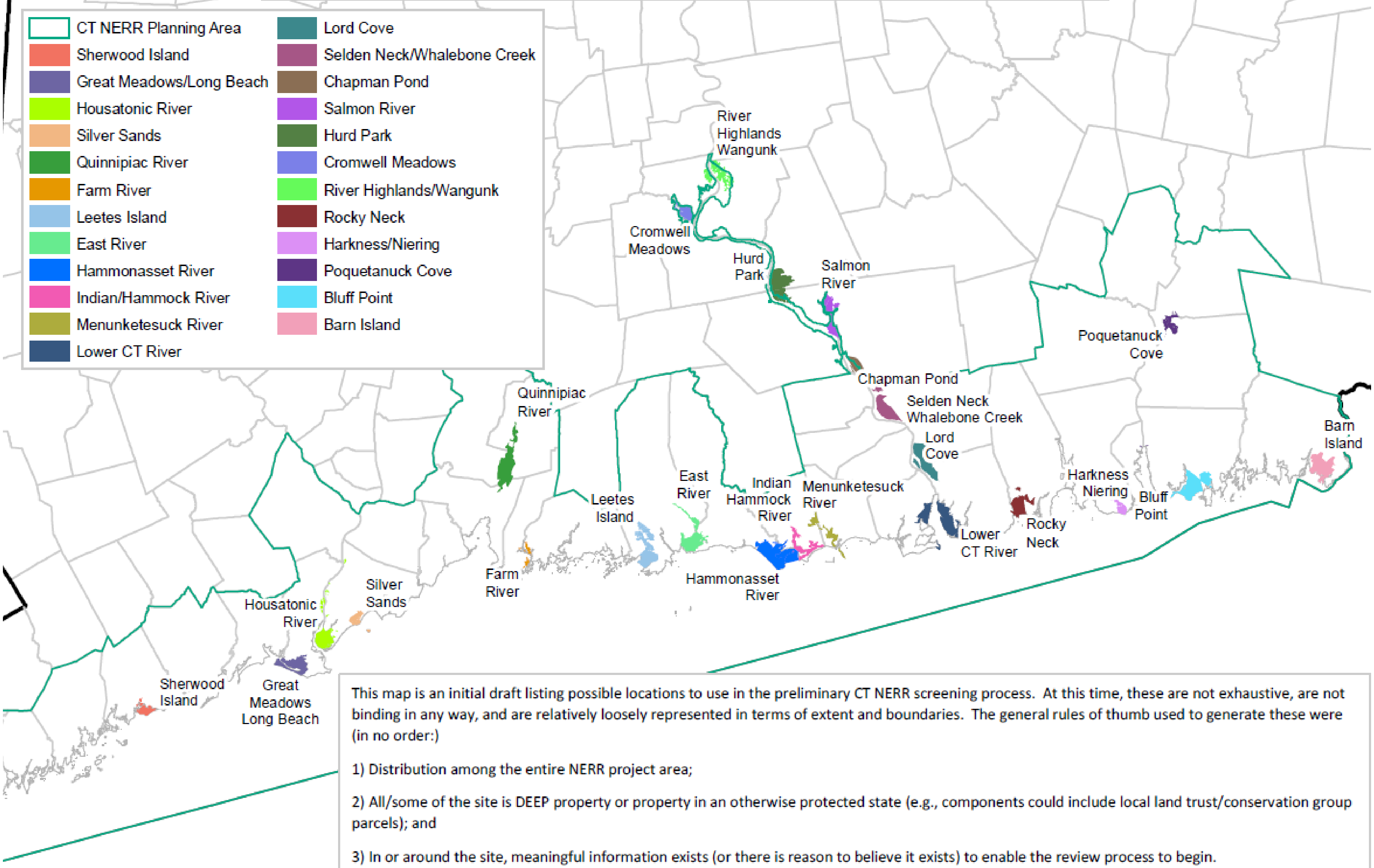
- CT DEEP property (GIS layer: http://www.ct.gov/deep/cwp/view.asp?a=2698&q=322898&depNav_GID=1707)
- CT DEEP Protected Open Space Inventories (GIS layer: http://www.ct.gov/deep/cwp/view.asp?a=2698&q=322898&depNav_GID=1707)
- CTDEEP State Park information (website: http://www.ct.gov/deep/cwp/view.asp?a=2716&q=325086&deepNav_GID=1650)
- LISS Stewardship Atlas (web site: http://longislandsoundstudy.net/issues-actions/stewardship/stewardship-areas-atlas/)
- LIS Ecological Site Inventory (document: Barret, 2014 – available through NERR Google Docs share site: https://drive.google.com/folderview?id=0B5JvtMMeDBUJRzJKX1EtVkVjcDA&usp=sharing)

These are not the only sources of information; others may be identified and required, but they make up a general suite of data suitable to set up an overview of the sites. (NOTE: Protected open space data is somewhat dated, so consider these as a general guide. If more detailed/current property data is required, town assessors should be contacted.)

Questions for consideration (prior to application of preliminary NERR screening criteria in the Selection Process document:)

- With respect to parcels identified at potential sites, what adjustments (if any) are needed? (E.g., omit certain parcels, include others, etc.) The current configurations make no assumptions on whether listed owners are interested or able to contribute, merely that the land seems to be set aside for conservation and may make sense to consider within the context of a NERR.
- Should any sites be eliminated for consideration entirely, and on what grounds?
  - It has been suggested that Great Meadows/Long Beach be dropped based on ownership (Federal and municipal, and the ratio exceeds the 50% limit on Federal component)
  - Similarly, the Federal ratio for the Menunketesuck site also exceeds 50%, which would preclude the current configuration from advancing "as-is"
- Should any sites be added for consideration, and on what grounds?
- How might sites be combined into multi-site assemblies? Housatonic, Quinnipiac, and Lower CT River are assumed multi-site assemblies; can Lower CT River be expanded north? Can Hammonasset and Hammock River be combined? Bluff Point/Barn Island? Others?
- Are there other obvious or not so obvious data sources needed?
- Other considerations?

CT NERR Potential Site Inventory:
Initial Draft for Preliminary Assessment - Spring 2016



This map is an initial draft listing possible locations to use in the preliminary CT NERR screening process. At this time, these are not exhaustive, are not binding in any way, and are relatively loosely represented in terms of extent and boundaries. The general rules of thumb used to generate these were (in no order:)

1) Distribution among the entire NERR project area;

2) All/some of the site is DEEP property or property in an otherwise protected state (e.g., components could include local land trust/conservation group parcels); and

3) In or around the site, meaningful information exists (or there is reason to believe it exists) to enable the review process to begin.

This should be considered fluid - there may be areas that can be removed from consideration (if it is not worth investing effort in any type of evaluation); there may be areas to add that were missed; or there may be areas best considered jointly rather than individually. The goal is to provide a more or less reasonable yet comprehensive inventory to use for beginning the site selection process that can then evolve.

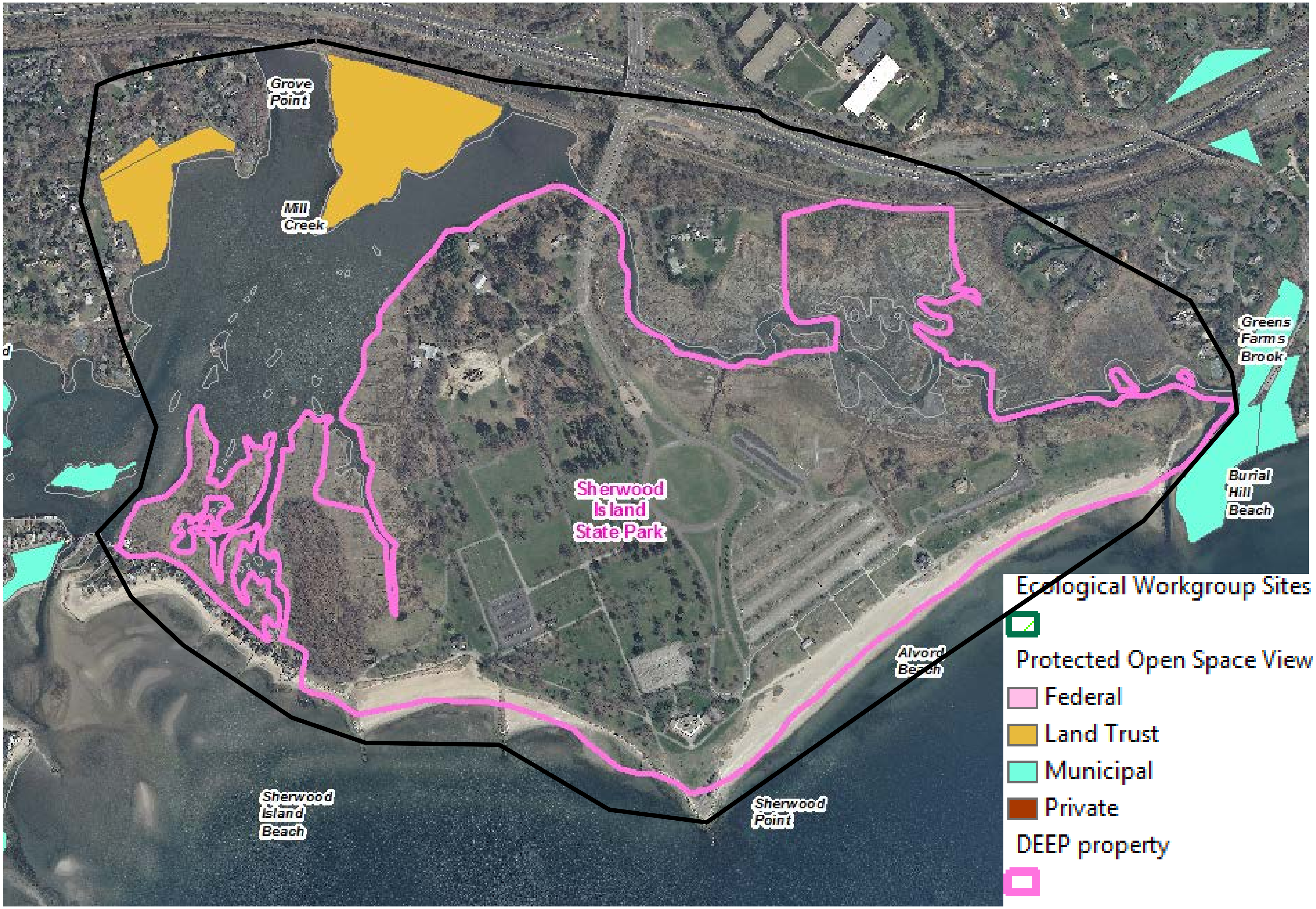


Figure 1: Sherwood Island

GRANTEE	DOC_VOL	DOC_PAGE	AREA_GIS
ASPETUCK LAND TRUST INC	274	201	13.86
ASPETUCK LAND TRUST INC	712	343	5.50
ASPETUCK LAND TRUST INC	1041	91	0.65
		Total Land Trust	*20.01*
Sherwood Island State Park			275.66
		Total State	*275.66*
		TOTAL	**295.67**

DEEP Parks:

Sherwood Island State Park covers just over 235 acres in the Greens Farms section of Westport. It is bounded on the west by the Mill Pond and on the east by New Creek. Centuries ago, another creek (Gallup's Gap Creek) ran roughly down the middle, with an island to its west (Fox Island) and marshland to its east.
In the 1600s, a group of farmers settled on land east of the present park. They shared the surrounding salt marsh and farmed what was then called Fox Island. At the same time Thomas Sherwood, a miller from Nottingham England, arrived in nearby Fairfield with his family. In 1787, Sherwood descendents settled on Fox Island and acquired an existing gristmill on the Mill Pond. Through the 1800s, on what came to be called Sherwood's Island, the Sherwoods grew abundant crops. Onions and potatoes in particular were sent by ship to New York in great quantity. The gristmill serviced local farmers until grain farming in the area declined. In 1914, after surveying the coastline, the Connecticut State Park Commission determined that the Sherwood's Island area was the only location in Fairfield County suitable for a shore park. By then, the land had many owners. For help in making acquisitions, the Commission turned to William H. Burr Jr., a Westport produce farmer, former state legislator and an activist for historical preservation. Because the first property purchase was made in 1914, Sherwood Island is said to be Connecticut's oldest state park; but many years passed before it was accessible to the public. By 1923, with William Burr acting as intermediary, the State had acquired 48 acres of land on the marsh. However, neighboring landowner objections held up further funding to buy uplands for parking and park facilities. Through continuing advocacy by Burr and several regional associations, funding for the key parcels was approved, but not until 1937. These purchases were instrumental in creating momentum that lead to additional acquisitions and recreational improvements.

Sherwood Island Nature Center: Curious and budding naturalists of all ages will find at the nature center a wide variety of displays and exhibits to greet them and help them understand the rich diversity of plant and animal life that inhabit the park. The Center is located between East Beach and the salt marsh nature trail. DEEP staff, assisted by interns and docents, has planned summer nature walks, bird watching, and learning activities for adults and children. The Nature Center is open Wednesday - Sunday 10 am to 4 pm.

DEEP Geology:

Rock Types Found on Main Trail

- Igneous: Basalt
- Metamorphic: Schist, Gneiss
- Sedimentary: None

Rock Units: Unknown: Artificial Fill, Surficial Deposits
Minerals of Interest: Muscovite, Biotite, Feldspar, Quartz
Interesting Geologic Features: Drumlin, Jetties, Garnet and Muscovite Sand

LISS Stewardship:
Purchased in 1914, Sherwood Island is Connecticut's first state park. Its 234 acres are divided into a distinct east side (including a sandy beach, tidal marsh, nature trail, and the popular model airplane field) and west side (hiking trails, picnic tables, marsh and forest).The division between these areas is Sherwood Point, a rocky area popular for fishing and viewing boats across the New York City skyline, as well as the site of Connecticut's official 9/11 Living Memorial. The park's nature center, open late spring through early fall, is a state-of-the-art facility featuring interactive displays, outdoor education programs, and free weekly lectures and special events.

- Sherwood Island is one of the most popular state parks in CT.
- Sherwood Island is technically an island due to the small tidal creek separating the beach from the mainland.
- Visit the nature center (open late spring through early fall) to engage in nature walks, outdoor activities, animal interactions, and engaging displays of the area's human and environmental history. Private programs are available for schools, camps, family reunions, birthdays, scouts, and other groups as requested.

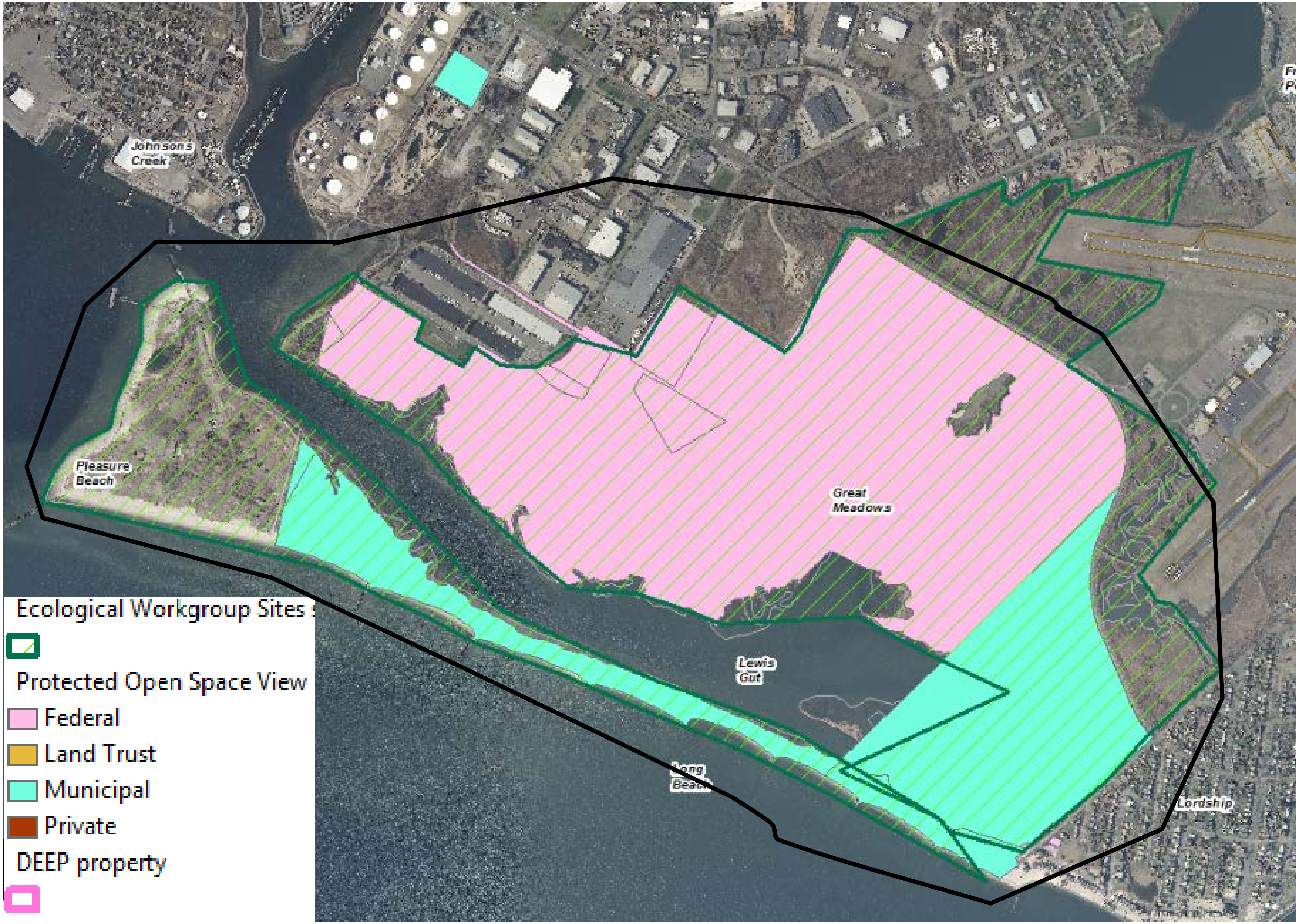


Figure 2: Great Meadows / Long Beach

GRANTEE	DOC_VOL	DOC_PAGE	AREA_GIS
UNITED STATES OF AMERICA	1676	292	0.19
UNITED STATES OF AMERICA	1234	99	373.29
UNITED STATES OF AMERICA	1070	157	3.13
UNITED STATES OF AMERICA	NA	NA	9.26
UNITED STATES OF AMERICA	NA	NA	0.90
UNITED STATES OF AMERICA			3.67
UNITED STATES OF AMERICA	1676	292	1.86
UNITED STATES OF AMERICA	NA	NA	7.33
UNITED STATES OF AMERICA	1676	292	0.42
		Total Federal	*400.05*
BRIDGEPORT CITY OF	1878	333	112.04
TOWN OF STRATFORD	NA	NA	45.85
TOWN OF STRATFORD	227	292	11.73
		Total Muni	*169.62*
		TOTAL	**569.67*** **

***Ratio of Federal property to overall size is > 50%; as currently configured this would not be a viable NERR site. If this represents a good potential candidate, additional non-Federal property would need to be added, or some/all of these parcels would need to be combined with another site (e.g., Housatonic River) to reduce the Federal percentage to less than 50%.

Site Name: ***Great Meadows (58)***

RecordID: 105

Town: Stratford/Bridgeport

Primary Designation Outstanding habitat

Record Complete? ☑

State: CT

Secondary Designation

Data collected by Barrett

Size (acres): 699

Ownership: 367 acres are part of the Stewart B. McKinney National Wildlife Refuge; other parts owned by Town of Stratford, Sikorsky Memorial Airport, City of Bridgeport, and private ownership.

Component	Habitats
contributing	Estuarine Embayments
contributing	Freshwater Wetlands
contributing	Intertidal Flats
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Saltwater intertidal flat		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Brown thrasher (2009)	Toxostoma rufum	☑	☐	☑	☐
plant	Dropseed (1992)	Sporobolus asper	☐	☐	☑	☐
plant	Marsh pink (2012)	Sabatia stellaris	☐	☐	☑	☐
bird	King rail (1997)	Rallus elegans	☑	☐	☑	☐
bird	Pied-billed grebe (2004)	Podilymbus podiceps	☑	☐	☑	☐
reptile/amphibian	Diamondback terrapin (1995)	Malaclemys terrapin	☑	☑	☑	☐
bird	Least bittern (2003)	Ixobrychus exilis	☑	☐	☑	☐
bird	Least bittern (2003)	Ixobrychus exilis	☑	☐	☑	☐
bird	Horned lark (1994 H?)	Eremophila alpestris	☑	☐	☑	☐
bird	Northern harrier (2008)	Circus cyanues	☑	☐	☑	☐
invertebrate	Tiger beetle (2012)	Cicindela marginata	☑	☐	☑	☐
bird	Willet (1992)	Catoptrophus semipalmatus	☑	☐	☑	☐
bird	American bittern (2009)	Botaurus lentginosus	☑	☐	☑	☐
plant	Bayonet grass (1987)	Bolboschoenus maritimus ssp. Paludo	☐	☐	☑	☐
bird	Short-eared owl (1990)	Asio flammeus	☑	☐	☑	☐
plant	Beach needle grass (2012)	Aristida tuberculosa	☐	☐	☑	☐
plant	Beach needlegrass (1984 H?)	Aristida tuberculosa	☐	☐	☑	☐
plant	Needlegrass (2012)	Aristida longespica	☐	☐	☑	☐
plant	Needlegrass (2012)	Aristida longespica	☐	☐	☑	☐
bird	Seaside sparrow (2009)	Ammodramus maritimus	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus	☑	☑	☑	☐

SIGT Habitat Criteria
Tidal Wetlands - Is Waterfowl Concentration Area
Tidal Wetlands - Is Migratory Shorebird Concentration Area

Discusssion of Habitat Mosaic / Complex : Outstanding marsh system: most extensive unditched high marsh in Connecticut and unmaintained ditches in other areas; unditched high marsh with Ruppia pools.

In the fall of 1994, 367 acres of tidal wetland and upland habitat were acquired at Great Meadows Marsh for inclusion into the refuge. The marsh has been recognized by the Service as an important area for migratory birds including waterfowl, shorebirds, wading birds and many rare species. Great Meadows contains the largest unditched saltwater high marsh in Connecticut, provides feeding and nesting habitat for over 270 species of birds, and is an important wintering area for the American black duck. Lewis Gut, which channels water into the marsh from Long Island Sound, contains one of the most productive shellfish beds in the state and provides breeding and feeding grounds for several species of finfish. (http://www.fws.gov/refuge/Stewart_B_McKinney/wildlife_and_habitat/islands.html)
Owl Roost identified in 1990
Significant colonial wading bird foraging area identified in 1988.

Geologic Signifcance:

Threats:

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source	
Scientific Journal/Paper	CT DEEP Natural Diversity Database	
Website	http://www.fws.gov/refuge/Stewart_B_McKinney/wildlife_and_habitat/islands.html	
Website	http://ct.audubon.org/stratford-great-meadows-area	
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas	

Site Name: *Long Beach/Pleasure Beach (59)*

RecordID: 104

Town: Bridgeport/Stratford

State: CT

Size (acres): 80

Ownership: Bridgeport/Stratford Municipalities

Primary Designation Outstanding habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by Barrett

Component	Habitats
primary	Beaches and Dunes
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Coastal sand dunes		
Saltwater intertidal beaches and shores		
Salt marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Barn owl (2009)	Tyto alba	☑	☐	☑	☐
bird	Lesser yellowlegs	Tringa flavipes (1 nonbreeding individ	☐	☐	☐	☐
bird	Brown thrasher (2009)	Toxostoma rufum	☑	☐	☑	☐
bird	Least tern (2012)	Sterula antillarum	☑	☐	☑	☐
bird	Least tern (2012)	Sterna antillarum	☑	☐	☑	☐
plant	Sickle-leaved golden aster (20	Pityopsis falcata	☐	☐	☑	☐
plant	Panic grass (2012)	Panicum amarum	☐	☐	☑	☐
plant	Eastern Prickly pear (2011)	Opuntia humifusa	☐	☐	☑	☐
plant	Blazing-star (2012)	Liatris scariosa var. novae-angliae	☑	☐	☑	☐
bird	American oystercatcher	Haematopus palliatus (6 nonbreeding	☑	☑	☑	☐
bird	Horned lark (1985 H?)	Eremophila alpestris	☑	☐	☑	☐
invertebrate	Tiger beetle (2012)	Cicindela marginata	☑	☐	☑	☐
bird	Piping plover (2012)	Charadrius melodus (4 prs/4chicks fle	☑	☑	☑	☐
bird	Semipalmated sandpiper	Calidris pusilla (365 nonbreeding indiv	☑	☐	☐	☐
bird	Sanderling	Calidris alba (320 nonbreeding individ	☑	☐	☐	☐
bird	Upland sandpiper (1984)	Bartramia longicauda	☑	☐	☑	☐
bird	Short-eared owl (1990)	Asio flammeus	☑	☐	☑	☐
plant	Beach needle grass (2012)	Aristida tuberculosa	☐	☐	☑	☐

Discusssion of Habitat Mosaic / Complex :

Long Beach/Pleasure Beach is a two and a half mile long barrier beach.
Pleasure Beach is the Bridgeport portion of a Connecticut barrier beach that extends 2-1/2 miles westerly from Point No Point (the portion in the adjoining town of Stratford is known as Long Beach). Prior to June, 2014, when Pleasure Beach re-opened, the area was Connecticut's largest and most recent ghost town and abandoned recently in the late 1990s after a fire on the bridge connecting it to the mainland. It is surrounded on three sides by water (Lewis Gut to the north, Bridgeport Harbor to the west, and Long Island Sound to the south).
Pleasure Beach (77 acres) - habitat includes sandy beach/dune, sandplain grassland, salt marsh with pannes and tidal creeks.
Pleasure Beach is a protected refuge for endangered birds (piping plover, osprey) and plants (prickly pear cactus, southern sea lavender). Sections of the beach are roped off seasonally to protect the plover nesting areas. There is also an abundance of cotton-tailed rabbits, deer,

foxes, raccoons, and other mammals. The sand spit is estimated to contain more than 25% of the remaining undeveloped beachfront in the state.
Management Plan for Long Beach by Metzler and Rozsa (2013) available on line as a pdf.
Feasibility Study and Master Plan for Pleasure Beach Park (2012) available on line as a pdf.

Geologic Signifcance:

Threats: Human/animal disturbance to birds.

Notes/Justification

Follow up comments

Citations/References:

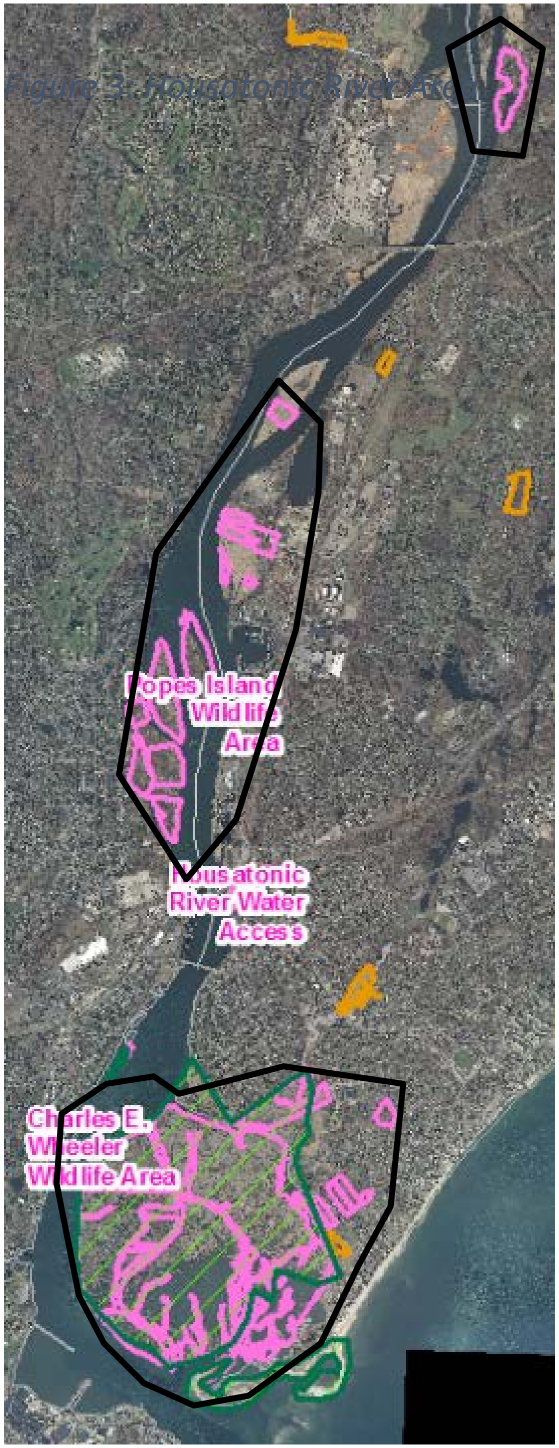
Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://www.slideshare.net/royerb1/pleasure-beach-master-plan-forum-december-2011
Website	http://www.audubonmagazine.org/articles/conservation/pleasure-beach-place-birds-and-people
Website	http://en.wikipedia.org/wiki/Pleasure_Beach
Grey Literature	Field Observations CT (Comins 2014)

LISS Stewardship:
Great Meadows tidal marsh is a large wetland area surrounded by the highly urbanized Greater Bridgeport Area and Long Island Sound. It is part of a larger habitat mosaic of barrier beach, forest, shrubland, grassland, and shallow open water estuarine embayment which together are a mecca for wildlife along the Long Island Sound. The marsh complex, which is owned by the Stewart B. McKinney National Wildlife Refuge, provides habitat for fish, rare plants, and more than 270 species of migrating and breeding birds. Great Meadows marsh, and surrounding wildlife areas owned by Bridgeport, Stratford, and private property owners, is also recognized by National Audubon Society as an Important Bird Area, in part for helping to protect listed species such as pied-billed grebe, Ipswich sparrow, and piping plover. One of these properties, adjacent to the Great Meadows marsh (the designated Stewardship Site) is Long Beach, a barrier beach that is a haven for beach-nesting birds, and includes the recently restored Long Beach West dune and beach.

- One of the largest partially unditched salt marshes along the coast of Connecticut.
- Identified as an Important Bird Area by National Audubon Society.
- Critical habitat for over 270 species of birds providing nesting, over-wintering, and stopover areas for migratory birds such as waterfowl, shorebirds, and wading birds including pied-billed grebe, Ipswich sparrow, and piping plover.
- Contains five rare plant species and serves as breeding or feeding grounds for several species of finfish.
- Long Beach West and adjacent Pleasure Beach support an extensive and rare coastal barrier habitat known as ridge plain, a system of alternating dunes and swales supporting rare coastal plant communities.
- Lewis Gut, which channels water into the marsh from Long Island Sound, contains one of the most productive shellfish beds in the state and provides breeding and feeding grounds for several species of finfish.

- Waterfowl hunting requires a permit. To learn more, contact the Refuge using the phone or email address on its web page
- In addition to migrating birds, dragonflies and songbirds use the Great Meadows’ wetlands as a resting area during migration.

PROPERTY	SUM_ACRE_G
Charles E. Wheeler Wildlife Area	678.55
Housatonic River Water Access	9.33
Popes Island Wildlife Area	24.1
Total State	*711.98*
1 parcel owned by Milford Land Conservation Trust	2.3
Total other	*2.3*
TOTAL	**714.28**



Ecological Workgroup Sites

DEEP property

Protected Open Space

Figure 4: Housatonic River

Site Name: *Milford Point (60)*

RecordID: 107

Town: Milford

Primary Designation Outstanding habitat

Record Complete? ☑

State: CT

Secondary Designation Rare species habitat

Data collected by Barrett

Size (acres): 22

Ownership: U.S. Fish and Wildlife Service, State of Connecticut DEEP, Connecticut Audubon Society (lease agreement with State for barrier beach property on which nature center sits)

Component	Habitats
primary	Beaches and Dunes
contributing	Intertidal Flats

Significant Communities	Rarity (global)	Rarity (State)
Saltwater intertidal beaches and shores		
Coastal sand dunes		
Sand flats		
Saltwater intertidal flat (Cedar Beach)		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Lesser yellowlegs	Tringa flavipes (20 nonbreeding indivi	☐	☐	☐	☐
bird	Least tern (2012)	Sternula antillarum	☑	☐	☑	☐
invertebrate	Noctuid moth (2004)	Schinia spinosae	☐	☐	☑	☐
bird	Purple martin (2012)	Progne subis	☐	☐	☑	☐
plant	Sickle-leaved golden aster (20	Pityopsis falcata	☑	☐	☑	☐
invertebrate	Lanced phaneta (2004)	Phaneta clavana	☐	☐	☑	☐
plant	Panic grass (2012)	Panicum amarum	☐	☐	☑	☐
plant	Eastern prickly pear	Opuntia humifusa	☐	☐	☑	☐
invertebrate	Dune oncocnemis (2005)	Oncocnemis riparia	☐	☐	☑	☐
invertebrate	Eastern cactus-boring moth (20	Melitara prodenialis	☐	☐	☑	☐
invertebrate	Sand prairie wainscot (2005)	Leucania extincta	☐	☐	☑	☐
bird	Black rail	Laterallus jamaicensis	☑	☑	☑	☐
terrestrial mammal	Red bat (2007)	Lasiurus borealis	☑	☐	☑	☐
bird	American oystercatcher (2012)	Haematopus palliatus (3 prs/1 chick fl	☑	☐	☑	☐
invertebrate	Brown-bordered geometer (200	Eumacaria latiferrugata	☐	☐	☑	☐
invertebrate	Morrison's mosaic (2004)	Eucosma morrisoni	☐	☐	☑	☐
bird	Horned lark (1999)	Eremophila alpestris	☑	☐	☑	☐
bird	Piping plover	Charadrius melodus (7 prs/19 chicks fl	☑	☑	☑	☐
bird	Semipalmated sandpiper	Calidris pusilla (5015 nonbreeding indi	☑	☐	☐	☐
bird	Red knot	Calidris canutus (13 nonbreeding indiv	☐	☐	☐	☐
bird	Sanderling	Calidris alba (500 nonbreeding individ	☑	☐	☐	☐
invertebrate	Short-lined chocolate (2005)	Argyrostrotis anilis	☐	☐	☑	☐
invertebrate	Apamea moth (2004)	Apamea lintneri	☐	☐	☑	☐
invertebrate	Apamea moth (2005)	Apamea inordinata	☐	☐	☑	☐
invertebrate	Coastal heathland cutworm (20	Abagrostis nefascia benjamini	☑	☐	☑	☐

SIGT Habitat Criteria	
Tidal Wetlands - Is Migratory Shorebird Concentration Area	
Tidal Wetlands - Is Waterfowl Concentration Area	
Beaches and Dunes - Has Roosting Areas	

Discusssion of Habitat Mosaic / Complex :

Outstanding back barrier sand flats with rare plant communities and species; exemplary primary dune habitat. Sandflats have herbaceous vegetation/shrub/thickets.
Sandy barrier beach with local beach grasses, beach rose, and bayberry. This beach receives heavy human traffic because it is a public beach.
Winter Owl roost (2002) short eared owl observed.
Per http://www.fws.gov/refuge/Stewart_B_McKinney/wildlife_and_habitat/islands.html: Milford Point Unit, a 22-acre barrier beach peninsula, is a historic nesting area for the threatened piping plover. Its diverse mix of habitats provides over 50 species of waterfowl, shorebirds and wading birds with a safe haven for feeding and resting during their long spring and fall migrations. The surrounding saltmarsh and mudflats are a haven for waterfowl and wading birds, and are thought to be among the most productive in the state for migrant shorebirds.

Per http://ct.audubon.org/milford-point: (for Milford Point and Wheeler Marsh system)
Birds: The marsh, sandbars, and barrier beach are some of the most important shorebird migratory stopover areas on Long Island Sound, providing foraging areas and resting areas for tens of thousands of shorebirds each year. Numbers of some species of migrating shorebirds (especially Semipalmated and Black-bellied Plovers) may elevate this area to the level of national or continental significance. The marsh, barrier beach and sandbars provide nesting habitat for several species of regional and national concern. Two to ten pairs of Piping Plovers nest in area annually. Common and Least Terns have nested in the area with up to 100 pairs of each species in recent years; it is an important tern staging area, including some Roseate Terns, with 1000+ terns recorded annually. Seaside and Salt Marsh Sharp-tailed Sparrows nest in the marsh. The marsh may also be a significant migratory stopover area for Saltmarsh and 'Acadian' Nelson's Sharp-tailed Sparrows. The area is an American Oystercatcher nesting area for 2-3 pairs. Species among 10-20,000 shorebirds recorded annually include small numbers of Red Knot, and significant (1000+/year) numbers of Black-bellied and Semipalmated Plovers. The marsh is a regionally important Clapper Rail and Willet nesting area. The marsh serves as an important waterfowl stopover and staging area, and a nesting area for American Black Duck and Gadwall. It is also one of Connecticut's most significant feeding areas for egrets and herons, and is particularly important to Black-crowned Night-Herons, which, however, can cause problems for other nesting bird species. The area is a Peregrine Falcon foraging area in migration/nesting season, Horned Lark nesting area, important heron/egret foraging area in nesting/post-nesting dispersal seasons, regionally important stopover/wintering area for Short-eared Owl, Northern Harrier, and American Bittern, Osprey nesting area, and significant migratory stopover. Barrier beach is one of Connecticut's primary 'Ipswich' Sparrow wintering and migratory stopover habitats. Milford Point is one of Connecticut's most-visited bird viewing areas.

Non-avian Resources: Wheeler Marsh and Milford Point are one of the healthiest remaining tidal marsh/barrier beach systems in Connecticut, and as such host several uncommon plant species. The area is popular for fishing and hunting, and the marsh is an important nursery for many species of fishes.

Geologic Signifcance:

Threats: Invasive plants (bittersweet and area towards dune has locust sprouts)

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://www.fws.gov/refuge/Stewart_B_McKinney/wildlife_and_habitat/islands.html
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas
Grey Literature	Field Observations CT (Comins 2014)

Site Name: Wheeler Wildlife Area (56)

RecordID: 117

Town: Milford/Stratford/Shelton

Primary Designation Outstanding habitat

Record Complete? ☑

State: CT

Secondary Designation

Data collected by Barrett

Size (acres): 550

Ownership: State of Connecticut (Wheeler Marsh Wildlife Management Area)

Component	Habitats
contributing	Beaches and Dunes
contributing	Freshwater Wetlands
contributing	Intertidal Flats
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Coastal sand dunes		
Saltwater intertidal beaches and shores		
Saltwater intertidal flat		
Freshwater tidal marsh (Farmill River site)		
Brackish intertidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Brown thrasher	Toxostoma rufum (2002) powerline cu	☑	☐	☑	☐
reptile/amphibian	Eastern box turtle	Terrapene carolina carolina (2009)	☑	☐	☑	☐
bird	Least tern	Sterna antillarum (2012)	☑	☐	☑	☐
invertebrate	Noctuid moth	Schinia spinosae (2004)	☐	☐	☑	☐
bird	King rail	Rallus elegans (1999)	☑	☐	☑	☐
bird	Purple martin	Progne subis (2012)	☑	☐	☑	☐
plant	Sickle-leaved golden aster	Pityopsis falcata (2012)	☑	☐	☑	☐
invertebrate	Lanced phaneta	Phaneta clavana (2004)	☐	☐	☑	☐
plant	Panic grass	Panicum amarum (2012)	☐	☐	☑	☐
plant	Eastern prickly pear	Opuntia humifusa (2011)	☐	☐	☑	☐
invertebrate	Dune oncocnemis	Oncocnemis riparia (2005)	☐	☐	☑	☐
bird	Black-crowned night-heron	Nycticorax nycticorax (1984 H?)	☑	☐	☑	☐
bird	Yellow-crowned night heron	Nyctanassa violacea (1984 H?)	☑	☐	☑	☐
invertebrate	Eastern cactus-boring moth	Melitara prodenialis (2004)	☐	☐	☑	☐
reptile/amphibian	Diamondback terrapin	Malaclemys terrapin (1995)	☑	☐	☑	☐
invertebrate	Sand prairie wainscot	Leucania extincta	☐	☐	☑	☐
bird	Black rail	Laterallus jamaicensis (1997)	☑	☐	☑	☐
terrestrial mammal	Red bat	Lasiurus borealis (2007)	☑	☐	☑	☐
bird	American oystercatcher	Haematopus palliatus (2012)	☑	☐	☑	☐
bird	Peregrine falcon	Falco peregrinus (2013) Milford NRG	☑	☐	☐	☐
invertebrate	Noctuid moth	Euxoa pleuritica (2004)	☐	☐	☑	☐
invertebrate	Brown-bordered geometer	Eumacaria latiferrugata (2005)	☐	☐	☑	☐
invertebrate	Morrison's mosaic	Eucosma morrisoni (2004)	☐	☐	☑	☐
bird	Horned lark	Eremophila alpestris (1999 H?)	☑	☐	☑	☐

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Variegated horsetail	Equisetum variegatum (1990) open gr	☐	☐	☑	☐
bird	Piping plover	Charadrius melodus (2012)	☑	☐	☑	☐
bird	Short-eared owl	Asio flammeus (2002)	☑	☐	☑	☐
invertebrate	Short-lined chocolate	Argyrostrotis anilis (2005)	☐	☐	☑	☐
invertebrate	Apamea moth	Apamea lintneri (2004)	☐	☐	☑	☐
invertebrate	Apamea moth	Apamea inordinata (2005)	☐	☐	☑	☐
bird	Seaside sparrow	Ammodramus maritimus (2009)	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus (2009)	☑	☑	☑	☐
fish	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus (199	☑	☐	☑	☐
fish	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus (199	☑	☐	☑	☐
invertebrate	Coastal heathland cutworm	Abagrotis nefascia benjamini (2004)	☑	☐	☑	☐

SIGT Habitat Criteria
Tidal Wetlands - Is Migratory Shorebird Concentration Area
Tidal Wetlands - Is Waterfowl Concentration Area
Tidal Wetlands - Supports Nesting Shorebirds
Beaches and Dunes - Supports Nesting Shorebirds

Discusssion of Habitat Mosaic / Complex :

This area (along with adjacent Milford Point (part of the Steward B. Mckinney National Wildlife Refuge) includes a diversity of coastal habitats and is a significant year round and migratory shorebird site. The habitats include intertidal mudflats, sandflats, coastal barrier beach and tidal marshes. The barrier beach at the Audubon Coastal Center is a rare type of ridge plain beach of alternating ridges and swales that formed with the prograding beach. The ridge/swale system supports rare plant communities as well as rare plants. The area has significant wildlife value: migratory bird stopover habitat has been designated as an Important Bird Area by the National Audubon Society, numerous state listed birds nest and/or feed here; the area provides nursery habitat for diamondback terrapin; and red bats use the area during fall migration.

Nells Island - mostly low marsh with Spartina alterniflora, unditched, some high marsh on edges; the Nells Island Brackish tidal marsh is the largest unditched tidal wetland in Long Island Sound; The area includes intertidal shoals that, in combination with the brackish marshes, are significant wildlife concentration area and provide habitat and foraging areas for colonial water birds. Owl roost in salt marsh area.

Milford Point -beach with primary dune and limited area of sandflats; sand flats have herbaceous vegetation/shrub/thickets.

Cedar Beach - extensive sand/mud flats

Milford Point is a colonial wading bird foraging area: major feeding area for Chimon Island herons including yellow-crowned night herons (1986, Breeding Bird Atlas, 2 pairs) and Black Crowned Night Herons (1986 Breeding Bird Atlas, 15 pairs)

Milford Point - owl roost on sandy beach with treed area and salt marsh to the north.

Farmill River site - freshwater tidal marsh listed as part of Wheeler Wildlife Area

Geologic Signifcance:

Threats: Introduced animals including cats and mute swans and other predators, pollution, habitat conversion (succession on barrier beach, invasive and non-native plants), disturbance to birds or habitat, sea level rise.

Notes/Justification The marsh area is a regionally significant waterfowl hunting area and also gets some use by rail hunters. Outstanding coastal outdoor education facility.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://longislandsoundstudy.net/2012/07/milford-pt-and-wheeler/
Website	http://ct.audubon.org/milford-point
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas

LISS Stewardship:

The 23-acre Milford Point unit of the Stewart B. McKinney National Wildlife Refuge and CTDEEP's adjacent 550-acre Wheeler Marsh Wildlife Management Area (WMA) offer some of the finest wildlife viewing opportunities in Connecticut. The diversity of the Stewardship Area's habitats, including intertidal mudflats, coastal barrier beach, sandflats, and marshes, are a haven for year-round and migratory wildlife. Restricted areas of the beach provide nesting habitat for rare birds such as piping plover, least tern, and American oystercatcher, while the Coastal Center at Milford Point provides access to the area and educational programs. Annually supporting between 10,000-20,000 migrating shorebirds, including semipalmated sandpiper, sanderling, and dunlin, the site offers extraordinary opportunities for wildlife viewing from land or non-motorized boat. Ornithologists believe that the populations of some shorebirds, particularly semipalmated and black-bellied plovers using this site, could elevate this site to national or continental bird conservation significance.

- The Nells Island brackish tidal marsh within the Wheeler Marsh WMA is the largest unditched tidal wetland in Long Island Sound.
- The barrier beach at the Coastal Center is a rare type of ridge plain beach of alternating ridges and swales that formed as the beach prograded, or grew seaward. This ridge and swale system supports rare plant communities and supports rare plants.
- Provides vital migratory bird stopover habitat, designated by the National Audubon Society as an Important Bird Area.
- Among the many state or federally threatened and endangered bird species utilizing this area are American bittern, snowy egret, peregrine falcon, piping plover, and roseate tern.
- Serves as a nursery for valuable wildlife such as the globally near-threatened diamondback terrapin.
- Used by red bats (a Connecticut species of special concern) during fall migration
- The Nells Island brackish tidal marsh within the Wheeler Marsh WMA is the largest unditched tidal wetland in Long Island Sound.
- The barrier beach at the Coastal Center is a rare type of ridge plain beach of alternating ridges and swales that formed as the beach prograded, or grew seaward. This ridge and swale system supports rare plant communities and supports rare plants.

- Provides vital migratory bird stopover habitat, designated by the National Audubon Society as an Important Bird Area.
- Among the many state or federally threatened and endangered bird species utilizing this area are American bittern, snowy egret, peregrine falcon, piping plover, and roseate tern.
- Serves as a nursery for valuable wildlife such as the globally near-threatened diamondback terrapin.
- Used by red bats (a Connecticut species of special concern) during fall migration

Figure 5: Silver Sands State Park

PROPERTY	SUM_ACRE_G
Silver Sands State Park	302.64
TOTAL	**302.64**

DEEP Parks:
The early history of Silver Sands focuses on Charles Island. The Island is connected to the mainland by a sand/gravel bar (tombolo) that is submerged at high tide. Captain Kidd is reputed to have buried his treasure on the island in 1699. The only remains on the island are of a Catholic retreat center from the 1920's-30's. The island's interior is closed May 1 through August 31 to protect heron and egret rookeries.

State Park acquisition, ultimately involving over 300 parcels, began after hurricane "Diane" destroyed 75 homes in 1955. Early vision of the park was to create a "Hammonasset" type sand beach backed by parking lots on filled wetlands. The present master plan seeks to return the site to its historic past of interior tidal wetlands separated from the Sound by sand dunes. In 1960 Silver Sands was designated as a state park.

LISS Stewardship Atlas:
Charles Island Natural Area Preserve, designated a Natural Area Preserve by the State of Connecticut in 1999, is a small densely wooded island important to Connecticut's waterbirds. Geologically it is a coastal moraine segment, formed by an unsorted glacial deposit (mixture of rocks and sediment) It is also a "tied island," tied to the mainland by a connecting bar or tie bar consisting of pebbles and cobble. This 14-acre site hosts one of the state's largest remaining breeding colonies of heron and egret. Designated an Important Bird Area by the National Audubon Society, it provides nesting habitat for rare bird species, including great and snowy egret, long-eared owl, and least tern. Over time, plans for the island have included a tobacco plantation in 1657, a fertilizer plant, a hotel in the 1880s, and a Catholic men's retreat center in the 1920s and 1930s. All eventually failed, leaving only a few remains of the retreat center.

- Audubon designated Charles Island an Important Bird Area because it supports state-threatened species, including snowy egret and glossy ibis as well as year-round and migratory waterfowl and wading birds.
- Charles Island was designated a Natural Area Preserve by the state in 1999 due in part to supporting populations of state-threatened snowy egrets and endangered roseate terns.
- Charles Island is closed to the public from May 1 to August 31 to protect nesting heron and egret colonies.
- Attempting to cross the connecting bar to Charles Island can be dangerous. Visitors should consult local tide predictions. Uninformed visitors have been trapped on the island and swept off of the bar at high water!
- Dense stands of poison ivy are found throughout the island.
- Charles Island is connected to shore by a connecting bar or tie bar, which consists of cobble and pebbles, and is exposed only during low tide.

PROPERTY	SUM_ACRE_G
Quinnipiac River Marsh Wildlife Area	563.84
Quinnipiac River State Park	278.53
Quinnipiac River Water Access	13.45
Total State	*855.82*
1 potential Land Trust parcel	3.79
1 municipal open space parcel	41.59
Total Other	*45.38*
TOTAL	**901.2**

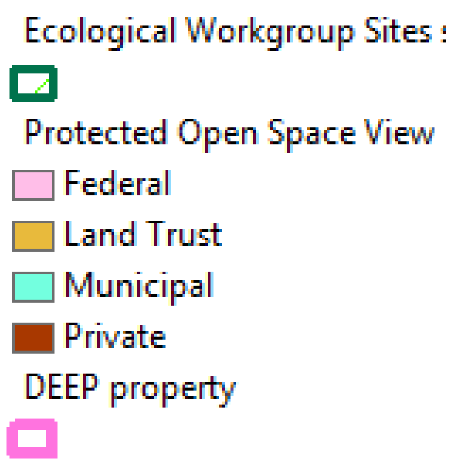


Figure 6: Quinnipiac River Marshes

Site Name: Quinnipiac River Marsh Complex (81)

RecordID: 119

Town: New Haven/Hamden/North Haven

Primary Designation Exemplary habitat

Record Complete? [x]

State: CT

Secondary Designation

Data collected by Barrett

Size (acres): 900

Ownership: State of Connecticut/others

Component	Habitats	
primary	Tidal Wetlands	

Significant Communities	Rarity (global)	Rarity (State)
Brackish intertidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Horned pondweed	Zannichellia palustris var. major (1986	[ ]	[ ]	[x]	[ ]
bird	Barn owl	Tyto alba (1994)	[x]	[ ]	[x]	[ ]
bird	Least tern	Sternula antillarum (1998)	[x]	[ ]	[x]	[ ]
plant	Starry champion	Silene stellata (2004) East Rock Park	[ ]	[ ]	[x]	[ ]
plant	Cursed crowfood	Ranunculus sceleratus (1998)	[x]	[ ]	[x]	[ ]
bird	King rail	Rallus elegans (1999)	[ ]	[ ]	[x]	[ ]
plant	Blazing-star	Liatris scariosa var. novae-angliae (20	[ ]	[ ]	[x]	[ ]
bird	Least bittern	Ixobrychus exilis (2012)	[x]	[ ]	[x]	[ ]
bird	Bald eagle	Haliaeetus leucocephalus (2013)	[ ]	[ ]	[x]	[ ]
bird	Common moorhen	Gallinula chloropus (1999)	[x]	[ ]	[x]	[ ]
bird	American kestrel	Falco sparverius (2002 - New Haven I	[x]	[ ]	[x]	[ ]
bird	Northern harrier	Circus cyaneus (1998)	[x]	[ ]	[x]	[ ]
bird	Common nighthawk	Chordeiles minor (1996)	[x]	[ ]	[x]	[ ]
bird	Willet	Catoptrophorus semipalmatus (1996)	[x]	[ ]	[x]	[ ]
plant	Salt marsh bulrush	Bolboschoenus novae-angliae	[ ]	[ ]	[x]	[ ]
plant	Orache	Atriplex glabriuscula (1998)	[ ]	[ ]	[x]	[ ]
bird	Seaside sparrow	Ammodramus maritimus (1998)	[x]	[ ]	[x]	[ ]
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus (2009)	[x]	[x]	[x]	[ ]
fish	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus (199	[x]	[x]	[x]	[ ]

SIGT Habitat Criteria
Tidal Wetlands - Is Waterfowl Concentration Area
Tidal Wetlands - Supports Nesting Shorebirds

Discussion of Habitat Mosaic / Complex : The Quinnipiac River Marsh Wildlife Management Area (WMA) and the Quinnipiac River State Park are extraordinary ecological and outdoor recreation resources within the highly urbanized lower Quinnipiac River area. The habitats here are largely brackish and fresh tidal water marshes with adjacent uplands.The Wildlife Management Area and State Park is nearly 900-acres and contains important habitat that supports several endangered and threatened bird speciesThe Quinnipiac River marshes contain a diversity of habitat types, including: salt marsh dominated by cordgrasses (Spartina alterniflora and S. patens); extensive brackish marshes of dense stands of cattail (Typha angustifolia) and common reed (Phragmites australis); Spartina cynosuroides abundant on marsh edge; freshwater tidal marsh with a high diversity of species

including sweet flag (Acorus calamus), broad-leaved cattail (T. latifolia), reed canary grass (Phalaris arundinacea) and wild rice (Zizania aquatica); and narrow fringes of floodplain forest dominated by green ash (Fraxinus pennsylvanica), red maple (Acer rubrum), black willow (Salix nigra) and silver maple (A. saccharinum). Salt marshes elsewhere in this complex are similar to those in the lower section of the Quinnipiac Marshes. Subsidence is of the low marsh is occuring which are becoming flats.
900 acres of the tidal marsh is owned by the State of Connecticut and managed by the Department of Environmental Protection as a Wildlife Management Area. The Quinnipiac River originates in the Deadwood Swamp on the New Britain/Farmington border, and flows 38 miles to New Haven Harbor. The backish tidal marsh is south of Sackett Point Road, North Haven, and is influenced by the daily rise and fall of the tide. The marsh is adjacent to a large urban area and lies in the towns of North Haven, New Haven, and Hamden. It is bordered by railroad tracks/yards, major streets, shopping malls, five landfills, junkyards, and industrially contaminated sites. Phragmites is a significant problem.
This area is an Audubon Important Bird Area: The marsh is a very productive nesting area for Osprey (13 pairs), a wintering area for Northern Harrier (3-4 birds), and one of few known nesting locations for Common Moorhen and Least Bittern in Connecticut. The marsh is a nesting and wintering area for American Black Ducks, and a nesting area for Saltmarsh Sharp-tailed Sparrow. The marsh has been a roosting area for mixed flocks of blackbirds in the spring and fall migrations, including Red-winged Blackbirds and Common Grackles.
National Audubon Society has designated the Quinnipiac Marsh an Important Bird Area due to its high concentrations of migratory birds.The ecologically-rich brackish tidal marshes support abundant migratory waterfowl.

In the past, the marshes supported the largest population of muskrat in Connecticut.

The marsh habitat supports threatened and endangered Connecticut birds, including the great and snowy egrets, northern harrier, and least bittern.

Significant areas of low marsh habitat, formerly dominated by narrow leaved cat-tail, have drowned. This situation is likely related to marsh subsidence and sea-level rise.

The area provides essential food supplies to migratory dragonflies and butterflies.
The area supports eastern box turtle and wood turtle, both Connecticut species of Special Concern.

CTDEEP Wildlife Division has improved important wintering habitat for the northern saw-whet owls at this site by the planting evergreens and managing invasive non-native plants.

Geologic Signifcance:

Threats: Invasive plants - Phragmites australis

There is significant Phragmites encroachment into the marsh systems, and the Connecticut DEP and Ducks Unlimited are cooperatively restoring areas of the marsh by controlling Phragmites, plugging several mosquito ditches and excavating shallow pools to restore open water habitat and improve tidal flow. The Quinnipiac River Watershed Partnership was formed in 1999 to work to restore and improve the Quinnipiac River Watershed, and includes representation from the Quinnipiac River Watershed Association, the CT DEP, US EPA and local partners. There is a Tidal Marsh Working Group subcommittee of the Quinnipiac River Watershed Partnership, which focuses on the estuarine salt marsh. The New Haven Bird club coordinates several bird monitoring programs in the marsh, including Christmas and Summer Bird Counts, Osprey monitoring and CT DEP wetland callback surveys.

Notes/Justification

Follow up comments

Citations/References:

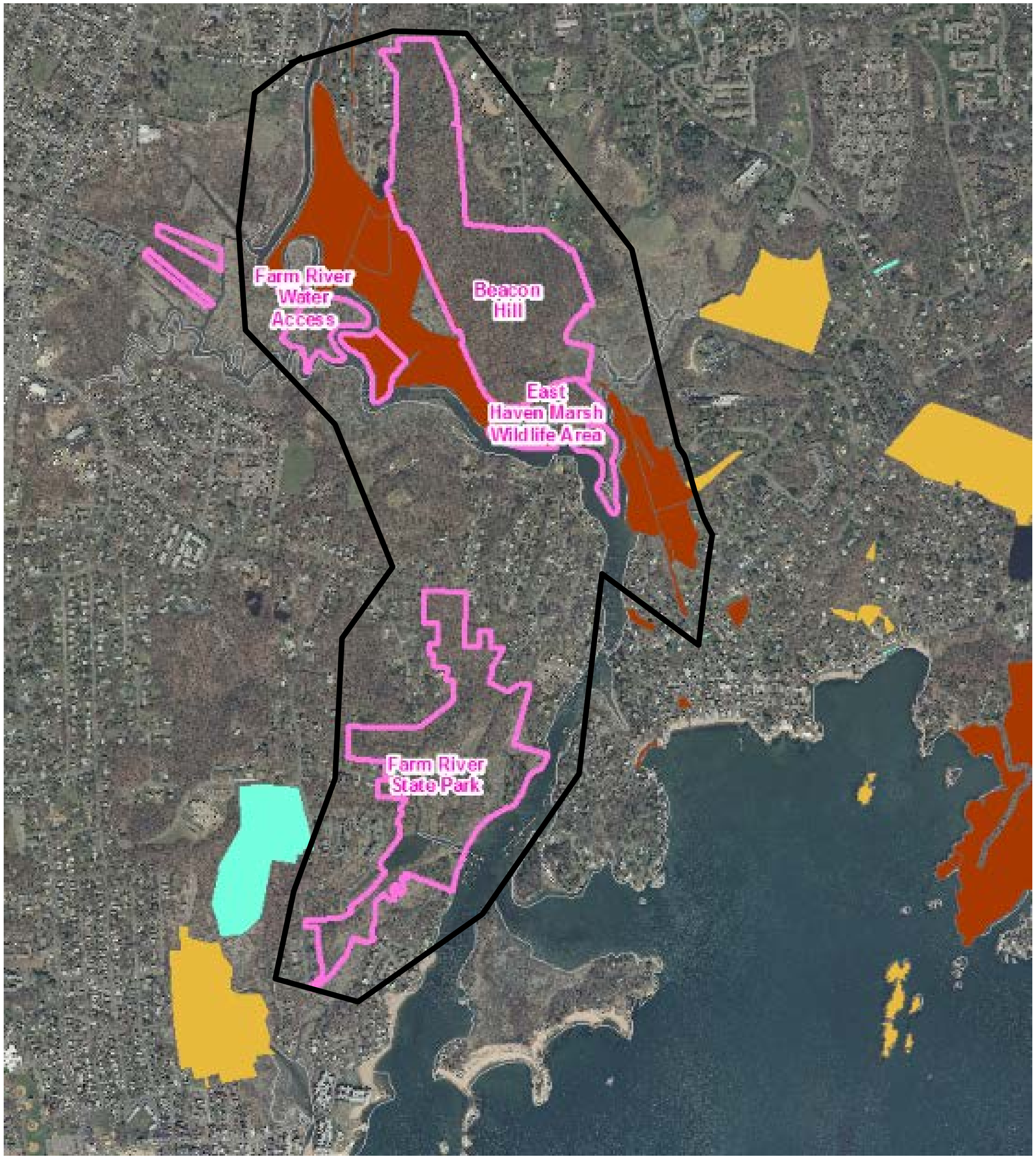
Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://training.fws.gov/Pubs5/necas/web_link/22_new%20haven.htm
Website	http://ct.audubon.org/quinnipiac-river-marsh
Grey Literature	Long Island Sound Stewardship Initiative Inaugural Stewardship Areas

LISS Stewardship:

The Quinnipiac River Marsh Wildlife Management Area (WMA) and the Quinnipiac River State Park are extraordinary ecological and outdoor recreation resources within the highly urbanized lower Quinnipiac River area. The habitats here are largely brackish and fresh tidal water marshes with adjacent uplands. The Wildlife Management Area and State Park is nearly 900-acres and contains important habitat that supports several endangered and threatened bird species. The sites also provide popular, nature-based outdoor recreation opportunities like hiking along the Quinnipiac Trail. This trail was the first in Connecticut's 'blue-blazed' trail system. The Quinnipiac River, its marshes, and surrounding uplands are places where plants, animals and people are learning to co-exist within an area that accommodates many and sometimes competing uses.

National Audubon Society has designated the Quinnipiac Marsh an Important Bird Area due to its high concentrations of migratory birds.The ecologically-rich brackish tidal marshes support abundant migratory waterfowl.

- In the past, the marshes supported the largest population of muskrat in Connecticut.
- The marsh habitat supports threatened and endangered Connecticut birds, including the great and snowy egrets, northern harrier, and least bittern.
- Significant areas of low marsh habitat, formerly dominated by narrow leaved cat-tail, have drowned. This situation is likely related to marsh subsidence and sea-level rise.
- The area provides essential food supplies to migratory dragonflies and butterflies.
- The area supports eastern box turtle and wood turtle, both Connecticut species of Special Concern.
- CTDEEP Wildlife Division has improved important wintering habitat for the northern saw-whet owls at this site by the planting evergreens and managing invasive non-native plants.
- Hunting is allowed but a permit is needed. Visitors are advised to wear orange clothing during hunting season.



PROPERTY	SUM_ACRE_G
Beacon Hill	70.33
East Haven Marsh Wildlife Area	21.97
Farm River State Park	60.98
Farm River Water Access	7.79
Total State	*161.07*
5 parcels from Branford Electric RR Assoc	66.33
Total other	66.33
TOTAL	**227.4**

Ecological Workgroup Sites :

Protected Open Space View

Federal

Land Trust

Municipal

Private

DEEP property

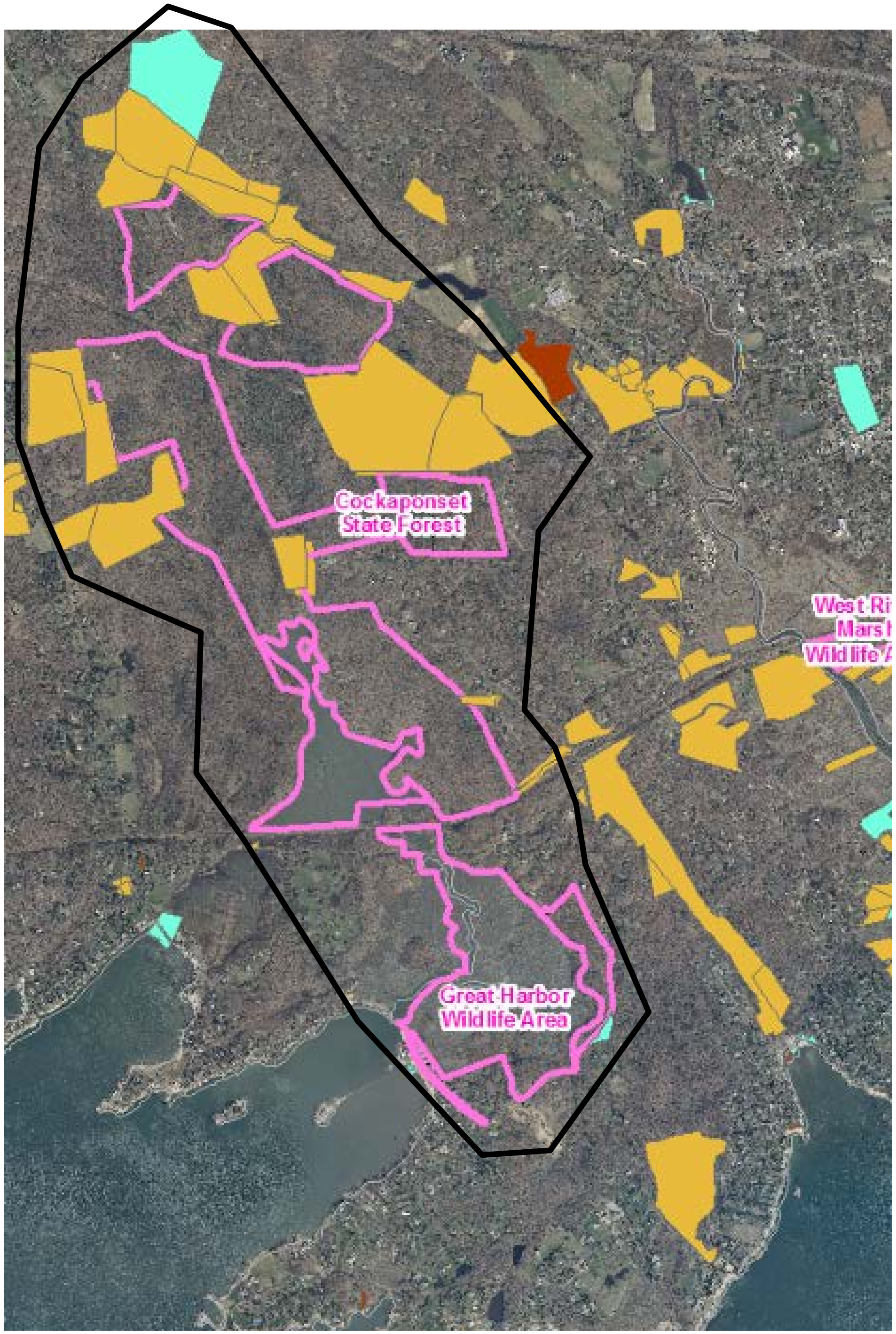
Figure 7: Farm River State Park

DEEP Parks:
The Farm River drains parts of Durham, Wallingford and North Branford on its 16.5 mile journey past Farm River State Park to Long Island Sound. The 61 acres that make up the park are situated on the western shoreline perfectly positioned to enjoy the full beauty of the river just before it empties into the Sound.

As recently as the early 1970s, this area of the lower Farm River was dominated by unkempt summer homes. Land was inexpensive and available. Today, the neighborhood consists of luxury condominiums, and the state, in retrospect, was fortunate to obtain this park when it did. In 1998 it was designated as a state park. Despite its size, the park's diversity is remarkable. Snowy egrets feed in the marshland and share the tidal wetlands and rocky shore with a wide variety of ducks, gulls, and the occasional blue heron.

This quiet park has fascinating and picturesque geology. The uplands and bedrock outcrops, especially in the northern section, provide the landscape diversity and the topography that allow tidal marsh flooding to separate the park into its upper and lower portions. The river shoreline and its access points in the southern section provide a quiet and scenic respite not often accessible this close to the coast.

There are two primary access points, and from these the trails are measured in hundreds, not thousands, of feet. But off-trail exploration will lead you to scenic vistas that are definitely worth the walk.



Site_Name	SUM_ACRE_G
Great Harbor Wildlife Area	175.68
Cockaponset State Forest	17.35
Cockaponset State Forest	271.00
Cockaponset State Forest	54.12
Cockaponset State Forest	36.64
Total State	*554.79*
23 parcels owned by Guilford Land Conservation Trust	250.53
2 Town of Guilford parcels	29.1
Total other	*279.63*
TOTAL	**834.42**

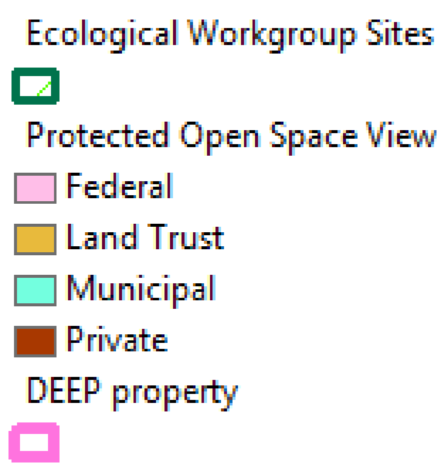


Figure 8: Leetes Island - Great Harbor – Joshua Cove – Cockaponset State Forest

Site Name: *Leetes Island (46)*

RecordID: 95

Town: Guilford

State: CT

Size (acres): 40

Ownership:

Primary Designation

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Component	Habitats
contributing	Coastal Forests
contributing	Intertidal Flats
primary	Islands
contributing	Rocky Intertidal Zones
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Saltwater intertidal flat		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Small skullcap (historic)	Scutellaria parvula var. missouriensis	☐	☐	☑	☐
invertebrate	Maritime sunflower borer moth	Papaipema maritima	☑	☐	☑	☐
bird	Willet (2001)	Catoptrophorus semipalmatus	☑	☐	☑	☐
invertebrate	The South Jersey Caripeta (19	Caripeta sp. 1	☐	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus	☑	☑	☑	☐

Discusssion of Habitat Mosaic / Complex :

Moth record may be historic - larva feeds on pitch pine and there are pitch pine forest, barrens along coast.
Saltmarsh sharp-tailed sparrow found in East River marsh/West River Browns marsh/Leetes Island complex.
There is overlap of the Leetes Island site information with Joshua Cove.
Leetes Island marsh is a 40-acre tidal wetland located along the coast in southwestern Guilford, CT. The property is privately owned, and has been held by the same family, the Leete family, since colonial times. Until recently, they have farmed the marsh for salt hay (Spartina patens), but the system has subsided in elevation and is too wet to sustain much vegetation. Historically, the hay was harvested once per year and sold as a weedfree mulch, and was possibly used to feed livestock as well.
The marsh is connected to Island Bay and Long Island Sound by a man-made channel; this primary tidal creek is effectively the backbone of the remnant grid pattern of mosquito ditches found throughout many of Connecticut's tidal wetlands. The mouth of this creek has been piped and flows underground, under Shell Beach Road and one residential property, and finally empties into Island Bay. There is also a tide gate in an underground concrete chamber, which acts to drain the marsh at low tide, and it was this practice of draining that marsh that has caused subsidence of the marsh surface. 2011 proposal by CT DEEP to repair the leaky 42" diameter pipe, and replace the old flapper-style tide gate with a with a new flap gate that has the ability to be raised and lowered vertically. Currently, too much water enters this subsided marsh at high tide when the gate is in its open position. The plan is to install the new tide gate so that the 42" diameter pipe functions as a smaller pipe during the flood tide, but functions to its fullest capacity for low tide drainage.

Yale owns an outstanding coastal forest is this area per K. Metzler.

Geologic Signifcance:

Threats:

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Grey Literature	Leetes Island Tidal Marsh Habitat Restoration Project (Yamalis 2011)

Site Name: *Joshua Cove (45)*

RecordID: 93

Town: Guilford

State: CT

Size (acres):

Ownership:

Primary Designation Outstanding habitat

Secondary Designation

Record Complete? ☑

Data collected by Barrett

Component	Habitats
primary	Intertidal Flats
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Saltwater intertidal flat		
Salt marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
invertebrate	Maritime sunflower borer moth	Papaipema maritima	☑	☐	☑	☐
			☐	☐	☐	☐

Discusssion of Habitat Mosaic / Complex : Extensive mudflats with firm substrate, terns and mantis shrimp. Flats should be inventoried for animal species.
Salt marsh - part of the Leetes Island complex and Great Harbor Wildlife area. Leetes Island marsh considered a drowned marsh.

Geologic Signifcance:

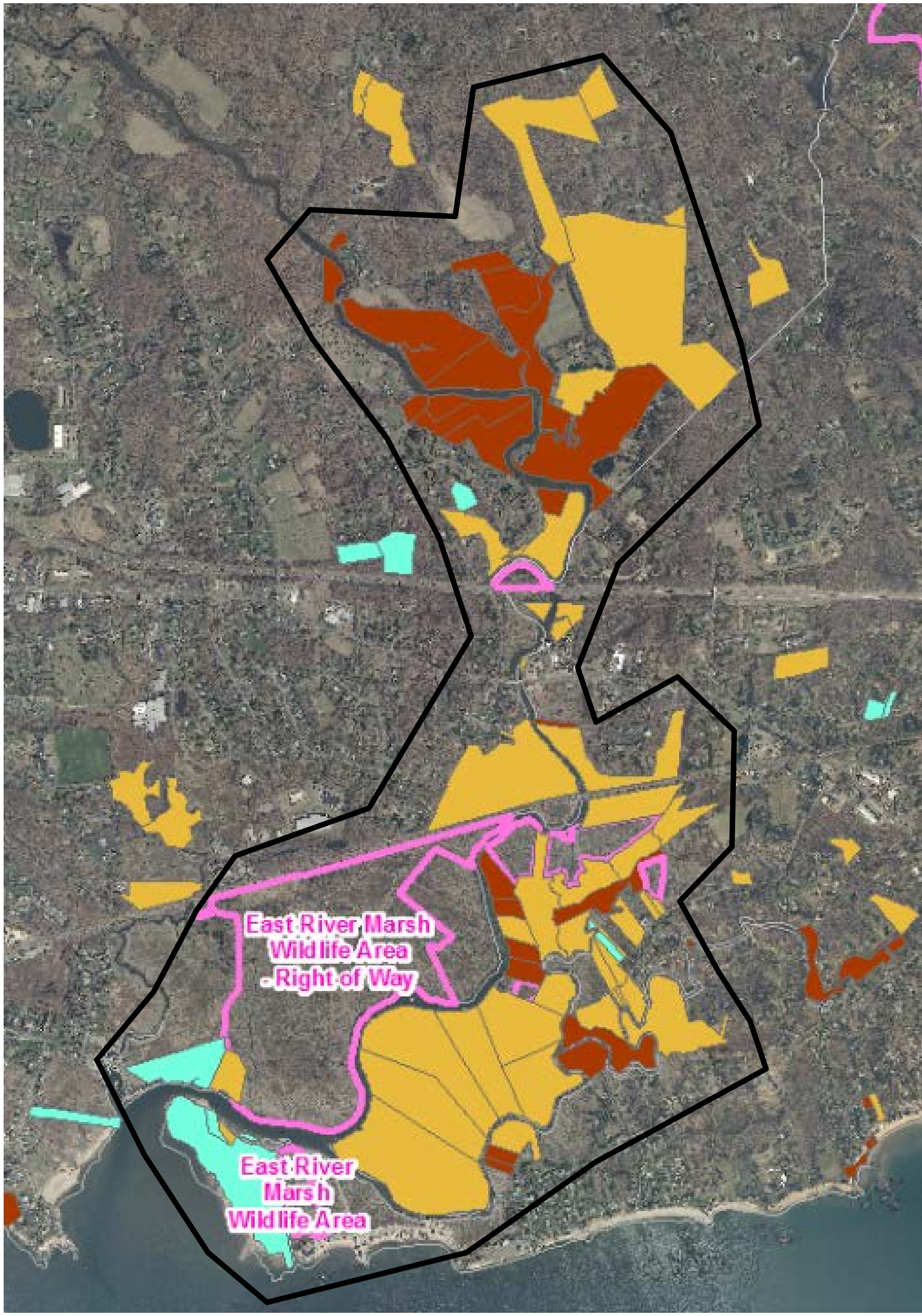
Threats:

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database



PROPERTY	*SUM_ACRE_G*
East River Marsh Wildlife Area	11.75
East River Marsh Wildlife Area - Right of Way	182.59
Total State	*194.34*
~39 parcels from Guilford Land Conservation Trust	351.81
2 parcels (Town of Madison) 7 parcels (Town of Guilford)	44.11
4 parcels Private – other	9.08
15 parcels Private - National Audubon of Coastal CT	126.73
Total Other	*531.73*
TOTAL	**726.07**

Ecological Workgroup Sites :

Protected Open Space View

Federal

Land Trust

Municipal

Private

DEEP property

Figure 9: East River

Site Name: East River Marsh Complex (42)

RecordID: 122

Town: Guilford/Madison

Primary Designation Exemplary habitat

Record Complete? ☑

State: CT

Secondary Designation

Data collected by Barrett

Size (acres):

Ownership: 600 acres is owned by the Town of Guilford; Audubon owns the Saltmeadow Sanctuary in Guilford

Component	Habitats
contributing	Coastal Forests
contributing	Coastal Grasslands
contributing	Intertidal Flats
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Brackish intertidal marsh		
Salt marsh		
Freshwater tidal marsh		
Acidic rocky summit/outcrop (Guilford)		
Coastal grassland		
Coastal Forest		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Golden Alexander	Zizia aptera (2007)	☐	☐	☑	☐
plant	Horned pondweed	Zannichellia palustris var. major (1996	☐	☐	☑	☐
reptile/amphibian	Eastern box turtle	Terrapene carolina carolina (2005)	☑	☐	☑	☐
plant	Dropseed	Sporobolus asper (2000) Chaffinch Isl	☐	☐	☑	☐
invertebrate	Spartina borer moth	Spartiniphaga inops (2000)	☑	☐	☑	☐
plant	Starry campion	Silene stellata (2004)	☐	☐	☑	☐
plant	Sand bramble	Rubus cuneifolius (2002)	☐	☐	☑	☐
bird	Osprey	Pandion haliaetus (1993)	☑	☐	☑	☐
plant	Eastern prickly pear	Opuntia humifusa (2012)	☐	☐	☑	☐
plant	Stiff goldenrod	Oligoneuron rigidum (2013)	☐	☐	☑	☐
reptile/amphibian	Diamondback terrapin	Malaclemys terrapin (1994)	☑	☐	☑	☐
plant	Mudwort	Limosella australis (2010)	☐	☐	☑	☐
plant	Blazing star	Liatris scariosa var. novae-angliae (20	☑	☐	☑	☐
terrestrial mammal	Hoary bat	Lasiurus cinereus (2010)	☑	☐	☑	☐
bird	Snowy egret	Egretta thula (2003)	☑	☐	☑	☐
terrestrial mammal	Least shrew	Cryptotis parva (2006)	☐	☐	☑	☐
plant	Yellow thistle	Cirsium horridulum (2012)	☐	☐	☑	☐
bird	Piping plover	Charadrius melodus (1983 H?)	☑	☑	☑	☐
bird	Willet	Catoptrophorus semipalmatus (1996)	☑	☐	☑	☐
plant	Salt marsh bulrush	Bolboschoenus novae-angliae (1996)	☐	☐	☑	☐
bird	Seaside sparrow	Ammodramus maritimus (2012)	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus (2012)	☑	☑	☑	☐
invertebrate	Coastal heathland cutworm	Abagrostis nefascia benjamini (2001)	☑	☐	☑	☐

SIGT Habitat Criteria
Coastal Forest - Has Unfragmented Block(s) >X acres
Tidal Wetlands - > Has x% High Marsh

Discusssion of Habitat Mosaic / Complex : A brackish reed marsh grading into salt marsh towards Long Island Sound.
Freshwater tidal marsh in upper reaches of East River.
East River marsh is about 300 ha of mixde salt marsh habitats, and includes a lot of high marsh, dominated by S. patens, as well as areas of S. alterniflora, D. spicata, and J. gerardii amoung other species. The marsh is subdivided by numerous creeks and channels
East River Preserve, acquired by the Town of Guilford in 2009, offers a variety of opportunities to explore a narrow slice of Connecticut's coastal area extending inland along a tidal segment of the East River. This nearly 600-acre property includes approximately 18 acres of tidal marsh, 40 acres of adjacent grassland field and 550 acres of coastal forest replete with streams, wetlands and vernal pools in excellent condition.
An East River Preserve Natural Resource Inventory and Management Plan was written April 2011 by Irving, Childs and Preston and is available as a pdf online.

Geologic Signifcance:

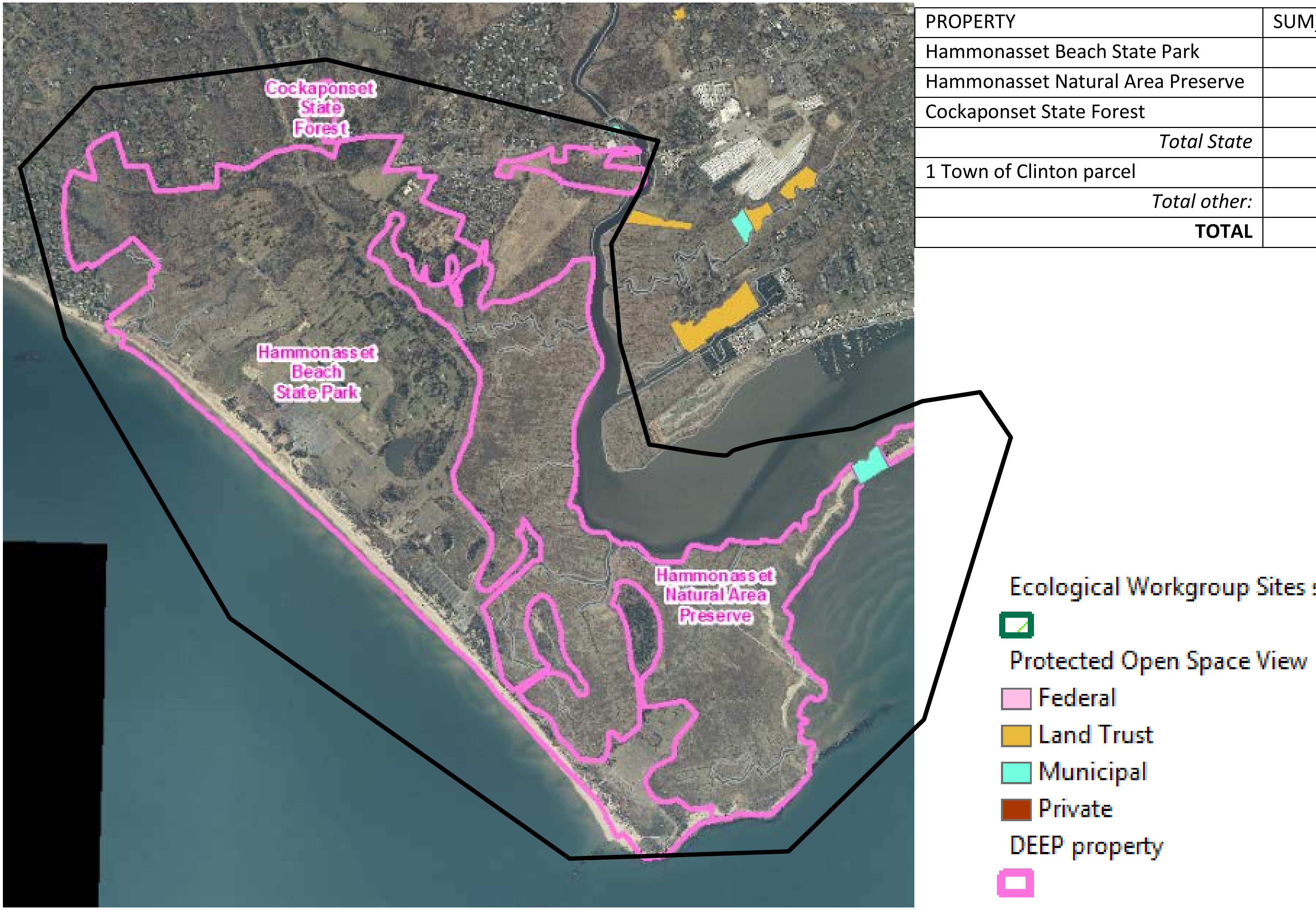
Threats: East River Preserve - parts of the marsh complex have high concentrations of Phragmites australis, often along the drainage ditches.

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://www.lisrc.uconn.edu/coastalaccess/siteprint.asp
Website	http://guilford.audubon.org/



PROPERTY	SUM_ACRE_G
Hammonasset Beach State Park	581.46
Hammonasset Natural Area Preserve	415.6
Cockaponset State Forest	5.0
Total State	*1002.06*
1 Town of Clinton parcel	2.9
Total other:	*2.9*
TOTAL	**1005.02**

Figure 10: Hammonasset

DEEP Parks:

"Hammonasset" means, "where we dig holes in the ground" and refers to the place where a settlement of eastern woodland Indians farmed along the Hammonasset River. They subsisted on corn, beans, and squash, and by fishing and hunting. The first colonists arrived in 1639. Property changed hands frequently between Native Americans and the first colonists.

In 1898 the Winchester Repeating Arms Company bought Hammonasset and used it as a testing site for their new rifle. Their Lee Straight Pull rifle was mounted on a horse drawn stone boat, from which it was fired into targets on the beach. On July 18, 1920, Hammonasset Beach State Park was opened to the public. The first season attracted over 75,000 visitors. The park's reputation drew tourists from across the continent as well as the state. During World War II the park was closed to the public and loaned to the federal government as an army reservation. Meigs Point functioned as an aircraft range. Planes flew over Clinton Harbor, fired at the range and then flew out over Long Island Sound. The stone breakwater at the Meigs Point end of the park was built in 1955. The stones were brought in by truck from quarries in northern New England. Today, over one million people come annually to enjoy Hammonasset Beach State Park.

Meigs Point Nature Center: The Meigs Point Nature Center offers programs and activities for park visitors on a year round basis. The Center hours are 10am to 5pm Tuesday – Sunday, from April through October, and 10am to 4pm Tuesday – Saturday, from November through March. For information on programs, please contact Nature Center staff at (203) 245-8743. To visit the Nature Center, bear to the left at the access road rotary, go halfway around the rotary and follow the signs toward Meigs Point. The Center is on the left across from the Meigs Point bathhouse. Parking is available near the building.

DEEP Geology:

Rock Types Found on Main Trail: None
Rock Units: None
Minerals of Interest: None
Interesting Geologic Features: End Moraine, Huge Glacial Erratics

LISS Stewardship:

With almost two million visitors each year, Hammonasset Beach State Park is the most visited park in Connecticut. Within its 1,000 acres of beach and marshland, visitors are welcome to explore one of the longest expanses of beach in the State. Visitors to the park can also take advantage of its 558 campsites, miles of hiking trails, picnic areas, bathing beach, and cycling paths, including a section of the Shoreline Greenway Trail. About half of the park is designated a ‘Natural Area Preserve’ dedicated to scientific research and protecting important wildlife habitat. This Stewardship Area is designated by the National Audubon Society as a Globally Significant Bird Area due to the presence of rare birds, including piping plovers, least terns, American oystercatchers, and large concentrations of northern harrier and saltmarsh sparrow. Visitors can learn more about this special place at the Meigs Point Nature Center, open year-round with programs and activities for all ages.

Audubon has designated Hammonasset a Globally Important Bird Area. It provides vital resting and feeding areas for migrating land birds, shorebirds, and raptors.

- The park has the second highest banding total of northern harriers in North America.
- Since 1985, mosquito ditches in the park’s saltmarshes are no longer maintained resulting in the restoration of shallow open water pools that provide habitat for wading and shorebirds.

- Hammonasset supports the largest colony of purple martins in Connecticut.
- It is the site of thousands of annually migrating monarch butterflies.
- The park's marshland and upland areas provide habitat for a variety of regionally rare flora including starry campion (Silene stellata), sand dropseed (Sporobolus cryptandrus), and bayonet grass (Bolboschoenus maritimus ssp. paludosus).
- It is the site of several successful saltmarsh restoration projects accomplished by restoring tidal flow to previously impounded marsh systems and removing dredge sediments.
- Willards Island, part of the Hammonasset marshland, contains the largest peach tree in the US and the largest pear tree in CT.
- Please respect sensitive piping plover breeding habitat which may be signed or roped off for their protection from May to early July.

Site Name: *Hammonasset NAP (40)*

RecordID: 121

Town: Madison/Clinton

State: CT

Size (acres): 1000

Ownership: State of Connecticut DEEP

Primary Designation Exemplary habitat

Secondary Designation Research Area

Record Complete? ☑

Data collected by Barrett

SIGT Habitat Criteria
Beaches and Dunes - Supports Nesting Shorebirds
Tidal Wetlands - Is Waterfowl Concentration Area
Tidal Wetlands - Is Migratory Shorebird Concentration Area

Discusssion of Habitat Mosaic / Complex : Habitat includes extensive and exemplary salt marshes; exemplary coastal barrier habitat and plant communities; significant long-term research site. Primary dunes have Ammophila vegetation. Salt water intertidal flats with some eelgrass (Zostera marina).
Owl roost: cedars used by long-eared owl, saw-whet, barn owl and short-eared owl. Infrequent use by great horned, barred and screech owls.
Per http://ct.audubon.org/hammonasset-beach-state-park: The federally and state threatened Piping Plover nests on the river beach, along with the state threatened Least Tern, and special concern species American Oystercatcher. Several species of wading birds use the marsh as foraging habitat in the nesting and post-nesting dispersal seasons. The marsh provides important stopover/wintering habitat for Northern Harriers (2nd highest banding total in North America). Saltmarsh Sharp-tailed Sparrow nesting population may elevate the park to a globally Important Bird Area. Due to the park's coastal location, it provides important migratory stopover habitat for landbirds, shorebirds and raptors. Wooded areas of park, including Willards Island, receive usage by migratory landbirds in both the spring and fall migration. There is also significant shorebird stopover habitat available, particularly for grassland species, including Killdeer, Black-bellied and American Golden Plover, and Pectoral, Buff-breasted and Upland Sandpiper. The area has been the site of a raptor banding station for several years, due to the significant raptor usage of the park. Cedars, other evergreens and shrub habitat offer significant roosting habitat for migrating owls such as Saw-whet, Barn and Long-eared. The park is a regionally important wintering/migration habitat for open country songbirds such as Snow Bunting and Horned Lark. The marsh is a regionally important wintering/migration area for American Bittern.

Geologic Signifcance:

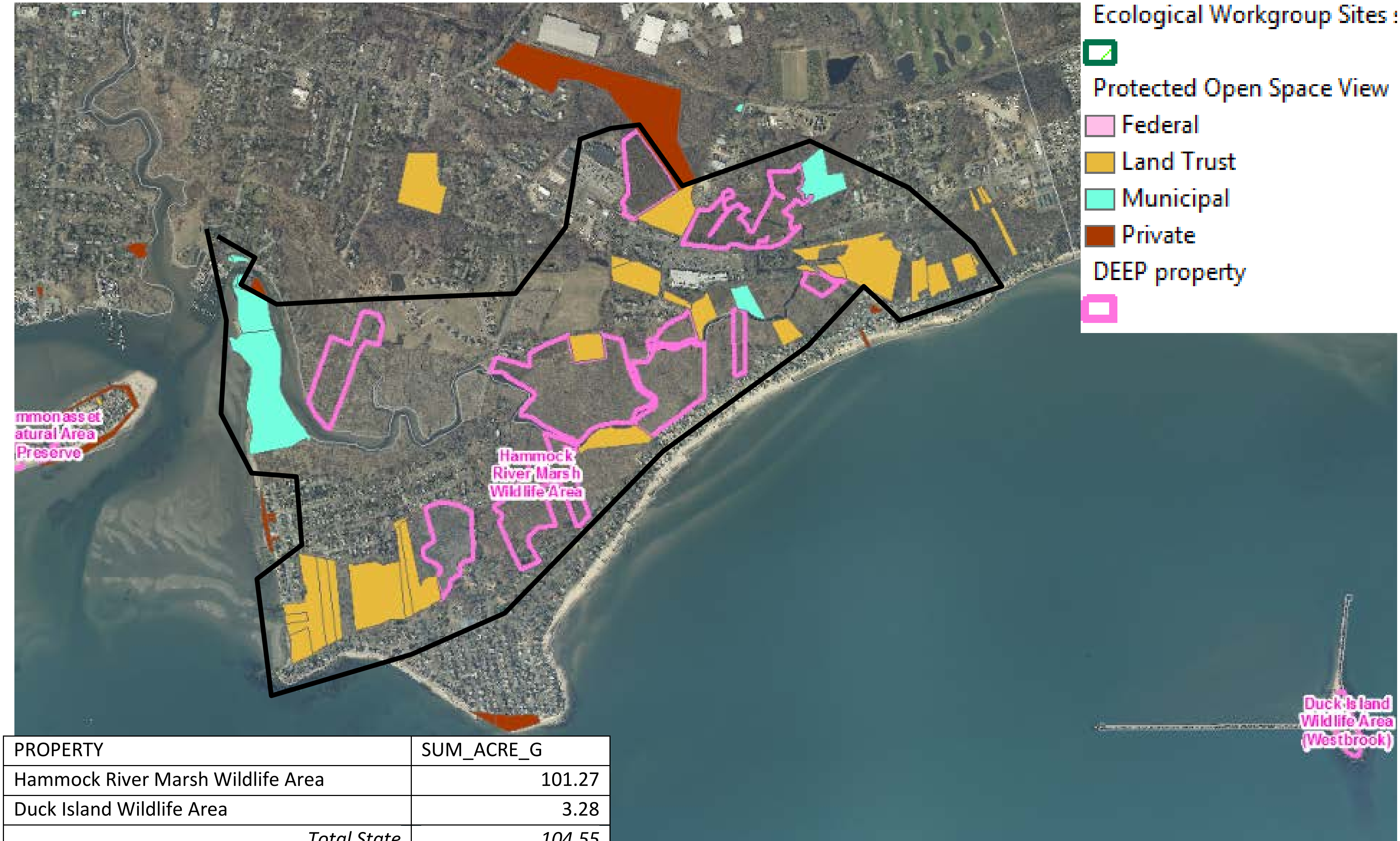
Threats: Per http://ct.audubon.org/hammonasset-beach-state-park: Serious--Encroachment by development, invasive or non-native plants
Potential--Hydrologic changes (rising sea level), predators.

Notes/Justification Area provides outstanding coastal education services and interpretive programs.
National Audubon designated "Globally Significant Important Birding Area"
Most visited park in Connecticut State Park System.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas
Website	http://ct.audubon.org/hammonasset-beach-state-park
Grey Literature	Field Observations CT (Comins 2014)



PROPERTY	SUM_ACRE_G
Hammock River Marsh Wildlife Area	101.27
Duck Island Wildlife Area	3.28
Total State	*104.55*
24 Clinton Land Conservation Trust parcels	60.95
8 Municipal parcels (Clinton)	24.5
Total Other	*85.45*
TOTAL	**190.02**

Figure 11: Indian/Hammock River

Site Name: Hammock River (38)

RecordID: 90

Town: Clinton

State: CT

Size (acres):

Ownership:

Primary Designation

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Component	Habitats
contributing	Beaches and Dunes
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Coastal sand dunes		
Saltwater intertidal beaches and shores		
Salt marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Purple martin (2012)	Progne subis	☑	☐	☑	☐
bird	Osprey (1992)	Pandion haliaetus	☑	☐	☑	☐
bird	Seaside sparrow (2011)	Ammodramus maritimus	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus	☑	☑	☑	☐

SIGT Habitat Criteria
Tidal Wetlands - Supports Nesting Shorebirds

Discusssion of Habitat Mosaic / Complex : Salt marsh complex - Pragmites abundant in upper reaches of Indian River (2009)
Harborview Beach - barrier beach with primary dune formation, Ammophila vegetation; some shrub thickets.
Per R. Rozsa tidal flow restored in 1985.

Geologic Signifcance:

Threats:

Notes/Justification

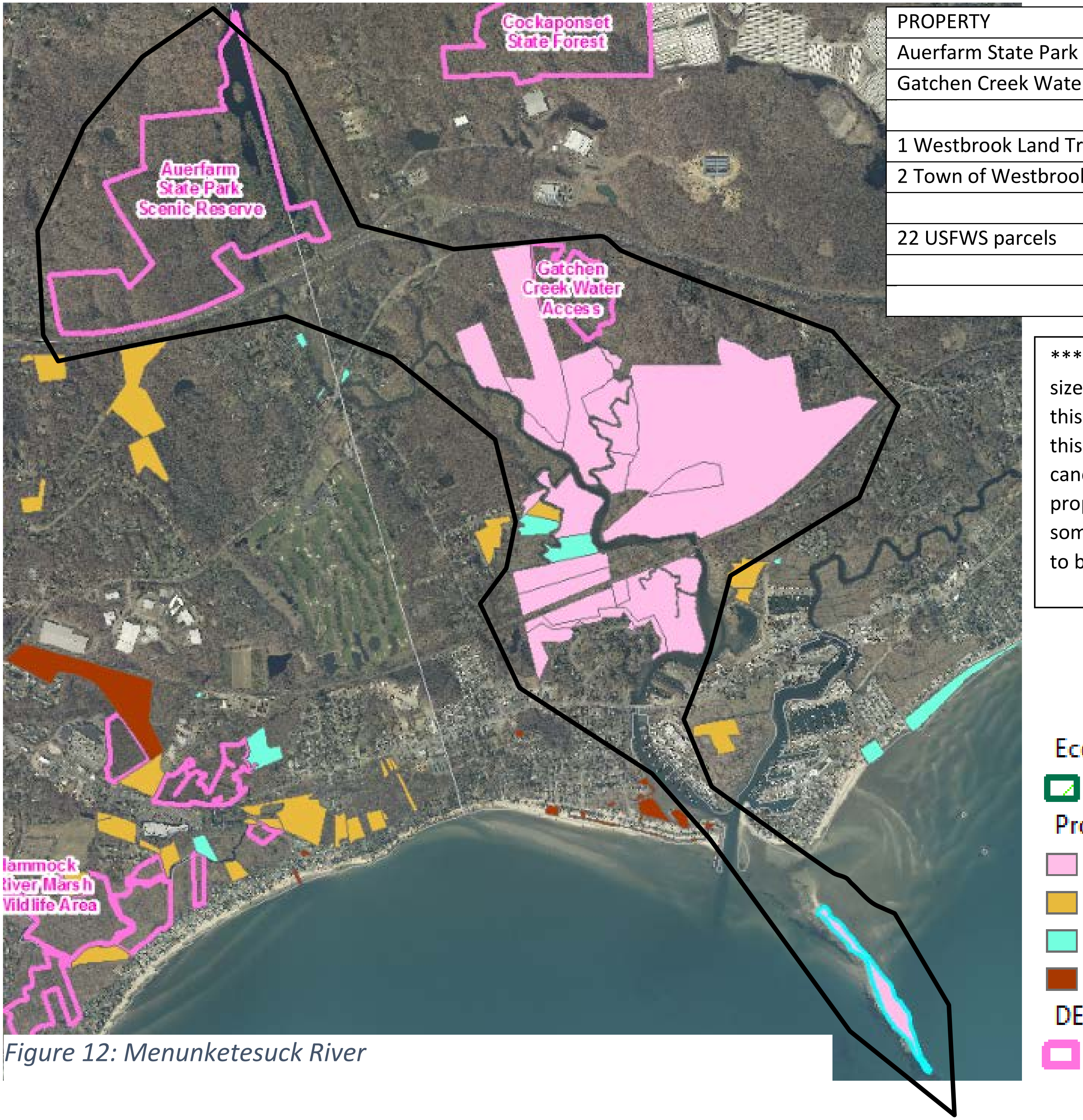
Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://ct.audubon.org/menunketesuck
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas
Grey Literature	Field Observations CT (Comins 2014)



PROPERTY	SUM_ACRE_G
Auerfarm State Park Scenic Reserve	157.93
Gatchen Creek Water Access	22.75
Total State	*180.68*
1 Westbrook Land Trust parcels	1.92
2 Town of Westbrook parcels	7.5
Total Other	*9.42*
22 USFWS parcels	296.42
Total Federal	*296.42****
TOTAL	486.52

***Ratio of Federal property to overall size is > 50%; as currently configured this would not be a viable NERR site. If this represents a good potential candidate, additional non-Federal property would need to be added, or some/all of these parcels would need to be combined with another site

Figure 12: Menunketesuck River

Site Name: Menunketesuck River (35)

RecordID: 68

Town: Westbrook/Clinton

State: CT

Size (acres):

Ownership: USFWS, State of Connecticut, private

Primary Designation

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Component	Habitats
primary	Riverine Migratory Corridors
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Brackish intertidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Horned pondweed (1990)	Zannichellia palustris var. major	☐	☐	☑	☐
plant	Arrowleaf	Sagittaria montevidensis ssp. Spongio	☐	☐	☑	☐
bird	Osprey	Pandion haliaetus (1993)	☑	☐	☑	☐
reptile/amphibian	Diamondback terrapin (1995)	Malaclemys terrapin	☑	☑	☑	☐
plant	Mudwort (2003)	Limosella australis	☐	☐	☑	☐
plant	Lilaeopsis (2007)	Lilaeopsis chinensis	☐	☐	☑	☐
plant	Parker's pipewort (1997)	Eriocaulon parkeri	☑	☐	☑	☐
bird	Snowy egret (2002)	Egretta thula	☑	☐	☑	☐
terrestrial mammal	Least shrew (1941)	Cryptotis parva	☑	☐	☑	☐
bird	Willet	Catoptrophorus semipalmatus	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus	☑	☑	☑	☐
fish	River herring (Depends on spe		☐	☐	☐	☐

SIGT Habitat Criteria
Riverine Migratory Corridors - Has High Concentration of Migratory Species

Discusssion of Habitat Mosaic / Complex :

Tidal river system with salt and brackish tidal marshes.

Per Steve Gephard (CT DEEP) - important river herring run.

The Menunketesuck Greenway consists of 5,000 acres of which nearly 1,800 acres are protected open space. The Menunketesuck Greenway, one of 70 State-recognized greenways, follows the Menunketesuck River's watershed boundary from its mouth on Long Island Sound north through the Salt Meadow Unit of the Stewart B. McKinney National Wildlife Refuge on Long Island Sound up to the northern Clinton/Westbrook town line at the Cockaponset State Forest. A 2013 acquisition permanently protects 155 acres - a significant portion of one of only four unfragmented blocks of coastal forest greater than 200 acres. These forested areas constituted the core of the National Audubon Society's proposed Menunketesuck Atlantic Flyway conservation focal area and the recently State-designated Menunketesuck Greenway.

Geologic Signifcance:

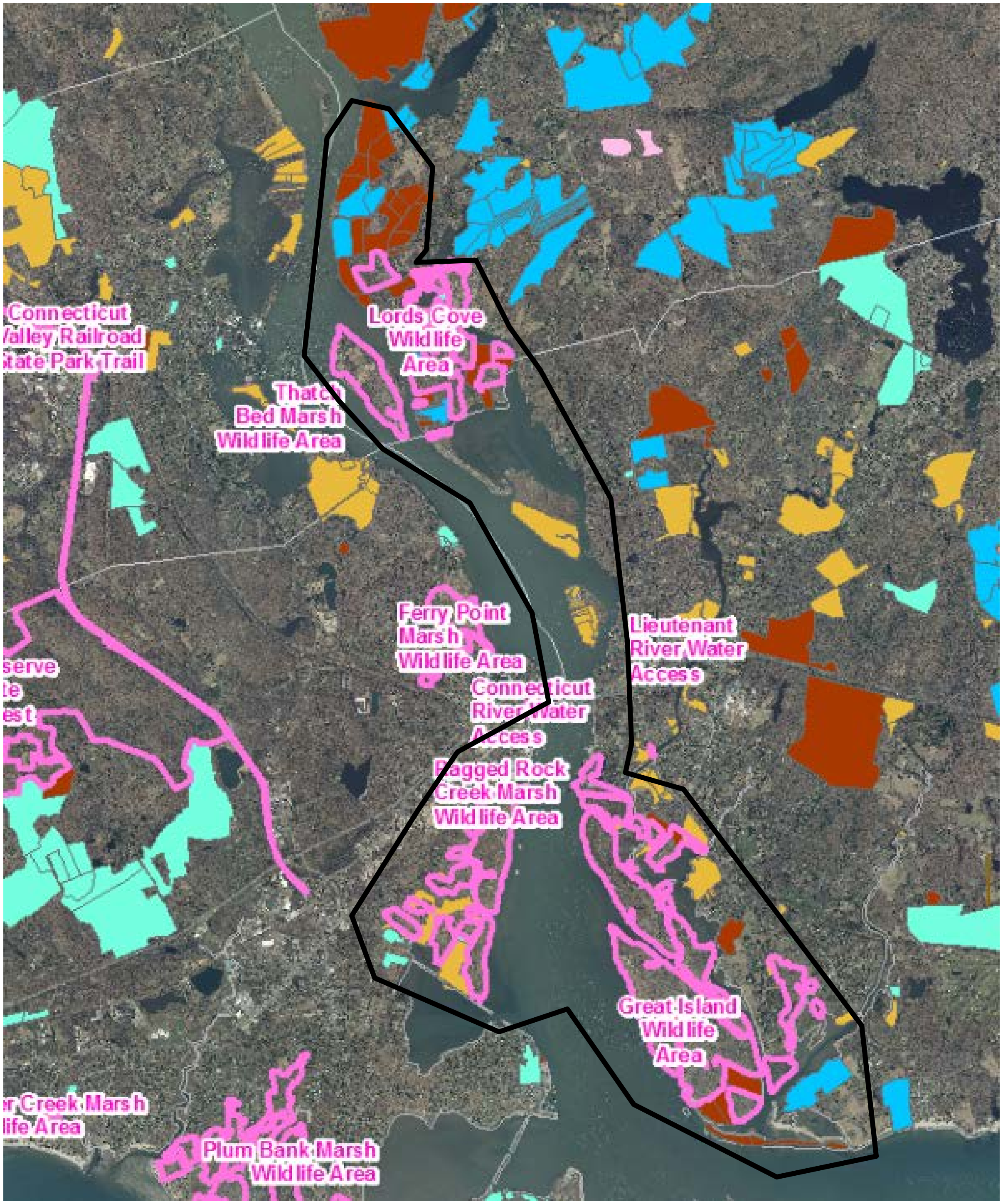
Threats:

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source	
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database	



PROPERTY	SUM_ACRE_G
Great Island Wildlife Area	566.07
Lords Cove Wildlife Area	167.91
Marine District Headquarters	19.06
Nott Island Wildlife Area	80.25
Ragged Rock Creek Marsh Wildlife Area	197.74
Total State	*1031.03*
6 conservation easements	44.04
31 land trust parcels (OLLT, TNC, others)	218.26
4 Old Saybrook municipal parcels, 1 Lyme municipal parcel	20.56
30 private (TNC, others)	302.10
Total Other	*586.96*
TOTAL	**1615.99**

Ecological Workgroup Sites :

Protected Open Space View

- Federal
- Land Trust
- Municipal
- Private

DEEP property

Figure 13: Lower CT River / Lord Cove

Site Name: ***CT River (30)***

RecordID: 63

Town: Old Lyme, Old Saybrook/Essex/Lyme

Primary Designation Outstanding habitat

Record Complete? ☑

State: CT

Secondary Designation

Data collected by Barrett

Size (acres):

Ownership: State/NGO/private/public trust

Component	Habitats
primary	Riverine Migratory Corridors
contributing	Submerged Aquatic Vegetation Beds
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Saltwater intertidal beaches and shores		
Brackish intertidal marsh		
Freshwater tidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
fish	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus (199	☑	☐	☑	☐
fish	Shortnose sturgeon	Acipenser brevirostrum (1989)	☑	☐	☑	☐

SIGT Habitat Criteria
Riverine Migratory Corridors - Has High Concentration of Migratory Species
Tidal Wetlands - Is Migratory Shorebird Concentration Area
Tidal Wetlands - Is Waterfowl Concentration Area
Tidal Wetlands - Supports Nesting Shorebirds
Tidal Wetlands - Has High Forage Fish Productivity

Discusssion of Habitat Mosaic / Complex :

Per http://longislandsoundstudy.net/2012/07/lower-connecticut-river/: The Connecticut River is the longest tidal river in the northeastern United States. With its headwaters in the Connecticut Lakes region of New Hampshire near the Canadian border, it flows for 410 miles before discharging into Long Island Sound.The tidal segment of the river and associated tidal wetlands are a haven for fish, wildlife and plants including the endangered shortnose sturgeon, American bittern, and Parker's pipewort. As the only major river in the Northeast without a large port or harbor at its mouth, the Lower Connecticut River remains relatively undisturbed by development and offers of a variety of nature-based outdoor recreational opportunitiesThe Lower Connecticut River is recognized as containing "Wetlands of International Importance" under the intergovernmental Ramsar Convention.

The Connecticut River has the most extensive fresh and brackish tidal wetland systems in the Northeast.

The Lower Connecticut River is part of a massive 7.2-million acre watershed, stretching 410 miles from the Canadian border to Long Island Sound.

It contains one of the least disturbed and most pristine large-river tidal marsh systems in the nation.

Its habitats provide vital breeding, foraging, resting, and migratory pathways for rare and diverse bird species. Prominent species include the American black duck, mallard, mute swan, Virginia rail, piping plover, osprey, snowy egret, and bald eagle.

It also contains the highest fish diversity in the region with 78 species, including Atlantic salmon, American shad, largemouth bass, winter and summer flounder, channel and white catfish, and the endangered shortnosed and Atlantic sturgeon.

Geologic Signifcance:

Threats:

Notes/Justification NDDB information here just for the riverine section; rare species and plant communities listed under individual sites.
Lower Connecticut River recognized as containing "Wetlands of International Importance" under the Ramsar Convention. Area contains outstanding brackish-tidal fresh marsh complex.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP NDDB
Website	http://longislandsoundstudy.net/2012/07/lower-connecticut-river/
Website	http://www.ramsar.org/connecticut-river-estuary-and-tidal-river-wetlands-complex
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas

LISS Stewardship:

About the Site: The Connecticut River is the longest tidal river in the northeastern United States. With its headwaters in the Connecticut Lakes region of New Hampshire near the Canadian border, it flows for 410 miles before discharging into Long Island Sound.The tidal segment of the river and associated tidal wetlands are a haven for fish, wildlife and plants including the endangered shortnose sturgeon, American bittern, and Parker's pipewort. As the only major river in the Northeast without a large port or harbor at its mouth, the Lower Connecticut River remains relatively undisturbed by development and offers of a variety of nature-based outdoor recreational opportunities.

- The Lower Connecticut River is recognized as containing "Wetlands of International Importance" under the intergovernmental Ramsar Convention.
- The Connecticut River has the most extensive fresh and brackish tidal wetland systems in the Northeast.
- The Lower Connecticut River is part of a massive 7.2-million acre watershed, stretching 410 miles from the Canadian border to Long Island Sound.
- It contains one of the least disturbed and most pristine large-river tidal marsh systems in the nation.
- Its habitats provide vital breeding, foraging, resting, and migratory pathways for rare and diverse bird species. Prominent species include the American black duck, mallard, mute swan, Virginia rail, piping plover, osprey, snowy egret, and bald eagle.
- It also contains the highest fish diversity in the region with 78 species, including Atlantic salmon, American shad, largemouth bass, winter and summer flounder, channel and white catfish, and the endangered shortnosed and Atlantic sturgeon
- The Nature Conservancy calls CT River one of the 40 Last Great Places in the Northern Hemisphere.
- CT River provides 70% of the Sound's freshwater.
- CT River was recently named the first "National Blueway."
- CT River is the longest and largest river system in New England at 410 miles, and the only one without a major port or harbor.
- Each winter, the CT River is one of the highest concentration sites for bald eagles on the east coast.
- The federally endangered shortnose sturgeon resides in the CT River basin.

- Some parts of the beaches are only privately accessible, while others are closed off seasonally to respect bird nesting habitats. Signage is available to make this clear.

PROPERTY	SUM_ACRE_G
Selden Neck State Park	562.82
Total State	*562.82*
5 Private parcels (4 TNC, 1 other)	283.33
Total Other	*283.33*
TOTAL	**846.15**

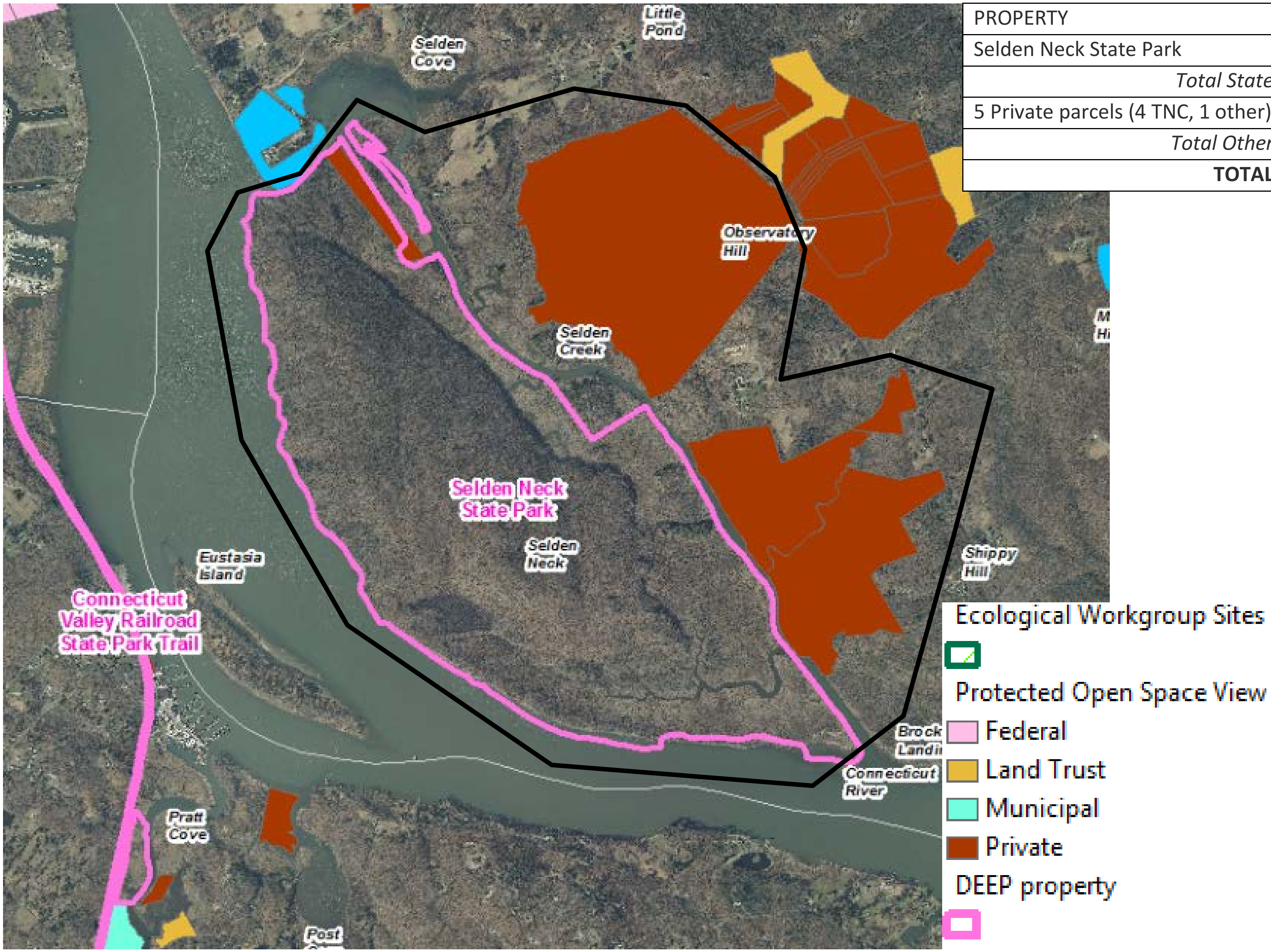


Figure 14: Selden Neck/Whalebone Creek

DEEP Parks:

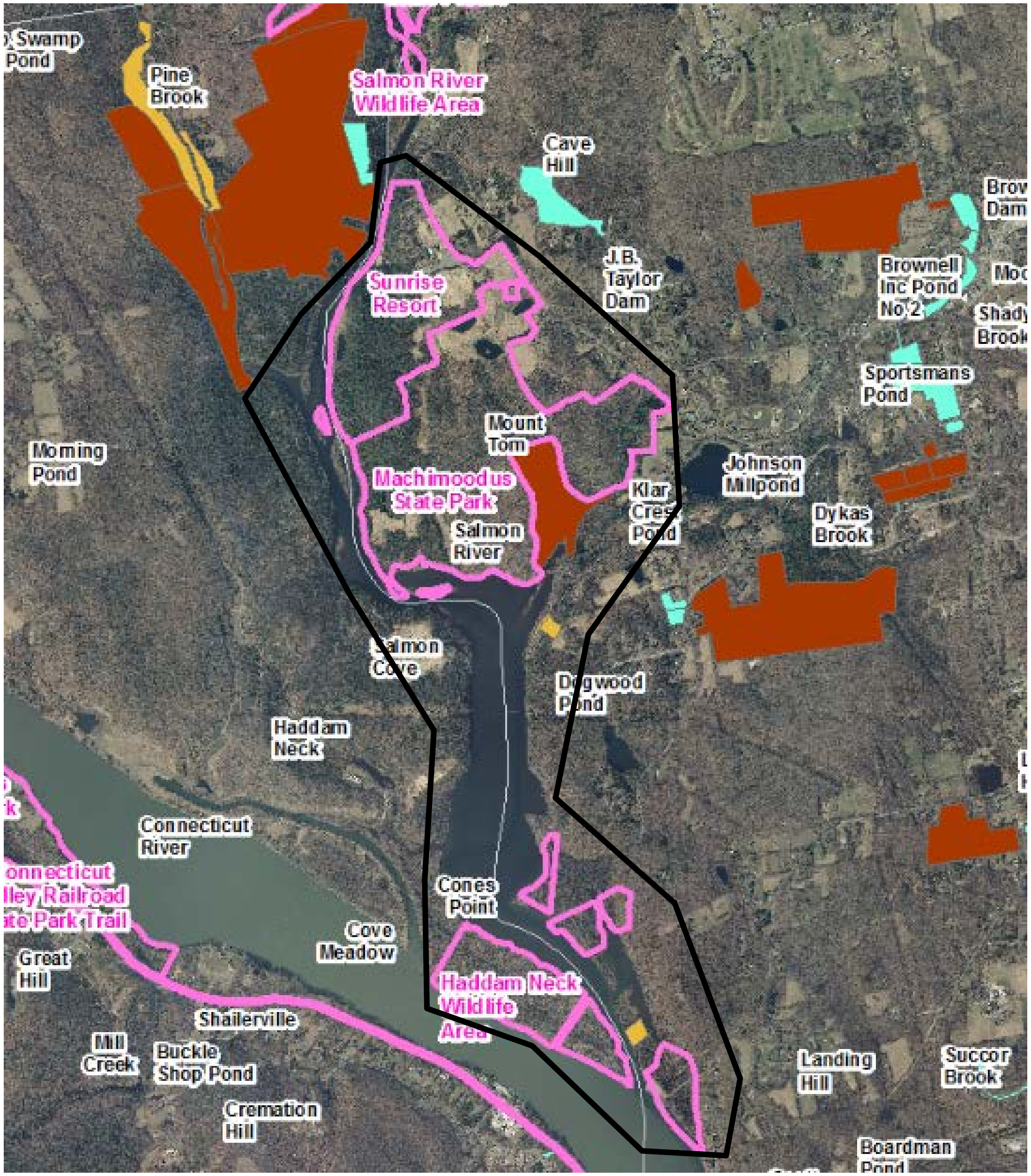
Though called Selden Neck, this park is actually an island. Cut off from the mainland in the 1850s, Selden Neck has spent the better part of 160 years on its own as the largest island in the Connecticut River. The island is named after John Selden who was the second owner of the property having purchased it in 1695. It remained in the Selden family for approximately 170 years until the 1860s. In 1889 a partnership bought the property to quarry the islands' red granite schist for paving stones. These paving blocks were four inches wide, seven inches deep and twelve inches long. These blocks were used for paving the streets of New York city nearly 130 years ago. Today the roadless, uninhabited, 607 acre island, bordered to the east by Selden Creek and by the Connecticut River to the west, is roughly a half mile wide and one and a half miles long. Except for the tidal marshes, the island is completely blanketed with lush woodland vegetation. The island tops out at nearly 230 feet in elevation providing some areas of potentially strenuous hiking.

Connecticut State Parks has constructed four primitive camp areas (see map) for overnight stays. Each location invites the camper to explore the island trails, some marked better than others, in search of wildlife, the remains of the farmstead, and a former quarry building's granite foundation. A marked trail begins near the Quarry Knob camp site and leads to the quarry area in the southeast part of the island. The trail encounters the old causeway, built to transfer the granite stones from the quarry face to the shoreline for shipment. Another trail extends northwest to the ruins of old farm buildings and a well.

Lookouts from the trail offer wonderful views of the lower Connecticut River. From these the viewer will quickly understand why the Nature Conservancy designated the lower Connecticut River as one of "America's Last Great Places". Views to the east, opposite Selden Creek, encompass 275 more acres of Nature Conservancy owned land. The quiet of the island is inviting. Listen at night to the wind in the wings of waterfowl passing overhead.

History courtesy of David Wordell's "The Quarries of Selden Neck".

PROPERTY	SUM_ACRE_G
Haddam Neck Wildlife Area	120.81
Machimoodus State Park	300.31
Sunrise Resort	144.93
Total State	*566.05*
5 other parcels (TNC, CT River Gateway Comm)	38.68
Total other	*38.68*
TOTAL	**604.73**



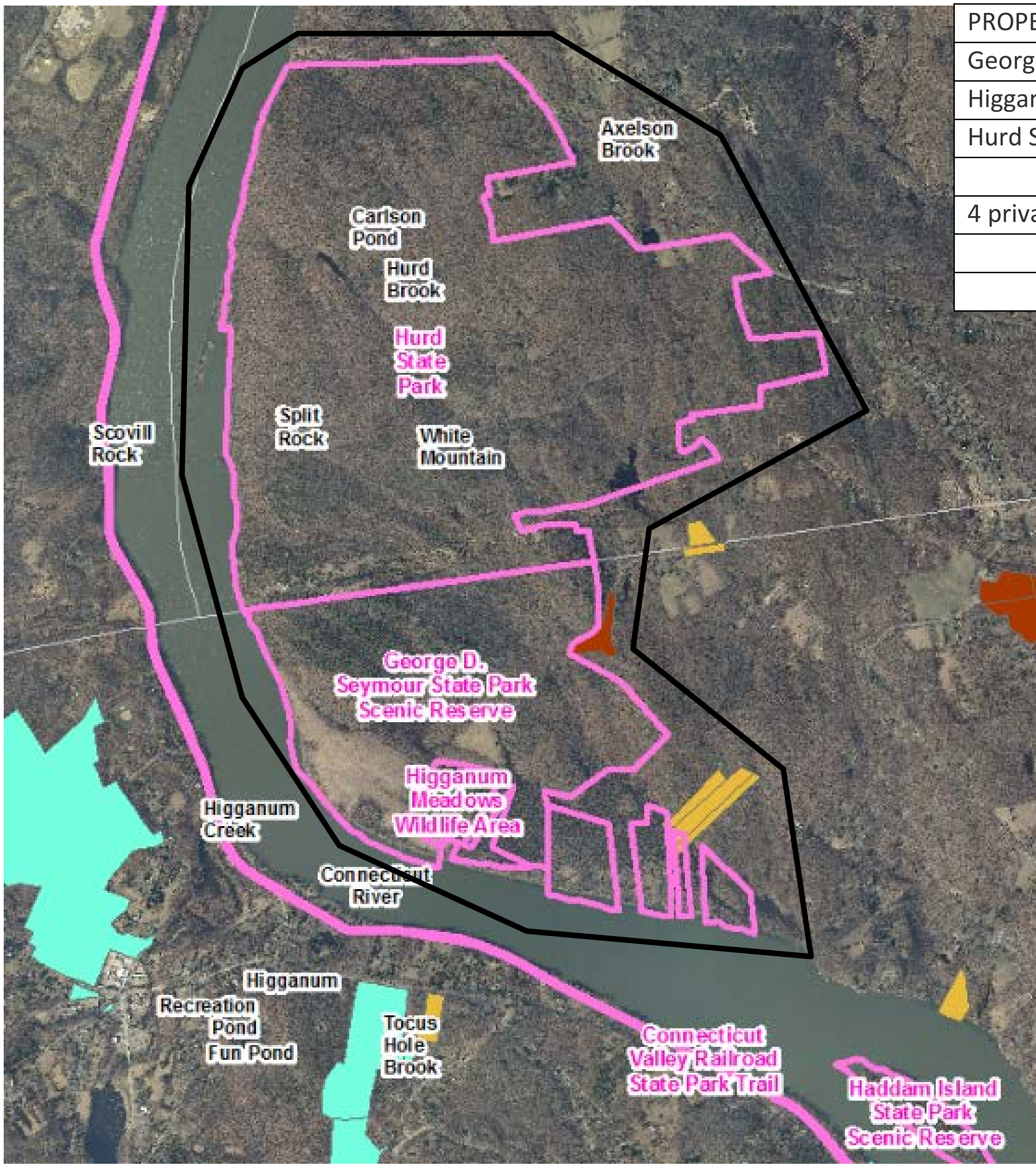
Ecological Workgroup Sites :

Protected Open Space View

- Federal
- Land Trust
- Municipal
- Private

DEEP property

Figure 15: Salmon River



PROPERTY	SUM_ACRE_G
George D. Seymour State Park Scenic Reserve	334.03
Higganum Meadows Wildlife Area	84.37
Hurd State Park	912.71
Total State	*1331.11*
4 private parcels (Haddam Land trust, Audubon Soc. CT)	18.67
Total other	*18.67*
TOTAL	**1349.78**

NOTE: No supplemental information available from data sources (DEEP Parks, LISS Stewardship, LIS Ecological Sites Inventory)

Ecological Workgroup Sites :

Protected Open Space View

Federal

Land Trust

Municipal

Private

DEEP property

Figure 16: Hurd Park

DEEP Parks:

In 1914, only one year after the establishment of a State Park Commission, the state purchased 150 acres of the present Hurd Park as part of an initiative to obtain land for public use along the Connecticut River. Situated in the town of East Hampton on the east bank of the river, the park has grown to almost 1000 acres and is especially popular with small boat owners. Many of these boaters recognize the park by its landmark "split rock" towering above the trees.

In the granite ledges of the split rock are veins of feldspar which was once mined extensively in Connecticut. Shortly after its acquisition, Hurd became the focus of legal action to determine the ownership of mining privileges at the park. The resulting court decision fortunately favored the State and averted the possible desolation of some 130 acres of land. The park is named after the Hurd family, which came to the Middle Haddam region from Massachusetts in 1710 and settled on the level bench of land high above the river.

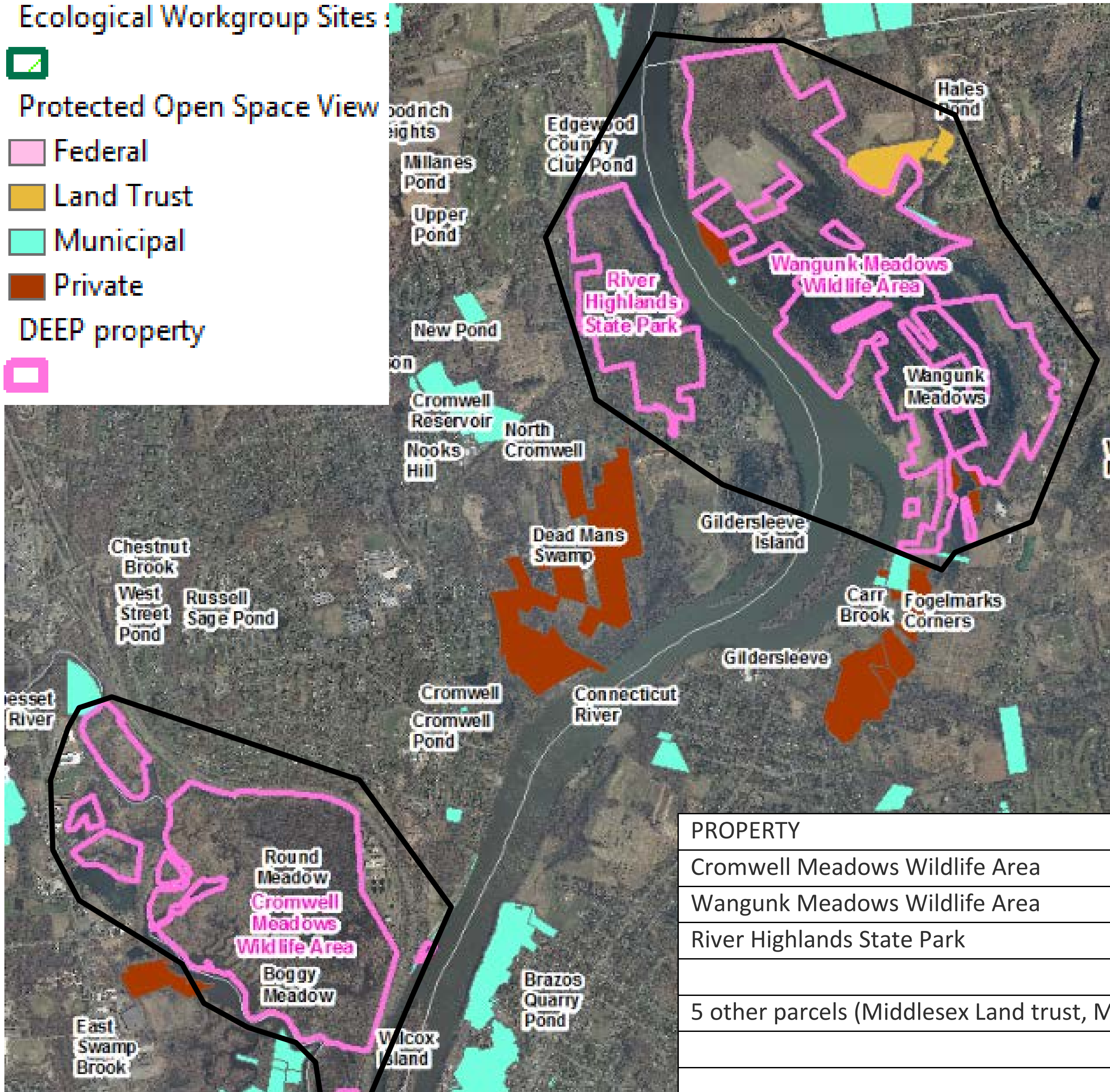
George Dudley Seymour was a man of vision. In 1883, at the age of 24, he began his law career in New Haven. His great success as a patent attorney provided him with the wealth necessary to fulfill his desire of land preservation in many areas of the state. In addition to the acquisition of this 334 acre park which bears his name, Seymour and his foundation acquired all or part of seven other state parks: Beaver Brook, Becket Hill, Bigelow Hollow, Hurd, Millers Pond, Platt Hill, and Stoddard Hill state parks and the Nathan Hale State Forest.

This park location in Seymour's name was once the estate of George, Henry and Thomas Clark. Their Clark Cutaway Harrow Company in Higganum successfully produced cider presses, disk harrows, hay spreaders, plows, carriage jacks and other necessities of the day in the late 1800s and into the early 1900s. Their wealth enabled them to purchase the land and build their family estate at this location along the Connecticut River. The estate was called Clarkhurst for their own surname, and -hurst, meaning a wooded piece of rising ground. Here along the floodplain their comfortable lives played out and their agricultural tools were tested.

Over the years Henry purchased the property from his brothers, but with his passing in 1914 the mansion and many buildings began their decline. Deeded to his daughter in 1921, she attempted the maintenance of the property through the development of a golf course and other recreational facilities. But by the depression years of the 1930s, overgrowth and structural collapse had sealed its fate. In 1942 the land was acquired by Mrs. Marion Guthrie who, though she attempted its quick sale ultimately held it until 1960. Gladly the George Dudley Seymour Foundation provided the $60,000 necessary and the Connecticut Forest and Park Association was able to purchase the land for the state.

Today: a trail leading from the end of Clarkhurst Road leads past old foundations to a broad, grassy, Connecticut River tidal flat. Interpretive signs assist the visitor in the interpretation of the foundations of the estate on the landscape. Rock cliffs offer scenic views to the west and south.

It is interesting to note that native gasses across the state have been altered or replaced over time as a result of various land uses. But here on these floodplain soils can be found grass species that date from the 1600s or earlier. These grasses predate European colonization and represent a time only the Native peoples were witness to. These and other grasslands within the park provide an excellent location for bird watching. In the spring of some years the DEP manages this habitat with mowing and through controlled burns. Combined with Hurd State Park adjoining to the north, these two properties protect two and a half miles of Connecticut River frontage and 1,249 acres (nearly two square miles) of Connecticut River valley property.



PROPERTY	SUM_ACRE_G
Cromwell Meadows Wildlife Area	502.05
Wangunk Meadows Wildlife Area	639.33
River Highlands State Park	177.29
Total State	*1318.67*
5 other parcels (Middlesex Land trust, Mattabeseck Audubon Soc.)	50.98
Total other	*50.98*
TOTAL	**1369.65**

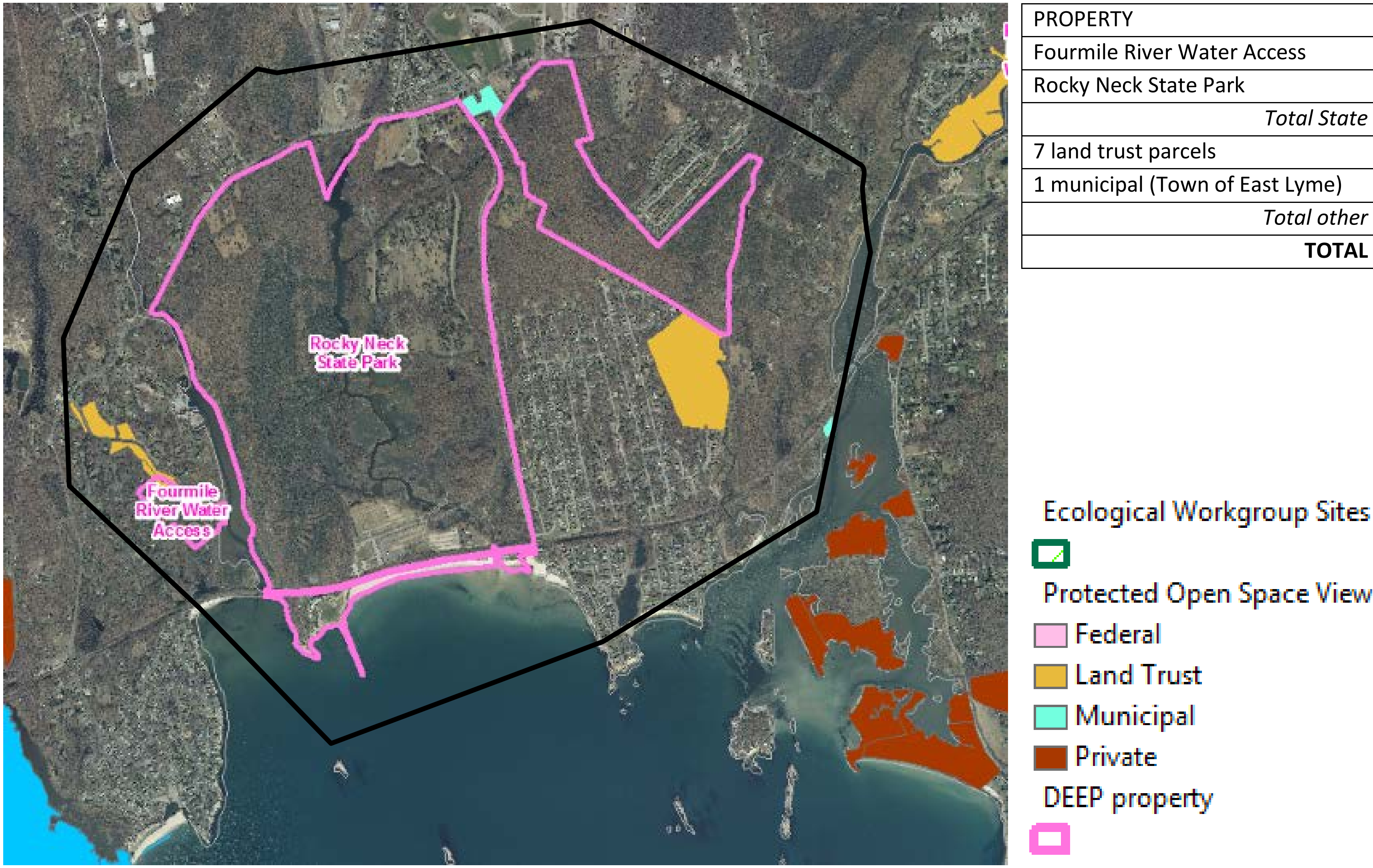
Figure 17: Cromwell Meadows & River Highlands/Wangunk

DEEP parks:
Where once there were farm fields and pastures, today there is a totally wooded, wonderfully situated, twenty-first century state park. Dedicated in 2001, this recent addition to the park system preserves 177 acres of ecologically important Connecticut River frontage. Tucked into a growing suburban landscape, River Highlands has escaped development to provide a quiet refuge with a wonderful view.

Lush with mixed woodlands dominated by oak, beech, and white pine, the hilly topography ranges in elevation from about 15 feet above sea level by the river to over 150 feet at the northern and southern high spots on the bluffs. The most level area, or at least the most gently sloping, is at the park entrance on Field Road. It was here, and to the north, that pasture and field once flourished. Today the woodlands have taken over and the wetland systems have rebuilt themselves offering the visitor a true glimpse of the tranquility of the Eastern Forests.

But the real asset of the park is the view from the bluffs it protects. The Connecticut River, beautiful from so many locations, is at its best here. The bluffs are highest at the northern end of the park rising 130 feet above the water, and the view is ample reward for the hike to get there.

The are many trails in the park to lead the hiker across wooden bridges, over streams, along the 150 foot high bluff, or down to the water’s edge past a unique geologic feature known as the blowhole. Here one can hear the wind as it whistles past the bluffs. The Native Americans came to listen to the "wind being caught by the spirit of the earth." When the colonists arrived they called it Devil’s Blowhole, believing it was an act of Satan. Sailors knew it as an area of quick winds as the park is just upstream of one of the tightest bends on the lower river.



PROPERTY	SUM_ACRE_G
Fourmile River Water Access	12.42
Rocky Neck State Park	678.34
Total State	*690.76*
7 land trust parcels	36.79
1 municipal (Town of East Lyme)	3.42
Total other	*40.21*
TOTAL	**730.97**

Figure 18: Rocky Neck

Site Name: *Rocky Neck State Park/Bride Brook (25)*

RecordID: 58

Town: East Lyme

Primary Designation Exemplary habitat

Record Complete? ☑

State: CT

Secondary Designation

Data collected by Barrett

Size (acres): 710

Ownership:

Component	Habitats
contributing	Barrier beach with primary dune formati
contributing	Cliffs and Bluffs
contributing	Tidal Wetlands

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Horned pondweed	Zannichellia palustris var. major	☐	☐	☑	☐
plant	Beaked rush	Rhynchospora macrostachya	☐	☐	☑	☐
invertebrate	Seaside goldenrod stem borer	Papaipema duovata	☑	☐	☑	☐
plant	Panic grass (historic)	Panicum amarum	☐	☐	☑	☐
bird	Osprey	Pandion haliaetus	☑	☐	☐	☐
plant	Blazing star	Liatris scariosa novae-angliae	☑	☐	☑	☐
plant	Seabeach sandwort	Honkenya peploides	☐	☐	☑	☐
bird	American oystercatcher	Haematopus palliatus (1 pair obs 201	☑	☐	☑	☐
plant	Panic grass	Dichanthelium ovale var. addisonii	☐	☐	☑	☐
plant	Variable sedge	Carex polymorpha	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus	☑	☑	☑	☐
plant	Roundleaf shadbush (historic 1	Amelanchier sanguinea	☐	☐	☐	☐

SIGT Habitat Criteria
Riverine Migratory Corridors - Has High Concentration of Migratory Species
Tidal Wetlands - Is Waterfowl Concentration Area

Discusssion of Habitat Mosaic / Complex : Area includes sandy beach and salt marsh. Area is largely recreational. Bride Brook marsh restoration project completed in 2011 with new culverts in Bride Brook providing tidal flow and improved fish passage. Bride Brook is one of the largest alewife migratory runs in Connecticut.

Geologic Signifcance: http://www.ct.gov/deep/cwp/view.asp?a=2716&q=325108&deepNav_GID=1650

Threats:

Notes/Justification Significant Recreational Site along Long Island Sound with trails, camping, education center, swimming, fishing.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas
Grey Literature	Field Observations CT (Comins 2014)

DEEP Parks:

Located on Long Island Sound in the town of East Lyme, 710-acre Rocky Neck is a popular recreation spot. The public now enjoys use of the park because of a few farsighted conservationists who secured the land in 1931, using their personal funds until the State Legislature authorized its purchase.

Rocky Neck's varied terrain offers something for everyone. Clear waters and the stone-free beach with expanses of white sand make it ideal for swimming. Many beautiful picnic locations are scattered throughout the park. The historic stone Ellie Mitchell Pavilion dominates the park's western shoreline. In the 1930's, relief agencies constructed the curved masonry building of native materials and crafted supporting pillars with wood cut from each of the state parks and forests. Diverse trails within the park provide easy and interesting walks to the scenic salt marsh and to such points of interest as Baker's Cave, Tony's Nose and Shipyard. Family camping within walking distance of saltwater bathing is also popular at Rocky Neck with 160 wooded and open campsites offering weekenders and vacationers attractive overnight accommodations.

Bounded on the west by a tidal river and to the east by a broad salt marsh, Rocky Neck was known to both Indians and colonists as a place of abundant fish and wildlife. Today, high spring tides allow schools of alewives (herring) to swim into Bride Brook toward inland spawning grounds. The osprey, or fish hawk, is a frequent early summer visitor. In the fall, cranes, herons and mute swans wade among cattails and rose mallow. Seasonal changes provide opportunities to fish for mackerel, striped bass, blackfish and flounder.

DEEP Geology:

Rock Types Found on Main Trail

- Igneous : Pegmatite
- Metamorphic: Granitic Gneiss
- Sedimentary: None

Rock Units: Potter Hill Granite Gneiss (Proterozoic): Well-foliated granitic gneiss

Minerals of Interest: Feldspar (Microcline), Biotite, Tourmaline, Garnet

Interesting Geologic Features: Folds, Potholes, Glacial Boulders, Glacial Polishing, Pegmatite Veins

LISS Stewardship:

Rocky Neck is the third most visited state park in Connecticut, most notable for its distinct geology and unusual diversity of recreational opportunities on the Sound. Visitors of all ages are drawn to activities from camping to scuba diving to nature walks, and interactive displays at the nature center provide context for the many outdoor activities interspersed among wildlife habitat. Its 710 acres include a rare example of a coastal thicket, an area dense with shrubs and young trees in passage between being a meadow and forest. Architecture enthusiasts are sure to explore the historic stone Ellie Mitchell Pavilion, which was built in 1936 by the State Park and Forest Commission using native stones and timber from each of Connecticut’s state parks.

- Hike through miles of serpentine trails enjoying the shade from Rocky Neck’s oak-dominated coastal thicket.

- Explore the beautiful, historic and architecturally significant Ellie Mitchell Pavilion.
- Visit the coastal education center to see tanks and terrariums with local species, or use computer programs with games and ecological programs

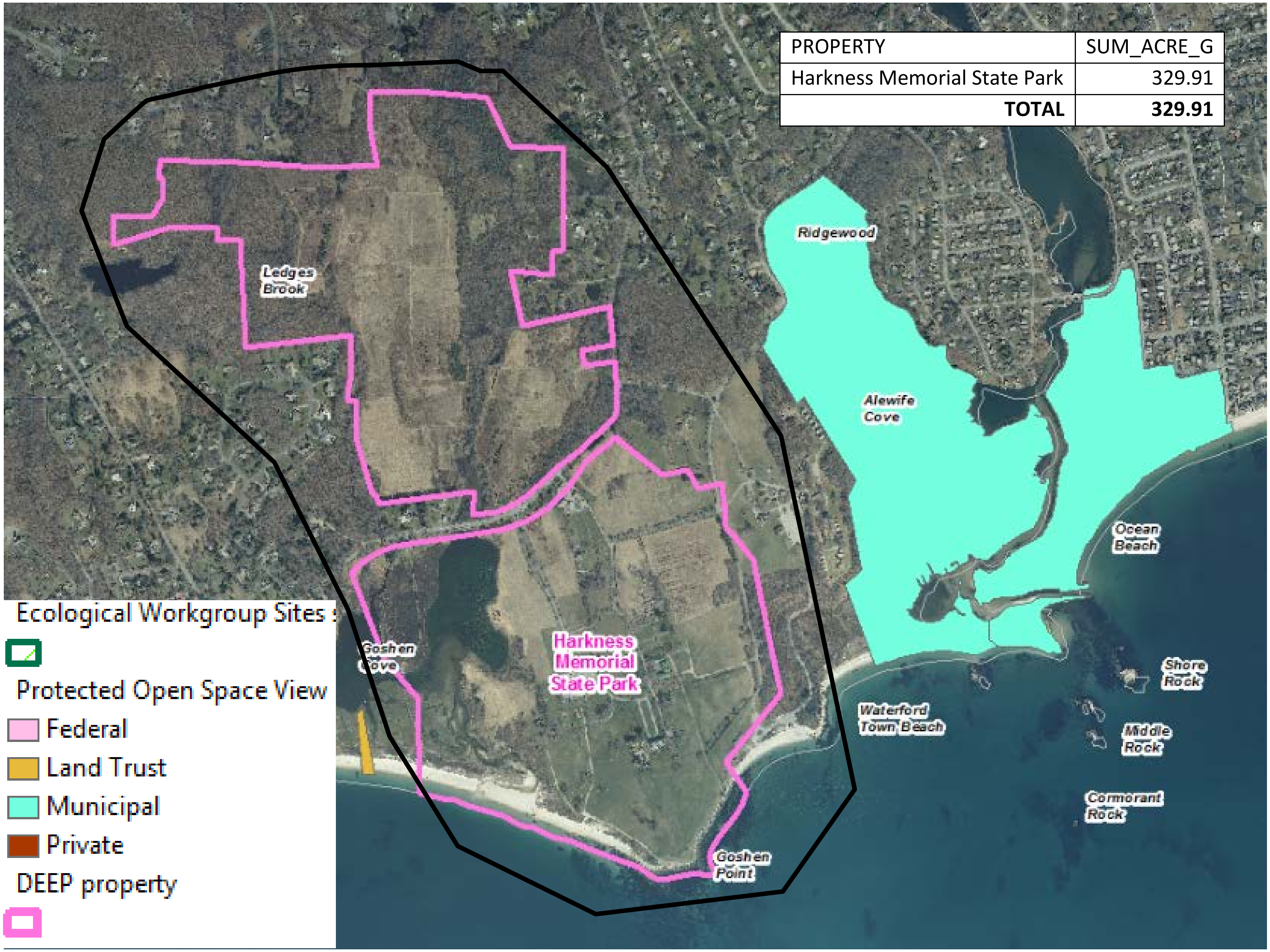


Figure 19: Harkness/Niering

DEEP Parks:

Originally from Ohio, Edward S. Harkness was to become heir to a fortune initiated by his father's substantial investments in John D. Rockefeller's Standard Oil. Instilled at an early age with an ardent love for his fellow man and a feeling of responsibility for the wise and just use of the wealth at his command, Mr. Harkness was to bestow over two hundred million dollars upon wide-ranging philanthropies. The mansion was purchased in 1907 by Edward and Mary Harkness. From 1918 to 1929, extensive work was done to the grounds by noted landscape designer Beatrix Jones Farrand (one of the founders of the American Society of Landscape Architects). The estate was left to the State of Connecticut in 1950 and became part of the State Park system in 1952.

LISS Stewardship:

Harkness Memorial is one of only two state parks on the National Register of Historic Places. Much of the Park's historic distinction is attributed to Eolia, the grand former summer home of philanthropists Edward and Mary Harkness, and its surrounding gardens and greenhouse. This Gatsby-era mansion is among the best remaining examples of the grand seaside estates that once occupied the Sound's shoreline at the beginning of the twentieth century. The park's meticulously maintained 230-acre grounds feature spectacular formal gardens, expansive lawns and picnic areas, natural sandy beach, and panoramic views of the Sound. The 31-acre William A. Niering Natural Area Preserve (NAP), managed as part of Harkness, is an unusual mix of landscapes within a relatively small area characterized by a long narrow beach, low sand dune, saltmarsh and saltwater cove, and coastal grassland. In 2000, the NAP was renamed from Goshen Cove to honor the late William Niering, PhD, a renowned botanist and wetland ecologist at Connecticut College, and his lifetime of dedication to natural science research, education, and conservation of Connecticut's natural heritage.

- This relatively small area includes a variety of landscapes, from the manicured grounds of the Harkness estate to four distinct ecological habitats: dunes, barrier beach, saltmarsh, and grasslands. A rare sea level fen dominated by the tall switchgrass can be seen along the upland border of the tidal wetland. Periodic prescribed burns are conducted at the NAP to sustain the grassland.
- The barrier beach known as The Strand supports two state-threatened bird species, piping plover and least tern, as well as a plant on the state list of special concern, the seabeach sandwort.
- A saltwater cove, protected by a shrub thicket and grasslands on either side, offers a protected habitat for finfish and shellfish..
- The Niering Preserve is a valuable nesting area for birds like osprey, meadowlark, and bobolink, and is as an important scientific research site.
- The Niering Preserve's grasslands were likely part of a larger grassland landscape that was once prevalent in the area.

Site Name: ***Dr. William A. Niering Natural Area Preserve (10) includes info from Harkness State Park***

RecordID: 125

Town: Waterford

State: CT

Size (acres): 32

Ownership: State of Connecticut

Primary Designation Exemplary habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by Barrett

Component	Habitats
primary	
contributing	Beaches and Dunes
contributing	Coastal Grasslands
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Coastal sand dunes		
Saltwater intertidal beaches and shores		
Coastal grassland		
Salt marsh		
Sea level fen		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Lesser yellowlegs	Tringa favipes (2 nonbreeding 2014)	☐	☐	☐	☐
bird	Brown thrasher	Toxostoma rufum (2012)	☑	☐	☑	☐
bird	Eastern meadowlark	Sturnella magna (1998)	☑	☐	☑	☐
bird	Least tern	Sternula antillarum (2012)	☑	☐	☑	☐
plant	Field paspalum	Paspalum laeva (2012)	☐	☐	☑	☐
invertebrate	Seaside goldenrod stem borer	Papaipema duovata (1984)	☑	☐	☑	☐
bird	Osprey	Pandion haliaetus (1992)	☑	☐	☑	☐
invertebrate	Dune oncocnemis	Oncocnemis riparia (2005)	☐	☐	☑	☐
reptile/amphibian	Diamondback terrapin	Malaclemys terrapin (2005)	☑	☑	☑	☐
plant	Seabeach sandwort	Honckenya peploides (1995)	☐	☐	☑	☐
bird	American oystercatcher	Haematopus palliatus (2 prs/2 chicks f	☑	☐	☑	☐
invertebrate	Pink streak	Faronta rubripennis (2004)	☑	☐	☑	☐
bird	Alder flycatcher	Empidonax alnorum (2008)	☑	☐	☑	☐
invertebrate	Tiger beetle	Cicindela hirticollis (2013)	☑	☐	☑	☐
bird	Piping plover	Charadrius melodus (5 prs/8chicks fle	☑	☑	☑	☐
bird	Willet	Catoptrophorus semipalmatus (1996)	☑	☐	☑	☐
bird	Semipalmated sandpiper	Calidris pusilla (32 nonbreeding 2014)	☑	☐	☐	☐
bird	Sanderling	Calidris alba (11 nonbreeding 2014)	☑	☐	☐	☐
invertebrate	Short-lined Chocolate	Argyrostrotis anilis (2004)	☐	☐	☑	☐
invertebrate	Apamea moth	Apamea lintneri (2004)	☐	☐	☑	☐
invertebrate	Apamea moth	Apamea inordinata (2005)	☐	☐	☑	☐
invertebrate	Coastal heathland cutworm	Abagrotis refascia benjamini	☑	☐	☑	☐

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SIGT Habitat Criteria
Beaches and Dunes - Supports Nesting Shorebirds
Beaches and Dunes - Has Back Lagoon Foraging Areas
Coastal Grasslands - Supports Grassland Birds
Tidal Wetlands - Is Waterfowl Concentration Area

Discusssion of Habitat Mosaic / Complex : This site includes four distinct ecological habitats: dunes, barrier beach, saltmarsh, and grasslands. A rare sea level fen dominated by the tall switchgrass can be seen along the upland border of the tidal wetland. Periodic prescribed burns are conducted at the NAP to sustain the grassland. The barrier beach known as The Strand supports two state-threatened bird species, piping plover and least tern, as well as a plant on the state list of special concern, the seabeach sandwort. A saltwater cove, protected by a shrub thicket and grasslands on either side, offers a protected habitat for finfish and shellfish. The Niering Preserve is a valuable nesting area for birds like osprey, meadowlark, and bobolink, and is as an important scientific research site. The 31-acre William A. Niering Natural Area Preserve (NAP), managed as part of Harkness, is an unusual mix of landscapes within a relatively small area characterized by a long narrow beach, low sand dune, saltmarsh and saltwater cove, and coastal grassland.

Exemplary coastal barrier beach and primary dune communities (beach rose, beach pea, seaside goldenrod and beach grasses), coastal grassland habitat and salt marsh. Birds include least tern, American Oystercatcher, Common tern, and great egrets.

Geologic Signifcance:

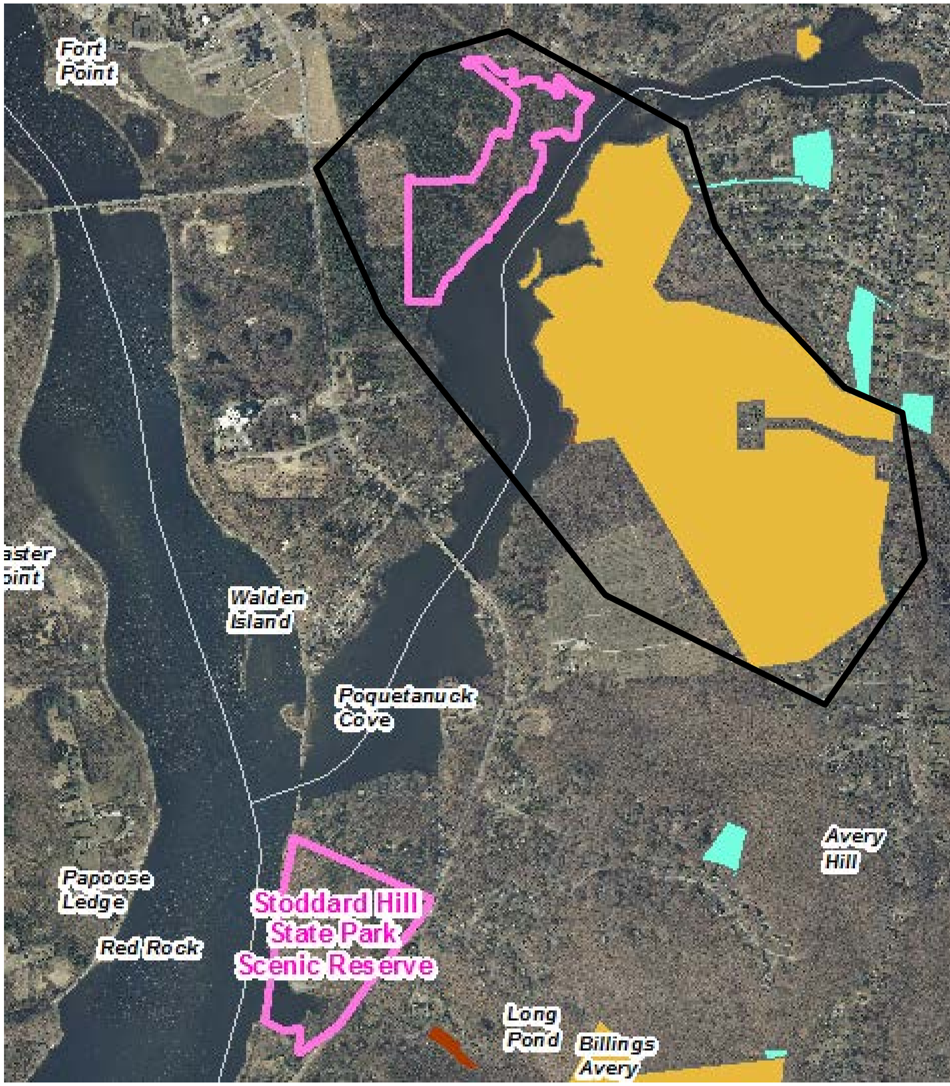
Threats:

Notes/Justification The William A. Niering Natural Area Preserve and Harkness Memorial State Park provide unique and significant recreational/cultural/tourism opportunities.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas
Website	http://longislandsoundstudy.net/2012/07/great-neck-goshen-point/
Grey Literature	Field Observations CT (Comins 2014)



PROPERTY	SUM_ACRE_G
Thames River Water Access	46.13
Total State	*46.13*
2 TNC parcels (Poquetanuck Nature Preserve)	234.09
Total other	*234.09*
TOTAL	**280.22**

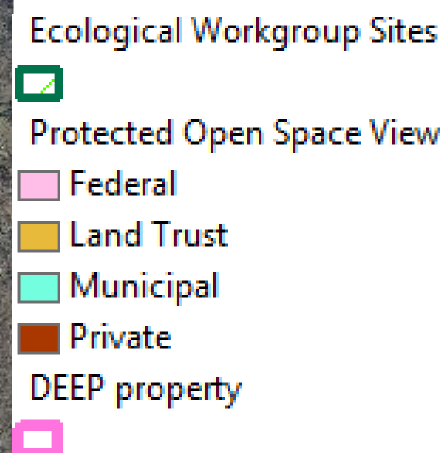


Figure 20: Poquetanuck Cove

Site Name: ***Poquetanuck Cove (67)***

RecordID: 114

Town: Preston

Primary Designation Exemplary habitat

Record Complete? ☑

State: CT

Secondary Designation Rare species habitat

Data collected by Barrett

Size (acres):

Ownership: CT DEEP, Avalonia Land Conservancy, The Nature Conservancy

Component	Habitats
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Sand barren		
Brackish intertidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Horned pondweed	Zannichellia palustris (1988 H?)	☐	☐	☑	☐
plant	Lilaeopsis	Lilaeopsis chinensis (2011)	☐	☐	☑	☐
plant	Tufted hairgrass	Deschampsia caespitosa (2007)	☐	☐	☑	☐
plant	Salt marsh bulrush	Bolboschoenus novae-angliae (2007)	☐	☐	☑	☐
plant	Eaton's beggars-tick	Bidens eatonii (2007)	☑	☐	☑	☐
plant	Orache	Atriplex glabriuscula (2007)	☐	☐	☑	☐

Discusssion of Habitat Mosaic / Complex :

Poquetanuck Cove is a two mile long cove of the Thames River, located within the Towns of Preston and Ledyard, Connecticut. It has been described by officials from the Connecticut Department of Energy and Environmental Protection (CT DEEP) as the best remaining example of a brackish water tidal marsh wetland system in the Thames River watershed. Designation as a bird sanctuary in 1969 was the beginning of a long history of conservation focus on the cove. Significant portions of the shoreline and upland areas are under protected status which helps support a rich diversity of birds, fish and marsh vegetation found in the cove. Fish from the Atlantic Ocean pass through the cove on their way to their freshwater breeding habitat upstream. In 2013, a fishway installed at the Hallville dam in Preston restored access to historic habitat for the first time in over 150 years.

Marsh is Typha angustifolia dominated
Saltmarsh bulrush found in brackish marsh cove shore and creek banks and levees, occasionally on brackish mineral shores, and occasionally in back marsh where Bolboschoenus robustus is dominant. Maximum known distance from creek or cove shore = 20m.
Habitat for tufted hairgrass found on waterward edges of brackish intertidal marsh dominance types including Typha angustifolia, Typha x glauca, Bolboschoneus robustus-Spartina alterniflora, and Phragmites. Also on un-vegetated or sparsley vegetated mineral sandy-gravelly-cobbly brackish
habitat for Eaton's beggars-tick: brackish marsh with ground layer dominated by Agrostis stolonifera, where halinity is probably oligohaline, or may fluctuate between meso- and oligohaline.
Orache habitat: Largest population (northmost) is in brackish marsh with ground layer dominated by Agrostis stolonifera, where halinity is probably oligohaline, or may fluctuate between meso-oligohaline. Other subpopulations are close to the high tide line on sandy, gravelly substrate.

The Cove is a State of Connecticut designated bird sanctuary and it provides shelter for significant flocks of wintering waterfowl each year. Bald eagles are a common sight along the cove during winter months. The U.S. Fish and Wildlife Service (USFWS) Northeast Coastal Area Study lists the cove as a regionally significant fish and wildlife habitat. It is home to multiple species of plants and animals listed as endangered, threatened, or of special concern in the state of Connecticut. Noteworthy fish species including alewife, white perch, blueback herring and striped bass inhabit or migrate through the cove.

Geologic Signifcance:

Threats: While significant portions of the coastal area upland of the coastal boundary are permanently protected from development, existing residential and transportation development along the cove, and an outdated storm water infrastructure threaten to degrade the habitat in the cove. Land development in the watershed and sediment laden water carried in with the tide are changing the characteristics of the cove. Rising sea levels and more frequent storm events threaten some of the important marsh areas.
Phragmites control work underway.

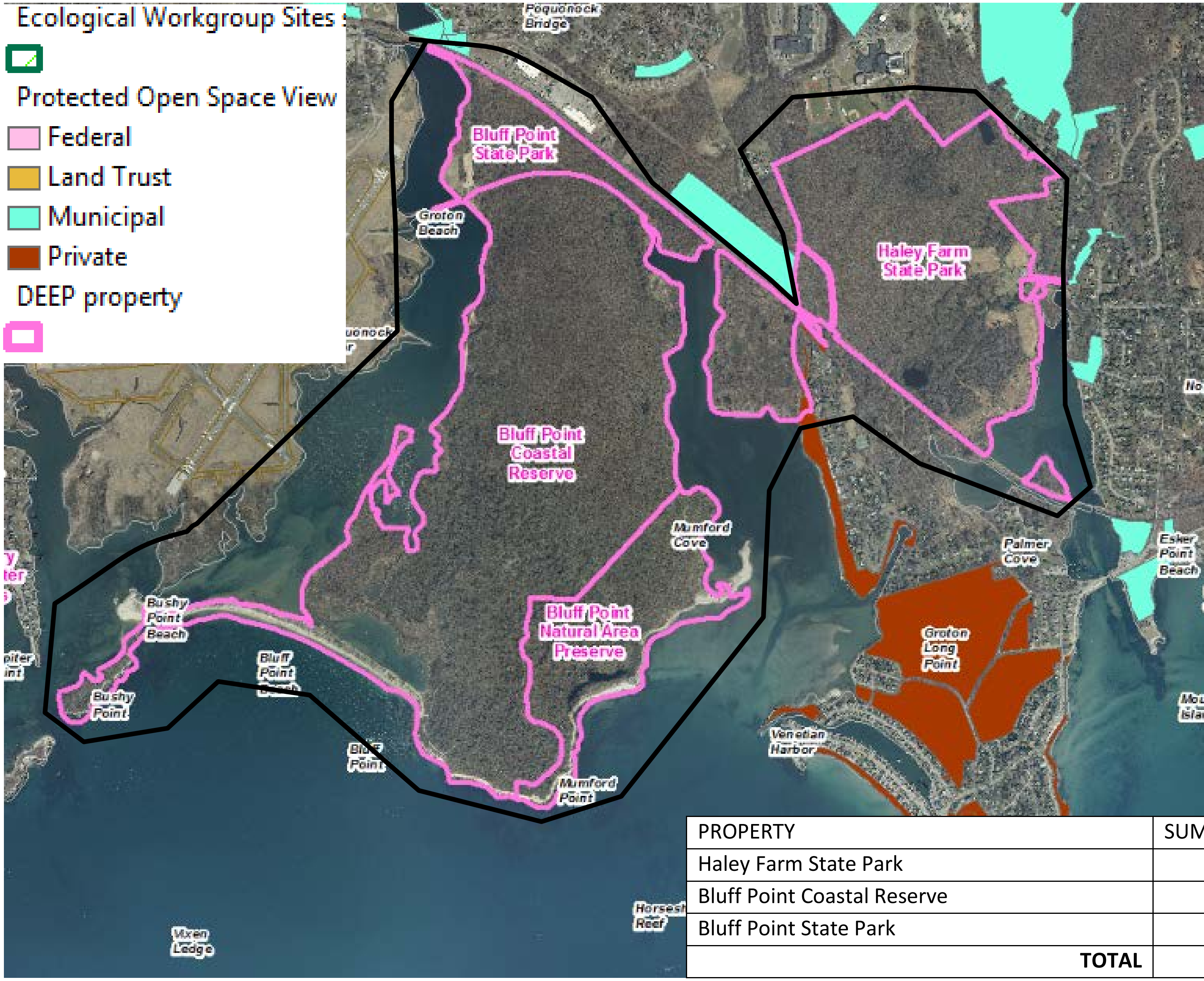
William Moorhead conducted botanical survey of marshes - but report not available online.

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Grey Literature	Poquetanuck Cove Conservation Action Plan
Grey Literature	USFWS Partners for Fish and Wildlife - Poquetanuck Cove



PROPERTY	SUM_ACRE_G
Haley Farm State Park	275.4
Bluff Point Coastal Reserve	620.57
Bluff Point State Park	67.83
TOTAL	**963.8**

Figure 21: Bluff Point

DEEP Parks:
Bluff Point is the last remaining significant piece of undeveloped land along the Connecticut coastline. Jutting out into waters of Long Island Sound this wooded peninsula, measuring one and one-half miles long by one mile wide, encompasses over 800 acres. Originally proposed for acquisition as a state recreation facility as early as 1914, it was not until 1963 that the western one-third of the land was purchased from Henry A. Gardiner III. State holdings include a north-south strip of the mainland, a portion of the headland bluff fronting the Sound, and the tombolo or sandspit forming a beach of nearly one mile in length. The beach terminates in a small, rocky island called Bushy Point.

Bluff Point was designated a "Coastal Reserve" by a special act of the Connecticut legislature in 1975 to establish the area "for the purpose of preserving its native ecological associations, unique faunal and floral characteristics, geological features and scenic qualities in a condition of undisturbed integrity". Because of its Coastal Reserve designation, access to the bluff is by foot or non-motorized vehicle only. The trail to the bluff passes through wooded and open areas until the view broadens as the bluff is approached. Here vegetation is more sparse and diminutive because of wind exposure. Among the plants to be found at the headland are native beach plum, beach pea and red and white shore roses.

The long, narrow beach is a geological remnant of the continental glaciers and subsequent erosion by wind and water... an ongoing process.

DEEP Geology:
Rock Types Found Along the Trail

- Igneous: Granite, Pegmatite
- Metamorphic: Granite gneiss, Alaskite gneiss
- Sedimentary: None

Rock Units: Hope Valley Alaskite Gneiss, light pink and gray medium and coarse grained granitic gneiss (Precambrian age); Mamacoke Formation, light and dark gray medium grained gneiss (Precambrian age); New London Gneiss; gray granitic gneiss (Precambrian age)
Minerals of Interest: Quartz, potassium feldspar and mica are found in the bedrock, Layers of pink garnet sand may be found on the beach
Interesting Geologic Features: Cliffed headland, Drumlin shaped hill, Recessional moraine, Spit beach, Sand dunes, Salt Marsh, Lagoon/tidal estuary.

Site Name: *Bluff Point State Park (7)*

RecordID: 40

Town: Groton

State: CT

Size (acres): 800

Ownership: State of Connecticut

Primary Designation Outstanding habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by Barrett

Component	Habitats
contributing	Beaches and Dunes
contributing	Cliffs and Bluffs
contributing	Coastal Grasslands
contributing	Coastal woodland/shrubland
contributing	Intertidal Flats
contributing	salt water intertidal beaches and shores
contributing	Seepage swamp
contributing	Submerged Aquatic Vegetation Beds
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Coastal woodland/shrubland		
Coastal sand dunes		
Sea level fen		
Saltwater intertidal beaches and shores		
Salt marsh		
Old growth forest		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Lesser yellowlegs	Tringa flavipes (1 nonbreeding individ	☐	☐	☐	☐
invertebrate	Elephant mosquito	Toxorhynchites rutilus	☐	☐	☐	☐
terrestrial mammal	New England cottontail	Sylvilagus transitionalis	☑	☐	☐	☐
bird	Common tern	Sterna hirundo (4 - peak # nonbreedin	☑	☐	☑	☐
bird	Least tern	Sterna antillarum	☑	☐	☑	☐
plant	Canada sand spurry	Spergularia canadensis	☐	☐	☑	☐
invertebrate	Noctuid moth	Shinia spinosae	☐	☐	☑	☐
plant	Seaside dock	Rumex maritimus (historic)	☐	☐	☑	☐
plant	Sickle-leaved golden aster	Pityopsis falcata	☐	☐	☑	☐
invertebrate	Seaside goldenrod stem borer	Papaipema duovata	☐	☐	☑	☐
bird	Osprey	Pandion halieatus	☑	☐	☐	☐
plant	violet wood-sorrel	Oxalis violacea	☐	☐	☑	☐
plant	Cutleaf water-milfoil	Myriophyllum pinnatum	☐	☐	☑	☐
plant	Scotch lovage	Ligusticum scothicum	☐	☐	☑	☐
invertebrate	Sand prairie wainscot	Leucania extincta	☐	☐	☐	☐
invertebrate	Noctuid moth	Lepipolys perscripta	☐	☐	☑	☐
bird	yellow breasted chat	Icteria virens	☑	☐	☑	☐
plant	Whorled pennywort	Hydrocotyle verticillata	☐	☐	☑	☐
plant	False beach-heather	Hudsonia tomentosa	☐	☐	☑	☐
plant	Seabeach sandwort	Honkenya peploides	☐	☐	☑	☐
plant	Bush rock rose	Helianthemum dumosum	☑	☐	☑	☐

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	American oystercatcher	Haematepus palliatus (1 pr/1 nonbree	☑	☐	☑	☐
invertebrate	Pink streak	Faronta rubripennis	☑	☐	☑	☐
invertebrate	False heather underwing	Drasteria graphica atlantica	☐	☐	☑	☐
plant	Whitlow grass	Draba reptans	☐	☐	☑	☐
plant	Yellow thistle	Cirsium horridulum	☐	☐	☑	☐
invertebrate	Tiger beetle	Cicindela marginata	☑	☐	☑	☐
invertebrate	Tiger beetle	Cicindela hirticollis	☑	☐	☑	☐
bird	Piping plover	Charadrius melodus (5 prs/10 chicks fl	☑	☑	☑	☐
bird	Semipalmated sandpiper	Calidris pusilla (2 nonbreeding individ	☑	☐	☐	☐
invertebrate	Apamea moth	Apamea lintneri	☐	☐	☑	☐
bird	Salt marsh sharp-tailed sparro	Ammodramus caudacutus	☑	☑	☑	☐
plant	Virginia copperleaf	Acalypha virginica	☐	☐	☑	☐
invertebrate	Coastal heathland cutworm	Abagrostis nefascia benjamini	☑	☐	☑	☐

SIGT Habitat Criteria
Cliffs and Bluffs - Is Unarmored
Coastal Forest - Has Unfragmented Block(s) >X acres
Tidal Wetlands - Is Waterfowl Concentration Area
Beaches and Dunes - Has Back Lagoon Foraging Areas

Discusssion of Habitat Mosaic / Complex :

Bluff Point is a state-owned peninsula often considered the last significant undeveloped area on the Connecticut coastline. In 1975, the Connecticut Legislature designated a portion of Bluff Point as a “Coastal Reserve” in recognition of its ecological importance and to preserve its ecological integrity. One of the largest undeveloped coastal areas in the state, this mostly forested 800-acre site contains a variety of habitats supporting state-threatened and-endangered species.

The property includes a variety of coastal habitats including coastal forest, barrier beach and dune, grassland, coastal plain pond, coastal bluff, tidal wetlands, intertidal mud flats, eelgrass beds, and back-barrier sandflat.

More than 200 bird species are found here, including various herons, hawks, cormorants, and federally-endangered piping plover.

Removal of a wastewater treatment plant discharge to Mumford Cove on the east side of Bluff Point resulted in the spontaneous restoration of eelgrass, a type of submerged aquatic vegetation providing critical habitat for shellfish, finfish and waterfowl.

The southeast section of Bluff Point is a designated Connecticut Natural Area Preserve. The designation is due in part to a unique coastal forest on a concave slope, known as a 'cove forest,' which supports trees that are nearly 100-years old.

Geologic Signifcance: See http://www.ct.gov/deep/cwp/view.asp?a=2716&q=398432&deepNav_GID=1650 for geology of Bluff Point State Park.

Threats: Deer browse largely under control due to management by CT DEEP.

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://longislandsoundstudy.net/2012/10/bluff-point/
Grey Literature	Field Observations CT (Comins 2014)

LISS Stewardship:
Bluff Point is a state-owned peninsula often considered the last significant undeveloped area on the Connecticut coastline. In 1975, the Connecticut Legislature designated a portion of Bluff Point as a "Coastal Reserve" in recognition of its ecological importance and to preserve its ecological integrity. One of the largest undeveloped coastal areas in the state, this mostly forested 800-acre site contains a variety of habitats supporting state-threatened and-endangered species.

- The property includes a variety of coastal habitats including coastal forest, barrier beach and dune, grassland, coastal plain pond, coastal bluff, tidal wetlands, intertidal mud flats, eelgrass beds, and back-barrier sandflat.
- More than 200 bird species are found here, including various herons, hawks, cormorants, and federally-endangered piping plover.
- Removal of a wastewater treatment plant discharge to Mumford Cove on the east side of Bluff Point resulted in the spontaneous restoration of eelgrass, a type of submerged aquatic vegetation providing critical habitat for shellfish, finfish and waterfowl.
- The southeast section of Bluff Point is a designated Connecticut Natural Area Preserve. The designation is due in part to a unique coastal forest on a concave slope, known as a 'cove forest,' which supports trees that are nearly 100-years old.
- The trees on the eastern slopes, where soil is thicker, are 70-90 years old.

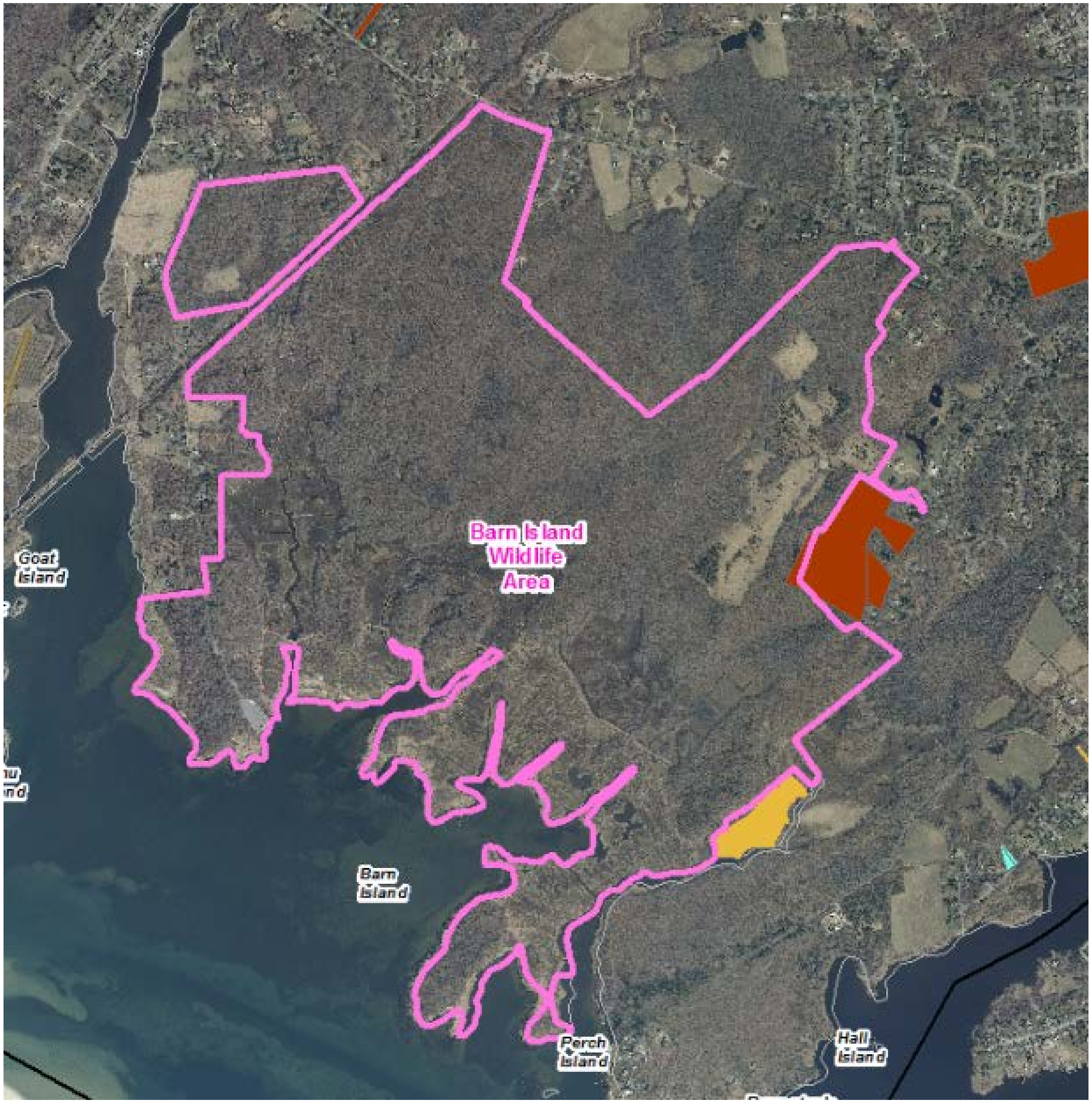


Figure 22: Barn Island

PROPERTY	SUM_ACRE_G
Barn Island Wildlife Area	1018.06
Total State	*1018.06*
Avalonia Land Trust parcel	10.1
Total Other	*10.1*
TOTAL	**1028.16**

Ecological Workgroup Sites :

Protected Open Space View

Federal

Land Trust

Municipal

Private

DEEP property

Site Name: Barn Island Wildlife Area (2)

RecordID: 35

Town: Stonington

State: CT

Size (acres): 1024

Ownership: State of Connecticut

Primary Designation Outstanding habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by Barrett

Component	Habitats
contributing	Beaches and Dunes
contributing	Coastal Forests
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Brackish intertidal marsh		
Salt marsh		
Sea level fen		
Saltwater intertidal beaches and shores		
Coastal Forest		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Lesser yellowlegs	Tringa flavipes (12 nonbreeding indivi	☐	☐	☐	☐
terrestrial mammal	New England Cottontail (1979)	Sylvilagus transitionalis	☑	☑	☐	☐
bird	Common tern	Sterna hirundo (8 peak # nonbreeding	☑	☐	☑	☐
bird	King rail	Rallus elegans	☑	☐	☑	☐
bird	Osprey	Pandion haliaetus	☑	☐	☐	☐
plant	Scotch lovage	Ligusticum scothicum	☐	☐	☑	☐
plant	Saltpond grass (1977)	Leptochloa fusca ssp. Fascicularis	☐	☐	☑	☐
bird	Black rail	Laterallus jamaicensis	☑	☑	☑	☐
bird	Least bittern	Ixobrychus exilis	☑	☐	☑	☐
bird	Yellow-breasted chat	Icteria virens	☑	☐	☑	☐
bird	American oystercatcher	Haematopus palliatus (4 peak # nonbr	☑	☐	☑	☐
bird	Common moorhen	Gallinula chloropus	☑	☐	☑	☐
plant	Yellow thistle	Circium horridulum	☐	☐	☑	☐
plant	Coast blite	Chenopodium rubrum	☐	☐	☑	☐
bird	Willet	Catoptrophorus semipalmatus	☑	☐	☐	☐
bird	Whip-poor-will	Caprimulgus vociferus	☑	☐	☑	☐
bird	Semipalmated sandpiper	Calidris pusilla (30 peak # nonbreedin	☑	☐	☐	☐
bird	Sanderling	Calidris alba (9 nonbreeding individs 2	☑	☐	☐	☐
bird	American bittern	Botaurus lentiginosus	☑	☐	☑	☐
plant	Bayonet grass	Bolboschoenus martimus ssp. Paludo	☐	☐	☑	☐
plant	Sea coast angelica	Angelica lucida	☐	☐	☐	☐
plant	Sea-coast angelica	Angelica lucida	☐	☐	☑	☐
bird	Seaside sparrow	Ammodramus maritimus	☑	☐	☑	☐
bird	Salt marsh sharp tailed sparro	Ammodramus caudacutus	☑	☑	☑	☐

SIGT Habitat Criteria	
Tidal Wetlands - Is Waterfowl Concentration Area	
Tidal Wetlands - Is Migratory Shorebird Concentration Area	
Coastal Forest - Has Unfragmented Block(s) >X acres	
Coastal Forest - Heterogeneous Age Class Distribution	
Islands - Is Undeveloped	
Tidal Wetlands - > Has x% High Marsh	
Tidal Wetlands - Has High Forage Fish Productivity	
Tidal Wetlands - Supports Nesting Shorebirds	

Discusssion of Habitat Mosaic / Complex :

Barn Island is the largest and single most ecologically diverse coastal Wildlife Management Area in Connecticut. With over 60 years of continuous wetland research at this site, Barn Island provides a rare window into long-term marsh development both before and after restoration efforts. Its 1,024 acres are marked by centuries of cultural and biological history, once a vital resource for early colonial settlers and Native Americans and now for scientists and outdoorsmen. Its diverse habitats support rare plants and animals which add to its rich ecological resource base. Barn Island's sprawling landscape sustains a wide variety of ecosystems and recreational activities; it consists of salt and brackish marshes, one of the state's largest coastal forests, hilly uplands, intertidal flats, sandy beach, and a rare sea-level fen.

Barn Island Wildlife Management Area consists of approximately 1000 acres of land in the extreme southeast corner of the state, in a protected enclave sheltered by headlands. It is the largest coastal wildlife management area in the state. The habitat is dominated by 540 acres of deciduous forest and 290 acres of tidal marshes, but there are also significant areas of open salt water, four waterfowl impoundments, as well as coastal scrub woodlands and thickets. The Barn Island area is popular with birders, and in the fall, there are many hunters as well. In the Report on the Barn Island Marshes (1972), by Dr. William A. Niering, Barn Island is referred to as "the finest wild coastal area in Connecticut." Barn Island Wildlife Management Area supports at least nine State-listed avian species in the breeding season.

The area is an Audubon Important Bird Area: Barn Island Wildlife Management Area provides nesting, and/or feeding habitats for several state-listed species of birds, including Seaside and Saltmarsh Sharp-tailed Sparrows, and King Rail. Barn Island also provides feeding habitats for Great and Snowy Egrets, Glossy Ibis, and Little Blue Heron, and Common and Least Terns, and supports wintering populations of Short-eared Owl and 'Ipswich' Savannah Sparrows. The National IBA Technical Committee, consisting of ornithological experts from throughout the country, approved Barn Island WMA as a globally significant IBA in June 2004. BirdLife International lists Saltmarsh Sharp-tailed Sparrows as "Vulnerable", and as such, any site that supports 10 or more pairs or 30 or more individuals of this species meets the criteria of a globally significant site. Research conducted by the University of Connecticut has banded 65 individual Saltmarsh Sharp-tailed Sparrows in five one-hectare plots within the 290 acres of tidal marsh habitat. There are historic breeding records for Northern Harrier, Black Rail, and Least (1986) and American Bittern (1970) and Yellow-breasted Chat.

There is a state-owned farm within Barn Island WMA, the Stewart Farm, that has fields, thickets and woods around it that are nesting sites for certain high conservation priority species, such as Blue-winged Warbler, Field Sparrow and Black-billed Cuckoo.

Since the 1930s, human actions have dramatically shaped the ecological landscape of Barn Island. The draining of its tidal pools in an attempt to control a hazardous mosquito population sparked a series of reactionary restoration and remediation efforts, and set the context for decades of research on marsh ecology.

Barn Island is Connecticut's largest, most ecologically diverse coastal Wildlife Management Area.

Its 300 acres of salt and brackish marshes provide vital data on baseline tidal marsh vegetation and response of salt marsh system responses to restoration. This data is used prominently by scientists for tidal wetland research and restoration management. Barn Island is heralded as the exemplary model for other salt marsh restoration projects.

The US Fish and Wildlife Service has recognized Barn Island as one of the 40 most significant coastal areas in southern New England.

The National Audubon Society designated Barn Island a "Globally Significant Important Bird Area."

Barn Island contains a rare sea-level fen, a herbaceous wetland occurring at the salt marsh-upland transition zone influenced by freshwater groundwater discharges on saturated mineral soils dominated by sedges and sphagnum mosses.

Barn Island and adjacent conservation land provide habitat for 25 federal or state-listed endangered, threatened, or special-concern species.

Geologic Signifcance:

Threats: Sea level rise

Notes/Justification Ron Rozsa and Connecticut College developing management plan for Barn Island that will include all known references/theses for research done at Barn Island.
Significant research site.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	State of Connecticut Natural Diversity Database
Website	http://longislandsoundstudy.net/2012/07/barn-island/
Website	http://ct.audubon.org/barn-island-wildlife-management-area
Grey Literature	Field Observations CT (Comins 2014)

LISS Stewardship:

Barn Island is the largest and single most ecologically diverse coastal Wildlife Management Area in Connecticut. With over 60 years of continuous wetland research at this site, Barn Island provides a rare window into long-term marsh development both before and after restoration efforts. Its 1,024 acres are marked by centuries of cultural and biological history, once a vital resource for early colonial settlers and Native Americans and now for scientists and outdoorsmen. Its diverse habitats support rare plants and animals which add to its rich ecological resource base. Barn Island's sprawling landscape sustains a wide variety of ecosystems and recreational activities; it consists of salt and brackish marshes, one of the state's largest coastal forests, hilly uplands, intertidal flats, sandy beach, and a rare sea-level fen.

Since the 1930s, human actions have dramatically shaped the ecological landscape of Barn Island. The draining of its tidal pools in an attempt to control a hazardous mosquito population sparked a series of reactionary restoration and remediation efforts, and set the context for decades of research on marsh ecology. Data on Barn Island continues to be utilized extensively by scientists and researchers exploring how salt marshes respond to sea level rise and restoration efforts, making it a multi-faceted success story.

- Barn Island is Connecticut's largest, most ecologically diverse coastal Wildlife Management Area.
- Its 300 acres of salt and brackish marshes provide vital data on baseline tidal marsh vegetation and response of salt marsh system responses to restoration. This data is used prominently by scientists for tidal wetland research and restoration management. Barn Island is heralded as the exemplary model for other salt marsh restoration projects.
- The US Fish and Wildlife Service has recognized Barn Island as one of the 40 most significant coastal areas in southern New England.
- The National Audubon Society designated Barn Island a "Globally Significant Important Bird Area."
- Barn Island contains a rare sea-level fen, a herbaceous wetland occurring at the salt marsh-upland transition zone influenced by freshwater groundwater discharges on saturated mineral soils dominated by sedges and sphagnum mosses.
- Barn Island and adjacent conservation land provide habitat for 25 federal or state-listed endangered, threatened, or special-concern species
- Barn Island includes one of CT's largest remaining unfragmented coastal forests.
- Marshes here began forming over 3,000 years ago.

Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 4:

Preliminary Site Assessment Report Example: Hammonasset Natural Area Preserve

Preliminary Site Selection Description Template: Hammonasset (Natural Area Preserve)

1. **General Site Description:** Provide a summary of the site, ideally highlighting key points from the following sections. A paragraph or two should suffice.
   a. *The exceptional value of this Preserve is that it contains a large expanse of sheltered tidal marsh; a large and diverse population of birds, fish and other aquatic life; an uncommon assemblage of upland coastal plant associations; an excellent habitat for several protected species of plant and animals; and an easily accessed and viewable set of moraines, sand dunes and coastal beaches. All of these superior natural assets lie in close proximity to one another within an accessible, large, well developed public park.*

      A noteworthy excerpt from the 2000 HNAP Management Plan:

      "The purpose of designating the Hammonasset Salt Marsh as a Natural Area Preserve is to preserve an area of outstanding natural value ..... "in as natural and wild a state as is consistent with educational, scientific, biological, geological, paleontological and scenic purposes." (CGS Sec. 23-5c). Management of activities shall conform to the specific goals listed below. Any activity which is contrary to the statutory objectives or the specific goals of this Preserve shall not be allowed.

      i. *Protect all state listed (Endangered, Threatened and Special Concern) species found in the Preserve*
      ii. *Encourage scientific research within the Preserve*
      iii. *Provide for environmental education opportunities within the Preserve*
      iv. *Provide the public with opportunities for scenic and recreational uses*
      v. *Protect the physical and biological integrity of the Preserve*
      vi. *Restore to the extent practical disturbed habitats within the Preserve"*

      We note that the purpose and stated goals of HNAP mesh tightly with the functions and operation of a NERR.

2. **Ownership Status**: Is it all State owned? Mixed? What other owners/classes are involved? If non-State property is being considered, what is the substantial benefit to key NERR functions?
   a. Established in 1985, HNAP owned by State of Connecticut and administered by CT DEEP State Parks Division. The ~400 acre NAP lies within and extends the eastern boundary of Hammonasset State Park.
   b. *Offshore areas, to the extent possible as described below, are held in public trust; parts of the Clinton Harbor area overlap town managed shellfish beds. There is the potential to include some conservation land owned by the Town of Madison the offers coastal grassland and forest. Several State managed shellfish beds occur offshore in LIS.*

3. **Site Profile based on NERR Typologies:** The following table highlights the characteristics that typically define the environmental resource components of a NERR. Not all aspects need to be completed if information can't be readily found – the idea is not to exhaust resources looking for everything at this point. Some missing sections may be able to be filled in by other SST members, or the group as a whole. Some sites will necessarily have more available data than others. Where data is available, any descriptions or lists that can be provided should be brief but as informative as possible; e.g., don't copy entire pages out of documents/reports/publications, but try to synthesize findings.

Class I: Ecosystem Types
Group I: Shorelands

Commented [KO1]: For each example (A, B, C, and E) - does the site support any aspects of this type of habitat? If so, what are typical components of the site? Can you provide an approximate size/area percentage of them? Are there any noteworthy aspects – e.g., interesting features/functions, more detailed sublevel classes/descriptions, an atypical example from the NOAA description, etc., etc.

A. Maritime Forest-Woodland. That have developed under the influence of salt spray. It can be found on coastal uplands or recent features such as barrier islands and beaches, and may be divided into the following biomes:	
NOAA Description	**CT SITE**
Northern coniferous forest biome: This is an area of predominantly evergreens such as the sitka spruce (Picea), grand fir (Abies), and white cedar (Thuja), with poor development of the shrub and herb leyera, but high annual productivity and pronounced seasonal periodicity.	• The one example of coastal woods in the Preserve is found on the linear, ridge-like deposit (moraine) located just to the south of Willard Island. The dominant trees are Pignut hickory *(Carya glabra),* Black oak *(Quercus velutina)* and Sassafras *(Sassafras albidum).* Also present are White oak *(Quercus alba),* wild Black cherry *(Prunus serotina),* Shadbush *(Amelanchier spp.),* Mockemut *(Carya tomentosa)* and Hackberry *(Ce/tis occidentalis).* A prominent tall thicket is dominated by Hawthorne *(Crataegus sp.).* This woodland provides an important nesting area for upland birds in an otherwise marshland dominated Preserve. Willards Island, part of the Hammonasset marshland, contains the largest peach tree in the US and the largest pear tree in CT. • This site contains an unusual diversity of herbs more typically associated with richer soils. Conspicuous herbs include Richweed (Collinsonia canadensis), Tall Meadow-rue (Thalictrum polygamum}, Jackin-the-Pulpit (Arisaema atrorubens), Virginia creeper (Parthenocissus quinquefolia), Touch-Me-Not (Impatiens capensis}, Wild geranium (Geranium macu/atum), Dewbeny (Rubus flagellaris), Japanese honeysuckle (Lonicera japonica), Fringed loosestrife (Lysimachia ciliata) and Feverwort (Triosteum peifoliatum). An herb species listed as of Special Concern in Connecticut, Starry champion (Silene stellata) has also been recently identified as a resident species. • There is the potential to include some conservation land owned by the Town of Madison the offers coastal grassland and forest
B. Coast shrublands. This is a transitional area between the coastal grasslands and woodlands and is characterized by woody species with multiple stems and a few centimeters to several meters above the ground developing under the influence of salt spray and occasional sand burial. This includes thickets, scrub, scrub savanna, heathlands, and coastal chaparral. There is a great variety of shrubland vegetation exhibiting regional specificity:	
NOAA Description	**CT SITE**
Northern areas: Characterized by Hudsonia, various erinaceous species, and thickets of Myricu, prunus, and Rosa.	• The protected back slopes of the Meigs Point moraine provide the only conditions in the Preserve favorable for coastal thicket vegetation. The substrate is variable, ranging from a dry to somewhat moist, till soil. Here the plant community is dominated by shrubs. The most common are Beach plum (Prunus maritima), Bayberry (Myrica pensylvanica) and Winged sumac (Rhus copal/ina). The Beach plum colonies found along this ridge are some of the state's best example groupings of this species. • If parts of Town of Madison conservation land (area of old airfield) is included, this property includes a coastal grassland and coastal forest (one with few to any invasive plants). This former airfield has a habitat management plan.

C. Coastal grasslands. This area, which possesses sand dunes and coastal flats, has low rainfall (10 to 30 inches per year) and large amounts of humus in the soil. Ecological succession is slow, resulting in the presence of a number of seral stages of community development. Dominant vegetation includes mid-grasses (5 to 8 feet tall), such as Spartina, and trees such as willow (Salix sp.), cherry (Prunus sp.), and cottonwood (Pupulus deltoides.)	
NOAA Definition	**CT SITE**
Northeast/West: Ammophla;	?

D. Coastal tundra.	Does not apply to CT

E. Coastal cliffs. This ecosystem is an important nesting site for many sea and shore birds. It consists of communities of herbaceous, graminoid, or low woody plants (shrubs, heath, etc.) on the top or along rocky faces exposed to salt spray. There is a diversity of plant species including mosses, lichens, liverworts, and "higher'' plant representatives.	
NOAA Description	**CT SITE**
Coastal cliffs ecosystem types	• The sea cliffs associated with the Meigs Point moraine are a dynamic landform. The present vegetation is a mosaic of shrubs, herbs and open soil. Dominant plants include Bayberry, Poison ivy *(Rhus radicans),* Dewberry and Japanese honeysuckle. Associated grasses and herbaceous plants include; Poverty grass *(Danthonia spicata),* Red fescue *(Festuca rubra),* Switch grass *(Panicum virgatum),* Velvet grass *(Holcus /anatus),* Orchard grass *(Dactylis g/omerata),* Quack grass *{Agropyron repens),* English plantain *(Plantago lanceolata),* Yarrow *(A chi/lea mil/efolium)* and Daisy *(Leucanthemum vulgare).*

Class I: Ecosystem Types	
Group II: Transition Areas	
A. Coastal marshes. These are wetland areas dominated by grasses (Poacea), sedges (Cyperaceae), rushes (Juncaceae), cattails (Typhaceae), and other graminoid species and is subject to periodic flooding by either salt or freshwater. This ecosystem may be subdivided into:	
NOAA Description	**CT SITE**
(a) Tidal, which is periodically flooded by either salt or brackish water;	• The lower marsh is flooded twice per day at high tide. Only tall salt-water cord grass (*Spartina alterniflora*) lives here. In the higher marsh the sides of creeks and ditches are also usually lined with this cord grass. Normally flooded by salt water only twice monthly during spring tides, the higher marsh contains more variety of plants. There you can find salt marsh hay (*Spartina patens*), which has a cowlicky appearance, spike grass (*Distichlis spicata*), perennial seaside aster (Aster tenuifolius), seaside gerardia (*Agalinis maritima*), and sea lavender (*Limonium carolinianum*). Stands of black rush (*Juncus gerardia*) and the shrub marsh-elder (*Iva frutescens*) occur in some places at the upper edges of the high marsh. • Several species of crabs occupy salt marshes and tidal creeks
(b) nontidal (freshwater);	N/A
(c) tidal freshwater	N/A

Commented [KO2]: For each example (A, B, D, E, and F) - does the site support any aspects of this type of habitat? If so, what are typical components of the site? Can you provide an approximate size/area percentage of them? Are there any noteworthy aspects – e.g., interesting features/functions, more detailed sublevel classes/descriptions, an atypical example from the NOAA description, etc., etc.

B. Coastal swamps. These are wet lowland areas that support mosses and shrubs together with large trees such as cypress or gum.	
NOAA Description	**CT SITE**
Coastal Swamp ecosystem types	N/A
C. Coastal mangroves.	Does not apply to CT.
D. Intertidal beaches. This ecosystem has a distinct biota of microscopic animals, bacteria, and unicellular algae along with macroscopic crustaceans, mollusks, and worms with a detritus-based nutrient cycle. This area also includes the driftline communities found at high tide levels on the beach. The dominant organisms in this ecosystem include crustaceans such as the mole crab (Emerita), amphipods (Gammeridae), ghost crabs (Ocypode), and bivalve mollusks such as the coquina (Donax) and surf clams (Spisula and Mactra.)	
NOAA Description	**CT SITE**
Intertidal beach ecosystem types:	• The sandy beach and dune features dry, shifting sands that are directly exposed to winds, direct sunlight, salt spray, and extremes temperature. Plants adapted to this environment are few, but there are two distinct plant associations: one on the dune's foreslope and one on the backslope. In both instances, American beachgrass *{Ammophila breviligulata)* is the dominant plant species. On the more protected backslope, a greater number of herb and shrub species persist. In addition to the Seaside goldenrod and Beach pea found on the foreslope, Bayberry, Salt spray rose, Sea rocket, Poor-man's pepper, Dock, and Wild lettuce have become established on the backslope. • Occasionally the tiny Atlantic sand crab (Emerita talpoida) has been seen in the intertidal zone of the beach. • Among the rocks of the Meigs Point moraine, green (Carcinus maenas) and rock (Cancer irroratus) crabs occupy the tidal pools. The long wrist hermit crab (Pagurus longicarpus) may also be found here, while the larger flat claw hermit crab (Pagurus pollicaris) prefers sandier areas. Spider crabs (Libinia emarginata) live among the rocks in deeper water. The invasive Japanese shore crab (Hemigrapsus sanguineus) is now also an increasingly-common resident.
E. Intertidal mud and sand flats. These areas are composed of unconsolidated, high organic content sediments that function as a short-term storage area for nutrients and organic carbons. Macrophytes are nearly absent in this ecosystem, although it may be heavily colonized by benthic diatoms, dinoflaggellates, filamintous blue-green and green algae, and chaemosynthetic purple sulfur bacteria. This system may support a considerable population of gastropods, bivalves, and polychaetes, and may serve as a feeding area for a variety of fish and wading birds. In sand, the dominant fauna include the wedge shell Donax, the scallop Pecten, tellin shells Tellina, the heart urchin Echinocardium, the lug worm Arenicola, sand dollar Dendraster, and the sea pansy Renilla. In mud, faunal dominants adapted to low oxygen levels include the terebellid Amphitrite, the boring clam Playdon, the deep sea scallop Placopecten, the Quahog Mercenaria, the echiurid worm Urechis, the mud snail Nassarius, and the sea cucumber Thyone.	
NOAA Description	**CT SITE**
Intertidal mud and sand flats ecosystem types	• oysters and clams.

F. Intertidal algal beds. These are hard substrates along the marine edge that are dominated by macroscopic algae, usually thalloid, but also filamentous or unicellular in growth form. This also includes the rocky coast tidepools that fall within the intertidal zone. Dominant fauna of these areas are barnacles, mussels, periwinkles, anemones, and chitons.	
NOAA Description	**CT SITE**
Northern latitude rocky shores: It is in this region that the community structure is best developed. The dominant algal species include Chondrus at the low tide level, Fucus and Ascophylium at the mid-tidal level, and Laminaria and other kelplike algae just beyond the intertidal, although they can be exposed at extremely low tides or found in very deep tidepools.	• Rocky shorefront areas likely contain algal beds and fauna described above..

Class I: Ecosystem Types	
Group III: Submerged Bottoms	
A. Subtidal hardbottoms. This system is characterized by a consolidated layer of solid rock or large pieces of rock (neither of biotic origin) and is found in association with geomorphological features such as submarine canyons and fjords and is usually covered with assemblages of sponges, sea fans, bivalves, hard corals, tunicates, and other attached organisms. A significant feature of estuaries in many parts of the world is the oyster reef, a type of subtidal hardbottom. Composed of assemblages of organisms (usually bivalves), it is usually found near an estuary's mouth in a zone of moderate wave action, salt content, and turbidity. If light levels are sufficient, a covering of microscopic and attached macroscopic algae, such as keep, may also be found.	
NOAA Description	**CT SITE**
Subtidal hardbottom ecosystem types	• An area generally defined by gravel/bedrock exists in the offshore area surrounding Meigs Point. • Several rocky hardbottom locations identified by TNC from NOAA-NOS data data exist in the general offshore area proposed.
B. Subtidal softbottoms. Major characteristics of this ecosystem are an unconsolidated layer of fine particles of silt, sand, clay, and gravel, high hydrogen sulfide levels, and anaerobic conditions often existing below the surface. Macrophytes are either sparse or absent, although a layer of benthic microalgae may be present if light levels are sufficient. The faunal community is dominated by a diverse population of deposit feeders including polychaetes, bivalves, and burrowing crustaceans.	
NOAA Description	**CT SITE**

Commented [KO3]: For each example (A, B, and C) - does the site support any aspects of this type of habitat? f so, what are typical components of the site? Can you provide an approximate size/area percentage of them? Are there any noteworthy aspects – e.g., interesting features/functions, more detailed sublevel classes/descriptions, an atypical example from the NOAA description, etc., etc.

Subtidal softbottom ecosystem types	• The area of Clinton harbor (on either side of Cedar Island) are soft-bottom habitats. The Harbor side is dominated by Silt-Clay, Sand; off shore is predominantly sand. • **Areas offshore of likely to include CMECS-NAMERA Ecological Marine Units of High Flat Sand and Side Slope sand that are not common to other SNE reserves. Additionally, CMECS-NAMERA Biotope classes of "Virginian Shallow Infralittoral to Bathybenthic Platforms, Flats, Scarp/Walls and Slopes with Very Fine Sand to Pebble substrates and Arthropods, Cnidarians and Mollusks" and "Virginian Shallow Infralittoral to Bathybenthic Slopes, Basins, Flats, Scarp/Walls, Continental/Island Shelf, Platforms and Shelf Valleys with Silt to Pebble substrates and Arthropods, Echinoderms and Mollusks"are also present and likely unique.**

C. Subtidal plants. This system is found in relatively shallow water (less than 8 to 10 meters) below mean low tide. It is an area of extremely high primary production that provides food and refuge for a diversity of faunal groups, especially juvenile and adult fish, and in some regions, manatees and sea turtles. Along the North Atlantic and Pacific coasts, the seagrass Zostera marina predominates. In the South Atlantic and Gulf coast areas, Thalassia and Diplanthera predominate. The grasses in both areas support a number of epiphytic organisms.

NOAA Description	CT SITE
Subtidal plants ecosystem types	• In 2000, an eelgrass bed on the Clinton Harbor side of Cedar Island was delineated. As of 2012, no discernable eelgrass beds were found. Degradation of water quality is a likely culprit, but it is clear that the general environment could support this SAV type.

Class II: Physical Characteristics

Group I: Geologic

A. Basin type. Coastal water basins occur in a variety of shapes, sizes, depths, and appearances. The eight basic types discussed below will cover most of the cases:

NOAA Description	CT SITE
Exposed coast: Solid rock formations or heavy sand deposits characterize exposed ocean shore fronts, which are subject to the full force of ocean storms. The sand beaches are very resilient, although the dunes lying just behind the beaches are fragile and easily damaged. The dunes serve as a sand storage area making them chief stabilizers of the ocean shorefront.	• Yes (Meigs Point to Cedar Island)
Sheltered coast: Sand or coral barriers, built up by natural forces, provide sheltered areas inside a bar or reef where the ecosystem takes on many characteristics of confined waters-abundant marine grasses, shellfish, and juvenile fish. Water movement is reduced, with the consequent effects pollution being more severe in this area than in exposed coastal areas.	N/A

Commented [KO4]: For each example (A, B, C and D) - does the site conform to/represent any of the physical descriptions? (More than may apply in some cases.) Are there any noteworthy aspects – e.g., interesting features, significant formations, etc., etc.

Bay: Bays are larger confined bodies of water that are open to the sea and receive strong tidal flow. When stratification is pronounced the flushing action is augmented by river discharge. Bays vary in size and in type of shorefront.	N/A
Embayment: A confined coastal water body with narrow, restricted inlets and with a significant freshwater inflow can be classified as an embayment. These areas have more restricted inlets than bays, are usually smaller and shallower, have low tidal action, and are subject to sedimentation.	• Yes (Clinton Harbor)
Tidal river: The lower reach of a coastal river is referred to as a tidal river. The coastal water segment extends from the sea or estuary into which the river discharges to a point as far upstream as there is significant salt content in the water, forming a salt front. A combination of tidal action and freshwater outflow makes tidal rivers well-flushed. The tidal river basin may be a simple channel or a complex of tributaries, small associated embayments, marshfronts, tidal flats, and a variety of others.	• Yes (Hammonasset River)
Lagoon: Lagoons are confined coastal bodies of water with restricted inlets to the sea and without significant freshwater inflow. Water circulation is limited, resulting in a poorly flushed, relatively stagnant body of water. Sedimentation is rapid with a great potential for basin shoaling. Shores are often gently sloping and marshy.	N/A
Perched coastal wetlands: Unique to Pacific islands, this wetland type found above sea level in volcanic crater remnants forms as a result of poor drainage characteristics of the crater rather than from sedimentation. Floral assemblages exhibit distinct zonation while the faunal constituents may include freshwater, brackish, and/or marine species. Example: Aunu's Island, American Samoa.	Does not apply to CT
Anchialine systems: These small coastal exposures of brackish water form in lava depressions or elevated fossil reefs have only a subsurface connection in the ocean, but show tidal fluctuations. Differing from true estuaries in having no surface continuity with streams or ocean, this system is characterized by a distinct biotic community dominated by benthis algae such as Rhizoclonium, the mineral encrusting Schiuzothrix, and the vascular plant Ruppia maritima. Characteristic fauna which exhibit a high degree of endemicity, include the mollusks Theosoxus neglectus and Tcariosus. Although found throughout the world, the high islands of the Pacific are the only areas within the U.S. where this system can be found.	Does not apply to CT
B. Basin structure. Estuary basins may result from the drowning of a river valley (coastal plains estuary), the drowning of a glacial valley (fjord), the occurrence of an offshore barrier (bar-bounded estuary), some tectonic process (tectonic estuary), or volcanic activity (volcanic estuary).	
NOAA Description	**CT SITE**

Coastal plains estuary: Where a drowned valley consists mainly of a single channel, the form of the basin is fairly regular forming a simple coastal plains estuary. When a channel is flooded with numerous tributaries an irregular estuary results. Many estuaries of the eastern United States are of this type.	• Yes – Coastal Plains Estuary • Bedrock is not known to appear at the surface in the Preserve though overlying glacial deposits do rise up as till islands and paired coastal moraines. It is notable the Preserve contains two of these glacially derived features; the paired moraine segments that occur at or near Meigs Point. It is rare to find a moraine that has been excavated such that its internal composition can be seen. Shoreline erosion has exposed the south side of the shoreline moraine segment and its interior is easily examined making it an important educational and geologic feature. • Stratified drift deposits fringe the Preserve along its northern and western boundary and probably underlie most of the tidal wetlands. • Beach deposits form the Preserve's southeastern margin. The stretch between Meigs Point to Cedar Island consists of a fringing, boulder lag beach along the moraine, while from the east end of the moraine to Cedar Island, it is a sandy beach and sand dune complex. The dune deposits along this beach are the result of wind acting on the loose sediments • Tidal marsh deposits (Westbrook mucky peat, a salt marsh type peat which has a high salinity, low silt content and an organic component of mostly decomposed salt marsh plants) blanket almost all the Preserve.
Fjord: Estuaries that form in elongated steep headlands that alternate with deep U-shaped valleys resulting from glacial scouring are called fjords. They generally possess rocky floors or very thin veneers of sediment, with deposition generally being restricted to the head where the main river enters. Compared to total fjord volume river discharge is small. But many fjords have restricted tidal ranges at their mouths due to sills, or upreaching sections of the bottom which limit free movement of water, often making river flow large with respect to the tidal prism. The deepest portions are in the upstream reaches, where maximum depths can range from 800m to 1200m while sill depths usually range from 40m to 150m.	N/A
Bar-bounded estuary: These result from the development of an offshore barrier such as a beach strand, a line of barrier islands, reef formations a line of moraine debris, or the subsiding remnants of a deltaic lobe. The basin is often partially exposed at low tide and is enclosed by a chain of offshore bars of barrier islands broken at intervals by inlets. These bars may be either deposited offshore or may be coastal dunes that have become isolated by recent seal level rises.	N/A
Tectonic estuary: These are coastal indentures that have formed through tectonic processes such as slippage along a fault line (San Francisco Bay), folding or movement of the earth's bedrock often with a large inflow of freshwater.	Does not apply to CT
Volcanic estuary: These coastal bodies of open water, a result of volcanic processes are depressions or craters that have direct and/or subsurface connections with the ocean and may or may not have surface continuity with streams. These formations are unique to island areas of volcanic origin.	Does not apply to CT
C. Inlet type. Inlets in various forms are an integral part of the estuarine environment as they regulate to a certain extent, the velocity and magnitude of tidal exchange, the degree of mixing, and volume of discharge to the sea.	
NOAA Description	**CT SITE**

Unrestricted: An estuary with a wide unrestricted inlet typically has slow currents, no significant turbulence, and receives the full effect of ocean waves and local disturbances which serve to modify the shoreline. These estuaries are partially mixed, as the open mouth permits the incursion of marine waters to considerable distances upstream, depending on the tidal amplitude and stream gradient.	N/A
Restricted: Restrictions of estuaries can exist in many forms: Bars, barrier islands, spits, sills, and more. Restricted inlets result in decreased circulation, more pronounced longitudinal and vertical salinity gradients, and more rapid sedimentation. However, if the estuary mouth is restricted by depositional features or land closures, the incoming tide may be held back until it suddenly breaks forth into the basin as a tidal wave, or bore. Such currents exert profound effects on the nature of the substrate, turbidity, and biota of the estuary.	• Restricted inlet (Cedar Island/Clinton Harbor)
Permanent: Permanent inlets are usually opposite the mouths of major rivers and permit river water to flow into the sea.	• Permanent
Temporary (Intermittent): Temporary inlets are formed by storms and frequently shift position, depending on tidal flow, the depth of the sea, and sound waters, the frequency of storms, and the amount of littoral transport.	N/A
D. Bottom composition. The bottom composition of estuaries attests to the vigorous, rapid, and complex sedimentation processes characteristic of most coastal regions with low relief. Sediments are derived through the hydrologic processes of erosion, transport, and deposition carried on by the sea and the stream.	
NOAA Description	**CT SITE**

Sand: Near estuary mouths, where the predominating forces of the sea build spits or other depositional features, the shore and substrates of the estuary are sandy. The bottom sediments in this area are usually coarse, with a graduation toward finer particles in the head region and other zones of reduced flow, fine silty sands are deposited. Sand deposition occurs only in wider or deeper regions where velocity is reduced. **Mud:** At the base level of a stream near its mouth, the bottom is typically composed of loose muds, silts, and organic detritus as a result of erosion and transport from the upper stream reaches and organic decomposition. Just inside the estuary entrance, the bottom contains considerable quantities of sand and mud, which support a rich fauna. Mud flats, commonly built up in estuarine basins, are composed of loose, coarse, and fine mud and sand, often dividing the original channel. **Rock:** Rocks usually occur in areas where the stream runs rapidly over a steep gradient with its coarse materials being derived from the higher elevations where the stream slope is greater. The larger fragments are usually found in shallow areas near the stream mouth. **Oyster shell:** Throughout a major portion of the world, the oyster reef is one of the most significant features of estuaries, usually being found near the mouth of the estuary in a zone of moderate wave action, salt content, and turbidity. It is often a major factor in modifying estuarine current systems and sedimentation, and may occur as an elongated island or peninsula oriented across the main current, or may develop parallel to the direction of the current.	• An area generally defined by gravel/bedrock exists in the offshore area surrounding Meigs Point. • The area of Clinton harbor (on either side of Cedar Island) are soft-bottom habitats. The Harbor side is dominated by Silt-Clay, Sand; off shore is predominantly sand.

Class II: Physical Characteristics	
Group II: Hydrographic	
A. Circulation. Circulation patterns are the result of combined influences of freshwater inflow, tidal action, wind and oceanic forces, and serve many functions: Nutrient transport, plankton dispersal, ecosystem flushing, salinity control, water mixing, and more.	
NOAA Description	**CT SITE**
Stratified: This is typical of estuaries with a strong freshwater influx and is commonly found in bays formed from ``drowned'' river valleys, fjords, and other deep basins. There is a net movement of freshwater outward at the top layer and saltwater at the bottom layer, resulting in a net outward transport of surface organisms and net inward transport of bottom organisms.	N/A
Non-stratified: Estuaries of this type are found where water movement is sluggish and flushing rate is low, although there may be sufficient circulation to provide the basis for a high carrying capacity. This is common to shallow embayments and bays lacking a good supply of freshwater from land drainage.	• Likely non-stratified

Commented [KO5]: For each example (A, B, and C) - does the site conform to/represent any of the physical descriptions? (More than may apply in some cases.) Are there any noteworthy aspects – e.g., interesting features, significant formations, etc., etc.

Lagoonal: An estuary of this type is characterized by low rates of water movement resulting from a lack of significant freshwater influx and a lack of strong tidal exchange because of the typically narrow inlet connecting the lagoon to the sea. Circulation whose major driving force is wind, is the major limiting factor in biological productivity within lagoons.	N/A

B. Tides. This is the most important ecological factor in an estuary as it affects water exchange and its vertical range determines the extent of tidal flats which may be exposed and submerged with each tidal cycle. Tidal action against the volume of river water discharged into an estuary results in a complex system whose properties vary according to estuary structure as well as the magnitude of river flow and tidal range. Tides are usually described in terms of the cycle and their relative heights. In the United States, tide height is reckoned on the basis of average low tide, which is referred to as datum. The tides, although complex, fall into three main categories:

NOAA Description	CT SITE
Diurnal: This refers to a daily change in water level that can be observed along the shoreline. There is one high tide and one low tide per day.	Does not apply to CT
Semi-diurnal: This refers to a twice daily rise and fall in water that can be observed along the shoreline.	• Semi-diurnal, range in the approx. 4 to 4.5 ft range
Wind/Storm tides: This refers to fluctuations in water elevation to wind and storm events, where influence of lunar tides is less.	• Large fetch along Meigs Point to Cedar Island can create significant wind and storm tides out of the south, southeast, and east directions

C. Freshwater. According to nearly all the definitions advanced, it is inherent that all estuaries need freshwater, which is drained from the land and measurably dilutes seawater to create a brackish condition. Freshwater enters an estuary as runoff from the land either from a surface and/or subsurface source.

NOAA Description	CT SITE
Surface water: This is water flowing over the ground in the form of streams. Local variation in runoff is dependent upon the nature of the soil (porosity and solubility), degree of surface slope, vegetation type and development, local climatic conditions, and volume and intensity of precipitation.	• HNAP: Surface water quality class A (Designated uses: potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses including navigation.) • Clinton Harbor: Surface water quality class SB (Designated uses: marine fish, shellfish and wildlife habitat, shellfish harvesting for transfer to approved areas for purification prior to human consumption, recreation, industrial and other legitimate uses including navigation.) • Offshore: Surface water quality class SA (Designated uses: marine fish, shellfish and wildlife habitat, shell fish harvesting for direct human consumption, recreation and all other legitimate uses including navigation.)
Subsurface water: This refers to the precipitation that has been absorbed by the soil and stored below the surface. The distribution of subsurface water depends on local climate, topography, and the porosity and permeability of the underlying soils and rocks. There are two main subtypes of surface water:	
a. Vadose water	?

b. Groundwater	• Small area of GB (Designated uses: industrial process water and cooling waters; baseflow for hydraulically connected surface water bodies; presumed not suitable for human consumption without treatment.) • Small area of GAA/GA (Designated uses: existing or potential public supply of water suitable for drinking without treatment; baseflow for hydraulically connected surface water bodies./Designated uses: existing private and potential public or private supplies of water suitable for drinking without treatment; baseflow for hydraulically connected surface water bodies.

Class II: Physical Characteristics	
Group III: Chemical	
A. Salinity. This reflects a complex mixture of salts, the most abundant being sodium chloride, and is a very critical factor in the distribution and maintenance of many estuarine organisms. Based on salinity, there are two basic estuarine types and eight different salinity zones (expressed in parts per thousand-ppt.)	
NOAA Description	**CT SITE**
Positive estuary: This is an estuary in which the freshwater influx is sufficient to maintain mixing, resulting in a pattern of increasing salinity toward the estuary mouth. It is characterized by low oxygen concentration in the deeper waters and considerable organic content in bottom sediments.	• Yes
Negative estuary: This is found in particularly arid regions, where estuary evaporation may exceed freshwater inflow, resulting in increased salinity in the upper part of the basin, especially if the estuary mouth is restricted so that tidal flow is inhibited. These are typically very salty (hyperhaline), moderately oxygenated at depth, and possess bottom sediments that are poor in organic content.	N/A
Salinity zones (in ppt)	
a. Hyperhaline: > than 40	
b. Euhaline: 40 to 30	
c. Mixhaline: 30 to 0.5	• Proximity to LIS proper means likely max of 26-28 ppt, with a decrease up the Hammonasset River. Lower limit unclear, but might be approximated at or near 8 ppt. (Rozsa/Orson at adjacent Hammock River site)
(1) Mixoeuhaline: > than 30 but < than adjacent euhaline sea.	
(2) Polyhaline: 30 to 18	
(3) Mesohaline: 18 to 5	
(4) Oligohaline: 5 to 0.5	
d. Limnetic: < than 0.5	
B. pH Regime: This is indicative of the mineral richness of estuarine waters and falls into three main categories:	
NOAA Description	**CT SITE**

Commented [KO6]: For each example (A and B) - does the site conform to/represent any of the physical descriptions? (More than may apply in some cases.) Are there any noteworthy aspects – e.g., interesting features, significant formations, etc., etc.

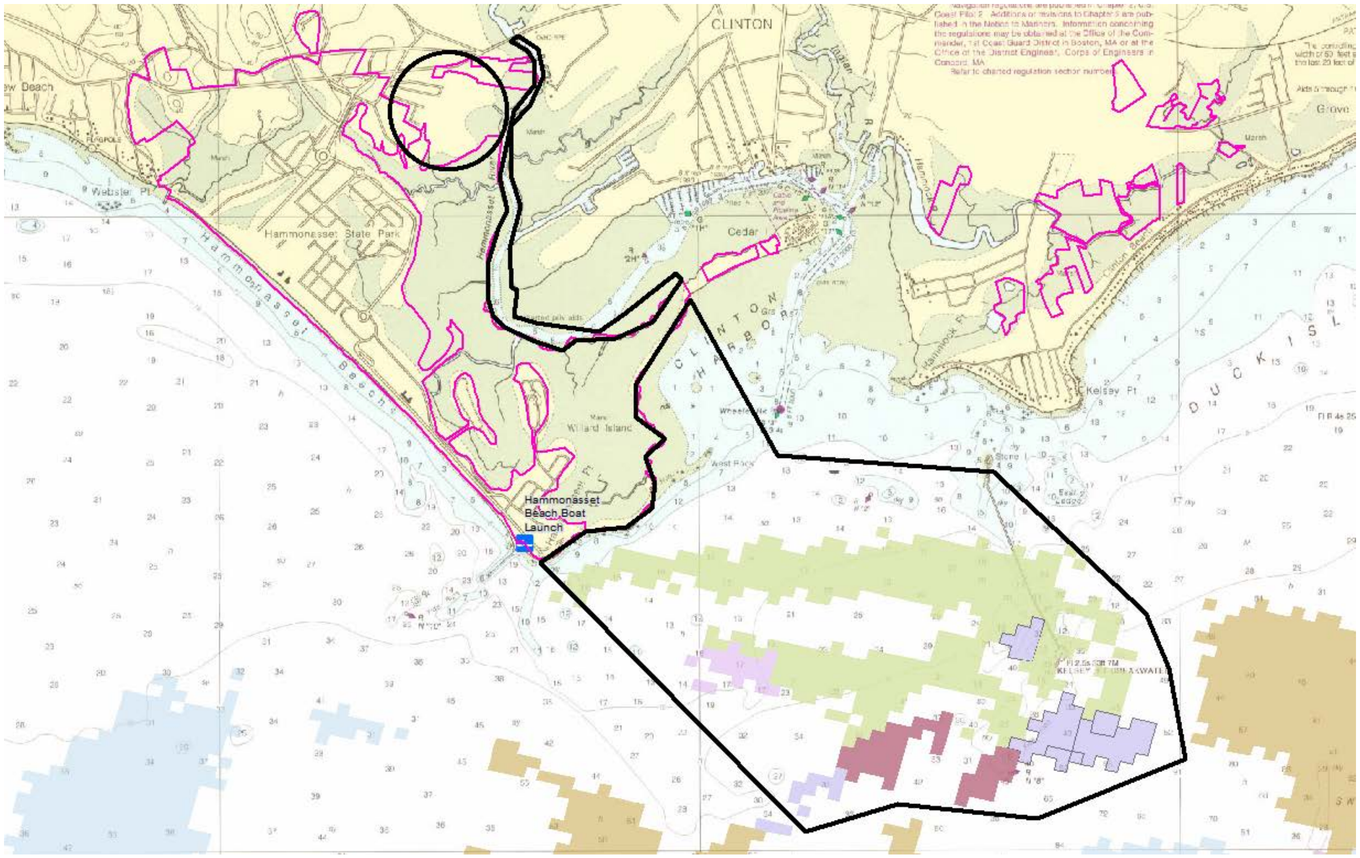
Acid (pH < 5.5)	?
Circumneutral (5.5<pH<7.4)	?
Alkaline (pH > 7.4)	?

4. **Possible boundaries:** What are the suggested boundaries; both upland and waterward? Three guidance points from NOAA state that:
    a. boundaries should encompass an adequate portion of the key land and water areas of the natural system;
    b. key land and water areas should encompass resources that are representative of the total ecosystem which if compromised could endanger the research objectives of the reserve;
    c. boundaries must balance the overall size of a reserve by covering an ecosystem large enough to make long-term estuarine research viable yet having a discrete contiguous area that can be effectively managed.

    Possible waterward boundaries might best be thought of in simple terms at this stage: e.g., "a buffer of some distance off-shore" or "to a certain depth" using the basis that (either definitively or based on best-professional judgement), the subtidal areas within can be expected to reasonably support 4a, 4b, and 4c.)

    Viewing the existing boundaries of NERRs may be of help. Go to www.ners.noaa.gov/index.html, click on the "Reserves" menu, and select a Reserve. Each Reserve page has map showing the site(s) and their boundaries.

- *Suggested upland boundaries would follow NAP boundaries (purple.) The inclusion of conservation land owned by the town of Madison that borders HNAP should be considered. (Approximated by black circle.) This property includes a coastal grassland and coastal forest (one with few to any invasive plants). This former airfield has a habitat management plan.*
- *Aquatic boundaries should include:*
    - *the offshore area (in black) from Meigs Point along the peninsula towards Cedar Island out to a depth of ~50-60ft. This will capture a variety of hard and soft-bottom types, depth gradients, and likely include new NERR Typology elements distinct from neighboring reserves.*
    - *The bottomlands portion of the Hammonasset River from the NAP to the mouth and adjacent to the eastern edge of NAP boundary about 200 - 250 ft from shore (to include different salinity ranges and circulation patterns but to avoid the marina areas of the harbor)*



5. **Considerations as part of Multi-Site NERR:** Should this be considered as a component of a multi-site approach? If so why (e.g., what are the substantial benefits as they relate to NERR goals? What other sites should this be grouped with, considering both ecosystem and/or facility based components? Are there obvious limitations or concerns?
    a. *A linkage with the Hammock River NAP would make sense. It's adjacent, can provide complimentary and/or augmented habitats/resources, and can also offer access to deeper water (e.g., off shore at Duck Island).*

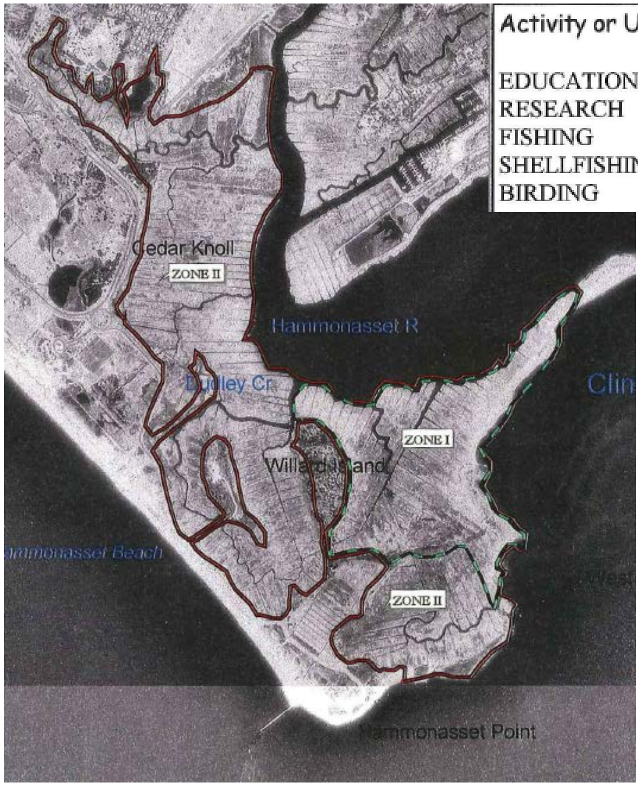
6. **Educational opportunities:** Is there is a history of educational activities at the site? If so, can they be described? If not a history, can the site support any? What are some examples/reasons? Are there any obvious limitations or concerns?
    a. *The Preserve functions as a living classroom for environmental education, a major activity considering the number of participants. During the school year, many elementary through college level classes in science/environmental studies visit the Preserve. Nature centers and other environmental organizations frequently sponsor organized field trips to the Preserve and the Meigs Point Nature Center in Hammonasset Beach State Park, uses the Preserve as a centerpiece for many of its educational programs. Since the Preserve (except through the Nature Center) is not staffed and access is available all year, it is not known how many people visit the Preserve for educational purposes, but it estimated to be in the tens of thousands yearly. In recent years, there has been an effort to direct these visitors to the Preserve area between the moraines.*
    b. *The Meigs Point Nature Center offers programs and activities for park visitors on a year round basis. The Center hours are 10am to 5pm Tuesday – Sunday, from April through October, and 10am to 4pm Tuesday – Saturday, from November through March. For information on programs, please contact Nature Center staff at (203) 245-8743. To visit the Nature Center, bear to the left at the access road rotary, go halfway around the rotary and follow the signs toward Meigs Point. The Center is on the left across from the Meigs Point bathhouse. Parking is available near the building.*
    c. *The marsh surface within this section of the Preserve is displaying the impact of this pedestrian traffic. While it has been documented vegetation is becoming less diverse in this area, it is not known whether this impact is a direct result of trampling or the indirect consequences of soil compaction and changes in soil moisture.*

7. **Research/monitoring opportunities:** Is there is a history of research activities at the site? If so, can they be generally described? If not a history, can the site support any? What are some examples/reasons? Are there any obvious limitations or concerns?
    a. *Over the years, the Preserve has been the site of scientific research and general monitoring of the area's flora and fauna. Unfortunately, a complete record of this activity does not exist. Beginning in the early 1970's, scientists from Connecticut College established several long term study plots within several salt marshes along Connecticut's coast to assess and monitor long-term changes in tidal wetlands. These plots, represent important scientific documentation of regional tidal wetland response to global climate change and their integrity must be protected.*
    b. *Google scholar search results in 67 articles from 1970 to 2016 for "Hammonasset" "Clinton" "Connecticut"*

8. **Stewardship/Conservation ability:** Since most of these may be already under some level of protection, this is more geared toward what functional roles they provide (e.g., bird habitat, wildlife management, etc., etc.) Are there any obvious limitations or concerns?
    a. *As part of the LISS stewardship Site System:*
        i. *This Stewardship Area is designated by the National Audubon Society as a Globally Significant Bird Area due to the presence of rare birds, including piping plovers, least terns, American oystercatchers, and large concentrations of northern harrier and saltmarsh sparrow.*
        ii. *It is the site of thousands of annually migrating monarch butterflies.*
        iii. *The park's marshland and upland areas provide habitat for a variety of regionally rare flora including starry campion (Silene stellata), sand dropseed (Sporobolus cryptandrus), and bayonet grass (Bolboschoenus maritimus ssp. paludosus).*
        iv. *It is the site of several successful saltmarsh restoration projects accomplished by restoring tidal flow to previously impounded marsh systems and removing dredge sediments.*
    b. *Per http://ct.audubon.org/hammonasset-beach-state-park:*
        i. *The federally and state threatened Piping Plover nests on the river beach, along with the state threatened Least Tern, and special concern species American Oystercatcher.*

ii. *Several species of wading birds use the marsh as foraging habitat in the nesting and post-nesting dispersal seasons.*
iii. *The marsh provides important stopover/wintering habitat for Northern Harriers (2nd highest banding total in North America).*
iv. *Saltmarsh Sharp-tailed Sparrow nesting population may elevate the park to a Globally Important Bird Area.*
v. *Due to the park's coastal location, it provides important migratory stopover habitat for landbirds, shorebirds and raptors.*
vi. *Wooded areas of park, including Willards Island, receive usage by migratory landbirds in both the spring and fall migration. There is also significant shorebird stopover habitat available, particularly for grassland species, including Killdeer, Black-bellied and American Golden Plover, and Pectoral, Buff-breasted and Upland Sandpiper.*
vii. *The area has been the site of a raptor banding station for several years, due to the significant raptor usage of the park.*
viii. *Cedars, other evergreens and shrub habitat offer significant roosting habitat for migrating owls such as Sawwhet, Barn and Long-eared.*
ix. *The park is a regionally important wintering/migration habitat for open country songbirds such as Snow Bunting and Horned Lark. The marsh is a regionally important wintering/migration area for American Bittern.*

9. **Access issues:** How can a site be accessed? Are there any restrictions or limits with accessing some or all of a site? If so what are the reasons?
   a. *The Site is easily accessible by normal modes of transportation, as an estimated one million people visit the adjacent State Park per year. However, per the management plan, the NAP has two zones designed to balance use with protection. Approximately a third of the preserve will be included in Zone I, the most fragile and sensitive area. Zone 1 includes the sandy beaches, dunes and surrounding tidal wetlands which provide habitat for several protected species. This Zone will be closed to public access, except for the Cedar Island Trail boardwalk, which is proposed to be replaced. The remainder of the Preserve is included in Zone II and public access to this area will be allowed by the creation of controlled and uncontrolled access areas.*
   b. *The State Park near the eastern side of Meigs Point offers car top and carry in boat access along with a parking lot.*



Activity or Use	Zone I	Zone II	Specific Use Area	Comment
EDUCATION	*NO*	*YES*	Two Areas	Permit required for one area
RESEARCH	*YES*	*YES*	In All Areas	Permit Required
FISHING	*NO*	*YES*	One Area	Only at Boulder Lag Beach
SHELLFISHING	*NO*	*YES*	Tidal Creeks	Access Controlled
BIRDING	*NO*	*YES*	Moraines, Platform	Boardwalk repair needed

10. ***If available: species related information:*** *If such information is available, are there any species of concern (e.g., rare, threatened, endangered)? Conversely, what might be considered common that were not already captured in the typology table? Any information provided need not be an exhaustive assessment, but should serve to generally characterize a site.*
    a. *See https://www.inaturalist.org/places/hammonasset-natural-area-preserve-ct-us#taxon=48460 or the LISS Ecological Site Inventory Report*
    b. *Fishing is allowed in certain areas off Hammonasset Beach with tautog, winter flounder, bluefish, summer flounder, scup, weakfish, striped bass and black sea bass typically found.*

11. Citations: If there are notable resources used to pull from, include references as they may be useful in the future. Some previous sources to consider are below; add others as needed. It is not necessary to acquire these.

a. CT NERR Potential Inventory Summary Doc (K.O'Brien CTDEEP; available via NERR Google doc site)
b. CT NERR Potential Site Viewer (http://arcg.is/1J0EtBd, CTDEEP)
c. LISS Ecological Inventory (J. Barrett, Ct Sea Grant; available via NERR Google doc site)
d. Southern New England NERR Typology Summaries (K.O'Brien CTDEEP; available via NERR Google doc site)
e. https://www.inaturalist.org/places/hammonasset-natural-area-preserve-ct-us#taxon=48460
f. http://longislandsoundstudy.net/2012/09/hammonasset-beach/
g. https://nctc.fws.gov/Pubs5/necas/web_link/24_hammonasset.htm
h. http://www.ct.gov/deep/cwp/view.asp?a=2716&q=325210&deepNav_GID=1650%20
i. Assorted DEEP GIS data (LIS/Upland Geology, Soils, Critical habitat, LandCover/LandUse, DEP Boat Launches, Inland Fisheries Management, Water Quality, Eelgrass, Northeast Ocean Data Marine Infrastructure, TNC LIS Ecological Assessment, NWI Wetlands etc.)
j. CT Coastal Access Guide (http://www.lisrc.uconn.edu/coastalaccess/index.asp)
k. http://seagrant.uconn.edu/whatwedo/aquaculture/shellmap.php
l. "Application of the Coastal and Marine Ecological Classification Standard (CMECS) to the Northwest Atlantic" http://nature.ly/EDcmecs

Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 5:

NERR May 16, 2017 Preliminary Public Meeting Materials

1. Meeting Agenda/Key Points
2. Invitee List
3. Attendees
4. Summary Comments

Dear Connecticut NERR Partner:

We are pleased to announce an information meeting on Tuesday May 16th 2017 from 6:00 pm to 8:00 pm in the second floor Auditorium of the Academic Building at the University of Connecticut's Avery Point Campus in Groton CT. This will provide an update on Connecticut's effort to identify and nominate a National Estuarine Research Reserve (NERR) for Connecticut.

The NERR system is a federal/state partnership that establishes a location dedicated to estuarine research, monitoring, education, and stewardship. A Connecticut-based NERR would complement and extend many existing scientific and environmental management and education activities through the addition of funding, resources, and expertise; additionally, it would help identify and enable new directions and initiatives by leveraging national programs.

Since the Spring of 2016, members of a multi-disciplinary team have worked to identify, evaluate, and recommend a location for NERR in Connecticut. This meeting will provide a forum to share the results of their preliminary recommendations, and to provide an overview of what the next stages of the process will entail. This will also be an opportunity to find out more about what establishing a NERR means and to ask questions.

An agenda and informational material is enclosed with this invitation, and the project website www.ct.gov/deep/NERR contains additional information as well.

We have endeavored to target relevant individuals and groups that are aligned geographically or topically with a potential Connecticut Reserve, but please feel free to forward to other interested parties as needed.

To facilitate a broad audience as conveniently as possible, the meeting will also be accessible remotely via webinar and call-in. Details on remote access will be posted on the project website in advance of the meeting date.

Please RSVP by emailing kevin.obrien@ct.gov or calling 860-424-3432 and indicate if you will be joining us in person or remotely. A response by Thursday, May 11 2017 is appreciated.

We hope that you are able to participate and look forward to seeing you on May 16th.

Sincerely,

Brian Thompson, Director, Connecticut Department of Energy and Environmental Protection, Land and Water Resources Division

James Edson, PhD., Department Chair, University of Connecticut Department of Marine Sciences

Sylvain De Guise, PhD., Director, Connecticut Sea Grant College Program

Connecticut Department of ENERGY & ENVIRONMENTAL PROTECTION

UCONN UNIVERSITY OF CONNECTICUT

Sea Grant Connecticut

CT National Estuarine Research Reserve Project:
Preliminary Results Meeting Agenda

Where:
Second floor Auditorium of the Academic Building, University of Connecticut Avery Point Campus, 1080 Shennecossett Rd., Groton, CT 06340.

When:
Tuesday, May 16th from 6:00 pm to 8:00 pm

Schedule:

Welcome/Housekeeping	6:00 – 6:05
Meeting Goals	6:05 – 6:15
NERR System Overview	6:15 – 6:25
CT Selection Process • Big Picture (Teams/Members, Major steps, timeline) • Preliminary Selection Process and Results • Next Steps – Detailed Screening • Nomination & Subsequent Planning Effort	6:25 – 7:25
Q&A / Comments / Discussion	7:25 – 7:55
Wrap-up	7:55 – 8:00

Additional Information:

Remote Attendance:

- For those unable to join us at Avery Point, a webinar/teleconference will be provided. Please check the project website www.ct.gov/deep/NERR for access information, which will be posted in advance of the meeting.

Directions and Parking:

- For driving directions and parking information please visit: http://marinesciences.uconn.edu/wp-content/uploads/sites/459/2015/11/Avery-Point-map.pdf

Questions?

- Please contact Kevin O'Brien (kevin.obrien@ct.gov, 860-424-3432)

KEY MESSAGE POINTS FOR THE CONNECTICUT NERR EFFORT:

Rationale/Need:

- **Connecticut's coast and LIS are important** as they provide valuable natural resource and economic benefits, improve water quality, and provide our communities a sense of place.
- **A NERR is being considered in Connecticut because:**
  - The Connecticut coast has areas deserving the benefits (i.e., education, training, research and stewardship) a NERR affords, while at the same time bringing our State's unique contributions to the national NERR system.
  - CT environmental agency leaders, local colleges and universities, outdoor education programs, and various environmental organizations support the potential for a NERR designation.
  - The NERR program leadership is interested in and supportive of extending the system to include unrepresented areas such as Connecticut – an interest that has existed since the early days of the Reserve system, nearly 30 years ago.
- The national system of 29 reserves **provides many important benefits**[1]:
  - **Reserves protect more than 1.3 million acres** of coastal and estuarine lands that **provide flood protection, keep water clean, sustain and create jobs, support fish and wildlife, and offer outdoor recreation**.
  - Every year, **programs offered at reserves attract more than a half a million visitors**, and **educate approximately 85,000 *s*tudents and 3,200 teachers**.
  - **Decision makers from more than 2,500 cities and towns and 570 businesses benefit by reserve-based science and technical expertise** nationwide each year.
  - The reserve system maintains **more than 110 water quality stations and 30 weather stations.** Every 15 minutes, **they collect data used to help manage hazardous spills, shellfish industry operations, and emergency response to storms and flooding**.
  - **Reserves leverage additional funding for their surrounding communities.** In some states, this can be as much as $1.5 million.
  - **Reserve protection and management of estuaries keeps commercial and recreational fishermen successful.** The national system contributes billions of dollars to the shellfish and seafood industry in states with a reserve, and tens of billions of dollars in ocean-dependent industries along our coasts.
- A CT NERR **can provide opportunities, capacity, and funds to support research, training, stewardship, and education** that conserve and enhance LIS and Connecticut's coastal environments.

Process to establish:

- Although focused on similar geographic areas, **the process to establish a NERR in Connecticut and Connecticut's Legislatively mandated "Blue Plan" process are distinct and separate efforts**, each with their own unique requirements and needs.
- **Establishing a NERR is a multi-step process that typically spans several years**. The first step (site selection) is to evaluate and select an area consistent with NERR system requirements. Subsequent steps involve developing a management plan and an Environmental Impact Statement.

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[1] National Estuarine Research Reserve Association (www.nerra.org), 2017.

- **CTDEEP is leading the site selection with the support of a management team from the UCONN Marine Science Department and CT Sea Grant, as well as volunteers from several environmental and academic groups.**
- **Public involvement in the CT NERR process is required** and a site will only be designated where there is support.
- **Once a site has been recommended by CT *and* accepted by NOAA, the management planning process will begin** to establish the framework for operational control.
- Leadership of the management planning process, and the eventual responsibility for operating the NERR **will be addressed *after* the site selection.**
- **It should not be assumed that the groups involved with selection will be responsible for control of a CT NERR** simply because they led or participated in the process.
- The NERR Program **has the flexibility of endorsing a variety of partnership agreement models** to create a best-fit management practice for each Reserve **as the location, land ownership, and interest/capacity of a variety of parties are contributing factors to successfully running a Reserve.**

Location/Setting:

- **Only areas already under public ownership or control will be considered as the foundation for the CT NERR site.** However, additional lands under private ownership can be included under mutual interest and agreement.
- A variety of publically owned properties across the coast of Connecticut, including major river basins and in Long Island Sound will be evaluated. **These will use the state developed/federally approved NERR selection process, with stakeholder involvement, to determine the best option for CT to** fit within the national NERR System.
- **Establishing a NERR does not require acquisition of private land and does not affect any private property rights of any property owner**.
- Existing tribal treaty rights and management agreements **remain unchanged by a NERR designation**.

Access and Uses:

- **The establishment of a NERR does not bring any additional Federal regulations**.
- A key component of a NERR site **is providing the public a perpetual place to learn, use, and enjoy**.
- Recreational and commercial activities including - but not limited to - hunting, fishing, boating, etc., are allowed in a NERR in manners consistent with existing state or federal regulations – **a NERR manages its land, access, uses, and activities under existing rules and frameworks, not by introducing new ones.**
- The operational guidelines of the NERR **will be codified in a plan - created with public involvement - that detail how activities, uses, and resources will managed in a balanced approach.**

Other:

- **No increase in local public taxes is required for a CT NERR site.**
- **Interested parties can become involved** with the NERR through a variety of volunteer opportunities or as part of advisory groups.

Name/Title	Group/Org/Position	Source
Adam Blank	Norwalk: Planning & Zoning Chair	targeted town-level groups/positions from SeaGrant list, other recommendations (harbor management commissions, DEEP boating, CT Dept of Agriculture/Bureau of Aquacullture, Tribes)
Alexis Cherichetti	Norwalk: Senior Environmental Officer	
Alicia Mozian	Westport: Director, Conservation & Env. Commission	
Anthony Palumbo	Bridgeport: Harbor Master	
Brian Carey	Fairfield: Conservation Director	
Clyde Mount	Norwalk: Deputy Harbor Master	
	Chester: Chester Land Trust	
Tom Bell	Darien: Harbor Master	
Diana Johnson	Old Lyme: Chair of Open Space Commission	
Deb Jones	Groton (town): Environmental Planner	
Murphy	Stonington (Town): Shellfish Chair	
Seeley Hubbard	Norwalk: Chair, Conservation & Env Commission	
Dorothy Wilson	Norwalk: Senior Planner	
	Clinton: Clinton Land Conservation Trust	
George Moore	Lyme: Lyme Land Trust Executive Director	
	Groton (town): Groton Open Space Association	
Mary Haburay	Madison: Land Use Assistant	
Paul Riggio	Essex: Harbor Master	
Jim Denham	Essex: Essex Land Trust President	
	Madison: Conservation and Env. Commission	
	Norwalk: Norwalk Land Trust	
James Smith	Stonington (Town): Land Trust President	
Joel Stocker	Waterford: Waterford Land Trust President	
Joe Bienkowski	Fairfield: Environmental Planner	
John Dockendorff	Milford: Milford Land Conservation Trust	
Kathleen Tucker	Essex: Chair, Conservation & Env Commision	
James Ventres	East Haddam: Land Use Administrator	
Peter Johnson	Norwalk: Shellfish Chair	
Lawrence Ouellette	Clinton: Chair, Conservation & Env Commission	
Mike Urban	Old Saybrook: Old Saybrook Land Trust President	
	East Haddam: East Haddam Land Trust	
Harry Plaut	Old Lyme: Harbor Master	
Wendy Hill	Lyme: Open Space Coordinator	
Richard Esty	Old Saybrook: Chair, Conservation & Env Commission	
Janis Esty	Old Saybrook: Chair, Planning & Zoning Commission	
Ryan Mann	Westport: Westport Land Conservation Trust	
Samuel Gold	Old Saybrook: Executive Director	
Shirley Nichols	Darien: Darien Land Trust Executive Director	
	Fairfield: Planning & Zoning Commission	
Wayne Church	Clinton: Shellfish Chairman	

William Minor	Bridgeport: Land Use and Construction Review Director
Edward Martin	Groton (town): Shellfish Chair
Kim Barrows	Old Lyme: Land Use
Peter Holecz	Bridgeport HMC
Joel Severance	Chester HMC
Robert Westhaver	City of Groton HMC
Steve Hayes	Clinton HMC
Donald Landers	East Lyme HMC
Jeff Going	Essex HMC
Bruce Arneill	Fenwick HMC
John Henningson	Guilford HMC
Robert Post	Milford HMC
David Carreau	Mystic HMC
Tony D'Andrea	Norwalk HMC
Steven Ross	Old Lyme HMC
Ray Collins	Old Saybrook HMC
William Rock	Stratford HMC
Peter Vermilya	Stonington HMC
	Mohegan Community
Mike Boland	Mashantucket Land Use Commission
Lori Brown	CT League of Conservation Voters
	Friends of Hammonasset State Park
	Friends of Sherwood Island State Park
	Coalition of Connecticut Sportsmen
Andrew Fisk	Connecticut River Watershed Council
Kathleen Burns	CT Marine Trades Association
Jim McCauley	Project Oceanology
Jon Hare	National Marine Fisheries Service - Milford Lab
Mark Tedesco	US Environmental Protection Agency - LISS Office
Andrew French	US Fish & Wildlife Service - Stewart B. McKinney National Wildlife Refuge
David Brandt	Aspetuck Land Trust (Fairfield/Westport)
Janet Stone	Deep River Land Trust
Peter Reid	Wildlife in Crisis Land Trust (Bridgeport/Stratford)
John Dockendorff	Milford Land Conservation Trust, Inc.
John Moeling	Norwalk LandTrust
Michael Houde	Clinton Land Conservation Trust
J.H. Torrance Downes	Lower Connecticut River Land Trust
Mike Urban	Old Saybrook Land Trust, Inc.
Jessica Gay	Lynde Point Land Trust
Nancy Rambeau	Essex Land Trust, Inc.
Richard Harrall	Chester Land Trust, Inc.
Gail Reynolds	Haddam Land Trust, Inc.
Peter Govert	East Haddam Land Trust, Inc.
David Brown	Middlesex Land Trust, Inc.

Heather Milardo	Avalonia Land Conservancy (Groton/Stonington)	suggested people/groups from SST, SC, other
Mike Maloney	Madison Land Conservation Trust	
Christina Clayton	Old Lyme Land Trust	
	Trust for Public Land (CT)	
Eric Hammerling	Connecticut Forest and Parks Assoc. - Executive Director	
Curt Johnson	Save the Sound/CFE	
Matt Fulda	MetroCOG - Exec Director	
Sam Gold	Lower Connecticut River Valley Council of Governments - Executive Director	
Carl Amento	South Central Regional Council of Governments - Executive Director	
James Butler	Southeastern Connecticut Council of Governments - Executive Director	
Francis Pickering	Western Connecticut Council of Governments - Executive Director	
Shelly Phelan	Fairfield University - Dept. of Biology	
David Downie	Fairfield University - Dept. of Environmental Studies	
Dana Royer	Wesleyan University - Earth and Environmental Sciences Department	
Pat Young	Eightmile River Wild and Scenic Coordinating Committee	
Jim Lockheart	Salmon River Watershed Partnership	
Lisette Henrey	Friends of Outer Island	
Franklin Bloomer	Calf Island Conservancy	
	Faulkner's Light Brigade	
	Norwalk Seaport Association	
Brian Davis	Maritime Aquarium at Norwalk	
Margaret Miner	Rivers Alliance	
Alicea Charamut	CT River Watershed Council - River Steward for CT	
Dianna R. Wentzell	CT Dept. of Education	
Roger Wolfe	DEEP - Wetland Habitat & Mosquito Mangement Program	
David Carey	CT Dept of Agriculture/Bureau of Aquaculture	
Laurie Fortin	DEEP - Wildlife	NERR Kick-off attendees (non-CT NERR team members)
Ann Kilpatrick	DEEP - Wildlife/Habitat Management	
Paul Stacey	Great Bay National Estuarine Research Reserve	
Betsy Blair	Hudson River NERR	
Rebecca Roth	National Estuarine Research Reserve Association	
Lisa Krall	Natural Resources Conservation Service	
Sally McGee	Nature Conservancy CT	
Mary Mushinsky	River Advocates of South Central CT	
Martin Mador	Sierra Club	

Beth Lawrence	UCONN - Dept Natural Resources/Environment	
Jim O'Donnell	UCONN - Dept of Marine Science/CIRCA	
Hans Laufer	UCONN - Dept of Molecular and Cellular Biology	
John Mullaney	USGS - CT Water Science Station	
Eleanor Mariani	DEEP- Boating Division	
FIRST SELECTMAN	TOWN OF BRANFORD	Municipal elected officials project area towns - broad reach so those in the large overall planning area are made aware)
MAYOR	CITY OF BRIDGEPORT	
FIRST SELECTMAN	TOWN OF CHESTER	
FIRST SELECTMAN	TOWN OF CLINTON	
TOWN MANAGER	TOWN OF CROMWELL	
MAYOR	TOWN OF CROMWELL	
FIRST SELECTMAN	TOWN OF DARIEN	
TOWN ADMINISTRATOR	TOWN OF DARIEN	
FIRST SELECTMAN	TOWN OF DEEP RIVER	
FIRST SELECTMAN	TOWN OF EAST HADDAM	
TOWN MANAGER	TOWN OF EAST HAMPTON	
CHAIRMAN TOWN COUNCIL	TOWN OF EAST HAMPTON	
MAYOR	TOWN OF EAST HAVEN	
FIRST SELECTMAN	TOWN OF EAST LYME	
FIRST SELECTMAN	TOWN OF ESSEX	
FIRST SELECTMAN	TOWN OF FAIRFIELD	
FIRST SELECTMAN	TOWN OF GREENWICH	
MAYOR	TOWN OF GROTON	
TOWN MANAGER	TOWN OF GROTON	
MAYOR	CITY OF GROTON	
FIRST SELECTMAN	TOWN OF GUILFORD	
FIRST SELECTMAN	TOWN OF HADDAM	
MAYOR	TOWN OF HAMDEN	
MAYOR	TOWN OF LEDYARD	
FIRST SELECTMAN	TOWN OF LYME	
FIRST SELECTMAN	TOWN OF MADISON	
MAYOR	CITY OF MIDDLETOWN	
MAYOR	CITY OF MILFORD	
MAYOR	TOWN OF MONTVILLE	
MAYOR	CITY OF NEW HAVEN	
MAYOR	CITY OF NEW LONDON	
INTERIM CHIEF ADMINISTRATIVE OFFICER	CITY OF NEW LONDON	
FIRST SELECTMAN	TOWN OF NORTH HAVEN	
MAYOR	CITY OF NORWALK	
MAYOR	CITY OF NORWICH	
ACTING CITY MANAGER	CITY OF NORWICH	
FIRST SELECTMAN	TOWN OF OLD LYME	

FIRST SELECTMAN	TOWN OF OLD SAYBROOK	
FIRST SELECTMAN	TOWN OF ORANGE	
FIRST SELECTMAN	TOWN OF PORTLAND	
FIRST SELECTMAN	TOWN OF PRESTON	
MAYOR	CITY OF SHELTON	
MAYOR	CITY OF STAMFORD	
FIRST SELECTMAN	TOWN OF STONINGTON	
MAYOR	TOWN OF STRATFORD	
FIRST SELECTMAN	TOWN OF WATERFORD	
FIRST SELECTMAN	TOWN OF WESTBROOK	
MAYOR	CITY OF WEST HAVEN	
FIRST SELECTMAN	TOWN OF WESTPORT	
	CT Planners Listserv	other e-mail lists
	LISS Citizens Advisory Council Mailing List	
	DEEP Sound Outlook Mailing List	
	CT NERR SST, Steering Committee, NOAA Team	
	CT Legislators & Congressionals	

CT NERR Preliminary Public Meeting – 5/16/2017: Sign In Sheet

Name	Group/Organization	E-mail (if you'd like to be added to the project mailing list)
PHIL BRENCHER	LISS/CAC; SOUND SCHOOL	PHIL.BRENCHER@NEW-HAVEN.K12.CT.US
Peter Auster	Mystic Aq./UConn	pauster@mysticaquarium.org
Anne Roberts-Pierson	Groton Open Space Assoc.	ar-pierson@att.net
Joel Stocker		joel.stocker@sbcglobal.net
Emilee Scott	Robinson+Cole	escott@rc.com
Tom ROBBEN	COA Ct. Ornithological Association	ROBBEN99@gmail.com
Callie Scheetz	Project Oceanology	cscheetz@oceanology.org
RALPH WOOD	ROGER TORY PETERSON ESTUARY CENTER, CT AUDUBON SOCIETY	ralph.wood@mac.com
Suzanne_Paton	USFWS	Suzanne_Paton@fws.gov
Gary H. Wikfors	NOAA Fisheries Service	Gary.Wikfors@noaa.gov

CT NERR Site Selection Public Meeting Attendees – 5/16/2017

CT NERR Preliminary Public Meeting – 5/16/2017: Sign In Sheet

Name	Group/Organization	E-mail (if you'd like to be added to the project mailing list)
RICK NEWTON	AVALONIA LAND CONSERVANCY	rnewton06355@gmail.com
CHRIS KINKADE	NOAA OFFICE FOR COASTAL MANAGEMENT	CHRIS.KINKADE@NOAA.GOV
Ellen Graham	Senator Blumenthal	ellen_graham@blumenthal.senate.gov
MIKE WHITNEY	UCONN	
Diane Swan	East Lyme Schools Outdoor Stormwater Classroom	diane.swan@elpsk12.org
Olaf Bertram-Nothnagel	Marsh & Bay Expeditions	olafjbn@yahoo.com
Margot Burns	RiverCOG	mburns@rivercog.org
Pat Young	Eightmile W&S River Watershed & Salmon River Watershed	pyoung@eightmileriver.org salmonriverct@att.net

CT NERR Site Selection Public Meeting Attendees – 5/16/2017

CT NERR Meeting Notes – 5/16/2017

Questions

Multi site question..ie are all candidates multiple – yes

Will there be opportunities to assess the uses permitted during the site selection process – no..this will likely occur during the management plan process

A NERR won't add additional restrictions, PJAuster tried to clarify this a bit.

Clarify the multi site ..what are the red lines..the maps represent draft offshore areas. ? of $ for facilities..none are required ..but there will be a need for some facilities to support the programs. There are funds available to support the development of these facilities. Some areas (eg Barn Island) don't/won't support buildings.

Site designation doesn't exclude other activities ..(Sylvain DeGuise comment)…MS example

Comment re: Niantic Bay area has area and $ for education ..was it considered? KOB – we looked at the state parks..the SST is happy w/ the four short list sites as candidates..we could have overlooked sites,

Webex ??s

Are you considering the watershed as part of the sites since many of the educational activities occur and deal w/ …

What is match?...a variety of sources ..non-federal ..? what about the states financial issues and how will this impact funding. Yes it is an issue but there are multiple models to achieve the match

Will you be sharing this info? Yes the Webex is recorded..the PPT will be on the DEEP web site

? the permitted activities in the two nearest NERRS are quite different…if there is a change of uses will that be communicated? The slide is not exhaustive..representative of the flexibility. RE: any changes…not likely to happen, not likely to change..in the offshore areas if things change then the NERR will have to adjust to those changes. Management plans change regularly ..isn't a locked down.

Follow …will there be public input into the uses..or will that be driven by the state processes….who determines the uses..NERR?..DEEP?...any public input? A – a NERR uses the existing regulations, doesn't bring new ones into the picture. Any changes wouldn't be NERR driven.

Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 6:

Detailed Site Selection Team Recommendation Reports and Scoring Materials

1. Recommendation Reports
2. Site Scoring Worksheets
3. Summary of Scoring Comments

NOTE: A complete inventory of the review and scoring materials is accessible via: https://drive.google.com/open?id=0B5JvtMMeDBUJeUdselVBYzBKUzA, as some of the materials do not lend themselves to easily readable hardcopy formats.

Graphics for each of the five sites (with offshore boundary areas) are included at the end.

1. **Criteria Group:** Environmental Representativeness:
   - Kevin O'Brien (CTDEEP)
   - Shannon Kearney (CTDEEP)
   - Chris Elphick (UCONN)
   - Jaime Vaudrey (UCONN)
   - Juliana Barrett (CT SeaGrant)
   - Patrick Comins (CT Audubon)
   - Chantal Collier (TNC)
   - Scott Warren (Conn College – retired)
   - Ron Rozsa (public/CTDEEP - retired)
   - Tom Robben (public)

2. **Criteria:**
   - See site assessment section (5) below for listing of the criteria and their evaluations.

3. **Data/Sources of Info Used:**

GIS layer	LIS Surficial Sediments (USGS, 2000)
GIS layer	2012 USFWS Eelgrass Inventory
GIS layer/report	CT River SAV Assessment (Barrett, 1997)
GIS layer	USDA/NRCS Subaqueous Soils (2007-2010)
GIS layer	TNC LISEA (Long Island Sound Ecological Assessment) (2015)
GIS layer	CT DEEP Hydrography Master dataset (1980s)
Expert review	Synthesis by Ron Rozsa (CTDEEP – retired): ELIS/CT River/CLIS/WLIS complex sites
GIS layer	USFWS NWI Wetlands Data for CT (ca 2012)
Scanned Maps	DEEP Coastal Area Resource (CAM) Maps (early 1980s)
GIS layer	TNC (et al) Terrestrial Habitat Map Data (~2012)
Report	Eagan & Yarish, Distribution of the Genus Laminaria at its Southern Limit in the Western Atlantic. Botanica marina, vol 31 pp 155-161, 1988
Report	LISS Ecological Inventory (2014)
Website	http://ct.audubon.org/important-bird-areas-11
Expert review	CTDEEP Wildlife & Fisheries staff
GIS layer	NOAA Environmental Sensitivity Index (2016)
Expert review	CTDEEP Natural Diversity Database review/assessment (2016)
Report	CT RAMSAR Nomination report (~1993)
Report	Dreyer, Rozsa, & Jones. Management Assessment report: Barn Island Wildlife Management Area. Connecticut College Arboritum (2015)
Report	CTDEEP. Management Plan for the Hammonasset Salt Marsh. 2000
Report	Geyer & MacCready – The Estuarine Circulation. Annual Review of Fluid Mechanics. 2014 (and follow-up information via e-mail w/ J. Forbis)
GIS Layer	CTDEEP Drainage Basins (1980s)
Expert review	Ralph Lewis (State Geologist – retired), Jim O'Donnell (UCONN), Ron Rozsa (CTDEEP – retired), Chris Elphick (UCONN,) Patrick Comins (CT Audubon), Shannon Kearney (CTDEEP)
GIS Layer	CTDEEP Quaternary Geology
Report	http://www.townofstratford.com/filestorage/39879/40023/42593/Housatonic_Final_Draft_EA_June_2012_-_complete_r2.pdf

Report	http://wesscholar.wesleyan.edu/cgi/viewcontent.cgi?article=2716&context=etd_hon_theses
Website / report	https://nctc.fws.gov/pubs5/necas/web_link/21_housatonic.htm
Report	http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2016/2016_Combined_Report_Final2.pdf
Report	CTDEEP Planning Report 29: Shoreline Erosion Analysis and Recommended Planning Processes (1979)
Data	CTDEEP Water Quality hosted by LISICOS (1991-2016)
Report	Restoration of degraded salt marshes in CT (R. Roza, R. Orson)
GIS Layer	UCONN CLEAR Landuse/Landcover (2010)
GIS Layer	USGS National Landcover Dataset – Impervious surface (2011)
Website /report	LISS Status and Trends: Environmental Indicators - Water Quality Index 1991-2011: http://longislandsoundstudy.net/indicator/water-quality-index/
Website /Report	https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/Documents/HabitatGuides/96.pdf
Website /Report	http://longislandsoundstudy.net/wp-content/uploads/2014/11/2_rozsa_sealevelfen.pdf

4. Summary of Approach:

- Began by identifying geospatial coverages that could enable consistent comparisons across sites. Where geospatial data was not available, or insufficient in some way, additional sources such as expert review, reports, etc. were sought. It should be noted that these non-spatial components were not solely used to fill gaps; in many cases they were also used to complement, confirm, or extend the knowledge base provided by other data. When working with geospatial data, in some cases a "best of breed" data source (e.g., NWI wetlands) applied, while in others there were different yet seemingly comparable data (e.g., UCONN CLEAR Landuse/Landcover and TNC Terrestrial Habitats.) Where multiple geospatial datasets were under consideration, best professional judgment was used to determine which one was most appropriate. This was typically based on assessing the robustness of attribute information, currentness, and scale/resolution. Given that the geospatial analysis combined data of different sources and vintages, integration issues of varying overlap, scale and resolutions were inevitable. These were mitigated to a practical extent (e.g., care was taken to avoid double/over-counting,) but for the level of analyses being performed here, no issue was felt to be overly problematic.
- The data synthesis (integrating both geospatial and non-geospatial analyses were integrated into a master spreadsheet (CTNERR_DetailedCriteria_Set1_data-summary_FINAL.xlsx). Within it, there are individual sheets presenting the application of the data sources to each of the 11 criteria, with specific source material identified.
- In cases where data sources are not explicitly contained in the spreadsheet (e.g., geospatial data, reports) these will made available to the review team through the shared Google Drive.
- In assessing the hybrid site, we re-configured the master spreadsheet (**CTNERR_DetailedCriteria_Set1_data-summary_hybrid.xlsx**) using the same data, sources, and processes as before (i.e., not introducing any new or revised data and not using different analytic methodology) and revised the metrics previously developed. We then used these with the same logic/interpretive approaches for each of the 11 criteria to arrive at a score.

5. Site Assessments:

Environmental Representativeness: Ecosystem Types/Physical Characteristics

In order to determine the representativeness of a candidate site relative to ecosystem type as defined in Appendix II of NERRS Program Regulations (15 CFR Part 921)[1], the site will be evaluated using the following suite of ecological, biological, physical, and chemical characteristics that fall under the general category of "ecosystem & physical characteristics". The first six criteria focus primarily on factors concerning a site's diversity and balance in regard to the types of ecosystems and habitats present, as well as any significant and/or unique biotic traits. The remaining criteria for physical/chemical characteristics focus on a site's position within its watershed, geological and salinity characteristics,

[1] https://www.gpo.gov/fdsys/pkg/CFR-2014-title15-vol3/pdf/CFR-2014-title15-vol3-part921-appII.pdf

water quality and the degree to which it is developed. (NOTE: The link provided in the footnote provides detailed descriptions/definitions of the general terminology used in this section. These are also included within this document as Appendix D)

1.1. ***Ecosystem Composition:*** *A measure of the diversity of ecosystem types present within the boundaries of the site. Sites having a high diversity of major ecosystem types are considered to have a higher relative value for protection and management. Use the following ecosystem type designations as modified from Appendix II of NOAA Regulations 15 CFR Part 921.*
Class I: Group I – Shorelands (upland habitats and non-tidal wetlands): Maritime Forest-Woodlands, Coastal Shrublands, Coastal Grasslands, Coastal non-tidal wetlands, Coastal Cliffs/bluffs
Class I: Group II - Transition Areas (intertidal habitats) : Coastal Marshes, Intertidal Beaches, Intertidal Mud and Sand Flats, Intertidal Algal Flats
Class I: Group III – Submerged Bottoms (submerged habitats) - Subtidal Soft Bottom, Subtidal Plants, Subtidal Hard bottoms (Rocky substrate and Oyster Reefs)

3 Points	*The site has **a high diversity** of ecosystem composition, possessing at least one representative habitat from each of the three ecosystem groups.*
2 Points	*The site has a **moderate diversity** of ecosystem composition, possessing at least one representative habitat from two of the three ecosystem groups.*
1 Point	*The site has a **low diversity** of ecosystem composition, possessing at least two representative habitats from only one of the three main ecosystem groups.*
0 Points	*The site has a **very low diversity** of ecosystem composition, possessing only a single habitat type within any one of the three main ecosystem groups.*

1.2. ***Balanced Ecosystem Composition:*** *A measure of the relative composition of ecosystem types within the boundaries of a site. This criterion is based on the assumption that sites with a balanced proportion of ecosystem types are of higher relative value for protection and management. High, moderate, and low values are assigned to sites that contain variations in the proportions of the three ecosystem types. A value of zero is assigned to a site that is dominated by one ecosystem type or contains less than three ecosystem types.*

3 points	*The site contains representative upland, intertidal, and subtidal habitats in relatively equal proportions so that **the area covered by any one ecosystem type is not less than 25%** of the total area.*
2 points	*The site contains representative upland, intertidal, and subtidal habitats, with **the area covered by any one type is not less than 10%** of the total area.*
1 point	*The site contains representative upland, intertidal, and subtidal habitats, with **the area covered by any one type is less than 10%** of the total area.*
0 points	*The site contains representative upland, intertidal, and subtidal habitats, with **the area covered by two types being less than 10% of the total area or the site consists of habitats from only one or two of the three major ecosystem types.***

Hybrid Assessment: based on the strategy laid out below and the revised data sheet, we can draw similar conclusions – specifically that for Criteria 1.1 there is at least one (and in fact multiple) habitats for each ecosystem type among the hybrid components. For 1.2, since we've delineated a large off-shore areas, the numbers on area percentages for each of the 3 ecosystem types reflect that. The Submerged Bottom type represents the vast majority of the area within the hybrid site to the extent that both Shorelands and Transition Areas types are each less than 10% of the total area.

Previous Assessment:
The first tab on the spreadsheet (CTNERR_DetailedCriteria_Set1_data-summary_FINAL.xlsx) is a matrix of the 3 NERR Ecosystem Types and the primary habitat components within them. A green box indicates the presence of the habitat at a site along with a reference to what source material the determination came from. Many habitats were able to use geospatial coverages that enabled consistent comparisons across sites, although Ron Rozsa provided data for several sites (most notably Eastern LIS) that was predominantly used. Some cells contain notes describing important process steps/decisions/judgment calls – such as where to include the very rough estimates of tidal flat acreage (NERR classification places this in the ecological context of the transition area between upland and subtidal

area, but the source material used for this is hydrography data which is typically considered "water"; as such care had to be taken to not-double count sub-tidal area and to include flats among the intertidal data.) When a habitat was present within an Ecosystem Group, an area determination in acres is provided – most came from GIS layers identified. Given the variation between/among source material, acres were rounded to whole numbers. Other calculations include breakouts for the upland and offshore area totals, the overall site area, and % breakouts at the Ecosystem Type level. For Criteria 1.1 we note that there is at least one (and in fact multiple) habitats for each ecosystem type at each of the four sites. For 1.2, since we're very biased on the off-shore areas, the numbers on area percentages for each of the 3 ecosystem types reflect that. The Submerged Bottom type represents the vast majority of the area within all four sites to the extent that both Shorelands and Transition Areas types are each less than 10% of the total area across all four sites.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.1	3	3	3	3	3
1.2	0	0	0	0	0

1.3. ***Habitat Composition/Complexity:*** *This is a measure of the diversity of habitat types present within the major ecosystem type found within the boundaries of the site. This criterion is based on the assumption that sites that have a high diversity of habitat types are of higher relative "value" for protection and management than those with a low diversity of habitat types. Major ecosystem type is defined here as that type that comprises approximately 40% of the site. Use the habitat designation listed above for "ecosystem composition".*

3 points	*The candidate site has a **high diversity** of habitat composition within its major ecosystem type, i.e. it contains three or more habitat types or subtypes within its major ecosystem type (e.g. site consists of a combination of swamps, coastal marshes, and mud flats) or has a combination of multiple coastal marsh types (e.g., high, mid, and low marsh zones).*
2 points	*The site has a **moderate diversity** of habitat composition within its major ecosystem type, i.e., it contains only two habitat types or subtypes within its major ecosystem type (e.g., consists of a combination of swamps and a single coastal marsh type).*
1 point	*The site has **a low diversity** of habitat composition within its major ecosystem type, i.e., its major ecosystem type consists of a single habitat type (e.g., maritime forest or Juncus marsh).*

Hybrid Assessment: using the same strategy as before with revised numbers for the hybrid site, we again come to a similar conclusions. Namely:

- the ecosystem type that dominates each of the four sites is Submerged Bottoms.
- In assessing the composition of the 3 habitat subtypes – soft-bottom, subtidal plants, and hard-bottoms we observe the hybrid site can minimally be expected to include 1 to dozens of subtidal plant species.
- When considering hard and soft-bottoms, the variation in depth regimes and sediment types can lead to multiple habitat types. For example, in the soft-bottom area alone, there can be anywhere from 4 - 6 habitat types based on solely sediment variation; if we took a simplistic approach to adding a consideration of depth and split this into a Shallow Subtidal Zone (less than 5m) and a Deep Subtidal Zone (greater than 5m) then the combinations of both depth and sediment types can yield even more habitat diversity.

At this stage it is evident that the hybrid would easily meet the mark to say there exists a high diversity of habitat composition within the major ecosystem types.

Previous Assessment:
Using the results derived from the table used for Criteria 1.1 and 1.2, the ecosystem type that dominates each of the four sites is Submerged Bottoms. In assessing the composition of the 3 habitat subtypes – soft-bottom, subtidal plants, and hard-bottoms we observe the following: Each site can minimally be expected to include 1 to dozens of subtidal plant species. When considering hard and soft-bottoms, the variation in depth regimes and sediment types can lead to multiple habitat types. For example, in the soft-bottom area alone, there can be anywhere from 4 - 6 habitat types based on solely sediment variation; if we took a simplistic approach to adding a consideration of depth and split this into a Shallow Subtidal Zone (less than 5m) and a Deep Subtidal Zone (greater than 5m) then the

combinations of both depth and sediment types can yield even more habitat diversity. At this stage it seems fairly clear that each site would easily meet the mark to say there exists a high diversity of habitat composition within the major ecosystem types.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.3	3	3	3	3	3

1.4. ***Uniqueness of Habitat:*** *A measure of the presence of rare or unique habitat types within a candidate site. Although high value is placed on ecological representativeness it is also important to protect, manage and study rare habitats. Unique habitat is defined as a habitat type of limited known occurrence within the Southern New England biogeographic subregion.*

3 Points	*The site contains **more than one** unique or rare habitat types within its boundaries.*
1 Point	*The site contains **one** unique or rare habitat type within its boundaries.*
0 Points	*The site contains **no** unique or rare habitat types within its boundaries.*

Hybrid Assessment: Following the same logic below based on the hybrid site composition we can state:

- As a result of criteria 1.6, the boundaries include areas of subtidal habitats that span significant depth and sedimentary characteristics (notably hard-bottom areas.) This plus the general physical (size, geomorphology, etc.) and hydrographic (e.g., comparatively low energy, protected, with significant freshwater in-flows) characteristics of Long Island Sound can make the case that each site contains at least one unique or rare habitat type.
- This can be extended by adding consideration of upland areas with Important Bird Areas (IBAs). The hybrid includes a landscape level IBA in the lower CT River, indicative of rare habitat within the region.
- Using a similar approach, we consider the New England Regional Cottontail Focus areas as examples of rare habitat. The hybrid includes such areas at Bluff Point and at the mouth of the CT River.
- Further examples of unique habitat include a mesic cove forest at Bluff Point (found on sheltered coves and concave slopes. Soils are often rocky and may be coarse or fine-textured, and may be residual, alluvial, or colluvial. Single tree gap-phase regeneration drives stand dynamics; occasional more extreme wind or ice disturbance may operate at a larger scale);
- The large brackish marshes at the mouth of the CT River hold the designation of Wetlands of International Importance as a result of the RAMSAR convention - unique to Southern New England;

In sum, we can confidently state that the hybrid contains more than one unique or rare habitat.

Previous Assessment:
This criteria was somewhat challenging in the sense that it requires not only a degree of knowledge of habitat composition within the finalists sites, but also knowledge within a larger region plus a sense of rarity. We begin by noting that as a result of criteria 1.6, the Preliminary Screening effort configured the boundaries of each of the four finalists to include areas of subtidal habitats that span significant depth and sedimentary characteristics (notably hard-bottom areas.) This plus the general physical (size, geomorphology, etc.) and hydrographic (e.g., comparatively low energy, protected, with significant freshwater in-flows) characteristics of Long Island Sound can make the case that each site contains at least one unique or rare habitat type. This can be extended by adding consideration of upland areas with Important Bird Areas (IBAs) – most notably Global IBAs. While there are certainly other examples of IBAs within the region, it is fair to assess these are generally being representative of rare habitats as compared to larger regional area. All four sites that include IBAs, and the ELIS, CLIS, and WLIS include Global IBAs. Using a similar approach, we consider the New England Regional Cottontail Focus areas as examples of rare habitat. Both ELIS and the CT River sites include these areas. Further examples of unique habitat (while not exhaustive) include a mesic cove forest (found on sheltered coves and concave slopes. Soils are often rocky and may be coarse or fine-textured, and may be residual, alluvial, or colluvial. Single tree gap-phase regeneration drives stand dynamics; occasional more extreme wind or ice disturbance may operate at a larger scale) and sea level fens in ELIS (a community type is best developed just above the highest tide levels at the interface between brackish marshes and gently sloping uplands of sand and gravel substrates. Within this transition zone, acidic, nutrient-poor groundwater discharges

from the bases of the upland slopes creating saturated areas); the large brackish and freshwater marshes of the CT River that hold the designation of Wetlands of International Importance as a result of the RAMSAR convention - unique to Southern New England; and WLIS has the largest unditched brackish low-marsh (Spartina alterniflora dominated) in Southern New England. In sum, we can confidently state that each site contains more than one unique or rare habitat.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.4	3	3	3	3	3

1.5. ***Importance of Habitat for Significant Flora and Fauna:*** *A measure of the degree to which a site supports significant floral and faunal components. This criterion focuses on a site's contribution (i.e. function) toward supporting critical activities (e.g. feeding, nesting) of the following suite of significant floral and faunal components. The list includes groups of organisms that are known to be dependent upon estuarine habitats for part or all of their life cycle.*

- *Fish and shellfish spawning and nursery grounds (includes use by freshwater, resident estuarine, or estuarine-dependent marine species)*
- *Migratory bird and/or waterfowl habitats*
- *Bird nesting and/or roosting area*
- *Critical mammal habitat*
- *Non-game animals (amphibians, reptiles, etc.)*
- *State or federally listed species (animal or plant; including candidate species)*

Table 1.5: *Importance of Habitat for Significant Flora and Fauna Scoring*

3 Points	*The site supports at least* ***four to six*** *of the above faunal and floral components, and/or is a very important site for any threatened or Endangered species.*
2 Points	*The site supports* ***at least three*** *of the above faunal and floral components.*
1 Point	*The site supports* ***one or two*** *of the above faunal and floral components.*
0 Points	*The site* ***does not*** *support significant faunal and floral components.*

Hybrid Assessment: Using the same approach as before, we conclude that the overall assessment would result in this criteria getting a 3.

Previous Assessment:
To begin with, we isolated the key elements as represented by the 6 bulleted points and began drilling through available data to help assess whether the sites can support them. Primary sources included 2016 NOAA Environmental Sensitivity Index (ESI) data, a review of CTDEEP Natural Diversity Database (NDDB) data, and key input from team members R. Rozsa, S. Kearney, C. Elphick, and P. Comins. Opinions differed on how to analyze this – focus on an assessment of importance to threatened/endangered/special concern species, inventory what elements of the listed flora/fauna are present in meaningful capacity (i.e., at some persistence level, not just a simple one-time identification,) or concentrate on finding out how/why the sites express some level of significance. In the end, we compiled what we felt were key components into a matrix that tried to quantify/identify what species were present, a measure of the number of State/Federal listings, and where possible how sites may support functional use (e.g., nursery area, spawning area, concentration area, roosting/nesting, etc.) Most members supported looking at the totality of what a site offers and using this assessment concluded that that the four sites each supported over four (and in some cases all 6 of the key elements.) A few suggested we try and look more closely at what it means for a site to "support significant" flora/faunal components and try to discriminate at a finer level. So there was not complete consensus among the team on how to asses this criteria. A few noteworthy observations: while the ESI data yielded valuable insights, it must be noted that the inventory itself is not a complete list of *all* species present/using an area, only those that are considered highly sensitive/threated to oil/chemical spills as reported by local and regional subject matter experts. However, it might be reasoned that this may in fact add some level of significance to those species. Additionally, while NDDB data could be parsed at a level to assess persistence at a site, data from other sources (Federal lists, GCN, etc.,) might not be comparable. NDDB also does not necessarily represent fish or off-shore species as well as terrestrial ones.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.5 (overall assessment)	3	3	3	3	3
1.5 (closer look)	?	?	?	?	?

1.6. ***New or Exemplary Typology:*** *An assessment of whether one or more habitats at a site add a new or exemplary typology to the suite of ecosystem types of existing reserves in the Southern New England biogeographic subregion. When considering a nomination for a new reserve, NOAA's first priority is given to nominations that incorporate both a biogeographic subregion and an estuary type not represented by existing or developing reserves. NOAA gives second priority to nominations that incorporate* ***either*** *a biogeographic subregion* ***or*** *an estuary type not represented by existing or developing reserves. Since there are three existing reserves in the Southern New England biogeographic subregion, a site nominated in Connecticut should rank higher if it adds a new estuarine ecosystem type to the region.*

3 Points	*The site supports* ***one or more ecosystem types that are not found in existing reserves*** *in the Southern New England biogeographic subregion.*
1 Point	*The site supports* ***a large area of an exemplary ecosystem type that is represented in existing reserves by only a limited or marginal example*** *of such type.*
0 Points	*The site* ***does not support any new typologies*** *in the subregion* ***and does not have a large area of an exemplary type that is underrepresented*** *in existing reserves of this subregion.*

Hybrid Assessment: The hybrid site was constructed to leverage the same sub-tidal qualities as each of the four original sites which are not represented at any of the other existing SNE Reserves. Further, it also contains additional characteristics of a cove forest at Bluff Point that does not exist at any other SNE Reserves, plus circulation dynamics and higher salinity levels and ranges of the CT River that do not exist in the Hudson River. As such, we can say the hybrid presents a new typology to the Reserve system.

Previous Assessment:
As noted previously in Criteria 1.4, the Preliminary Screening effort configured the boundaries of each of the four finalists to include areas of subtidal habitats that span significant depth and sedimentary characteristics (notably hard-bottom areas.) These aspects were selected specifically based on an assessment of the three existing Reserves within the SNE Biogeographic subregion to identify and include unrepresented ecosystem elements. Therefore each site has at least one habitat that can are not found in other SNE Reserves. In addition, there are additional characteristics at the ELIS, CT River, and WLIS sites including, but not limited to: a cove forest and sea-level fen (ELIS), circulation and higher salinity levels and ranges of the CT River that do not exist in the Hudson River, and significant unditched high and low marsh systems in WLIS.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.6	3	3	3	3	3

1.7. ***Site's Relationship to its Tidally Influenced Drainage Basin:*** *A measure of relative proportion and/or juxtaposition of a site relative to the greater tidally influenced drainage basin to which it belongs. This factor assumes that, except for the deltaic portions of major river systems, most coastal drainage basins are relatively small, tidally influenced, coastal plain drainages, and that a site's value increases as a function of how much of the overall drainage basin is encompassed within its boundaries.*

Table 1.7: *Site's Relationship to its Tidally Influenced Drainage Basin Scoring*

3 Points	*The site encompasses a* ***relatively large percentage (>75%)*** *of the tidally influenced portion of the drainage basin to which it belongs.*
2 Points	*The site is* ***not large*** *relative to the overall drainage basin (<75%)* ***but is situated either near the mouth or headwaters*** *of the drainage basin.*
1 Point	*The site is* ***small*** *relative to the overall drainage basin (<25%)* ***but is situated***

	***either near the mouth or headwaters** of the drainage basin.*
0 Points	*The site is **small** relative to the overall drainage basin (<25%) **and does not encompass either the mouth or headwaters** of the drainage basin.*

Hybrid Assessment: Using same analytical approach as before, the hybrid site scores out at comprising 5% of the overall drainage basin, but is still situated near the mouth of the basins. This would correspond to a score of 1.

Previous Assessment:
For this criteria, we performed a geospatial analysis using drainage basin data from the CT DEEP. In assessing the multiple levels of basin type (e.g., regional, sub-regional down to local) we assigned the tidally influenced component of the criteria to the local basin level – in many cases it is often unknown where the limit of tidal influence ends in many unobstructed streams, rivers, and tributaries, and the geographic extent of local basins seemed to strike an appropriate balance between the relative proportions indicated in the criteria and capturing tidal influences. Further, we limited the analysis to just the upland components of sites, as the basin data are representative of land-based areas only (with one notable exception.) In most cases this was a straight-forward exercise to intersect the upland site boundaries with the basins, capture those that impacted the site, and calculate the areas of each as a percentage. In the case of the CT River, the local basins that impact the sites in question also include the main stem of the river proper. In no other case did any of the drainage basins include a water component. As such, we ran the analysis both on the basins "as-is" (i.e. including the water component) as well as with an adjusted basin representation that excluded the waterbodies (using CT DEEP hydrography data to subtract out the riverine components.) In either case, the site areas compared to both basin configurations in the CT River yielded exceeding low percentages and thus did not have an overall impact on scoring. The overall results were ELIS = 18%, CT River = 3% (exclusive of water), CLIS = 32%, WLIS = 10%. Given that all are situated near the mouth of the drainage basins, the scores fall into the following bins:

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.7	1	1	1	2	1

1.8. ***Geologic Uniqueness/Diversity of the Site:*** *An indication of the uniqueness of the geological characteristics that define part or the whole of a candidate site, including surface and subsurface features. This criterion attempts to consider both the surface and subsurface geologic formations that may be unique within a site, particularly as they affect and/or define associated biotic habitats. Included in these considerations are the ways that local geology affects surface hydrology, such as drainage systems, and subsurface hydrology, such as shallow water aquifers.*

Table 1.8: *Geologic Uniqueness/Diversity of the Site Scoring*

3 Points	*The site **has many** unique geologic characteristics and contains a large number of formation types or strata within its boundaries.*
2 Points	*The site **has at least one** unique geologic characteristic and contains a moderate number of formation types or strata within its boundaries.*
1 Point	*The site **has no** unique geologic characteristics and contains a moderate number of formation types or strata within its boundaries.*
0 Points	*The site **has no** unique geologic characteristics or contains few or only one formation type or strata within its boundaries.*

Hybrid Assessment: Although the hybrid loses components of Barn Island and Machimoodus from the original site configurations, it retains the assembly of geologic formations and the exemplary geologic characteristics of Bluff Point. In addition, the offshore areas adds relatively rare Glacial Ice Laid deposits, particularly three southeast to northeast trending moraine ridges, which are concentrated in the eastern and western ends of the off shore area. Also notable is an excellent coral and sponge dominated reef system on the eastern end of the offshore area (Ram/Ellis Island reef.) As such, we can comfortably say that the hybrid has many unique geologic characteristics and a large number of formations/strata such that a score of 3 is warranted.

Previous Assessment:
This criteria relied heavily on the input from Ralph Lewis (CT State Geologist-retired/UCONN emeritus) as well as a basic inventory from two key geologic data layers. Reviewers are strongly encourages to read Ralph's assessments (both at a regional level as well as for each site area.) The criteria ask us to look at unique characteristics as well as number of formation types/strata. In discussions with Ralph we've identified the basic formation types based on looking at CTDEEP Quaternary Geology data (upland) and LIS Surficial Sediment data (off-shore.) To determine these we performed a simple geospatial analysis to select all the components of each data layer that intersect the sites. The results were then filtered down to remove duplicates and list just the unique site components. This analysis did not seem to be a good differential as all sites had a roughly similar amount of formation quantity (ranging from mid-teens to 20 or so…likely sufficient enough to constitute "a large number") and all were generally similar in composition – i.e., the same formation types appeared across all sites. Thus, the primary differential relied mainly on the site assessments on unique characteristics. In sum: ELIS - Several unique characteristics: comparatively limited amount of artificial fill vs WLIS (both ELIS and WLIS are geologically similar systems); Bluff Point includes a rare case of a true bedrock bluff plus 5 distinct beach types (boulder/cobble, sand/gravel, cobble, glacial boulder/bedrock, exposed bedrock): 20 upland/offshore formations; CT River - One primary unique characteristic: the geology at Machimoodus (glacially smoothed bedrock upland covered by thin till) stands out in contrast to the comparatively similar geologies of the marsh dominated areas of the Lower CT River. 16 upland/offshore formation types; CLIS - Several unique characteristics: The post glacial delta identified off-shore is noted as one of a kind in LIS, and the exposed moraine in Hammonasset SP/NAP is unique when compared to other marsh dominated systems, includes several distinct beach types – boulder cobble, sand. 14 upland/offshore formation types; WLIS - Several unique characteristics: Stratford shoal is a significant ecological, geological, and oceanographic feature; off-shore extension of bedrock ridges are prominent features west of Sherwood Point, the Norwalk islands are the are the only off-shore moraine segments that are above water west of New London. 18 upland/offshore formation types.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.8	3	3	2	3	3

1.9. *Hydrographic Uniqueness/Diversity of the Site:* *An indication of the uniqueness of the hydrographic characteristics that define the site or the immediate offshore vicinity that could impact or affect a site. This criterion attempts to consider characteristics such as circulation, tidal regime, and freshwater sources/amounts that can affect biotic habitats and ecosystem functions.*

Table 1.9: *Hydrographic Uniqueness/Diversity Scoring*

3 Points	*The site **has many** unique hydrographic characteristics within the site or in the immediate offshore vicinity.*
2 Points	*The site **has a moderate** of unique hydrographic characteristics within the site or in the immediate offshore vicinity.*
1 Point	*The site **has at least one** unique hydrographic characteristic within the site or in the immediate offshore vicinity.*
0 Points	*The site **has no** unique hydrographic characteristics within the site or in the immediate offshore vicinity.*

Hybrid Assessment: Adopting a similar thought process, since the CT River retains a best in class rating, and the Bluff Point/Haley Farm assembly can reasonably be considered to hold a score of 2, at an overall level, the hybrid in its entirety can be scored a 3.

Previous Assessment:
This criteria relied heavily on the input from Jim O'Donnell (UCONN Marine Sciences) as well as an inventory from several publications/websites. Reviewers are strongly encourages to read these assessments (both at a regional level as well as for each site area.) Based on these results, we note that CT River is clearly the best in class for this criteria with many different characteristics identified across a wide spectrum of sources. Further, a key observation from Jim is that while the CLIS site has been studied, there is really nothing to indicate that there is anything of consequence that makes it unique or unusual in this regard. Therefore, the discussion turned to analyzing the

components from ELIS and WLIS and trying to assess whether or not they approached the level of the CT River, or were more similar to CLIS. For each site, there were several aspects that seemed to indicate what the group considered a moderate level of uniqueness – not as significant as the CT River, but certainly more so than CLIS.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.9	3	2	3	0	2

1.10. ***Salinity Gradient:*** *A measure of the range of salinity within a site's boundaries. This criterion recognizes the effect of salinity on the biotic structure of estuarine habitats and assumes that a site with a greater range of salinity will support a broader range of habitat types and organisms.*

Table 1.9: *Salinity Gradient Scoring*

3 Points	*Site encompasses a **25 ppt or greater range** of salinity within site boundaries (e.g., 0-25 ppt, 5-30 ppt).*
2 Points	*Site encompasses a **15-24 ppt range** of salinity within site boundaries (e.g., 0-15 ppt, 5-25 ppt, 10-30 ppt).*
1 Point	*Site encompasses a **6-14 ppt range** of salinity within site boundaries (e.g., 0-8 ppt, 10-22 ppt, 25-32 ppt).*
0 Points	*Site encompasses a **5 ppt or less range** of salinity within its boundaries.*

Hybrid Assessment: The hybrid site low-end salinity values were previously approximated at/near 0.5 ppt at the Bluff Point and Great Island areas. Offshore salinity is approximately 28.5 to 29.5 psu (with psu equivalent to ppt for LIS as noted below.) As a result, this would score at a 3.

Previous Assessment:
Calculating the salinity gradient involved assessing two aspects – the minimum and maximum values at each site. In the case of the minimum levels, three of the four sites all include fresh water. The fourth – CLIS – does not have a true freshwater component. Based on a literature review and best professional judgment, we placed the lower bound on CLIS at 5ppt (parts per thousand) – slightly fresher than the lowest published value based on the location at a sample site within the site area. (The value found in a restoration report identifies a value of 8 ppt, but this was taken closer to the mouth of the Hammock River. The team felt that the more upstream areas of the river would be lower and that 5 ppt represented a reasonable estimate.) As for the upper bounds, there are numerous reports and materials that provide salinity values for open water areas of LIS. However, in order to identify areas as close to or within our site boundaries, we leveraged the data accumulated at several select CTDEEP water quality monitoring stations. These areas, in addition to being as close as possible to the sites, also have a substantial time-series (early 1990s to present) of data of both bottom and surface measurements. To establish the upper bounds, data was extracted for both surface and bottom salinity, averaged to get an estimate of top and bottom, and then averaged together to arrive at an overall estimate. These were compared back to literature values to check for consistency. (NOTE: water quality data from CTDEEP is reported in practical salinity units (psu). (For LIS, the conversion between PSU is 1-1; i.e., psu is equivalent to ppt.) With upper and lower bounds established for each site, the ranges fell out as: ELIS = 29.5 ppt; CT River = 28.5 ppt; CLIS = 24 ppt; WLIS = 26.5 ppt.

Criteria	HYBRID	ELIS	CT River	CLIS	WLIS
1.10	3	3	3	2	3

1.11. ***Degree Developed and Potential Impacts to Water Quality:*** *This is a measure of the degree to which the site and its surrounding area are developed and the relative impacts to surface waters from human activities. This criterion is based on the assumption that human impacts to a site are directly proportional to the degree of development. Exceptions to this assumption may need to be considered where development at a site and its surrounding area have been subject to high levels of control. Data on land use and water quality measurements from local, county, and state government agencies should be used to judge this criterion.*

Table 1.10: *Degree Developed and Potential Impacts to Water Quality Scoring*

3 Points	*The site is **relatively undisturbed** and the watershed contains **low intensity development** (e.g., few residences, minimal agricultural or silvicultural activity) and/or the **land is in protected status**.*
2 Points	*The site is **relatively undisturbed** and the watershed contains **moderate development** (e.g., relatively few residences, moderate agricultural or silvicultural activity, minimal commercial development).*
1 Point	*The site has been **moderately disturbed** and the watershed contains **relatively intensive development** (e.g., moderate density of residences, and/or the presence of industrial activity).*
0 Points	*The site has been **extremely disturbed** and the watershed contains **very intensive development** (e.g., high density residential, and/or commercial or industrial activity).*

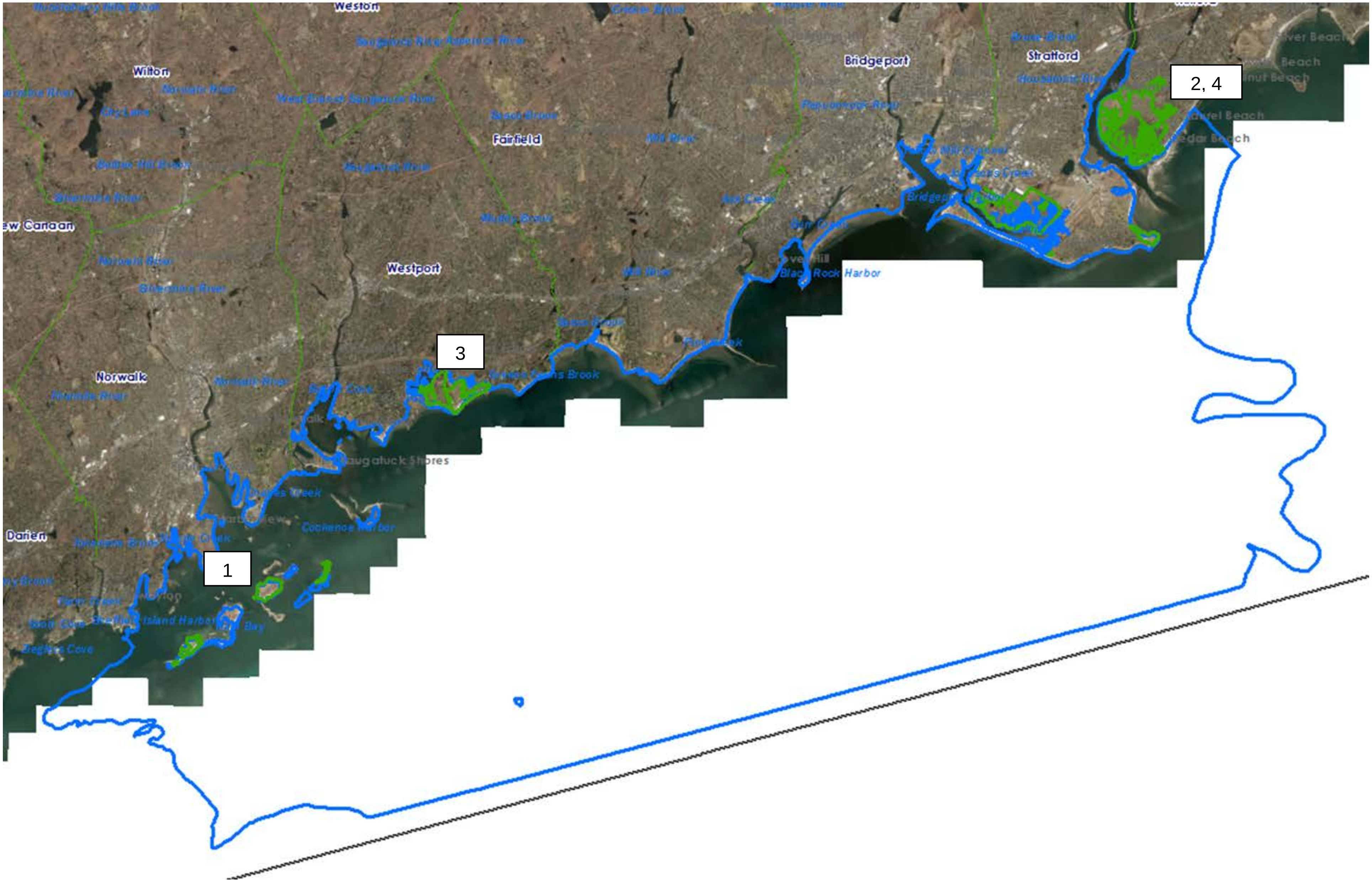
Hybrid Assessment: Using the re-analyzed results, the hybrid site compares favorably with the previous results from the ELIS and CT River sites across all 5 metrics: the % of site developed , % of watershed developed, the % of impervious values for the watershed, the % of hypoxic years, and the LIS Water Quality Index rankings. Using the same logic as below, we conclude the score should be a 3.

Previous Assessment:
To address this criteria we looked at a several different sources: upland site boundaries, upland areas of local drainage basins (using the site's tidally-influenced watershed drainage basin to be consistent with other criteria applications of watersheds), landcover data for developed land (classes = developed, turf/grass, & agriculture,) impervious surface coverage, and Long Island Sound Study data for Hypoxia Events and Water Quality Indices.
In analyzing these data, we reason that based on Developed Percentages of both the upland site and the watershed, as well as the low degree of impervious surface coverage, both ELIS and CT River can be considered relatively undisturbed with low-intensity development. In addition, the offshore water quality metrics are good – a low number of historic hypoxic years, and WQ Index ratings that are good to fair. For CLIS, we interpret the data to say that the upland site is moderately disturbed, but the watershed is moderately developed, which is a combination of a score of 2 and 1. Looking at the LIS water quality metrics (low number of historic hypoxic years, and WQ Index ratings that are good to fair) as well as a low degree of impervious surface coverage, however make us think that overall this should classify the site as relatively undisturbed with moderate development. For WLIS, the upland site in relatively undisturbed, but the watershed is relatively intensely developed, also a combination of a score of 2 and 1. Looking at the LIS water quality metrics (higher number of historic hypoxic years, and WQ Index ratings that are dominated by fair with a percentage of poor) as well as the higher degree of impervious surface coverage, however make us think that overall this should classify the site as relatively undisturbed with relatively intensive development.

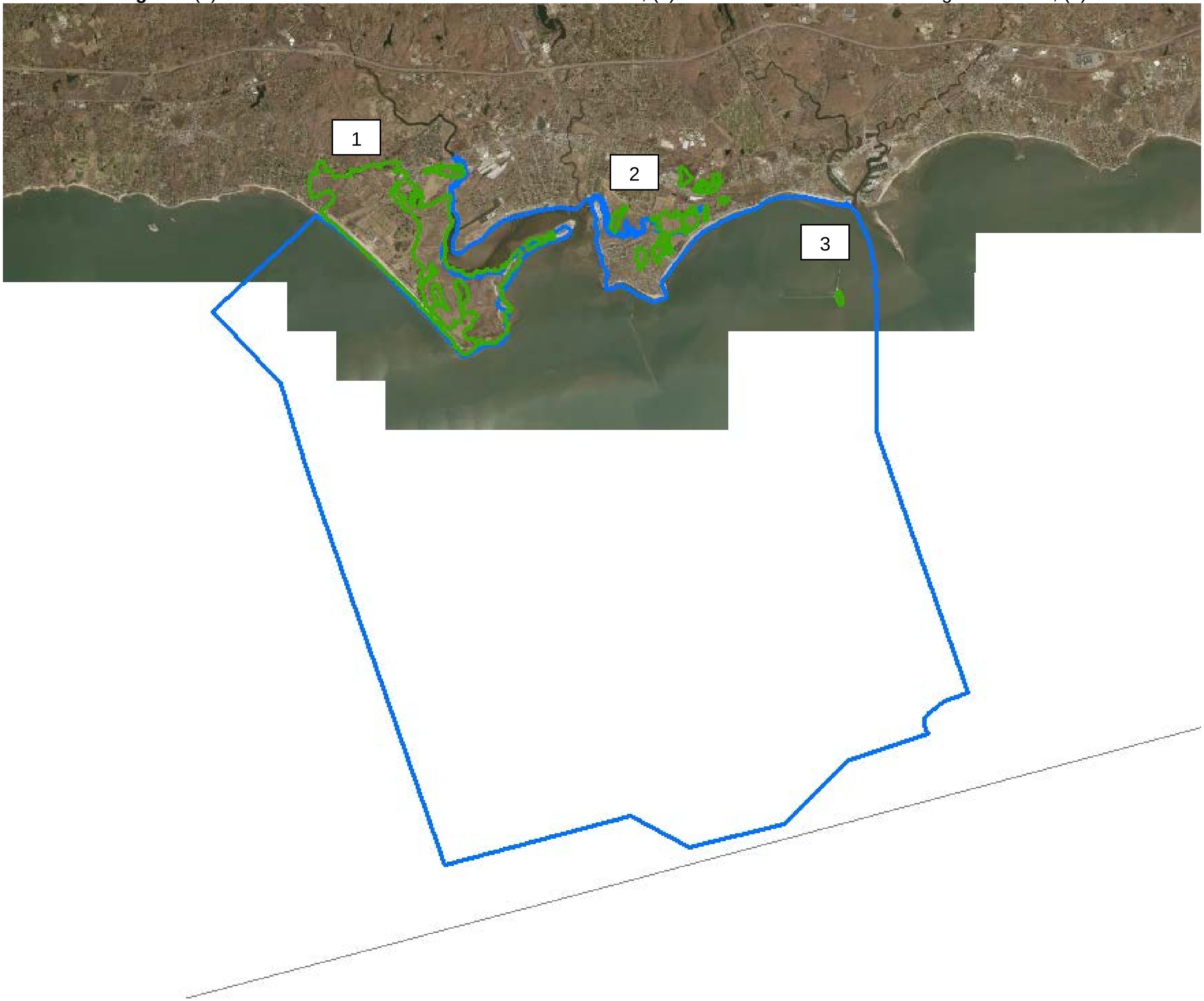
Criteria	**Suggested HYBRID**	**ELIS**	**CT River**	**CLIS**	**WLIS**
1.11	3	3	3	2	1

Off shore areas (in blue) largely delineated by surfical sediment classification boundaries to include both soft and hardbottom areas as well varying depths (shallow to deep water.) In combination, these provide several regimes of habitat variabilty that represents significant resources that are well suited to both NERR system and CT needs. Additional consideration such as mouths of major rivers, and the inclusion of eelgrass beds surrounding Ram Island were also added. Upland boundaries (in green) taken from best avaialble property boundaries. Grey linear feature seaward of the proposed off-shore areas is the CT state line.

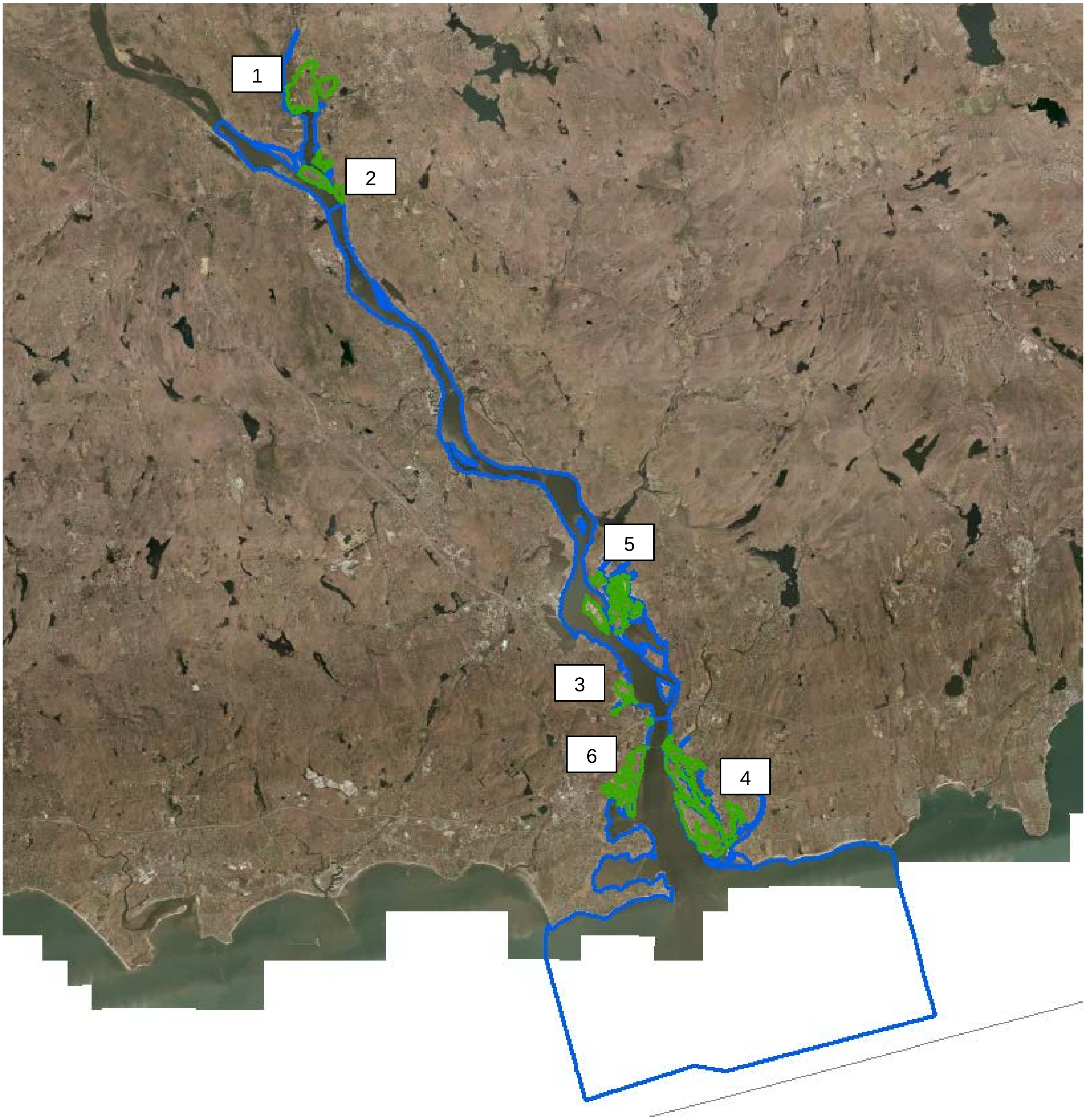
Western LIS Region: A combination of State and Federal properties: the (1) Norwalk Islands, (2) Great Meadows, and Milford Point Unit of the Stewart B. McKinney National Wildlife Refuge, plus (3) Sherwood Island State Park, and (4) Charles Wheeler Wildlife Area



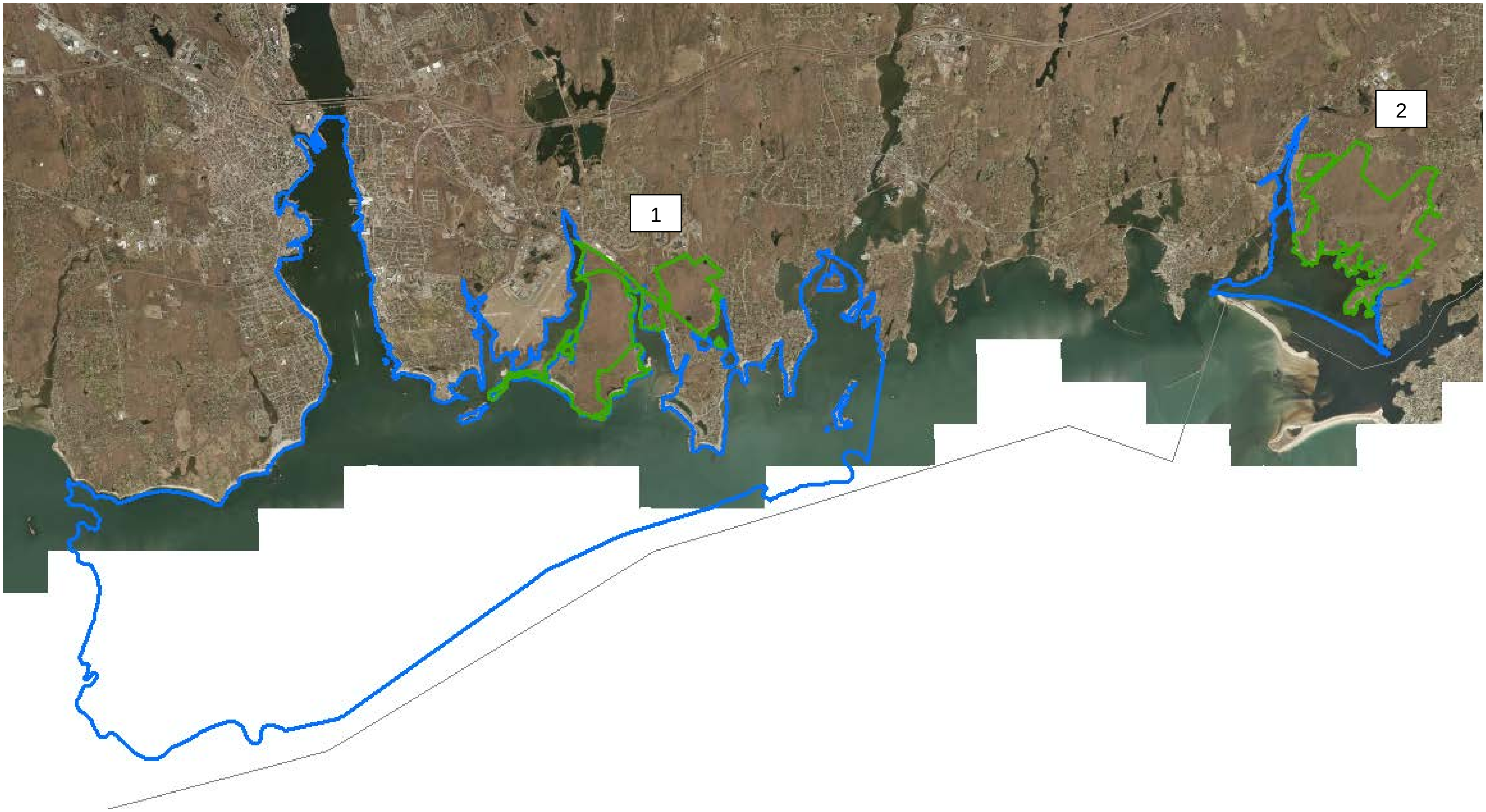
Central LIS Region: (1) Hammonasset State Park/Natural Area Preserve, (2) Hammock River Wildlife Management Area, (3) Duck Island Wildlife Area



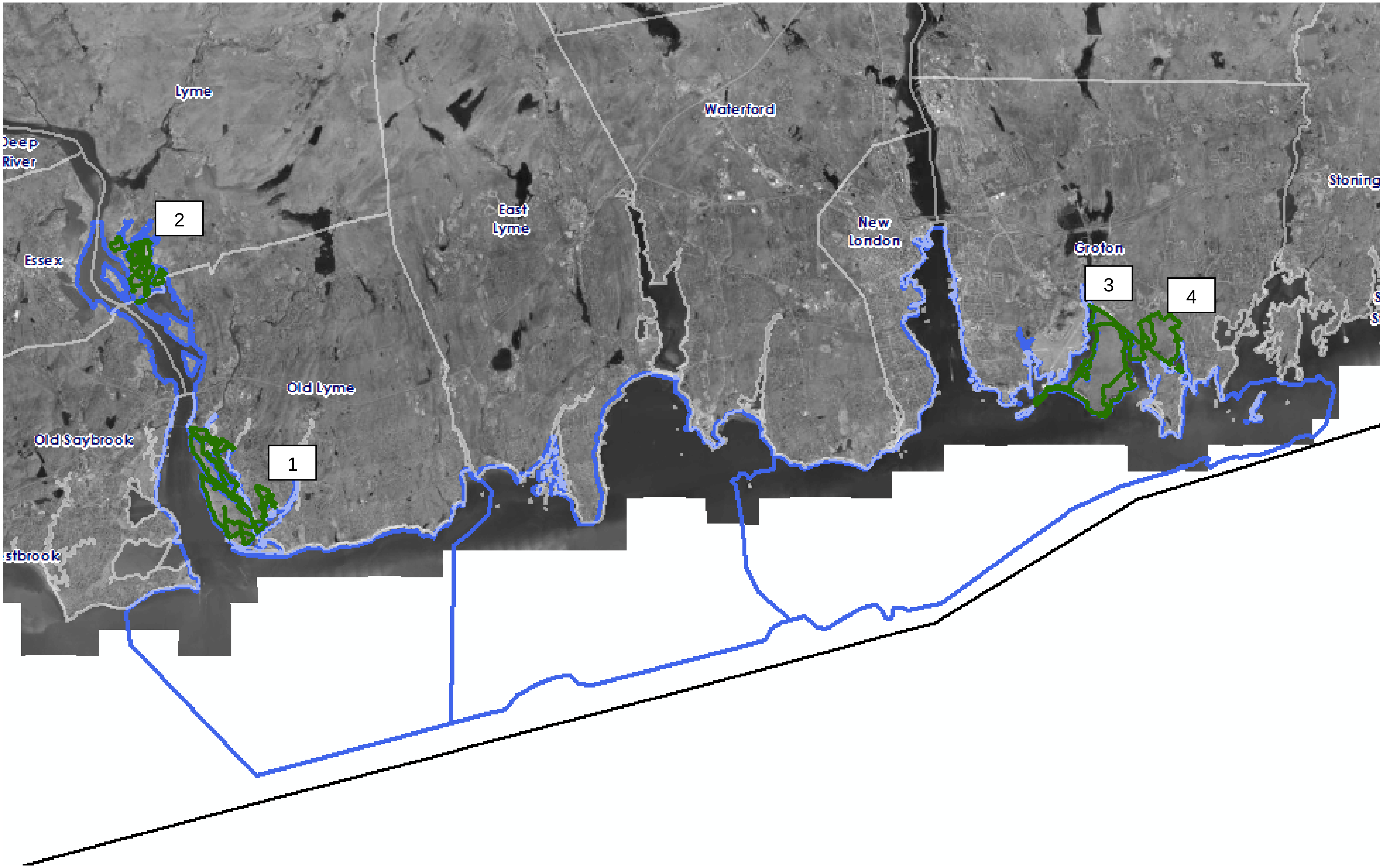
CT River Region:
Upper (Freshwater) Component: (1) Haddam Neck Wildlife Area, (2) Machimoodus State Park;
Lower (Brackish) Component: (3) Ferry Point Wildlife Area, (4) Great Island Wildlife Area, (5) Lord Cove & Nott Island Wildlife Areas, (6) Ragged Rock Creek Wildlife Area



Eastern LIS Region: (1) Bluff Point State Park/Natural Area Preserve/Coastal Reserve & Haley Farm State Park; (2) Barn Island Wildlife Management Area



HYBRID: Great Island WMA (1), Lord Cove WMA (2), Bluff Point SP (3), Haley Farm SP (4)



CT NERR Detailed Screening: Site Scoring Template – v1

1. **<u>Criteria Group:</u>**
    - Research/Monitoring/Stewardship:
        - Kevin O'Brien (CTDEEP)
        - Mark Parker (CTDEEP)
        - Michael Whitney (UCONN)
        - Peter Auster (UCONN)
        - Roman Zajac (U. New Haven)
        - Assorted outside experts (grad students, CT Coastal Zone Management staff, various researchers where topical expertise/experience was needed)

2. **<u>Criteria:</u>**
    - See site assessment section (5) below for listing of the criteria and their evaluations.

3. **<u>Data/Sources of Info Used:</u>**
    - Criteria 2.1 was a general assessment – based in large part on the overall knowledge of the group as well as consideration from the results of investigating/evaluating 2.2, 2.3, and 2.5. Criteria 2.2 relied on a targeted research inventory effort to identify a suite of research-related activities. While expansive, this should not be construed to be complete, but does present a perspective across disciplines, organizations, topics, and time. A caveat to note is that this effort could not focus resources on assessing the availability of data via actual data acquisition. Criteria 2.3, and 2.5 relied heavily on personal opinions/experiences/knowledge of group members. For 2.3, data on known monitoring relevant to the sites included LISICOS, CT DEEP Water Quality Monitoring and Fisheries Surveys, the NERACOOS Sentinel Monitoring Meta-Database, and assorted personal communications and professional knowledge/experience. For 2.5, the group also reached out to members of the CT Coastal Zone Management Program for their assessments/input. Criteria 2.4 was relied on information gleaned from the CTDEEP/LISS Coordinator, past LISS Stewardship Team members, and the websites for the LISS Stewardship Atlas and the NERR System Wide Monitoring Program.
    - Data compilations can be found in the associated files "CTNERR_DetailedCriteria_Set2_data_summary_HYBRID.xls" and "CTNERR Lit Review_20_June_2018_hybrid.docx."
        - The spreadsheet contains not only summary data, but also the responses of individuals when polled for their insights. All individual responses are anonymous.

4. **<u>Summary of Approach:</u>**
    - Criteria 2.1, being somewhat broad, was largely considered after some of the other criteria had data assembled that was relevant and could be applied.
    - Criteria 2.2 relied on a multi-tiered data exploration/collection/analysis by graduate students, team members, and outside experts. This focused on not only on looking for a variety of topical materials, but also those that spanned time (multi-decadal and in some cases beyond) as well as the research source organization.
    - Criteria 2.3 first examined the data monitoring requirements of the NERR SWMP (System Wide Monitoring Program) to get a basic understanding of basic requirements for any CT efforts at each site. Next we took a close look at key elements within the criteria text and tried to tease

out basic information that could be scored individually by team members to see if a quantitative approach might help in determining the qualitative parameters used in the criteria. These were aggregated and analyzed to assess a recommended score. It should be noted that this effort considered the aspect of suitability as a reference site in two ways – how well it might support "current" programs/capacity as well as look forward as to how it might support new or nascent efforts. In the associated Excel spreadsheet noted above, individual responses can be found on sheets 2.3a, 2.3b, 2.3c, and the aggregation/analysis in 2.3 Monitoring – SUM.

- Criteria 2.4 focused on discussions with several DEEP staff with direct frequent involvement in the Long Island Sound Study NEP (namely the DEEP/LISS Liaison and staff involved with aspects of the LISS Stewardship Program.) Additional material reviewed included the LISS Stewardship Atlas Website, which provided an inventory of stewardship locations/activities.
- Criteria 2.5 involved polling both team members as well as experts identified from within the CT Coastal Zone Management Program. The specific issues identified in the criteria were added to a scoring sheet and respondents were asked to rate their suitability on a 4-tiered scale (highly appropriate, adequate, less than adequate, not appropriate.) Similar to 2.3, this was an attempt to take a quantitative approach to assessing qualitative ranking requirements. Responses were anonymized, aggregated, and reviewed across several metrics. The responses and results were then shared out for all to review. No suggested changes or alterations were offered. In the associated Excel spreadsheet noted above, Individual responses can be found on sheets 2.5a, 2.5b, 2.5c, etc., and the aggregation/analysis in 2.5 CM Issues – SUM.
- In assessing the hybrid site, we re-configured the master spreadsheet (**CTNERR_DetailedCriteria_Set2_data-summary_HYBRID.xlsx**) using the same data, sources, and processes as before (i.e., not introducing any new or revised data and not using different analytic methodology) and revised the metrics previously developed. We then used these with the same logic/interpretive approaches for each of the 11 criteria to arrive at a score.

5. <u>**Site Assessments:**</u>

- ***2.1 Suitability of Site for Long-Term Research:*** *This criterion measures the types of long-term estuarine research a site can support, as defined by the following six research areas:*
  ** Ecology, Physical and chemical processes, Geology, Biology, Archeology and/or paleontology, Habitat restoration and resource management issues*
  <u>*Suitability of Site for Long-Term Research Scoring*</u>
  *3 Points: The site can support **five to six** of the research areas.*
  *2 Points: The site can support **four or five** of the six.*
  *1 Point: The site can support **two or three** of the six.*
  *0 Points: The site can support **one or none** of the six.*

Hybrid Evaluation: Based on the rationale used previously (see below) and the fact that the component elements represent key pieces of old CT River and ELIS complexes, I think it's safe to say that the hybrid approach should score no less than a 3. The loss of Barn Island doesn't help, but I don't think would warrant a lower overall score. Per PJA - PJA: The hybrid site can be scored as a synergy of LTR potential beyond the individual scores from ELIS and CTRiver. That is, a NERR that is inclusive of multiple watersheds of disparate area with associated physical conditions related to variable patterns of land use and freshwater flows, and the variable effects on intertidal and subtidal communities, provides a site that can address a more diverse set of ecological and conservation related questions then each original site alone. I agree – 3.

Previous Assessment:
At its most basic, the team feels that any of the four candidate sites could easily support five to six research based on looking at the results of the research review inventory from criteria 2.2 as well as the input from the Issues-based analysis in criteria 2.3 and 2.5. Each is well poised to support a variety of topics within each general category in terms of an overall capacity to support long-term studies. Discussion was given to the consideration what the effect of a pre-defined research agenda might have on the analysis – for example if the results of 2.5 were a proxy to the relative importance of a research agenda, how might that adjust the evaluation of the sites? In the end, however, this is likely to be too speculative…any research agenda will likely have additional considerations/aspects not captured here (needs of the National System, evolving local/regional priorities, emergent trends, etc., etc.) so keeping the analysis at a high-level capacity assessment was preferred. Ultimately we suggest each would score a 3.

	HYBRID	WLIS	CLIS	CT River	ELIS
2.1 Recommended Scores	3	3	3	3	3

- ***2.2 Previous and Current Research Efforts:*** *This criterion is a measure of the degree to which the site has been or is being used for past or current research, including considerations of the diversity of inquiry (fields of research), and the availability of data (the form and availability of documentation, e.g. peer reviewed papers, unpublished theses, grey literature). The assumption is that an area with previously established research interest offers greater opportunity for future projects to build on an existing knowledge base than an area that has not sparked such an interest in the past.*
  <u>Previous and Current Research Scoring</u>
  3 Points: The site has a ***long history of well-documented research*** *projects in a wide variety of topics. Data is readily available.*
  2 Points: The site has had ***some major and well-documented research*** *projects, generating data that is readily available,* ***but does not have a long history*** *of research.*
  1 Point: The site has had ***only minor research projects*** *generating limited data that may be difficult to obtain.*
  0 Points: The site has ***no known history*** *of research.*

Hybrid Evaluation: Based on the previous discussion (see below) and a revised look at the breadth/scope of research for the hybrid sites (*with some additional citations across all areas provided by Ron some time ago and deleting those citations that were exclusively for Barn Island and Little Narragansett Bay*) I don't see this configuration scoring less than a 3.
Per Peter A (6/21/2018): *I just updated the literature review document. This results in the following: Sound-wide - 21 citations, ELIS - 160, CT River 90, CLIS - 28, and WLIS - 65. The hybrid of ELIS and CT River therefore yields 250 citations.*

Previous Assessment:

Based on look across the results of the research inventory (exhaustive but by no means to be considered complete) and our best professional judgment, we suggest there is no reasonable way to differentiate scores of 3s versus 2s based on what we have to date. While simple sums of citations for each region might be useful, they do not reflect the scope of research found in theses and dissertations from UConn, Conn College, Wesleyan, U. New Haven, Yale, and other academic institutions, research reports (from an assortment of State and Federal organizations such as CT DEEP, CT Department of Agriculture, USACE), and other related historic research products (both formal and informal) that would be useful benchmarks for what we might find of utility in this regard. The numbers, nonetheless are as follows:
(ELIS – 181); (CT River – 79); (CLIS – 26); (WLIS – 56); (LIS in general: 18)
The time span of the listed papers also does not provide a useful criteria and all areas demonstrate recent and ongoing research in multiple subject areas. In all cases relevant work spans multiple decades (30 to 40 years in most cases,) and some sources of fisheries information can go back to the late 19th century. In addition, when considering availability of data we note that access to the research papers/reports themselves is generally easy. Access to actual datasets behind them may be difficult in some cases but not so in others.
Jim Ammerman of the Long Island Sound Study offered the following info relative to NSF funded research via a search of NSF Award Databases: The CT River had about 25, some repeats and not all natural science (I have the spreadsheet if interested). I also found one listing each for Barn Island and Milford Point, but nothing for Bluff Point, Haley Farm, Norwalk Island, Norwalk Harbor, Sherwood Island, Hammonasset, Hammock River, Duck Island, or any other major landmarks at the various sites. The CT River will continue to attract such national funding regardless of whether it has a NERR or not, the question is whether such a NERR could be used for leveraging more national funding, a potential consideration. As it turns out EPA is itself having to make additional nutrient measurements near the mouth in order to further the LIS N reduction strategy, there are not enough currently available.
So, in considering the totality of the criteria against the inventory at hand, we suggest the following:

	HYBRID	**WLIS**	**CLIS**	**CT River**	**ELIS**
2.2 Recommended Scores	3	3	3	3	3

- ***2.3 Suitability of Site for Environmental Monitoring:*** *Research Reserves are ideally and uniquely suited to conduct large scale and long-term environmental monitoring. Existing and developing monitoring programs within the NERRS include the System-Wide Monitoring Program (SWMP), aquatic invasive species monitoring, monitoring of long-term climate and environmental trends including sea level rise and global climate change, and additional monitoring driven by local issues. Considerations include the accessibility of the site and the overall logistical ease of installing and maintaining environmental monitoring equipment, and the suitability of a site to serve as a reference area for assessing long-term trends.*

  <u>Suitability of Site for Environmental Monitoring Scoring</u>

  *3 Points: The site is **ideally suited** for providing environmental data to assess long-term resource trends or ecological characteristics for a wide range of needs.*

  *2 Points: The site is **adequate** for providing environmental data to assess long-term resource trends or ecological characteristics for many needs.*

*1 Point: The site is **marginal** for providing environmental data to assess long-term resource trends or ecological characteristics.*
*0 Points: The site is **unsuitable** for providing environmental data.*

Hybrid Evaluation: PJA: As in 2.1, the hybrid site can be scored as a synergy of the monitoring potentials beyond the individual scores from ELIS and CTRiver. That is, a NERR that is inclusive of multiple watersheds nested within a landscape of variable land use patterns, provides a site that can address a more diverse set monitoring activities to compare and contrast landscape scale management regimes. I suggest a score of 3. Based on this, plus the general consensus on considering the details of the criteria with respect to access, logistics, and suitability (current and forward-looking) we consider this a 3.

Previous Assessment:
The team looked specifically at evaluating the key components of Accessibility, Logistics of Installation and Maintenance, and the Suitability of sites as Reference Areas. These were considered with a basic understanding of the needs of NERR system monitoring (e.g., water quality/meteorological/nutrient) as well as linkages to other monitoring programs that address environmental assessments. Accessibility and logistics considered elements such as distance between sites, access points, parking, equipment needs, infrastructure support for deploying equipment, etc. When considering the concept of sites as Reference Areas for long term trends, the team looked at this in two frameworks –how well a site might link to/support current monitoring programs/capacity and how well it might extend current or add capacity to address new monitoring needs. Many well-known long-term monitoring programs (on and off-shore) as well as other efforts were enumerated to assess links to current programs, and an evaluation based on known resources within those sites that are not as well understood/studied served as a basis for extending or adding to monitoring efforts. Team members scored these aspects on a 3-2-1 scale (3 being a good score, 1 being poor) and looked at the combined overall and average ratings. Based on the material considered and these results, the team suggests scoring the 4 sites as follows:

	HYBRID	**WLIS**	**CLIS**	**CT River**	**ELIS**
2.3 Recommended Scores	3	3	2	2	3

- ***2.4. Suitability of the Site for Stewardship Program Development:*** *Research Reserve stewardship programs integrate science, monitoring and communities to protect, manage, and restore coastal habitats. The Long Island Sound Study, EPA's National Estuary Program, currently advances similar stewardship initiatives to conserve natural areas, increase access to the Sound, protect important habitats, and plan for multiple uses. Using this context, sites that can augment stewardship efforts by adding to existing inventories or extending the capacity for stewardship activities at current stewardship locations would be highly valued.*
  <u>Suitability of the Site for Stewardship Program Development Scoring</u>
  *3 Points: The site **creates a new** stewardship opportunity in CT.*
  *2 Points: The site **significantly extends** stewardship goals at an existing site.*
  *1 Point: The site **moderately extends** stewardship goals at an existing site.*

*0 Points: The site **does not extend** any opportunities to advance stewardship goals at an existing site.*

Hybrid Evaluation: Based on the previous discussion (see below) and the revised look at the hybrid sites, this configuration should score a 2 using the same thought process. Although a comment was made to the effect that the aggregation could be considered a "new" site, we did not apply this when considering the earlier configurations where a similar argument could be made.

Previous Assessment:
A significant part of this analysis revolved around evaluating the sites with respect to how well they integrate with Stewardship aspects of the Long Island Sound Study National Estuary Program (LISS NEP) Discussion with the CTDEEP/LISS Liaison and a review of the LISS Stewardship atlas was first conducted to determine if any sites constituted a "new" opportunity – i.e., bringing NERR stewardship programs and capacity to a brand new area not currently part of the LISS program. All four proposed sites overlap with existing LISS stewardships in large degrees. Each however does add existing land and water components representing (in total) a substantially large area from which to extend current or stewardship initiatives of resource, conservation, land management, etc., through the addition of the capacity and programmatic resources a NERR can bring. It is worth noting that although current LISS stewardship activities are limited, all upland properties are under some form of State or Federal land management, so environmental stewardship practices are in play. In either case, the team suggests that based on the criteria – although no site should be considered as a new opportunity, a NERR at any site would significantly extend stewardship goals.

	HYBRID	WLIS	CLIS	CT River	ELIS
2.4 Recommended Scores	2	2	2	2	2

- ***2.5 - Ability to Address Local, State, & Regional Coastal Management Issues:*** *A goal of the NERR system is to improve coastal management through research, education, and interpretation, thus it is important that a site be relevant to local, state, and regional coastal management issues. Solutions to these issues may require either application of land management practices or limited habitat manipulations consistent with 15 CFR 921.1(d) to perform meaningful research and assessment. The site should offer both adequate control areas plus areas where appropriate demonstration projects and habitat manipulations can be accommodated to study many of the issues of concern. Thus, a site where coastal management issues arise and can be addressed will be of greater value than sites where these issues do not arise. Significant coastal management issues include the following:*
  ** Climate change and sea-level rise, Habitat restoration (e.g. wetlands, SAV, coastal forests, beaches and dunes), Nutrient enrichment (hypoxia, SAV loss, other changes in biotic communities), Energy development impacts, Shoreline erosion, Commercial and/or recreational fisheries, Waterfowl and other wildlife management, Best management practices for habitat protection and restoration, Best management practices to limit impacts from agricultural or development, Best methods to control invasive species, Pollutant effects on water quality and living resources, Dredging and spoil disposal, Prehistoric and early historic settlement and land use, Freshwater inflow effects*

<u>Ability to Address Local, State, & Regional Coastal Management Issues Scoring</u>

*3 Points - The site is **highly appropriate** for investigating coastal zone management issues consistent with 15 CFR 921.1(d).*

*2 Points - The site is **appropriate** for investigating coastal zone management issues.*

*1 Point - The site is **minimally** appropriate for investigating coastal zone management issues consistent with 15 CFR 921.1(d).*

*0 Points - The site is **not appropriate** for investigating coastal zone management issues consistent with 15 CFR 921.1(d).*

FYI: 15 CFR 921.1(d) governs how reserves address habitat manipulations. Big picture is that any activities must be consistent with approved reserve management plans, not in conflict with existing regulations, and not negatively affect the ecological integrity of the site. https://www.law.cornell.edu/cfr/text/15/921.1

Hybrid Assessment: We again re-used the same construct of distributing a scoring sheet with all 14 issues was developed and shared among the team and members of the CT Coastal Zone Management office with significant experience and/or expertise among the issue areas. Respondents were asked to rank the issues on a 3-2-1-0 scale, with 3 being the highest score (site is most appropriate to address the issue) and 0 being the lowest (not is not appropriate to address the issue.) Responses were anonymized and aggregated. Simple statistics (total score – sum of all issue scores for a site, average issue score – total score divided by number of issues, and average rank score – average issue score divided number of respondents) were calculated. Given that this review had less respondents (4) than the original (7) we did not assess a ranking frequency (i.e., the number of times a site was ranked as first, second, third, etc., by each respondent.) In this analysis, the hybrid rank score came in above 2 of the 4 original sites (CT River and CLIS) but below the remaining two (WLIS and ELIS.) While clear that these respondents as a whole do not see the hybrid as quite on par with the top scores from the previous round, in assessing the score results and the intent of the criteria a score of 2 is suggested.

Previous Assessment:
Given the breadth of issues specifically called out in the criteria, a methods similar to 2.3 was employed. Namely, a scoring sheet with all 14 issues was developed and shared among the team and members of the CT Coastal Zone Management office with significant experience and/or expertise among the issue areas. Respondents were asked to rank the issues on a 3-2-1-0 scale, with 3 being the highest score (site is most appropriate to address the issue) and 0 being the lowest (not is not appropriate to address the issue.) Responses were anonymized and aggregated. Simple statistics (total score – sum of all issue scores for a site, average issue score – total score divided by number of issues, and average rank score – average issue score divided number of respondents) were calculated. Ranking frequency was also reported (i.e., the number of times a site was ranked as first, second, third, etc., by each respondent. Ties were included.) Given that different respondents may have differing viewpoints on sites ability to address the issues and thus represent fundamentally different interpretations, the data was also reviewed as follows. A qualitative review by team members of the range among the scores for each site on an issue by issue basis by resulted in a level of comfort that while different perspectives were captured, there was nothing to suggest a fundamental split between highly appropriate or not appropriate that might require follow-up or a

better clarification of the issue.) The data (individual responses and summary) were also shared among respondents to identify if there were any concerns raised or if anyone indicated a desire to alter a score based on misunderstandings/misconceptions on the issues, or reading a comment raising a position or element that hadn't considered but wanted to. No concerns were raised nor were requests to adjust any scores received. Based on this we suggest the following scores:

	HYBRID	**WLIS**	**CLIS**	**CT River**	**ELIS**
2.4 Recommended Scores	2	3	2	2	3

6. <u>Recommended Scores:</u>

- A summary of the recommended results described above:

	HYBRID	**WLIS**	**CLIS**	**CT River**	**ELIS**
Criteria 2.1	3	3	3	3	3
Criteria 2.2	3	3	3	3	3
Criteria 2.3	3	3	2	2	3
Criteria 2.4	2	2	2	2	2
Criteria 2.5	2	3	2	2	3

CT NERR Detailed Screening: Site Scoring Template (w/ Hybrid Site) Rev. 1

1. Criteria Group: *Training*, *Education & Interpretation*

Juliana Barrett	Diana Payne
John Forbis	Ralph Wood
Kevin O'Brien	

2. Criteria

See Section 5 "Site Assessments" for subsections of the criteria

3. Data/Sources of Information Used

- Data
  - Demographics of target audiences
  - Education resources (by town), e.g., Schools, Universities and Colleges, State Parks, Nature Centers, Land Trusts, Museums, Aquariums, Summer Camps, National Fish & Wildlife Units
  - Program offerings and Outreach efforts of education resources
  - Accessibility of education resources for target audiences

- Sources of Information
  - Web sites
  - Personal visits to resource locations
  - Personal contacts with environmental educators, environmental scientists, coastal decision makers
  - Team knowledge
  - Report of a 2016 benchmarking exercise among several northeastern NERR site educators to discover key success factors for NERR education programs
  - Outreach by environmental scientists (e.g., lectures, meet a scientist sessions)
  - Review comments from members of the other site selection criteria teams
  - Satellite maps

4. Summary of Approach

- Identify education, training and interpretation resources within each town encompassed by or bordering a candidate site. Define like groups of resources, for example, K-12 schools or land trusts, when the resources involve several similar units.
- Agree on interpretations and measures of the criteria. In all cases, we broke down a criteria element, e.g., 3.1 "Value," into subcategories that were defined in NOAA's description of the criteria element or that included what we judged to be a critical success factor. For example, we subdivided "Value" into "Quality Factors," "Number of Environmental Education Organizations," and "Service Level for Targeted Groups." To add specificity, we further partitioned "Quality Factors" into ten characteristics for all resources plus an additional one for K-12 schools: the percentage of Top 100 CT schools within the site.

- Mine and document the data, for each resource or resource group, to enable us to quantify measures of the criteria applied to that resource or resource group.
- Score the criteria sub-elements for each site resource measure on a 0 – 3 scale.
- Average the criteria scores to compute an average assessment (0-3 scale) for each criteria element.
- Add the four criteria element scores and compare the total scores for each site.

5. Site Assessments

Criteria 3.1

3.1. Value of Site for Environmental Education, Interpretation, and Training Programs: Well-developed education and outreach programs are critical to consider when selecting a site. On-going and new education and outreach programs should also be considered, including the Coastal Training Program, translation of research studies and results, and integration with other education and outreach programs.

- Kindergarten through high school education programs
- High school and undergraduate students working independently or in small groups
- Graduate students
- Professional development programs for teachers
- Training programs and workshops for coastal decision-maker audiences
- Interpretation targeted to the general public

Table 3.1: *Value of Site for Environmental Education and Interpretation Programs Scoring*

3 Points	The site is well suited to provide numerous, high quality training, education, and interpretation opportunities for all of the groups listed.
2 Points	The site is suitable for several good quality training, education, and interpretation opportunities for four or more of the groups listed.
1 Point	The site is well suited only for very limited educational and/or training opportunities for some of the groups listed.
0 Points	The site is not well suited to support education, interpretation, and training programs.

Interpretation of Criteria 3.1

Since the criteria for 3 Points and 2 Points both use the term “quality,” we felt the need to add definitions for this term and to create a subcategory, “3.1(a) Quality Factors.” Using the wording of the criteria, our team’s knowledge, and a benchmarking study involving NERR educators in the Northeast, we developed a list of 10 quality factors, including

- Curriculum Based Environmental Education Program
- Outreach Programs
- Coastal Training Program
- Major Environmental Research Activities and Translation of Results
- Authentic Research Projects for High School, Undergraduate and Graduate Students
- Partnerships for Integration with Other Programs
- STEM Content
- Alignment with Next Generation Science Standards
- Support Beyond Basic NERR Funding
- Science for Girls.

Note that the title of 3.1 uses the word “Value,” although there is no mention of the economics of site education programs; thus, we added the quality factor, “Support beyond Basic NERR Funding.” Just for K-12 students, we included an additional quality factor, “Percentage of Top 100 CT Schools within the Site.”

Since quality is defined as conformance to a standard, we measured 3.1(a) as a percentage of perfect score (i.e., 3 in each sub-criterion).

Next, we provided a second subcategory, 3.1(b) “Number of Environmental Education Organizations” within a site, in the belief that a higher number of such organizations would increase the value of a site. We counted this number and then measured it as a percentage of the totals for all five sites.

Finally, we established a third subcategory 3.1(c) “Service Level for Targeted Groups” to quantify how many of the educational organizations were serving which groups of the six targeted groups listed above in the criteria. After determining this number, we measured it as a percentage of the totals for all four sites.

<u>Site Assessments for Criteria 3.1</u>

A. Eastern Long Island Sound (Barn Island to Bluff Point).
Tied for highest total score of 55% in Criteria 3.1 (a) “Quality Factors” because of several high-quality resources (Mystic Aquarium, Mystic Seaport Museum of America and the Sea, Denison Pequotsepos Nature Center and Coogan’s Farm, New England Sailing and Science School, Project Oceanology, Connecticut Sea Grant, and six active land trusts.
Third highest score (18%) in Criteria 3.1 (b), “Number of Environmental Education Organizations within the site.” And third highest score (19%) in Criteria 3.1 (c), “Service Level Achieved for Targeted Groups.”

B. Lower Connecticut River.
High score of 50%, or 3, in quality factors because of the growing influence of Connecticut Audubon Society’s Roger Tory Peterson Estuary Center, two nature camps, The Connecticut River Museum, DEEP Marine Headquarters, and six active land trusts plus outreach activities of scientists doing research on the site.
Second highest number (20%) of Environmental Education Organizations [Criteria 3.1(b)] within the sites and second highest service level (21%) among the sites [Criteria 3.1 (c)].

C. Central Long Island Sound (Hammonasset to Hammock).
Tied with ELIS and Hybrid sites for highest total score of 55% in Criteria 3.1(a) “Quality Factors,” because of a high percentage of Top 100 CT Schools and high-quality environmental education programs at Cedar Island Research Lab, Steward B. McKinney Salt Marsh and Outer Island Units, Meigs Point Nature Center, and Bauer Park.

Lowest number (12%) of environmental education organizations among the five sites [Criteria 3.1(b)] and the lowest service level (11%) of targeted groups [Criteria 3.1 (c].

D. Western Long Island Sound (Norwalk to Stratford/Milford)
Second highest score of 54% in Criteria 3.1(a) “Quality Factors, because of high-quality programs from Maritime Aquarium at Norwalk, Farm Creek Preserve, Earthplace Nature Center, Steward B. McKinney Units at Sheffield Island, Great Meadow and Milford Point, Stepping Stones Children’s

Museum, and Connecticut Audubon Society's Coastal Center at Milford Point. Second lowest number (15%) of environmental education organizations among the five sites, and second lowest service level (14%).

E. Hybrid (Parts of ELIS and LCR sites plus East Lyme, Waterford and New London)
Tied with Eastern LIS and Central LIS for highest score of 55% in Criteria 3.1(a) "Quality Factors." The Hybrid Site includes many high-quality environmental education resources from the Eastern LIS and Lower CT River sites, and it brings further high-quality resources into play from East Lyme, Waterford and New London, particularly, the excellent East Lyme school system, Connecticut College and its renowned Arboretum and Mamacoke Island Conservation Area, Camp Harkness, Rocky Neck State Park, the William A. Niering Natural Area Preserve, the Friends of Oswegatchie Hill Nature Preserve, and 6 other active land trusts. The Hybrid site also encompasses the largest number (43 or 35% of total) of environmental organizations among all of the sites [Criterion 3.1(b)], and the Hybrid site has the highest education service level (36%) for the NERR target groups.

Recommended Summary Assessments for Criteria 3.1 "Value of Site for Environmental Education and Interpretation Programs"

	Eastern LIS	Lower CT River	Central LIS	Western LIS	Hybrid
Criteria 3.1	**2**	**2**	**2**	**2**	**2**

For further details about data, measures and scoring, refer to Appendix A.

Criteria 3.2

3.2. Diversity and Quality of Education and Interpretation Opportunities: Another important consideration is the degree to which a site can provide a well-rounded education program, with the ability to emphasize each of the following disciplines within an estuarine system:

- Ecology
- Physics and chemistry
- Geology
- Biology
- Archeology and/or paleontology
- Habitat restoration and/or coastal resource management

Table 3.2: *Diversity and Quality of Education and Interpretation Opportunities Scoring*

3 Points	The site is well suited for education in all of these areas.
2 Points	The site is well suited for education in 4 or 5 of these areas.
1 Point	The site is well suited for education in 1-3 of these areas.
0 Points	The site is not well suited for education in any of these areas.

Interpretation of Criteria 3.2

We first added "Climate" to create seven disciplines and then subdivided the 3.2 Criteria into two elements: 3.2(a) Estuarine Disciplines Represented and 3.2(b) Diversity Index. The first of these is straightforward and consists of the number of the six disciplines plus Climate that the education resources within a site can emphasize. Since all seven disciplines were represented within each site, all sites garnered a perfect score of 3 (100%) for this element.

Then we looked at the teaching sites for each of the environmental education organizations. By multiplying the number of disciplines taught at each teaching site by the number of teaching sites within each education organization, we created a quantity that we labeled the "Diversity Index." The score for each organization was measured as a percentage of the total across all candidate NERR sites.

<u>Site Assessment for Criteria 3.2</u>

A. Eastern Long Island Sound (Barn Island to Bluff Point)
Second-to-lowest diversity index (8%) driven by the paucity of multiple teaching areas associated with the educational organizations within the site.

B. Lower Connecticut River
Second highest diversity index (35%) of any site because of a large number of land-trust teaching areas identified through the analysis of schools, school yards and land trust and open space preserves. The Roger Tory Peterson Estuary Center has found Land Trusts very eager to support their local schools with the *Science in Nature* program in their preserves. The Lower Connecticut River's diversity index is five times that of the lowest site, Central Long Island Sound (7%).

C. Central Long Island Sound
Third-to-lowest diversity index (12%), because of fewer multiple teaching areas associated with the educational organizations within the site.

D. Western Long Island Sound
Lowest diversity index (7%), because of only a few multiple teaching areas associated with the educational organizations within the site.

E. Hybrid (Parts of ELIS and LCR sites plus East Lyme, Waterford and New London)
Highest diversity index (38%) because of multiple teaching areas associated with the 13 land trusts and other education organizations within the site.

<u>Recommended Summary Assessments for Criteria 3.2 "Diversity and Quality of Education and Interpretation Opportunities</u>

	Eastern LIS	Lower CT River	Central LIS	Western LIS	Hybrid
Criteria 3.2	**2**	**3**	**2**	**2**	**3**

For further details about data, measures and scoring, refer to Appendix A.

Criteria 3.3

3.3. Previous and Current Education and Outreach Efforts: This criterion is a measure of the degree to which the site has been or is being used for past or current education and outreach programs or initiatives, including considerations of the type and form of education and outreach (traditional training and education programs versus inquiry-based educational awareness workshops, or passive education through trail brochures or interpretive signage installation), and the availability of the program curricula (e.g. curricula on beach seining and species identification activities at the site, or interpretive trail markers, and whether or not information is readily available, such as on a public website or physically installed at the site). The assumption is that an area with previously established educational activities and interest from educators as an outdoor classroom offers greater opportunity for future projects and educational initiatives, based on the physical site characteristics and the availability of educational curricula, interpretive signage or trail brochures, or other unique characteristics that lend themselves to quality outdoor learning experiences.

Table 3.3: *Previous and Current Education and Outreach Efforts Scoring*

3 Points	The site has a long history of well-documented education and outreach projects in a wide variety of disciplines. Curricula and brochures/guides are readily available.
2 Points	The site has had some major and well-documented education and outreach projects, generating curricula and/or passive educational tools that are readily available, but does not have a long history of education and outreach activities.
1 Point	The site has had only minor education and outreach projects and use generating limited curricula or other educational resources that may be difficult to obtain.
0 Points	The site has no known history of use for education and outreach activities.

Interpretation of Criteria 3.3

After reading the criteria requirements, we broke Criteria 3.3 into three subcategories:

- 3.3 (a) History
- 3.3 (b) Type
- 3.3 (c) Information Availability.

We interpreted “history” as ongoing programs that were started three or more years ago and “new” as programs that were less than three years old. We assumed that these distinctions carried equal weighting.

We identified three types of programs: traditional, facilitated learning, and self-discovery. We assumed that these categories carried equal weighting.

Finally, we defied two categories for 3.3 (c) “Information Availability:”

- Readily Available
- Installed at the Site.

We assumed equal weighting for each.

Site Assessments for Criteria 3.3

All sites and their education organizations were fairly evenly divided between new and ongoing education and outreach programs [Criterion 3.3(a) “History”], with all having measures between 71% (Eastern Long Island Sound) to 91% (Hybrid site), which qualified each site for the highest score of 3. In the type subcategory [Criterion 3.3(b)], three sites (Lower Connecticut River, Central LIS and Western LIS) had measures of 16%, 18% and 18%, respectively, which qualified them for a score of 1 in this subcategory. The Hybrid site ranked the highest at 29%, followed by Eastern Long Island Sound at 20%; these sites both scored a 2. Higher scores accompanied sites that provided a balance between the three types of education delivery: traditional, facilitated, and self-discovery.

Finally, thanks to web-site implementations, information availability [Criterion 3.3 (c)] ranged between a low measure of 74%, shared between three sites, to a high measure of 83% for the Hybrid site. These measures warranted a common score of 3 for all five sites.

The following summary shows the averages of the scores attained in the three facets (a), (b) and (c) of Criteria 3.3.

<u>Recommended Summary Assessments for Criteria 3.3 "Previous and Current Education and Outreach Efforts"</u>

	Eastern LIS	Lower CT River	Central LIS	Western LIS	Hybrid
Criteria 3.3	**3**	**2**	**2**	**2**	**3**

For further details about data, measures and scoring, refer to Appendix A.

Criteria 3.4

3.4. Diversity and Availability of Target Audiences: No matter how well suited a site may be for education and interpretation programs, it is useless in this regard if the audiences do not exist, or the site is inaccessible. The ideal site should be well suited for programs directed at students and adults of all ages. Thus, the value of a site correspondingly increases with the size and availability of its target audiences.

- Kindergarten through high school students
- Undergraduate students
- Graduate students
- Teachers
- Coastal decision-makers
- Interpretation targeted to the general public

Table 3.4: *Diversity and Availability of Target Audiences Scoring*

3 Points	All of these audiences exist and can easily access the site.
2 Points	Some of these audiences exist, and/or most can access the site.
1 Point	Only a few of these audiences exist, and/or some would have difficulty accessing the site.
0 Points	Only one or two of these audiences exist and the site is largely inaccessible.

<u>Interpretation of Criteria 3.4</u>

Following the wording of Criteria 3.4, we divided the criteria into two subcategories:

- 3.4 (a) "Audiences"
- 3.4 (b) "Accessibility of Environmental Education Venues."

Under 3.4 (a) "Audiences" we further subdivided the targeted audiences into three subgroups:

- K-12 Students and Teachers
- Coastal Decision Makers
- Rest of Target Population.

The rationale for the population numbers in 3.4(a) “Audiences” is straightforward and given in the description of the criteria for 3.4. We assumed that the target for the general public will be 10% of the total population.

Under 3.4(b) “Accessibility of Environmental Education Venues,” we made two subdivisions:

- K-12 Students and Teachers: Outdoor Classrooms
- Rest of Target Population/Number of Education Sites.

In 3.4 (b) “Accessibility of Environmental Education Venues,” the concept of accessible outdoor classrooms, either diverse school yard habitats or adjacent nature sanctuaries, significantly increases the availability of outdoor nature education to K-12 schools, since the venues are within easy walking distance and no bussing is required.

The second part of the Accessibility subcategory looks at the ratio of Rest of Target Population (overall site population less population of schools and teachers) to the number of teaching areas within each candidate site. The result is a stand-in for the carrying capacity of each teaching venue for the public. Higher ratios suggest that there may not be enough education areas to handle the rest of the population.

<u>Site Assessments for Criteria 3.4</u>

A. Eastern Long Island Sound
Population of K-12 Students and Teachers (12,499) is a distant third to Western Long Island Sound (68,884). Third highest in “Rest of Population” total (11,026) among sites.
Fourth in the number of Coastal Decision Makers (75).
Third in percentage of outdoor classrooms (35%) and fourth in number of “Rest of Target Population per teaching venue” (394).

B. Lower Connecticut River
Fourth in population of K-12 Students and Teachers (9,968), third highest population of Coastal Decision Makers (170), and fourth in rest of target population (8,492).
First in percentage of outdoor classrooms (80%) and first in fewest number (95) of “Rest of Population” per Education Sites.”

C. Central Long Island Sound
Lowest population of K-12 Students and Teachers (6,524) and lowest population of Coastal Decision Makers (30). Virtually tied with Lower Connecticut River site for least number of “Rest of Target Population” (8,370).
Third highest population of outdoor classrooms (42%) and second to lowest in ratio of Rest of Target Population per teaching venue (182).

D. Western Long Island Sound
By far the largest population of K-12 Students and Teachers (68,884) and the Rest of the Target Population (46,858).
Lowest percentage of outdoor classrooms (29%) and last in the ratio of Rest of Target Population to teaching venues (2,466), because this site has the largest population with the fewest teaching venues.

E. Hybrid (Parts of ELIS and LCR sites plus East Lyme, Waterford and New London)
Second largest population of K-12 Students and Teachers (23,977) and the Rest of Target Population (22,209).
Second highest access, behind the Lower Connecticut River site, to outdoor classrooms. Tied with Central Long Island Sound site in second lowest ratio of Rest of Target Population to Number of Education Sites.

Recommended Summary Assessments for Criteria 3.4 "Diversity and Availability of Target Audiences

	Eastern LIS	Lower CT River	Central LIS	Western LIS	Hybrid
Criteria 3.4	**1**	**2**	**1**	**2**	**2**

For further details about data, measures and scoring, refer to Appendix A.

Composite Assessment for Education Criteria 3.0

Rather than attempt to compute the average of the preceding four summary assessments, which themselves are averages, we summed the results to produce the final composite assessment shown in the following table:

	Eastern LIS	Lower CT River	Central LIS	Western LIS	Hybrid
Criteria 3	**8**	**9**	**7**	**8**	**10**

6. Observations

A. Hybrid Site Education Scoring

As shown in the table in Appendix A, there are 13 sub elements within the four major environmental education criteria areas: 3.1 Value, 3.2 Diversity and Quality, 3.3 Education and Outreach Efforts, and 3.4 Audience and Accessibility. The Hybrid Site bests the other sites in our quantified percentage measurements in nine of these elements. When the percentages are converted to a 0 – 3 scale and then averaged over each major education criteria area, the Hybrid Site equals or betters the criteria area scores achieved by the other candidate sites. Totaling the criteria area scores, as shown in the preceding table "Composite Assessment for Education Criteria 3.0," demonstrates that the Hybrid Site scores the best in the overall environmental education criteria among all five of the candidate sites.

A quick glance at the color coding in the Appendix A table reveals that the Hybrid Site benefits from the higher of the scores of either the Eastern LIS or the Lower Connecticut River sites on which the Hybrid Site is based. In other words, the Hybrid Site "cherry picks" from its two component sites and is not encumbered by their weaknesses. From there the Hybrid Site scores are enhanced by the additional value offered by the features that reside in its intermediate municipalities of East Lyme, Waterford and New London. The Hybrid Site is also unique among the other sites in that it has no red (1) or blank (0) education criteria measures in its column of sub elements.

B. Scoring Addition

While reviewing the scoring results for all five sites, we realized that, in the prior four-site evaluation, we had omitted incorporating a score for the very essence of Criteria 3.2 “Diversity and Quality,” namely, a measure for how many of the six estuarine disciplines plus a seventh discipline, Climate, could be emphasized by each site. Our rationale was based on an analysis that all of the candidate sites indeed had the capacity to represent all seven disciplines; therefore, this criterion was not a source of differentiation among the sites, so we did not create a sub element for it under Criteria 3.2. In the interest of completeness, in the present scoring of the candidate sites including the Hybrid site, we did create the sub category 3.2(a) “Estuarine Disciplines Represented.” As shown in the Appendix A table, all sites achieved a 100% score (Green, 3) in this sub category.

C. Value of Intermediate Municipalities in Hybrid Site

The three municipalities, East Lyme, Waterford and New London, which span between the truncated Lower Connecticut River and the truncated Eastern Long Island Sound candidate sites to form the Hybrid candidate site, add further high-quality environmental education capacity to this site. The following list illustrates a sample of the additional capacity:

- Colleges and universities
    - Connecticut College: Conn College Arboretum, the Goodwin Niering Center for the Environment, and a collection of 43 bulletins, 75% of which are definitive articles on wetlands habitats and flora and fauna, many along the disciplines discussed in the NERR education criteria
    - Mitchell College: Environmental Studies; Marine Science
- Public school system: Five schools in Connecticut’s Top 100 Schools
- New England Science and Sailing: Dedicated programs at two New London schools (Winthrop Elementary Science and Technology Magnet and New London Leadership Academy) plus experiential teaching facilities at Ocean Beach in New London
- Roger Tory Peterson Estuary Center (Connecticut Audubon Society): *Science in Nature* programs with Harbor Elementary School and The Leadership Academy, both in New London
- Natural Area Preserves and Designated Long Island Sound Study Stewardship Areas
    - Rocky Neck State Park (LISS Stewardship Area, nature center)
    - Pattagansett Marshes and Watts Island (Natural Area Preserve, LISS Stewardship Area)
    - William Niering Natural Area Preserve and LISS Stewardship Area
    - Connecticut College Arboretum: Two Natural Areas, Bolleswood and Mamacoke Island and salt marsh (Mamacoke Conservation Area)
- Land Trusts: 6

D. Professional Educators’ Perspectives

There are many issues that concern professional educators that are critical for the delivery of very high-quality programs to schools and professional development. These issues have been highlighted in the following text:

- Very high quality teaching of science standards from the upper elementary grades all the way through high school and college. The need for this in elementary and middle school is absolutely critical as Connecticut Schools adopt the Next Generation Science Standards.
- The need to deliver a cost effective program while meeting the demanding security standards adopted after Newtown. Many schools prioritize programs that can be delivered in "outside

classrooms" on the woodland portion of the schoolyard or adjacent Land Trust and Open Spaces Preserves where the teachers provide the discipline and the Science Educators provide the science. One advantage of natural sciences is that it does not require expensive facilities but does require outside classrooms.

- These factors lead to a situation where science does not have to be expensive. In addition it provides a unique opportunity for the Land Trusts and Open Space program (many of these preserves have been created with substantial assistance from the CT DEEP). To understand the potential impact, we carefully documented the size of lands of the schoolyards and the adjacent land trust properties and those within walking distance.

E. *Coordination Opportunity*

Regardless of which site is selected, there is a huge opportunity for the new CT NERR to partner with and gain synergy from the sizeable number of environmental education and training resources that exist. (As shown in the data summary table in Appendix A, the number of environmental education organizations ranges from 15 in the Central Long Island Sound candidate site to 43 in the Hybrid candidate site.) Establishing partnerships for education was one of the critical NERR success factors identified in the 2016 benchmarking study with NERR Educators in the northeast. Herein is also a key to managing the economics of the CTNERR's environmental education, outreach and training programs, not to mention their impact on conservation.

F. *Target Audience Priorities*

With the exception of one site, Central Long Island Sound, the number of K-12 students and teachers exceeds the total for the rest of the target population. Since the number of students and teachers constitutes a large, captive and fairly predictable audience, and since conservation is generational, the K-12 school audience ought to be a high priority for the new CT NERR.

G. *Land Trusts Make an Outsized Difference to Environmental Education*

Although land trusts were originally established to acquire, protect and rehabilitate conservation lands, they have more recently taken on the task of using many of their properties for education and interpretation targeted to the general public. The diversity index in Criterion 3.2 was substantially bolstered, especially in the Hybrid candidate site thanks to its component from the Lower Connecticut River, by the number of teaching areas made available by land trusts. Partnerships with land trusts are essential to the concept of the outdoor classroom for K-12 students and teachers.

In addition to delivering education programs on their properties, some land trusts promote citizen science projects (e.g., water quality monitoring), fund environmental projects, team with experts to explore the archaeology of their trust preserves, and provide scholarships for summer camp and college (for undergraduates who wish to pursue a career in relevant environmental areas). A few land trusts also have plans to start their own nature centers.

APPENDIX A
Detailed Summary of Site Education Assessment Data and Measures

Criteria Categories	Candidate Sites															Total All Sites	Description of Measures
	Eastern LIS (Barn Island Bluff Point)			***Lower Connecticut River***			***Central LIS (Hammonasset - Hammock)***			***Western LIS (Norwalk - Stratford)***			***Hybrid Site (Parts of ELIS and Lower CT River + East Lyme, Waterford and New London)***				
	Number	Perfect Score	Measure	Number	Perfect Score	Measure	Number	Perfect Score	Measure	Number	Perfect Score	Measure	Number	Perfect Score	Measure		
Criteria 3.1 Value																	
a) Quality Factors	183	333	55%	152	303	50%	149	273	55%	147	273	54%	251	453	55%		% perfect score
b) Number of Environmental Education Organizations	22		18%	25		20%	15		12%	19		15%	43		35%	124	% all sites
c) Service Level for Targeted Groups	69		19%	77		21%	40		11%	50		14%	132		36%	368	% all sites
Summary Assessment			2			2			2			2			2		
Criteria 3.2 Diversity and Quality																	
a) Estuarine Disciplines Represented	7	7	100%	7	7	100%	7	7	100%	7	7	100%	7	7	100%		% perfect score
b) Diversity Index	129		8%	562		35%	188		12%	114		7%	619		38%	1,612	% all sites
Summary Assessment			2			3			2			2			3		
Criteria 3.3 Education and Outreach Efforts																	
a) History	47	66	71%	39	54	72%	47	54	87%	41	54	76%	71	78	91%		% perfect score
b) Type	58		20%	47		16%	52		18%	52		18%	86		29%	295	% all sites
c) Information Availability	49	66	74%	40	54	74%	44	54	81%	40	54	74%	67	81	83%		% perfect score
Summary Assessment			3			2			2			2			3		
Criteria 3.4 Audience and Accessibility																	
a) Audiences																	
K-12 Students	11,574			9,193			6,040			64,180			22,118				
Teachers	925			775			484			4,704			1,859				
K-12 Students & Teachers Subtotal	***12,499***		10%	***9,968***		8%	***6,524***		5%	***68,884***		57%	***23,977***		20%	121,852	% all sites
Coastal Decision Makers Subtotal	***75***		11%	***170***		25%	***30***		4%	***190***		28%	***210***		31%	675	% all sites
Undergraduate Students	2,740			2,080			4,530			15,308			5,695				
Graduate Students	411			312			680			2,296			854				
General Public (10% of Population)	7,800			5,930			3,130			29,064			15,450				
Rest of Target Population Subtotal	***11,026***		11%	***8,492***		9%	***8,370***		9%	***46,858***		48%	***22,209***		23%	96,955	% all sites
b) Accessibility of Environmental Education Venues																	
K-12 Students & Teachers: Outdoor Classrooms*	***4,374***	12,499	35%	***7,974***	9,968	80%	***2,740***	6,524	42%	***19,976***	68,884	29%	***16,068***	23,977	67%		% perfect score
Rest of Target Population / No. of Education Sites**	***394***		24%	***95***		100%	***182***		52%	***2,466***		4%	***188***		51%		lowest number/number (%)
Summary Assessment			1			2			1			2			2		
Composite Assessment of Education Criteria 3	8			9			7			8			10				Sum of Four Subcomponents

* Outdoor classroom: diverse school yard habitat or an adjacent nature sanctuary
(on site or walking within 0.2 mi; no school bus)

** Total number of Education Sites less number of School Systems from 3.1(b)

SCORING KEY:	
3	Qualitative: Strong, Usually or Completed; Quantitative: ≥ 50%
2	Qualitative: Moderate, Sometimes or In Process; Quantitative: 20% to < 50%
1	Qualitative: Weak, Rarely or Just Started; Quantitative: 10% to < 20%
0	Qualitative: None, Not Applicable, Lacking Information or Not Started; Quantitative: < 10%

CT NERR Site Selection
Acquisition & Management Subcommittee
September 21, 2017, Updated July 3, 2018 for Hybrid Site

1. **<u>Criteria Group:</u>**

Robin Blum, DEEP-Wildlife Division
Shannon Kearney, DEEP-Wildlife Division
Susan Whalen, DEEP-Environmental Conservation
Kevin O'Brien, DEEP-Land and Water Resources Division
David Kozak, DEEP-Land and Water Resources Division (Group Lead)

2. **<u>Criteria:</u>**

   See site assessment section (5) below for criteria and how they were applied to sites.

3. **<u>Data/Sources:</u>**

   - Interviews/communication from Connecticut Department of Energy and Environmental Protection (DEEP) staff (Parks, Wildlife)
   - Interviews/communication from Audubon CT staff
   - Interviews/communication from U.S. Fish and Wildlife Service (FWS) staff
   - DEEP GIS-land cover, DEEP property/other protected open space, hydrography, boating intensity (NOAA/NROC boating density survey), aerial photography, UCONN CLEAR land cover
   - Supplemental Data: (Excel spreadsheets)
   - CTNERR_DetailedCriteria_Set4_Scoring_Data_FINAL.xlsx
   - CTNERR_DetailedCriteria_Set4_Facilities List.xlsx
   - CTNERR_DetailedCriteria_Set4_Adjacent_LandWaterUse_calcs.xlsx

4. **<u>Summary of Approach:</u>**

   The Acquisition and Management Team's objective was to determine how compatible a site's resources, existing uses and management practices are with anticipated future NERR stewardship, training/education and research/monitoring activities. Our approach to reach this objective follows:

   - Create the Excel spreadsheet "CTNERR_DetailedCriteria_Set4_Scoring_Data_FINAL.xlsx" to support the following steps:
   - Re-examine the prescribed scoring criteria to determine if they address most salient site mgt. issues and enhance the specificity of criteria scoring, as needed (as described in following item)
   - Develop alternative detailed 'proxy criteria' to more precisely define principle existing site management and use conflict issues (identified in Excel file in **bold red font** for Criteria 4.7) Where possible, use quantitative proxy scoring metrics that subsequently could be applied to

the prescribed criteria (e.g., detailed criteria: ‘property is relatively undivided’ → proxy criteria: ‘property owned by 2 or fewer owners’)

- We recognized that there may be significant variation in interpreting the prescribed criteria. To minimize the potential for divergent interpretation of the criteria, where possible, we developed ‘proxy scoring’ criteria that employed quantitative metrics to rank the properties and to minimize the potential for personal bias in scoring the properties
- Collect data responsive to each criteria, largely through staff manager interviews, but also drawing for available spatial data sets (mostly DEEP GIS data)
- Score sites using ‘proxy criteria’, as needed
- Re-score sites using original detailed criteria as informed by the proxy criteria
  We assigned site complex (East, CT R., Central, West) scores based upon scores assigned to the individual properties that constitute the site complexes, without considering how the relative size of individual properties might affected their contribution to the larger site complex.
- **Hyrbrid Site Scoring:**
  Although some minor mathematical recalculating, data parsing new spatial data analysis (for Criteria 4.9) were required, the same criteria and rationale used to score the originally proposed four sites were used to score the newly proposed hybrid site. Applying **Criteria 4.1- 4.6** to the new hybrid site largely replicated scores parsed from existing scores selecting from the individual properties constituting the hybrid site, which includes a the Lower CT River component (Lord Cove WMA, Great Island WMA, DEEP Marine HQ properties) and a Bluff Point/Haley Farm (BP/HF) - UCONN Avery Point component. Existing scores for the constituent properties were copied as recorded in an Excel file named CT_NERR_Detailed_Criteria_Set4_Scoring_Data_FINAL in the tab: ‘**Final Version - 9232017’** and pasted into a newly created tab in this file named ‘Hybrid.’ A composite score was assigned to the Lower CT River and BP/HF components of the hybrid site largely based upon the individual scores for the properties associated with each of these two component sites, although Criteria 4.1 (Land Ownership) required summing the total number of owners among the 6 properties constituting the hybrid site. A final recommended score for the new ‘hybrid site’ for these criteria were assigned based upon the two contributing component scores. No ‘judgement’ calls were required to assign an aggregate score for the new hybrid site since the composite scores for the two component sites were identical for Criteria 4.1- 4.6 .
- **Criteria 4.7 – 4.9** were applied to the new hybrid site as described below in Section 5 (Site Assessments) for each of these criteria.

5. <u>Site Assessments:</u>

Consult the Excel spreadsheet “CTNERR_DetailedCriteria_Set4_Scoring_Data_FINAL.xlsx” to see the results of the data compilation and evaluation based on proxy criteria and scores

4.1 Land Ownership: It has been demonstrated that research reserves are easier to acquire and manage if they have few property owners. Thus, it is a valuable consideration to assess the number of property owners of a site.

3 Points	The property is **relatively undivided**.
2 Points	The property is **divided with few property owners**.
1 Point	The property is **divided with many property owners**

Proxy Scoring Protocol: 3 = 1-2 owners; 2 = 3-4 owners; 1 = >4 owners

Comments: All properties are owned by either CT DEEP, US Fish & Wildlife (FWS),UCONN and CT Audubon. However, because DEEP's State Parks, Wildlife Management and Boating divisions manage the DEEP properties (either jointly or severally) according different goals and perspectives, they were treated as 3 separate and distinct 'owners' of DEEP properties. Although CT Audubon leases the property at Milford Point from CT DEEP, as a leaseholder, it has significant control over a portion of Milford Point included the WLIS site complex, and therefore has legal 'ownership-type' rights. Because UCONN has offered its Avery Pt . campus facilities to support operations at any of the 4 site complexes, it was considered an 'owner' at all 4 sites. For this criteria we recognized the following landowners at the four site complexes:

WLIS: DEEP-Parks/DEEP-Wildlife/FWS/UCONN/CT Audubon (5 owners)
CLIS and CT River: DEEP-Parks/ DEEP-Wildlife/UCONN (3 owners)
ELIS: DEEP-Parks/ DEEP-Wildlife/DEEP-Boating/UCONN (4 owners)

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.1	2	2	2	2	1

4.2. Publicly Owned Lands and Feasibility of Land Acquisition: The ease of land acquisition and management increases correspondingly to the proportion of area that is in public or non-governmental organizations (NGOs) ownership and the degree to which there is interest in transferring properties or management control. Note: Federal lands already in protected status may not comprise a majority of the key land and water areas of a research reserve (15 CFR 921.1(g)).

3 Points	**Greater than 50%** of the site is currently owned by the state, federal, or local governments, or by NGOs, **and these entities have an interest** in participating in a reserve.*
2 Points	State, federal, or local governments, or NGOs **own 25-50%** of the site **with the remainder in the hands of a few owners who have an interest** in participating in a reserve.
1 Point	State, federal, or local governments, or NGOs **own less than 25%** of the site with the **remainder in the hands of a few owners who have an interest** in participating in a reserve.
0 Points	The site is owned by a **large number of owners with little potential interest** in sale, donation, or environmental easement.

Proxy Scoring*:* Same as above

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.2	**3**	**3**	**3**	**3**	**3**

4.3. Availability of Facilities: Given that sites with existing facilities and facility-related infrastructure may meet the objectives of the research reserve more quickly, it is of benefit for sites to have established facilities. However, consideration also should be given to sites with excellent potential that do not have facilities.

3 Points	The site has **existing structures and facilities** that can be used for reserve activities.
2 Points	The site has **proximity to or limited existing structures and/or facilities** that can be used for reserve activities.
1 Point	The site is **away from existing facilities, but has excellent potential** for the development of facilities for reserve activities.
0 Points	The site has **limited potential for the development facilities** for reserve activities.

Proxy Scoring Protocol*:* Building functionality, boat launch at/proximate to site;
3 = Building and launch high functioning and within 5 miles of any site
2 = Building and launch high functioning 5-10 miles of property,
1 = Building and launch high functioning and more than 10 miles from any site
0 = if building and launch not high functioning and greater than 10 miles

Comments: As indicated on the Excel File 'CTNERR_DetailedCriteria_Set4_Facilities List.xlsx' provided as a supplement to the FINAL NERR Acquisition and Mgt. scoring sheet, only UCONN-Avery Pt. and DEEP Marine HQ provide both high functioning buildings and boat launch facilities. Therefore, only sites within 5 miles of these facilities could have scored a '3.' UCONN-Avery Pt. facility was considered to serve any of the four sites. However, because of its distance to the CLIS and WLIS sites its effectiveness to serve these sites is more limited, and consequently scored lower according the proximity thresholds (i.e., < 5 miles, 5-10 miles, > 10 miles, etc.)

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.3	**3**	**3**	**3**	**1**	**1**

4.4. Proximity and Accessibility of Site to Researchers, Educators, and Resource Management Decision Makers: This criteria is a measure of (1) the relative proximity of the site to urban centers, K-12 schools, research and education institutions, and resource management agencies which may routinely utilize the site and (2) the availability, adequacy and potential for roads, boat access, boardwalks, docks etc. at the site. The underlying assumption is that the proximity and accessibility of the site will enhance it utilization for education, research, monitoring, and resource protection purposes.

3 Points	The site **can be accessed by user groups during a single day trip**. There are **good roads, points for boat access**, etc. at the site.
2 Points	The site is **relatively isolated and utilization would require an overnight stay, but accommodations are readily available**. There are **adequate roads, points for boat access**, etc. at the site.
1 Point	The site is **relatively isolated and reasonable accommodations for an overnight stay are limited**. There are **limited roads, points for boat access**, etc. at the site.
0 Points	The site is **extremely isolated and accommodations to utilize the site are not available**.

Proxy Scoring Protocol*:* Scores were calculated using information from interviews with site managers who ranked existing levels of education group/researcher use at sites using the following scale: (1.) 1/week; (2.) 1/month; (3.) 1/3 months; (4.) 1/year; (5.) no regular use. The idea being that if the site is currently being used at these levels, it will have the capacity to be used in the future at the same level. Regarding the possible need for overnight-stay, technically no sites "require" this for school day trips, but some sites may be considered more difficult to access every day for research and might require field station overnight stays to consistently access the research areas.

Rank Proxy:
3 = any combination of properties receives 1, 2 ranking for school group *and 1, 2 for* research use;
2 = missing a rank 1,2 for schools *or* for research use on any property;
1=any property gets some measureable use for school or research;
0=no measureable use.

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.4	**3**	**3**	**2**	**3**	**2**

4.5. Controlled Land and Water Access: It is beneficial to research reserve management if site characteristics naturally limit access to certain degrees. This allows the research reserve to better direct public use toward program goals in appropriate areas of the site. Thus, by strategically placing roads, boat ramps, docks, camping areas, reserve facilities, etc. the research reserve establishes and maintains some control over how the site is used. Historical control of public use through state or federal regulation also is a useful consideration. The overall goal is to ensure a balance of public access with research, education, and stewardship.

3 Points	The site is well protected **and of a size that can be controlled**. Historically, access has been controlled, and can easily be controlled in the future due to the presence of limited access points by boat or vehicle.
2 Points	The site **has a limited number of access points**. Historically, site access has not been controlled, but the site is of a size that it can be controlled in the future.
1 Point	Site access **will be difficult to control due to the large number of access points**. Historically, site access has not been controlled and it is unclear whether it can be controlled in the future.
0 Points	Site access **cannot be controlled due to the large number of access points**, lack of historical controls, the size of the area, and/or dense adjacent development.

Proxy Scoring Protocol*:*
3 = Less than 5 uncontrolled access on all of the properties and history of controlled access;
2=5 or more uncontrolled access points on some of the properties and no history controlled access;
1 = 5 or more uncontrolled points on more than half of the properties within complex no history of controlled access.

Comments: Sites were analyzed for level of uncontrolled access using aerial imagery. Uncontrolled road access points to each property were counted. Sites with significant waterfront were considered to have significant 'natural' controlled access and therefore may have been ranked higher, depending on level of non-DEEP uncontrolled access points (largely municipal road, not including state highways with no parking along shoulders of these busy thoroughfares which were believed to not provide illicit access to the sites.) Interviews with site managers also provided information about the # of controlled access points at each property.

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.5	**3**	**3**	**3**	**3**	**1**

4.6. Site Security: In order for a potential site to properly function, it is important that there be adequate surveillance and enforcement to assure that restrictions on uses are adhered to, or evidence that resources are being damaged or destroyed can be prevented or mitigated.

3 Points	The site **currently has** provisions for adequate surveillance and enforcement
2 Points	The **does not have but could easily provide** provisions for adequate surveillance and enforcement
0 Points	The site **does not have nor could easily provide** provisions for adequate surveillance and enforcement

Proxy Scoring:
3= Any patrol on more than 1/2 of sites;
2= Any patrol on any of the sites;

0= No history of patrol on any sites**.**

Comments: Site managers were interviewed regarding whether there was active site patrol.

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.6	**3**	**2**	**2**	**3**	**3**

4.7. Compatibility with Existing Management Practices and Consumptive and Non-Consumptive Uses: It is possible that existing management practices such as habitat manipulation, best management practices, and historic and current consumptive (fishing, hunting, shell-fishing etc.) and non-consumptive (walking, biking, camping etc.) uses might be in conflict with foreseeable management practices implemented by a reserve. Therefore, sites with fewer management practice issues are more likely to maintain both public support and the integrity of the site.

3 Points	Existing management practices and consumptive and non-consumptive uses **would not be in conflict with any foreseeable management policy** of a research reserve.
2 Points	Small areas of unique habitat, endangered species, or threats to the integrity of the ecosystem exist at the site, creating the potential for **limited restrictions on existing management practices** and/or consumptive and non-consumptive uses.
1 Point	Due to the presence of areas of unique habitat, endangered species, and threats to the integrity of the ecosystem, **some restrictions on existing management practices** and/or consumptive and non-consumptive uses would likely be needed.
0 Points	Large areas of unique habitat and threats to the integrity of the ecosystem at the site **will require restrictions on existing management practices** and/or consumptive and non-consumptive uses.

Proxy scoring Protocol: Considering the conflicts that arise on each of the properties of the site complexes, total them on a complex basis and derive the average conflict for each site complex. Use the range of results to determine breakpoints for scoring 3, 2, 1, 0. (NOTE: this approach was settled on after several other attempts resulted in no team-wide consensus.)

"Restrictions" include closed nesting areas, hunting areas, archeological areas, trail closures, evidence of after-hours partying, illegal mountain bike or other trail creation, high boating traffic density, history of dog conflicts, and other specified conflicts.

Comments: Although criteria could not be 'weighted' to give greater deference to those criteria believed to disproportionately influence the assessment of a site's suitability to accommodate NERR activities, the Management Team believed this criteria to be central to an assessment of site's suitability to accommodating a NERR. It therefore devoted the majority of its discussion/scoring effort to this criteria. Hence the number or 'proxy criteria' (e.g., potentially conflicting management practices and uses) for this criteria significantly exceeded the other criteria. The general approach to employing this criteria was to query site managers to identify existing uses and management practices that could pose significant challenges to operating a NERR at the site. Such uses and practices are identified in **bold red font** in the accompanying Excel scoring sheet. Both DEEP State Parks and Wildlife Management Division staff were consulted to assess the propensity of uses and management practices to conflict with NERR program activities that could result in future use or management practice restrictions. Best professional judgement was a significant factor in determining whether or not existing uses or management practices could reasonably be foreseen as resulting in significant future use management restrictions if the site were designated a NERR. Once the Team felt comfortable with the inventory of relevant proxy criteria, several attempts were made to apply the proxy scoring results to the formal NOAA prescribed criteria. An initial attempt at establishing scoring threshold levels on a property-level basis was implemented but later discarded as no acceptable breakdown of scoring thresholds yielded results at the site-complex level that satisfied the team as a whole. Simply totaling the gross number of conflicts fared no better, but did trigger a thought to determine the average number conflicts for each of the 4 site complexes based upon the number of conflicts recorded at each of the component properties. The resulting average number of conflicts for each site complex resulted in a reasonable approach for considering how conflicts at each property affected the level of conflicts as a whole. In the end the group felt that looking at this was the most appropriate way to assess this, and resulted in a natural mapping of conflicts as follows:

ELIS: 19 total conflicts over 3 properties = 6.3 -> recommended score of 1
CT River: 9 conflicts over 8 properties = 1.1 -> recommended score of 3
CLIS: 9 conflicts over 2 properties: 4.5 -> recommended score of 2
WLIS: 9 conflicts over 5 properties = 1.8 -> recommended score of 3
Hybrid: 16 conflicts over 5 properties = 3.2 -> recommended score of 2

Hybrid Comments: Criteria 4.7 (Management and Use Conflicts) was scored by aggregating the total number of conflicts (16) on the five properties constituting the 'hybrid site' (Lord Cove, Great Island, Marine H.Q., Bluff Pt., and Haley Farm) to determine an average of 3.2 conflicts per property (16 conflicts / 5 properties). This average was compared to the average # of conflicts per site for the original four sites and their (**assigned scores)** [ELIS = 6.3 **(1)** ; CT River = 1.1 **(3)** ; CLIS = 4.5 **(2)** ; WLIS 1.8 **(3)**]. Comparing the hybrid site's average # of conflicts per site of 3.2 to the average # of conflicts per site and the scoring strategy for the originally proposed sites, the hybrid sites level of conflict is most comparable to the CLIS site. This factor, and in consideration of the stated criteria, led to a score of **2**.

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.7	**2**	**1**	**3**	**2**	**3**

4.8. Compatibility with Adjacent Land and Water Use: It is more likely that research reserve programs will be successful if a site is located adjacent to lands and waters where compatible land and water use practices are employed. Thus it is useful to assess the degree to which adjacent land use is compatible with research reserve programs.

3 Points	**All or most land and water use adjacent** to the site is compatible with reserve programs, and will impose **no negative impacts** on the reserve.
2 Points	**A large to moderate amount of the land and water** adjacent to the site **is compatible** with reserve programs. Incompatible land- and water-use practices on adjacent lands either could be negotiated or would have **only minor impacts** on reserve programs.
1 Point	**Some of the land and water** adjacent to the site **is currently used for activities that would have negative impacts on** a reserve and may not be negotiable.
0 Points	**A large percentage of the land and water** adjacent to the site **is currently used for activities that would have negative impacts** on a reserve and would lead to conflicts.

Proxy Scoring Protocol: Existing potentially problematic land and water uses and existing land cover within ½ mile of site property boundaries (the 'buffer area') were used as a guide to evaluate the compatibility of land adjacent to potential NERR properties with future NERR activities. The evaluation began by identifying land uses within the buffer area with a high likelihood to conflict with reserve activities (see supporting Excel file titled CTNERR_DetailedCriteria_Set4_Adjacent_LandWaterUse_calcs.xlsx). Scores were assigned based on the number and types of potentially conflicting land uses identified and their potential to adversely affect future NERR activities, as described in the criteria scoring guidance (provided above). This score is shown in the first row of following scoring table labeled 'Initial score based on existing adjacent land use.' This preliminary score was then adjusted upwards if at least 50 percent or more of the buffer area was in undeveloped land cover to reflect the assumption that the adverse effects of potentially incompatible adjacent land uses could be mitigated if they were within a largely undeveloped local landscape, and therefore more compatible with potential future NERR activities. Shellfish bed lease areas were also considered as potentially affecting compatibility but was rejected as a consideration because active bed management was determined to not have a material adverse impact on NERR uses (commercial and recreational shell-fishing activities coexist with other reserves and there are no grounds to assume otherwise here.). The following summarizes this criteria's scoring methodology to determine local landscape compatibility with NERR activities:

Hybrid Comments: This criteria uses the same protocol as that applied to the originally proposed sites. First, the degree of potential adverse impacts of land uses adjacent to the sites to the 3 core NERR purposes (stewardship, training/education, and research/monitoring) were evaluated using the following impact thresholds: high, medium, and low. For the hybrid site adjacent land uses (listed in Excel file CTNERR_Detailed_Criteria_Set4_AdjacentLand_and_WaterUse_calcs_revised) these potential impacts were: stewardship = low; training/education = low; research/monitoring = moderate. Since these level of impacts where scored as a '1' in the original scoring, a starting score of '1' was assigned to the hybrid site. Consistent with the original scoring protocol, this score was adjusted up by 1 because 60% percent of the hybrid site's adjacent land use was undeveloped, which was judged to provide a significant 'buffer' area capable of mitigating any potential adverse impacts to the NERR from adjacent incompatible impacts. This upward adjustment resulted in a score of 2. When assessing the impacts by water uses, we again considered what the typical water-dependent uses were and what their level of impact might be to the core NERR uses. Since the off-shore is quite large and may of the activities (boating, rec/commercial fishing, etc.) are not inconsistent with the functioning of a NERR and can certainly be accommodated for or worked around especially in terms of research/monitoring, stewardship, and educational activities, we consider a final recommended score of 2 appropriate.

Consider adjacent land and water uses and via group discussion, make an initial ranking
If buffer area >= 50% undeveloped - adjust up a point If buffer area, < 50% - no adjustment

Based on the above, the following initial screening scores were assigned:

	ELIS	CT River	CLIS	WLIS	Hybrid
Initial score based on existing adjacent land use*	**1**	**2**	**2**	**0**	**1**
% adjacent undeveloped	**50%**	**61%**	**32%**	**31%**	**60%**
Adjacent land use adjustment	↑	↑	-	-	↑
Adjusted score	**2**	**3**	2	**0**	**2**

* See supporting Excel file CTNERR_DetailedCriteria_Set4_Adjacent_LandWaterUse_calcs.xlsx for survey of potentially incompatible adjacent land and water uses

Water uses potentially affecting NERR program activities included areas with extremely high boating density close to the shoreline of sites and land uses with significant adverse impact potential (e.g., industrial uses, significant transportation facilities etc.) that are further described in the accompanying spreadsheet file titled 'CTNERR_DetailedCriteria_Set4_Adjacent_LandWaterUse_calcs.xlsx.'

Suggested Scoring:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.8	**2**	**2**	**3**	**1**	**0**

4.9. Future Development Plans: Future development plans on or adjacent to research reserves can have major effects on research reserve programs, thus it is important to assess the likelihood that a site will remain undisturbed following designation of a reserve.

3 Points	A **majority** of the land adjacent to the site is currently **undeveloped** and is **very unlikely to be developed** in the future.
2 Points	**Up to half** of the land adjacent to the site is currently **undeveloped** and is *not likely to be developed* in the future.
1 Point	**A small amount** of the land adjacent to the site is currently **undeveloped** and is not likely to be developed in the future, with **limited levels of development** on other lands.
0 Points	**A majority** of the land adjacent to the site **is developed** and the area is **likely to continue to be developed** in the future.

Proxy Scoring Protocol: Same as above, with following interpretation of the criteria

Comments: The overall intent of this criteria is to score sites based upon their likelihood to remain undisturbed **in the future**, giving higher scores to those sites more likely to maintain the integrity of their existing 'baseline' conditions. This was assessed by considering: (1) level of existing undeveloped land AND (2) the potential conversion of land that is currently undeveloped to developed. It was assumed that that all potentially developable land would eventually become developed (according to existing applicable land use law).

Looking at the CT river as an example for the calculations provided in the Excel spreadsheet "**CTNERR_DetailedCriteria_Set4_Adjacent_LandWaterUse_calcs.xlsx**" used to score this criteria:
Current state:

- Total of 4490 acres of non-NERR land in a 0.5 mi buffer.
- 1740 acres are developed. 2750 are not – e.g., undeveloped.

Future state (assuming the case where anything that can be developed is.)

- 1406 acres would be left as undevelopable. That means (2750-1406 = 1344) would get added to the current developed total making it 1740+1344 = 3084.
- So now 3084 is developed and 1406 is undeveloped and more or less certain to stay that way. This means 1406/4490 = ~31% of the land in the 0.5 mile buffer is believed to be undevelopable in the future under the most aggressive land use scenario.

If this is carried out for the other sites you get percentages of land in the 0.5 mile buffer that might be *undeveloped* in the future with an assumption of aggressive development:

- CT-River: 31%, WLIS: 29%, CLIS: 27%, ELIS: 44%

Hybrid Comment: This criteria used the same protocol applied to the originally proposed sites, using the newly developed statistic of 33% for the undeveloped land within the ½ mile buffer surrounding the hybrid NERR site that's expected to remain undeveloped in the future (as determined in the final column of the Adjacent_LandWaterUse_calcs_revised.xlsx file). Given the percent of future undeveloped land within the buffer area for the following originally scored sites: CT River (31%), CLIS (27%) and WLIS (29%) sites resulted in scores of '2' and the hybrid site's 33% future undeveloped area is comparable to these sites, a score of '2' is also suggested for the hybrid site for this criteria.

Site	Currently undeveloped	Future state undeveloped	Development change (Current – future)	Score (tying together language in the criteria with the overall started intent)
ELIS	50%	44%	+6%	3: Could make the case that the percentage of land adjacent that is currently undeveloped is close enough to a majority; change based on future development is minimal (less than 10% - very unlikely.) Further, looking at the overall intent, which is to see the likelihood a site may remain undisturbed in the future, ELIS has the highest amount of projected undeveloped land by percentage, so it makes sense to get a high score.

Site	Currently undeveloped	Future state undeveloped	Development change (Current – future)	Score (tying together language in the criteria with the overall started intent)
CT River	61%	31%	+30%	2: While a majority of land adjacent is currently undeveloped (61%); the change based on development is larger (30%) than the others. While the lower CT River would have a better overall future state based on tighter development control and potentially more protected lands in reality than may be included in our inventory, we don't feel that any corrections would lower the change factor to single digit levels such as the other sites. Thus, we call the likelihood as "not likely" (lower than "very unlikely" in the case of ELIS.") Further, looking at the overall intent, which is to see the likelihood a site may remain undisturbed in the future, CT River ends up with a comparable amount of projected undeveloped land by percentage as CLIS and WLIS (between 25-33%, nothing to sneeze at), so it makes sense to get a good score.

Site	Currently undeveloped	Future state undeveloped	Development change (Current – future)	Score (tying together language in the criteria with the overall started intent)
CLIS	32%	27%	+5%	2: percentage of current undeveloped land could be considered small; change based on future development is minimal (less than 10% - very unlikely). So this blends aspects of criteria 1 and 3 – settle at 2. Further, looking at the overall intent, which is to see the likelihood a site may remain undisturbed in the future, CLIS ends up with a comparable amount of projected undeveloped land by percentage as CTRiver and WLIS (between 25-33%, nothing to sneeze at), so it makes sense to get a good score.
WLIS	31%	29%	+2%	2: percentage of current undeveloped land could be considered small; change based on future development is minimal (less than 10% - very unlikely). So this blends aspects of criteria 1 and 3 – settle at 2. Further, looking at the overall intent, which is to see the likelihood a site may remain undisturbed in the future, WLIS ends up with a comparable amount of projected undeveloped land by percentage as CLIS and CT River (between 25-33%, nothing to sneeze at), so it makes sense to get a good score.
Hybrid	60%	33%	+27%	2: While a majority of land adjacent is currently undeveloped (60%); the change based on development is large (27%), similar to CT River site. The hybrid site's 33% future undeveloped area is comparable to the CT River, WLIS, CLIS sites, which all are

Site	Currently undeveloped	Future state undeveloped	Development change (Current – future)	Score (tying together language in the criteria with the overall started intent)
				scored ‘2’ suggesting the hybrid site also be scored 2.

Suggested Scores:

CT NERR Process Criteria #	Suggested HYBRID	ELIS	CT River	CLIS	WLIS
4.9	**2**	**3**	**2**	**2**	**2**

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Criteria Group: Climate Change Resilience and Adaptability

5.1 Facility Resilience – Accessibility

3 points	Facility likely accessible (or adaptable) under all scenarios.
2 points	Facility likely accessible (or adaptable) under low and medium scenarios.
1 point	Facility likely accessible (or adaptable) under only low scenarios.
0 points	Facility not likely accessible under all scenarios.

Resilience of current and potential facilities and locations thereof; Factors considered:

- Flooding of access roads to facilities
- SLR causing flooding of docks/buildings
- Flooding due to precipitation if facilities within floodplains

Other factors that were initially considered but not for the final analysis:

Susceptibility of facilities to wind damage

Shoreline erosion

Septic system issues

Drinking water issues

Heat issues

5. 2 Facility Resilience - Vulnerability

3 points	Facility likely not vulnerable (or adaptable) under all scenarios.
2 points	Facility likely not vulnerable (or adaptable) under low and medium scenarios.
1 point	Facility likely not vulnerable (or adaptable) under only low scenarios.
0 points	Facility likely vulnerable under all scenarios.

5.3 Vulnerable Natural Resources/Ecosystems

3 points	Resources are expected to exhibit a high measure of resiliency under natural conditions or with reasonable adaptive management.
2 points	Resources are expected to exhibit a moderate measure of resiliency under natural conditions or with reasonable adaptive management.

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1 point	Resources are expected to exhibit a low measure of resiliency under natural conditions or with reasonable adaptive management.

Resilience of the natural resources within the proposed site; Natural Resources include:

Group I – Shorelands (upland habitats and non-tidal wetlands)

1. Maritime Forest-Woodland
2. Coastal Shrublands
3. Coastal Grasslands
4. Coastal non-tidal wetlands
5. Coastal Cliffs/bluffs

Group II - Transition Areas (intertidal habitats)

1. Coastal Marshes
3. Intertidal Beaches
4. Intertidal Mud and Sand Flats
5. Intertidal Algal Flats

Group III – Submerged Bottoms (submerged habitats)

1. Subtidal Soft Bottoms
2. Subtidal Plants
3. Subtidal Hard bottoms (Rocky substrate and Oyster Reefs)

Additional Resources considered were:

Fisheries, Avian assemblages, Federally and State listed plant and animal species

Data/Sources of Info Used:

Sea level rise Scenarios (in inches)**	Low (by approx. 2025)	Medium (by approx. 2055)	High (by approx. 2085)
Global Climate Model (max)	5	12	23
1m by 2100	5	17	32

- **Values used by Warren Pinnacle Consulting in preparation for developing 2014 Sea level rise Affecting Marsh Migration (SLAMM) models for CT and NY. Values derived from recent climate change adaptation efforts outlined in the 2011 New York State ClimAid report
- LISS Sentinel Monitoring for Climate Change Strategy 2011

- The Impacts of Climate Change on Connecticut Agriculture, Infrastructure, Natural Resources and Public Health, A Report by the Adaptation Subcommittee to the Governor's Steering Committee on Climate Change 2010
- SLAMM II Analysis (GIS model results) using the 2085 Medium SLR scenario under the following inundation scenarios:
  inundates at least once every 30 days
  inundates at least once every 60 days
  inundates at least once every 90 days
  inundates at the 10-yr storm
  inundates at the 100-yr storm
- NOAA Sea level rise and Vulnerability viewers
- Foden, W.B. and Young, B.E. (eds.) (2016). *IUCN SSC Guidelines for Assessing Species' Vulnerability to Climate Change*. Version 1.0. Occasional Paper of the IUCN Species Survival Commission No. 59. Cambridge, UK and Gland, Switzerland: IUCN Species Survival Commission. x+114pp.
- Schlesinger, M.D., J.D. Corser, K.A. Perkins, and E.L. White. 2011. Vulnerability of at-risk species to climate change in New York. New York Natural Heritage Program, Albany, NY.
- Young BE, Hall KR, Byers E, Gravuer K, Hammerson G, Redder A, and Szabo K. 2012. Rapid assessment of plant and animal vulnerability to climate change. In: J. Brodie, E. Post, and D. Doak, editors. Wildlife Conservation in a Changing Climate. Chicago: University of Chicago Press. p 129-152.
- Surging Seas (Climate Central) Risk Zone Map
- CT Coastal Access Guide (used to find major public access points within the 4 candidate sites)
- Numerous experts from state and federal agencies

<u>Summary of Approach:</u>

Accessibility of buildings and roads to SLR and flooding based on Access road analysis using SLAMM II model results for 2085 under the medium SLR scenario; vulnerability of buildings based on NOAA SLR viewer vulnerability index for 2 ft of Sea Level Rise (results the same for 3 ft of SLR).

Resource vulnerability is divided into habitats, plants and animals. The focus for habitat vulnerability is on the NERR Typology Classes/Groups:

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Class I: Group I – Shorelands (upland habitats and non-tidal wetlands)

1. Maritime Forest-Woodland
2. Coastal Shrublands
3. Coastal Grasslands
4. Coastal non-tidal wetlands
5. Coastal Cliffs/bluffs

Class I: Group II - Transition Areas (intertidal habitats)

1. Coastal Marshes
3. Intertidal Beaches
4. Intertidal Mud and Sand Flats
5. Intertidal Algal Flats

Class I: Group III – Submerged Bottoms (submerged habitats)

1. Subtidal Soft Bottoms
2. Subtidal Plants
3. Subtidal Hard bottoms (Rocky substrate and Oyster Reefs)

Plant and animal vulnerability is based on consideration of the factors determined by Young et al. (2012) and Schlesinger (2011) as significant for species vulnerability to climate change. Federal and Connecticut state listed vertebrate species and bird assemblages within the 4 areas were considered.

Factors considered:

- Conservation of key habitat features
- Maintaining or reestablishing connectivity between habitats
- Restoring degraded habitats
- Relocating populations of species at risk
- Ensuring that representative area(s) of each habitat persist
- Factors that influence sensitivity to climate change for species: Dispersal and movements; predicted sensitivity to changes in temperature; predicted sensitivity to changes in precipitation, hydrology or moisture regimes; dependence on a specific disturbance regime likely to be impacted by climate change; dependence on ice, ice-edge, or snow-cover habitat; restriction to uncommon geological features or derivatives; dependence on other species to generate habitat; pollinator versatility; dependence on other species for propagule dispersal; other interspecific interactions; measured

genetic variation; occurrence of bottlenecks in recent evolutionary history; phenological response to changing seasonal temperature or precipitation dynamics (Young et al. 2012)

Site Assessments:

- ELIS includes Bluff Point State Park, Bluff Point Coastal Forest/Natural Area Preserve
- CT River includes Ragged Rock Creek WMA, Marine HQ Connecticut River Water Access, Roger Tory Peterson WMA, Griswold Point, Lord Cove WMA, Nott Island WMA, Ferry Point WMA, Haddam Neck WMA, Machimoddus SP
- CLIS includes Hammonasset Natural Area Preserve, Hammonasset Beach State Park, Hammock River WMA, Duck Island WMA (Westbrook)
- WLIS includes Charles E Wheeler WMA- Smith Hubbell Wildlife Sanctuary, Lordship Point Water Access, Sherwood Island State Park, Great Meadows (Fed), Norwalk Islands-Sheffield, Chimon, Goose (Fed)

Facility Vulnerability/Access

Below are the main buildings and roads; Excel spreadsheet “CTNERR_RoadAccess_Resilience.xlsx” contains more detailed information on road intersections and water access points. (NOTE – the associated Excel spreadsheet contains info that expands the look to a broader geography, but for the purposes of scoring and to be consistent with the Management Team assessment, the facilities considered are as follows:)

HYBRID

- The same criteria and rationale used to score the four originally proposed sites were used to score the newly proposed hybrid site’s resilience or vulnerability to SLR. The existing facility vulnerability and accessibility scores assigned to the properties constituting the proposed hybrid site were copied from the previously conducted facility vulnerability and accessibility analysis table provided below and then reassemble for the hybrid site to determine suggested facility vulnerability and accessibility scores, as shown the following table.
- The proposed hybrid site could potentially be served by facilities at UCONN- AP and DEEP Marine HQ, which scored a ‘3’ (low vulnerability) and a ‘2’ (moderate vulnerability), respectively. Given the potential availability of both facilities to serve the hybrid site, operations requiring facilities could be shifted between UCONN –AP and DEEP Marine HQ as facilities-based operations become compromised by increased frequency of flooding from SLR. Because UCONN - AP could be designated the primary support facility as the frequency of flooding increases more rapidly at CT DEEP Marine HQ, and UCONN AP is scored a ‘3’, it’s suggested that this score be used for the hybrid site.

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- Site accessibility was evaluated using the roads flooding frequency analysis for roads providing access to the sites proximate to the site. The hybrid properties with facilities include buildings at UCONN – AP and DEEP Marine HQ as well as boat launch facilities at these properties and Bluff Point State Park, as shown in the following table. Since the principal facilities requiring dry access are the buildings at UCONN- AP and DEEP Marine HQ (rather than boat launch at Bluff Pt.) these facilities where given the greatest weight in considering the potential adverse impacts to NERR operations of future road flooding from SLR. Since the hybrid site facilities' needs could be met at either UCONN AP or DEEP Marine HQ, and roads serving UCONN AP provides dry access to all but the site's boating facility, up to the 10 year frequency flood scenario (resulting in a score of '3' for Facility Accessibility), then a Facility Accessibility score of 3 is suggested for this site.

ELIS

- UConn AP (Groton) buildings – low vulnerability with 1, 2 or 3 ft of SLR; access may be impaired during 10 or 100 yr storm events; access to dock will be impaired during 100 yr storm events
- Barn Island Wildlife Management Area: access may be impaired during 10 or 100 yr storm events.
- Bluff Point State Park: segments of access road into park will be inundated at least once every 30 days as well as during 10 or 100 yr storm events.

CT RIVER

- CT DEEP Marine Fisheries buildings (Old Lyme) -medium vulnerability with 1, 2 or 3 ft SLR. Access to this facility and docks on Ferry Rd. will be impaired at least once every 30 days. Access to Ferry Rd. from Route 156 will be inundated during 100 yr storm events.
- UConn AP (Groton) buildings – low vulnerability with 1, 2 or 3 ft of SLR; access may be impaired during 10 or 100 yr storm events; access to dock will be impaired during 100 yr storm events
-

CLIS

- Meig's Point Nature Center (Madison)- high vulnerability with 1, 2 or 3 ft SLR; access to Hammonassett State Park will be impaired during 10 or 100 yr storm events. Roads within the park will be impaired at least once every 30 days.
- UConn AP (Groton) buildings – low vulnerability with 1, 2 or 3 ft of SLR; access may be impaired during 10 or 100 yr storm events; access to dock will be impaired during 100 yr storm events
-

WLIS

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- The Coastal Center at Milford Point (Milford) - medium vulnerability with 1, 2 or 3 ft SLR; access roads to the Center will be inundated during 10 or 100 yr storms and portions of Milford Point Rd will flood at least once every 30 days.
- Building at Stratford Point (Stratford) – medium vulnerability with 1, 2 or 3 ft SLR- access roads to the Building will be inundated during 10 or 100 yr storms and portions of Route 113 will flood at least once every 30 days.
- Nature Center at Sherwood Island State Park (Westport) - low vulnerability with 1, 2 or 3 ft SLR; roads to building will be inundated during 10 or 100 yr storm events. However, park will be accessible.
- UConn AP (Groton) buildings – low vulnerability with 1, 2 or 3 ft of SLR; access may be impaired during 10 or 100 yr storm events; access to dock will be impaired during 100 yr storm events
- Small USFWS facility on Chimon Island - no roads to assess, low vulnerability with 1, 2, or 3 ft of SLR.

Same information in table format:

LOCATION	**Facility Vulnerability To 2 and 3 ft SLR**	Facility Accessibility: inundates at least once every **30** days (roads)	Facility Accessibility: inundates at least once every **60** days (roads)	Facility Accessibility: inundates at least once every **90** days (roads)	Facility Accessibility: inundates at the **10-yr storm** (roads)	Facility Accessibility: inundates at the **100-yr storm** (roads)	**Suggested facility accessibility** *(taking into account potential state action)*
HYBRID							3
DEEP Marine HQ Buildings	**Medium -2**						
Marine HQ road access to facility and docks		X	X	X			
HQ access to Ferry Rd from Rte 156						X	
UCONN AP Buildings	**Low - 3**				X	X	
UCONN AP Docks						X	
Bluff Pt. S.P.		X	X	X	X	X	
ELIS							3
UCONN AP – Buildings	**Low - 3**				X	X	
UCONN AP - Docks						X	

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LOCATION	**Facility Vulnerability To 2 and 3 ft SLR**	Facility Accessibility: inundates at least once every **30** days (roads)	Facility Accessibility: inundates at least once every **60** days (roads)	Facility Accessibility: inundates at least once every **90** days (roads)	Facility Accessibility: inundates at the **10-yr storm** (roads)	Facility Accessibility: inundates at the **100-yr storm** (roads)	**Suggested facility accessibility** *(taking into account potential state action)*
Barn Island Wildlife Mgt					X	X	
Bluff Pt State Park		X	X	X	X	X	
CT RIVER							2
CT DEEP Marine Fisheries-	**Medium -2**						
Road Access to facility and docks		X	X	X			
Access to Ferry Rd from Rt 156						X	
CLIS							2
Meig's Pt Nature Center	**High -1**						
Road Access to Hammo St Pk					X	X	
Roads w/in Hammo St Pk		X	X	X			
WLIS							2
Coastal Center at Milford Pt	**Medium -2**						
Access roads to Center					X	X	
Milford Point Rd		X (portions of rd)	X	X			
Audubon bldg at Milford Pt	**Medium -2**						
Access roads to bldg					X	X	
Route 113		X (portions of rd)	X	X			
Sherwood Is Nature Center	**Low -3**						
Sherwood Is St Pk					some roads will flood but park will be accessible	some roads will flood but park will be accessible	

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LOCATION	**Facility Vulnerability To 2 and 3 ft SLR**	Facility Accessibility: inundates at least once every **30** days (roads)	Facility Accessibility: inundates at least once every **60** days (roads)	Facility Accessibility: inundates at least once every **90** days (roads)	Facility Accessibility: inundates at the **10-yr storm** (roads)	Facility Accessibility: inundates at the **100-yr storm** (roads)	**Suggested facility accessibility** *(taking into account potential state action)*
USFWS Chimon Island	**Low -3**	n/a	n/a	n/a	n/a	n/a	

Vulnerability of Habitats: (no info on presence of intertidal algal flats)

LOCATION	Maritime Forest	Coastal Shrublands	Coastal Grasslands /dunes	Coastal non-tidal wetlands	Coastal Cliffs/bluffs	Intertidal marsh	Intertidal beach	Intertidal mud/sand flats	Subtidal soft bottoms	Subtidal plants	Subtidal hard bottom	Resilience Rank
Hybrid	3	2	2	3	3	2	2	2	3	2	3	2
ELIS	3	2	2	3	3	2	2	2	3	2	3	2
CT RIVER	3	2	2	3	N/A	2	2	2	3	2	3	2
CLIS	3	2	2	3	3	2	2	2	3	1	3	2
WLIS	3	N/A	2	3	N/A	2	2	2	3	N/A	3	2

Maritime forests – composition may change but overall resilient
Coastal Shrublands and grasslands – may be moderately impacted by SLR
Intertidal Marsh – based on SLAMM results by 2055, amount of marsh will increase at most sites, but will largely be regularly flooded marsh, with little high marsh.
Intertidal beach – dependent on sand supply from surficial materials
Subtidal plants – better with more CO_2, worse with higher water temps; narrow band of suitable habitat will shrink with SLR.

Hybrid comment: Since the habitat types at the hybrid site are the same as those occurring at the CT River and ELIS sites, and both of these sites' resilience was ranked '2', , to be consistent with this scoring, the hybrid site was also scored '2'.

Vulnerability of Species:

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*Vulnerability of State Listed **Plant** Species: (for more info. see excel spreadsheet "NDDB_Plant_Review_KOB_JB.xlsx" and "NDDB_Plant_Review_KOB_JB_Revised.xlsx for Hybrid site)*

LOCATION	No. State listed species	No. State list species occurrences	No. State listed species considered stable	No. State listed species considered vulnerable	Suggested Plant Resilience Rank
ELIS	16	16	7	7	2
CT RIVER	14	14	2	12	1
CLIS	6	12	4	2	3
WLIS	6	7	2	4	2
Hybrid	22	22	7	15	1

Hybrid comment: Comparing the ordinal ranking of the originally scored sites with the hybrid site which had 15 vulnerable listed species, which is comparable to the CT River site (12 vulnerable listed species), it also suggested that the hybrid site be scored '1'.

***Vulnerability of Animals and significant bird assemblages**: (see excel spreadsheet "EnvRep_SigSppNDDB_Vert_Assessments.xlsx" for more info. for original scoring and New_Site_Env_Report_1.5SignificantSpeciesNDDBVertebrateAssessment.xlsx) for hybrid site scoring)*

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LOCATION	Bird Species	Bird Assemblages	Fish Species	USFWS New England Cottontail Focus area	Reptile Species	Invertebrate species will depend on habitat resilience	Suggested Faunal Resilience Rank
ELIS	Seaside sparrow (1), Piping plover (1), Saltmarsh sparrow (1), whip-poor-will (1), Brown thrasher (3)	Rookery foraging(3), shorebird migration stopover, waterfowl area (3)	Atlantic Sea snail, Radiated cheeney	Yes (3)		Schinia gracilenta, Papaipema duovata, Dargida rubripennis, Abagrotis nefascia benjamini, Drasteria graphica atlantica, Apamea lintneri , Cicindela hirticollis , Cicindela marginata, Bombus ashtoni, Sympistis perscripta, Schinia spinosae	3. This area is resilient for migratory bird and waterfowl; mammals, and for several state/federally listed animals
CT RIVER	King rail (2), Seaside sparrow (1), Least bittern (1), Piping plover (2), Least tern (2), Saltmarsh sparrow (1), Ipswich sparrow (2), Bald eagle (3)	Rookery foraging (3), Shorebird migration stopover, Passerine migration stopover, Owl roost (3), Waterfowl Area(3), Bald eagle winter roost (3)	Shortnose sturgeon (2?), Atlantic Sturgeon (2?)	Yes (3)	Northern Diamondback terrapin (3); Eastern box turtle (3), Wood turtle (3)	Cicindela hirticollis; Gomphus fraternus, Stagnicola catascopium, Ligumia nasuta, Leptodea ochracea, Margaritifera margaritifera, Fossaria rustica	3. This area is resilient for at least 4 resources: Fish?, Migratory bird/waterfowl; Roosting areas; Mammal habitat; Reptiles; Federally Threatened Piping Plover
CLIS	Seaside sparrow (1), Snowy egret (2), Great egret (2), Piping plover (2), Saltmarsh sparrow (1), Brown thrasher (3), Ipswich sparrow (2), Purple martin (3), Common tern (2)	Rookery foraging (3), Shorebird migration stopover (3), Passerine migration stopover (3), Owl roost (3), Waterfowl Area (3)		No	Northern Diamondback terrapin (3)	Apamea lintneri, Photedes inops	3. This area is resilient for 4 of the resources: Migratory Bird/Waterfowl; Roosting areas; Reptiles, Federally Threatened Piping Plover
WLIS	Common moorhen (2), King rail (2), Pied-billed grebe (2), Seaside sparrow (1), Snowy egret (2), Great egret (2), Least bittern (2), American bittern (2), Bald eagle (3), Piping plover (2), Least tern (1), Saltmarsh sparrow (1), Yellow-crowned night-heron (2), Ipswich sparrow (2), Purple martin (3)	Rookery foraging (3), Shorebird migration stopover (3), Owl roost (3), Waterfowl Area (3)	Atlantic sturgeon (2?)	No	Atlantic ridley, Leatherback turtle, Atlantic green turtle, Loggerhead, Northern Diamondback terrapin (3)	Cicindela tranquebarica, Apamea inordinata, Apamea lintneri, Cicindela marginata	3. This area is resilient for at least 4 resources: Fish?; Migratory Bird/Waterfowl; Roosting areas; Mammal habitat (seal haul out? Humpback feeding areas?); Reptiles; Federally listed Piping Plover
Hybrid	King Rail (2), Seaside sparrow (1), Least bittern (1), Piping plover (1), Least tern (1), Saltmarsh sparrow (1), Brown thrasher (3), Ipswich sparrow (2)	Rookery foraging (3), shorebird migration stopover, Waterfowl Area (3), Passerine Migration stopover, Owl Roost (3)	Shortnosed sturgeon (3), Atlantic sturgeon (3)	Yes (3), and resilient	Spotted turtle (3), Northern Diamondback terrapin (3)	Schinia gracilenta, Papaipema duovata, Dargida rubripennis, Abagrotis nefascia benjamini, Drasteria graphica atlantica, Apamea lintneri , Cicindela hirticollis , Cicindela marginata, Bombus ashtoni, Sympistis perscripta, Schinia spinosae	This are is resilient for 4-4 of the criteria (Mammals, Bird Assemblages, Reptiles, Fish). Individual species especially birds may not be resilient. Fish vulnerability is related to barriers to movement- no barriers in this area... Fish are resilient (as confirmed by S. Gephard, 7/6/18 e-mail to D. Kozak, suggest rank 3, if Fish are not resilient, suggest rank 2.

Recommended Scores:

Plants, Animals and Assemblages, and Habitats/Ecosystems were averaged to derive an overall score for 5.3.

Resilience	Hybrid	ELIS	CT River	CLIS	WLIS
5.1 Facility Accessibility	3	3	2	2	2
5.2 Facility Vulnerability	3	3	2	2	2
5.3 Plants	1	2	1	3	2
5.3 Animals/ Assemblages	3	3	3	3	3
5.3 Habitats/ Ecosystems	2	2	2	2	2
5.3 Average	2	2	2	3	2

Selection Process Basic Info:
The site selection process was organized around evaluations of the 5 criteria groups by teams made up of members of the Site Selection Team
Criteria:
Group 1: Environmental Representativeness:
Group 2: Research/Monitoring/Stewardship:
Group 3: Education and Training:
Group 4: Acquisition/Management:
Group 5: Resiliency:

Each team was responsible for reseaching data relevant to the criteria, applying it to each of the 4 sites (Western LIS (WLIS) , Central LIS (CLIS), CT River (CTRiver), and Eastern LIS (ELIS)) and determining recommended scores that would be shared with the entire selection team for review, comments, and discussion. From January to mid-August 2017, the criteria teams worked through the assessment process and convened on August 17th to share their findings and present their recommeded scores. Based on this meeting, there were some suggested edits to help revise aspects of the Education and Management group findings, but overall there was general agreement that the information that was collected and the application of it to the criteria were sufficient to move to the scoring phase.

During the scoring phase, each voting member of the Site Selection Team (Core Members) was able to score each individual site based on the recommendations, or their personal opinions based on the materials presented. Once the intital scores were submitted, the results were tallied and shared among the scorers along with any comments or questions for a review. It should be noted that deviations from recomendations in and of themselves are not necessarily bad - reviewers were free to use their own judgement in assessing these and were free to disagree with recommendations. Per the process, a call was convened where reviewers could follow up and discuss certain scoring areas to clarify positions and/or ask questions. This was designed to help ensure that the final scores provided were not the result of a misconceptions or other confusion. As needed, reviewers that opted to rescore based on these discussions (or the benefit of seeing the initial responses and comments) were allowed to do so, although this was optional. A short turn-around for rescores was allowed before submissions became final.

After the completion of the initial scoring, complications with one of the poperites making up a significant part of one of the original four sites (ELIS) was brought to light. As a result CT DEEP (as the property owner) suggested a 5th site be evaluated comprising a hybrid of parts of the CTRiver and ELIS sites. After discussiong the feasibility of this and with NOAA's input and support, during June-August of 2018, the Selection Team reconvened to assess the hybrid, develop recommendations, and score it, keeping consistent with the overall data and approaches used for the original four. 14 out of the 15 scorers provided input towards the first 4 sites. In the hybrid approach, only 12 of the 15 team members were able to particiapte. One was the member who was not able to score the first four, and three of the original set were not able to participate due to other committments. Although the numbers and composition of the hybrid asssessment was not identical to the initial scoring, enough of the original selection team participated to provide a level of confort that the results can be considered as fair and compatible as can reasonably be expected.

Scoring Analysis Process:
Each respondent's final scoring sheets (minus any comments or other identifying characteristics) were assigned a generic reviewer number (Rev1, Rev2, etc.) and loaded into this workbook. Comments included wth scores were collected, anonymized, and put into 2 accompanyning documents ("CTNERR_SiteScoring_SummaryComments_Final.docx" and "CTNERR_SiteScoring_SummaryComments_hybrid.docx") organized by criteria. The ordering of the document was designed such that reviewers could not be identified by linking the document or spreadsheet. Comment content, however, was not screened/modified. The document contains all initial comments, comments/questions/observations provided during the scoring review phases, and any included with revised scores.

The results from each reviewer were collected and grouped in two ways: by site and by criteria.

Each SITE has a summary sheet (ELIS-Sum, CTRiver-Sum, etc.) containing the criteria list, each reviewers scores, and some basic summary info. Each reviewers final scores (as a percentage of the total possible points) is provided, as is the final overall average score for the site.

Each CRITERIA group also provides a comparison of each reviewers scores across all 4 sites. Scores are color-coded to provide a basic sense of how things deviated from the recommendations. For instance it can show where and by how much a reviewer may have differed from the recommendation or from peers; it can also highlight what criteria may have generated a variety of different responses.

The "Overview" tab contains observations based on a review of the final results.

The "Final Results" tab contains the scoring results in several tabular and graphic formats, with brief written synopsis.

Results Overview:
Broadly speaking, the results indicate that one site scored highest. Second and third were close, but with a sizable enough gap not to challenge. Thrid and fourth were also close, but further away from the top tier.
Below is a basic sense of the overall results looking at all criteria scores from all reviewers for all sites.

Criteria Group 1: Environmental Representativeness (See tab "Criteria1_sum"):
Out of all possible responses, *93% were in agreement with recommendations*.
Of the 7% that disagreed:
- most were concentrated between 2 reviewers;
- most adjusted scores lower than recommended (1.1, 1.3, 1.4, 1.5, 1.6, 1.8 1.10, 1.11);
- scores trended higher than recommended for 1.2 and 1.7;
- 1.9 was fairly evenly split between higher and lower recommendations;
- Two reviewers included 2's in criteria 1.4 and 1.6 when only 3's and 1's are valid. All values were assigned to either CLIS or WLIS and were not deemed to have an impact in the overall ranking of the sites. One reviewer provided explanations of the rationale for the choices in the comments

Overall, the scores for this section (looking at the average of the average scores across all reviewers for each criteria in the "**Final Results**" tab) were:
ELIS: 2.42
CT River: 2.45
CLIS: 2.10
WLIS: 2.21
Hybrid: 2.55

The Hybrid site scored highest, with ELIS and CTRiver as the next two. Although the CTRiver is fractionally higher than ELIS, both are very nearly equivalent. CLIS and WLIS were both in a lower tier, with WLIS having a slight advantage.

Criteria Group 2: Research/Monitoring/Stewardship (see tab "Criteria2_sum"):
Out of all possible responses, *91% were in agreement with recommendations*.
Of the 9% that disagreed:
- adjusted scores were reasonably well distributed among reviewers and not obviously concentrated to any specific reviewer(s);
- scores for 2.1 and 2.2 trended lower than recommended;
- scores- for 2.4 and 2.5 trended higher than recommended;
- scores for 2.3 were fairly evenly split between higher and lower;

Overall, the scores for this section (looking at the average of the average scores across all reviewers for each criteria in the "**Final Results**" tab) were:
ELIS: 2.77
CT River: 2.49
CLIS: 2.37
WLIS: 2.74
Hybrid: 2.67

ELIS, WLIS, and the Hybrid were the class leaders, with ELIS having a slight edge in a very nearly evenly matched assessment. CTRiver ranked fourth, and CLIS averaged the lowest score.

Criteria Group3: Education and Training (see tab "Criteria3_sum"):
The scores and comments provided seem to indicate that a majority of the reviewers did not necessarily agree with all of the recommendations of the Education Review team – *only 81% were in agreement* - the lowest among the groups. The comments provided yield insights as to why, but the general result was most reviewers felt that the recommended criteria were too low – in other words the sites ought to provide better opportunities than perhaps were assessed.
For the 19% that disagreed:
- Criteria 3.2 and 3.4 seemed to have the most amount of disagreement. In general, most scorers seem to view the recommendations as too low for several sites and therefore responded with higher scores, although this was not universal; some were adjusted down.
- For Criteria 3.3 scores were all slightly lower.
- For Criteria 3.1 nearly all scores were slightly higher.

Overall, the scores for this section (looking at the average of the average scores across all reviewers for each criteria in the "**Final Results**" tab) were:
ELIS: 2.23
CT River: 2.41
CLIS: 1.91
WLIS: 2.09
Hybrid: 2.48

The Hybrid and CTRiver was the clear leader in this section, but the Hybrid returned the highest score. ELIS, WLIS, and CLIS ranked 3rd, 4th, & 5th respectively.

Criteria Group 4: Acquisition/Management (see tab "Criteria4_sum"):
Out of all possible responses, *90% reflect agreement with scoring the recommendations*.
Of the 10% where scores were different:
- There were 2 reviewers whose scores seemed to deviate more than others.
- Criteria 4.1.and 4.8 seemed to have the most disagreement, and in these cases scores were typically higher.
- Scores for 4.9, 4.5 and 4.2 trended lower;
- Scores for 4.3, 4.4 trended higher, and the rest were split nearly equally.

Overall, the scores for this section (looking at the average of the average scores across all reviewers for each criteria in the "**Final Results**" tab) were:
ELIS: 2.46
CT River: 2.55
CLIS: 2.29
WLIS: 1.81
Hybrid: 2.60

The Hybrid was the leader in this section, with CTRiver, ELIS, CLIS, and WLIS ranking 3rd, 4th, and 5th respectively.

Criteria Group 5: Resiliencyc(see tab "Criteria5_sum"):
Out of all possible responses, *87% reflect agreement with scoring the recommendations*.
Of the 13% where scores were different:
- There were 3 reviewers whose scores seemed to deviate more than others.
- Criteria 5.1 & 5.3 had the most disagreement, and within each of these cases the number of higher scores and lower scores were nearly the same.
- Criteria 5.2 seemed to trend lower.

Overall, the scores for this section (looking at the average of the average scores across all reviewers for each criteria in the "**Final Results**" tab) were:
ELIS: 2.62
CT River: 2.05
CLIS: 2.19
WLIS: 2.02
Hybrid: 2.67

The hybrid and ELIS were the leaders in this class, with Hybrid generating a slightly higher score. The other three scored distantly behind.

Section	Criteria	Max Score	Score (Recommended)	Rev 1	Rev 2	Rev 3	Rev 4	Rev 5	Rev 6	Rev 7	Rev 8	Rev 9	Rev 10	Rev 11	Rev 12	Rev 13	Rev 14	*Criteria Ave Score*	*Variance*	*Section Average*	*Section Raw Score*	*Section % Score*
1	Environmental Representativeness & Characterisitics																					
1.1	Ecosystem Composition	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.2	Balanced Ecosystem Composition	**3**	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	*0.29*	*0.63*			
1.3	Habitat Composition / Complexity	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.4	Uniqueness of Habitat	**3**	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	*2.86*	*0.27*			
1.5	Importance of Habitat for Significant Flora / Fauna	**3**	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.6	New or Exemplary Typology	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.7	Site's Relationship to Tidally Influenced Drainage Basin	**3**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	*1.00*	*0.00*			
1.8	Geologic Uniqueness / Diversity of the Site	**3**	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.9	Hydrographic Uniqueness / Diversity of the Site	**3**	2	2	2	2	2	3	2	2	2	2	1	2	2	1	2	*1.93*	*0.21*			
1.10	Salinity Gradient	**3**	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*			
1.11	Degree Developed and Potential Impacts to Water Quality	**3**	3	3	3	3	3	3	3	3	3	1	3	3	2	3	3	*2.79*	*0.31*	2.42	26.57	27.7%
2	Value for Research Monitoring & Stewardship																					
2.1	Suitability of the Site for Long Term Research	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
2.2	Previous and Current Research Efforts	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
2.3	Suitability of the Site for Environmental Monitoring	**3**	3	3	3	3	2	3	3	3	3	3	2	3	3	3	3	*2.86*	*0.12*			
2.4	Suitability of the Site for Stewardship Program Development	**3**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*2.00*	*0.00*			
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*	*2.77*	13.86	14.4%
3	Value for Training, Education, and Interpretation																					
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	**3**	2	2	2	3	2	2	2	2	2	3	2	2	3	2	2	*2.21*	*0.17*			
3.2	Diversity and Quality of Education and Interpretation Opportunities	**3**	1	3	1	3	1	1	1	1	2	2	1	1	3	1	2	*1.64*	*0.66*			
3.3	Previous and Current Education / Outreach Efforts	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	*2.93*	*0.07*			
3.4	Diversity and Availability of Target Audiences	**3**	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2	*2.14*	*0.12*	2.23	8.93	9.3%
4	Acquisition & Management																					
4.1	Land Ownership	**3**	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	*2.07*	*0.07*			
4.2	Publically Owned Lands and Feasibility of Land Acquisition	**3**	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
4.3	Availability of Facilities	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
4.5	Controlled Land and Water Access	**3**	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*			
4.6	Site Security	**3**	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	*2.07*	*0.07*			
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	**3**	1	2	1	1	1	1	1	1	1	2	1	1	3	1	1	*1.29*	*0.35*			
4.8	Compatibility with Adjacent Land and Water Uses	**3**	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	*2.07*	*0.07*			
4.9	Future Development Plans	**3**	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*	2.46	22.14	23.1%
5	Climate Resiliency																					
5.1	Facility Resiliency - Accessibility	**3**	3	3	2	3	3	3	3	3	3	3	3	3	2	3	3	*2.86*	*0.12*			
5.2	Facility Resiliency - Vulnerability	**3**	3	3	2	3	3	3	3	3	3	2	3	3	3	3	3	*2.86*	*0.12*			
5.3	Resource Resiliency	**3**	2	3	2	2	2	3	2	2	2	2	2	2	2	2	2	*2.14*	*0.12*	2.62	7.86	8.2%
	Totals:	**96**	**79**	**83**	**77**	**82**	**78**	**81**	**79**	**79**	**80**	**79**	**77**	**79**	**80**	**78**	**79**	**79.36**	*2.80*			
	Site Score:		***82.29%***	***86.46%***	***80.21%***	***85.42%***	***81.25%***	***84.38%***	***82.29%***	***82.29%***	***83.33%***	***82.29%***	***80.21%***	***82.29%***	***83.33%***	***81.25%***	***82.29%***	***82.66%***	*0.03%*		***79.36***	***82.66%***
			Rev Score Check	***x***	x	*x*	*x*	x	x	x	x	x	x	x	x	x	x					

Section	Criteria	Max Score	Score (Recommended)	Rev 1	Rev 2	Rev 3	Rev 4	Rev 5	Rev 6	Rev 7	Rev 8	Rev 9	Rev 10	Rev 11	Rev 12	Rev 13	Rev 14	*Criteria Ave Score*	*Variance*	*Section Average*	*Section Raw Score*	*Section % Score*
1	Environmental Representativeness & Characterisitics																					
1.1	Ecosystem Composition	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.2	Balanced Ecosystem Composition	**3**	**0**	0	0	0	0	0	0	0	0	1	0	0	2	0	0	*0.21*	*0.31*			
1.3	Habitat Composition / Complexity	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.4	Uniqueness of Habitat	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	1	3	3	*2.86*	*0.27*			
1.5	Importance of Habitat for Significant Flora / Fauna	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.6	New or Exemplary Typology	**3**	**3**	3	3	3	3	1	3	3	3	3	3	3	3	3	3	*2.86*	*0.27*			
1.7	Site's Relationship to Tidally Influenced Drainage Basin	**3**	**1**	1	1	1	1	1	1	2	1	1	1	1	3	1	2	*1.29*	*0.35*			
1.8	Geologic Uniqueness / Diversity of the Site	**3**	**2**	2	2	2	2	2	2	2	2	3	2	2	2	3	2	*2.14*	*0.12*			
1.9	Hydrographic Uniqueness / Diversity of the Site	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.10	Salinity Gradient	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.11	Degree Developed and Potential Impacts to Water Quality	**3**	**3**	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*	*2.45*	27.00	28.1%
2	Value for Research Monitoring & Stewardship																					
2.1	Suitability of the Site for Long Term Research	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
2.2	Previous and Current Research Efforts	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
2.3	Suitability of the Site for Environmental Monitoring	**3**	**2**	2	3	2	2	2	2	3	2	2	2	2	2	3	2	*2.21*	*0.17*			
2.4	Suitability of the Site for Stewardship Program Development	**3**	**2**	2	3	3	2	2	2	2	2	2	2	2	2	2	2	*2.14*	*0.12*			
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	**3**	**2**	2	3	2	2	2	2	3	2	2	2	2	2	3	2	*2.21*	*0.17*	*2.49*	12.43	12.9%
3	Value for Training, Education, and Interpretation																					
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	2	3	2	*2.07*	*0.07*			
3.2	Diversity and Quality of Education and Interpretation Opportunities	**3**	**3**	3	3	2	3	3	3	3	2	2	3	3	2	3	2	*2.64*	*0.23*			
3.3	Previous and Current Education / Outreach Efforts	**3**	**3**	3	3	2	3	3	3	3	3	3	3	3	2	3	2	*2.79*	*0.17*			
3.4	Diversity and Availability of Target Audiences	**3**	**2**	2	2	1	3	2	2	2	2	2	2	2	3	3	2	*2.14*	*0.27*	2.41	9.64	10.0%
4	Acquisition & Management																					
4.1	Land Ownership	**3**	**2**	3	2	2	2	2	2	2	2	2	2	2	3	2	2	*2.14*	*0.12*			
4.2	Publically Owned Lands and Feasibility of Land Acquisition	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
4.3	Availability of Facilities	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	**3**	**2**	3	2	2	3	2	2	2	2	3	3	2	2	2	2	*2.29*	*0.20*			
4.5	Controlled Land and Water Access	**3**	**3**	3	3	3	3	2	3	3	3	2	3	3	2	3	3	*2.79*	*0.17*			
4.6	Site Security	**3**	**2**	2	2	2	2	2	2	2	2	3	2	2	2	2	2	*2.07*	*0.07*			
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	**3**	**3**	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*			
4.8	Compatibility with Adjacent Land and Water Uses	**3**	**3**	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*			
4.9	Future Development Plans	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	2	3	2	*2.07*	*0.07*	2.55	22.93	23.9%
5	Climate Resiliency																					
5.1	Facility Resiliency - Accessibility	**3**	**2**	2	3	2	2	2	2	2	2	3	2	2	1	2	2	*2.07*	*0.21*			
5.2	Facility Resiliency - Vulnerability	**3**	**2**	2	3	2	2	2	2	2	2	2	2	2	1	2	2	*2.00*	*0.14*			
5.3	Resource Resiliency	**3**	**2**	3	3	2	2	2	2	2	2	2	2	2	1	2	2	*2.07*	*0.21*	2.05	6.14	6.4%
	Totals:	**96**	**78**	**81**	**84**	**76**	**80**	**75**	**78**	**81**	**77**	**78**	**79**	**78**	**66**	**84**	**77**	**78.14**	*18.12*			
	Site Score:		***81.25%***	***84.38%***	***87.50%***	***79.17%***	***83.33%***	***78.13%***	***81.25%***	***84.38%***	***80.21%***	***81.25%***	***82.29%***	***81.25%***	***68.75%***	***87.50%***	***80.21%***	***81.40%***	*0.20%*		***78.14***	***81.40%***
			Rev Score Check	***x***	x	*x*	*x*	x	x	x	x	x	x	x	x	x	x					

82.67%

Section	Criteria	Max Score	Score (Recommended)	Rev 1	Rev 2	Rev 3	Rev 4	Rev 5	Rev 6	Rev 7	Rev 8	Rev 9	Rev 10	Rev 11	Rev 12	Rev 13	Rev 14	*Criteria Ave Score*	*Variance*	*Section Average*	*Section Raw Score*	*Section % Score*
1	Environmental Representativeness & Characterisitics																					
1.1	Ecosystem Composition	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.2	Balanced Ecosystem Composition	**3**	**0**	0	0	0	0	0	0	0	0	1	0	0	2	0	0	*0.21*	*0.31*			
1.3	Habitat Composition / Complexity	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.4	Uniqueness of Habitat	**3**	**3**	3	1	3	3	3	3	3	3	2	3	3	1	3	3	*2.64*	*0.52*			
1.5	Importance of Habitat for Significant Flora / Fauna	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.6	New or Exemplary Typology	**3**	**3**	1	1	3	3	1	3	3	3	3	2	3	3	3	3	*2.50*	*0.68*			
1.7	Site's Relationship to Tidally Influenced Drainage Basin	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	1	2	2	*1.93*	*0.07*			
1.8	Geologic Uniqueness / Diversity of the Site	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
1.9	Hydrographic Uniqueness / Diversity of the Site	**3**	**0**	0	0	0	0	0	0	0	0	1	0	0	2	0	0	*0.21*	*0.31*			
1.10	Salinity Gradient	**3**	**2**	2	2	2	2	2	2	2	2	1	2	2	2	2	2	*1.93*	*0.07*			
1.11	Degree Developed and Potential Impacts to Water Quality	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*2.00*	*0.00*	*2.10*	23.14	24.1%
2	Value for Research Monitoring & Stewardship				0																	
2.1	Suitability of the Site for Long Term Research	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
2.2	Previous and Current Research Efforts	**3**	**3**	2	2	3	3	3	3	3	3	3	3	3	2	2	3	*2.71*	*0.20*			
2.3	Suitability of the Site for Environmental Monitoring	**3**	**2**	2	2	2	2	2	2	2	2	2	3	2	2	2	2	*2.07*	*0.07*			
2.4	Suitability of the Site for Stewardship Program Development	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*2.00*	*0.00*			
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	3	2	2	*2.07*	*0.07*	*2.37*	11.86	12.4%
					0																	
3	Value for Training, Education, and Interpretation				0																	
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	**3**	**2**	2	2	2	1	2	2	2	2	2	2	2	2	2	2	*1.93*	*0.07*			
3.2	Diversity and Quality of Education and Interpretation Opportunities	**3**	**1**	3	1	1	1	1	1	1	2	2	1	1	2	2	2	*1.50*	*0.39*			
3.3	Previous and Current Education / Outreach Efforts	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	2	*2.86*	*0.12*			
3.4	Diversity and Availability of Target Audiences	**3**	**1**	2	1	1	1	1	1	1	1	2	1	1	3	1	2	*1.36*	*0.37*	1.91	7.64	8.0%
					0																	
4	Acquisition & Management				0																	
4.1	Land Ownership	**3**	**2**	3	2	2	2	2	2	2	2	3	2	2	3	2	2	*2.21*	*0.17*			
4.2	Publically Owned Lands and Feasibility of Land Acquisition	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
4.3	Availability of Facilities	**3**	**1**	1	1	1	1	1	1	1	1	2	1	1	3	2	1	*1.29*	*0.35*			
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
4.5	Controlled Land and Water Access	**3**	**3**	3	3	3	3	3	3	3	3	1	3	3	2	3	3	*2.79*	*0.31*			
4.6	Site Security	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	3	2	2	*2.07*	*0.07*			
4.8	Compatibility with Adjacent Land and Water Uses	**3**	**1**	1	2	2	2	2	1	1	1	2	1	1	2	1	1	*1.43*	*0.24*			
4.9	Future Development Plans	**3**	**2**	2	2	2	2	2	2	2	2	1	2	2	2	2	2	*1.93*	*0.07*	2.29	20.57	21.4%
					0																	
5	Climate Resiliency				0																	
5.1	Facility Resiliency - Accessibility	**3**	**2**	2	1	2	2	2	2	2	2	3	2	2	2	2	2	*2.00*	*0.14*			
5.2	Facility Resiliency - Vulnerability	**3**	**2**	2	1	2	2	2	2	2	2	2	2	2	2	2	2	*1.93*	*0.07*			
5.3	Resource Resiliency	**3**	**3**	2	3	3	3	2	3	3	3	2	3	3	1	3	3	*2.64*	*0.37*	2.19	6.57	6.8%
	Totals:	**96**	**70**	**70**	**64**	**71**	**70**	**68**	**70**	**70**	**71**	**72**	**70**	**70**	**69**	**71**	**71**	**69.79**	*3.45*			
	Site Score:		***72.92%***	***72.92%***	***66.67%***	***73.96%***	***72.92%***	***70.83%***	***72.92%***	***72.92%***	***73.96%***	***75.00%***	***72.92%***	***72.92%***	***71.88%***	***73.96%***	***73.96%***	***72.69%***	*0.04%*		***69.79***	***72.69%***
			Rev Score Check	***x***	x	*x*	*x*	x	x	x	x	x	x	x	x	x	x					

Section	Criteria	Max Score	Score (Recommended)	Rev 1	Rev 2	Rev 3	Rev 4	Rev 5	Rev 6	Rev 7	Rev 8	Rev 9	Rev 10	Rev 11	Rev 12	Rev 13	Rev 14	*Criteria Ave Score*	*Variance*	*Section Average*	*Section Raw Score*	*Section % Score*
1	Environmental Representativeness & Characterisitics																					
1.1	Ecosystem Composition	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	2	3	*2.93*	*0.07*			
1.2	Balanced Ecosystem Composition	**3**	**0**	0	0	0	0	0	0	0	0	1	0	0	3	0	0	*0.29*	*0.63*			
1.3	Habitat Composition / Complexity	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.4	Uniqueness of Habitat	**3**	**3**	3	1	3	3	3	3	3	3	2	3	3	1	3	3	*2.64*	*0.52*			
1.5	Importance of Habitat for Significant Flora / Fauna	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	2	3	*2.93*	*0.07*			
1.6	New or Exemplary Typology	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
1.7	Site's Relationship to Tidally Influenced Drainage Basin	**3**	**1**	1	1	1	1	1	1	1	1	1	1	1	2	1	1	*1.07*	*0.07*			
1.8	Geologic Uniqueness / Diversity of the Site	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	1	2	3	*2.79*	*0.31*			
1.9	Hydrographic Uniqueness / Diversity of the Site	**3**	**2**	2	2	2	2	2	2	2	2	1	1	2	2	2	2	*1.86*	*0.12*			
1.10	Salinity Gradient	**3**	**3**	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*			
1.11	Degree Developed and Potential Impacts to Water Quality	**3**	**1**	1	1	1	1	1	1	1	1	0	1	1	1	1	1	*0.93*	*0.07*	*2.21*	24.29	25.3%
2	Value for Research Monitoring & Stewardship																					
2.1	Suitability of the Site for Long Term Research	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
2.2	Previous and Current Research Efforts	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	*3.00*	*0.00*			
2.3	Suitability of the Site for Environmental Monitoring	**3**	**3**	3	3	3	2	3	3	3	3	3	3	3	2	3	3	*2.86*	*0.12*			
2.4	Suitability of the Site for Stewardship Program Development	**3**	**2**	1	2	2	2	2	2	2	2	2	2	2	2	2	2	*1.93*	*0.07*			
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	**3**	**3**	3	3	3	3	3	3	3	3	3	2	3	3	3	3	*2.93*	*0.07*	*2.74*	13.71	14.3%
3	Value for Training, Education, and Interpretation																					
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	3	2	2	*2.07*	*0.07*			
3.2	Diversity and Quality of Education and Interpretation Opportunities	**3**	**1**	3	1	1	1	1	1	1	1	2	1	1	3	1	2	*1.43*	*0.53*			
3.3	Previous and Current Education / Outreach Efforts	**3**	**3**	3	3	3	3	3	3	3	3	1	3	3	3	3	2	*2.79*	*0.31*			
3.4	Diversity and Availability of Target Audiences	**3**	**2**	2	2	2	2	2	2	2	2	3	1	2	3	2	2	*2.07*	*0.21*	2.09	8.36	8.7%
4	Acquisition & Management																					
4.1	Land Ownership	**3**	**1**	2	1	1	1	1	1	1	1	1	1	1	3	1	1	*1.21*	*0.31*			
4.2	Publically Owned Lands and Feasibility of Land Acquisition	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	1	3	3	*2.86*	*0.27*			
4.3	Availability of Facilities	**3**	**1**	1	1	1	1	1	1	1	1	1	1	1	2	1	1	*1.07*	*0.07*			
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	**3**	**2**	3	2	2	2	2	2	2	2	3	2	2	3	2	2	*2.21*	*0.17*			
4.5	Controlled Land and Water Access	**3**	**1**	1	1	1	1	1	1	1	1	1	1	1	2	1	1	*1.07*	*0.07*			
4.6	Site Security	**3**	**3**	3	3	3	3	3	3	3	3	3	3	3	2	3	3	*2.93*	*0.07*			
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	**3**	**3**	3	3	3	3	3	3	3	3	2	3	3	2	3	3	*2.86*	*0.12*			
4.8	Compatibility with Adjacent Land and Water Uses	**3**	**0**	0	0	0	0	0	0	0	0	0	0	0	2	0	0	*0.14*	*0.27*			
4.9	Future Development Plans	**3**	**2**	2	2	2	2	2	2	2	2	0	2	2	3	2	2	*1.93*	*0.35*	1.81	16.29	17.0%
5	Climate Resiliency																					
5.1	Facility Resiliency - Accessibility	**3**	**2**	2	2	2	2	2	2	2	2	3	2	2	2	2	2	*2.07*	*0.07*			
5.2	Facility Resiliency - Vulnerability	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*2.00*	*0.00*			
5.3	Resource Resiliency	**3**	**2**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	*2.00*	*0.00*	2.02	6.07	6.3%
	Totals:	**96**	**69**	**72**	**67**	**69**	**68**	**69**	**69**	**69**	**69**	**65**	**66**	**69**	**75**	**66**	**69**	**68.71**	*5.92*			
	Site Score:		***71.88%***	***75.00%***	***69.79%***	***71.88%***	***70.83%***	***71.88%***	***71.88%***	***71.88%***	***71.88%***	***67.71%***	***68.75%***	***71.88%***	***78.13%***	***68.75%***	***71.88%***	***71.58%***	*0.06%*		***68.71***	***71.58%***
			Rev Score Check	***x***	x	*x*	*x*	x	x	x	x	x	x	x	x	x	x					

Section	Criteria	Max Score	Score (Recommended)	Rev 1	Rev 2	Rev 3	Rev 4	Rev 5	Rev 6	Rev 7	Rev 8	Rev 9	Rev 10	Rev 11	Rev 12	Rev 13	Rev 14	Rev15 (hybrid only)	*Criteria Ave Score*	*Variance*	*Section Average*	*Section Raw Score*	*Section % Score*
1	Environmental Representativeness & Characterisitics																						
1.1	Ecosystem Composition	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.2	Balanced Ecosystem Composition	**3**	**0**	0	0	0	0	0	0	0			0	0		0	0	0	*0.00*	*0.00*			
1.3	Habitat Composition / Complexity	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.4	Uniqueness of Habitat	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.5	Importance of Habitat for Significant Flora / Fauna	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.6	New or Exemplary Typology	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.7	Site's Relationship to Tidally Influenced Drainage Basin	**3**	**1**	1	1	1	1	1	1	1			1	1		1	1	1	*1.00*	*0.00*			
1.8	Geologic Uniqueness / Diversity of the Site	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.9	Hydrographic Uniqueness / Diversity of the Site	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.10	Salinity Gradient	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
1.11	Degree Developed and Potential Impacts to Water Quality	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*	*2.55*	28.00	29.2%
2	Value for Research Monitoring & Stewardship																						
2.1	Suitability of the Site for Long Term Research	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
2.2	Previous and Current Research Efforts	**3**	**3**	3	3	2	3	3	3	3			3	3		3	3	3	*2.92*	*0.08*			
2.3	Suitability of the Site for Environmental Monitoring	**3**	**3**	3	3	2	3	3	3	3			3	3		3	3	3	*2.92*	*0.08*			
2.4	Suitability of the Site for Stewardship Program Development	**3**	**2**	3	3	2	2	2	2	2			2	2		2	2	2	*2.17*	*0.14*			
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	**3**	**2**	3	2	2	2	3	2	3			2	3		2	2	2	*2.33*	*0.22*	*2.67*	13.33	13.9%
3	Value for Training, Education, and Interpretation																						
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	**3**	**2**	3	2	2	2	2	2	2			2	2		2	2	2	*2.08*	*0.08*			
3.2	Diversity and Quality of Education and Interpretation Opportunities	**3**	**3**	3	3	3	3	3	3	3			3	3		2	2	3	*2.83*	*0.14*			
3.3	Previous and Current Education / Outreach Efforts	**3**	**3**	3	3	3	3	3	3	3			3	3		3	2	3	*2.92*	*0.08*			
3.4	Diversity and Availability of Target Audiences	**3**	**2**	2	2	2	3	2	2	2			2	2		2	2	2	*2.08*	*0.08*	2.48	9.92	10.3%
4	Acquisition & Management																						
4.1	Land Ownership	**3**	**2**	3	2	2	2	2	2	2			2	2		3	2	2	*2.17*	*0.14*			
4.2	Publically Owned Lands and Feasibility of Land Acquisition	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
4.3	Availability of Facilities	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
4.5	Controlled Land and Water Access	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
4.6	Site Security	**3**	**3**	3	3	3	3	3	3	3			3	3		3	3	3	*3.00*	*0.00*			
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	**3**	**2**	3	2	2	2	2	2	2			2	2		2	2	2	*2.08*	*0.08*			
4.8	Compatibility with Adjacent Land and Water Uses	**3**	**2**	3	2	2	2	2	2	2			2	2		2	2	2	*2.08*	*0.08*			
4.9	Future Development Plans	**3**	**2**	3	2	2	2	2	2	2			2	2		2	2	2	*2.08*	*0.08*	2.60	23.42	24.4%
5	Climate Resiliency																						
5.1	Facility Resiliency - Accessibility	**3**	**3**	3	3	3	2	3	3	3			3	3		3	3	3	*2.92*	*0.08*			
5.2	Facility Resiliency - Vulnerability	**3**	**3**	3	3	3	2	3	3	3			3	3		3	3	3	*2.92*	*0.08*			
5.3	Resource Resiliency	**3**	**2**	3	2	2	3	2	2	2			2	2		2	2	2	*2.17*	*0.14*	2.67	8.00	8.3%
	Totals:	**96**	**82**	**90**	**83**	**80**	**82**	**83**	**82**	**83**			**82**	**83**		**82**	**80**	**82**	**82.67**	*6.38*			
	Site Score:		***85.42%***	***93.75%***	***86.46%***	***83.33%***	***85.42%***	***86.46%***	***85.42%***	***86.46%***			***85.42%***	***86.46%***		***85.42%***	***83.33%***	***85.42%***	***86.11%***	*0.07%*		***82.67***	***86.11%***
			Rev Score Check	*x*	x	*x*	*x*	x	x	x	x	x	x	x	x	x	x	x					

86.17%

		Recommended	Rev1	Rev2	Rev3	Rev4	Rev5	Rev6	Rev7	Rev8	Rev9	Rev10	Rev11	Rev12	Rev13	Rev14	Rev15		Mean	Variance
1.1	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3			2.93	0.07
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.2	ELIS	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0			0.29	0.63
	CTRiver	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0			0.21	0.31
	CLIS	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0			0.21	0.31
	WLIS	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0			0.29	0.63
	Hybrid	0	0	0	0	0	0	0	0			0	0		0	0	0		0.00	0.00
1.3	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.4 (no 2's)	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3			2.86	0.27
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3			2.86	0.27
	CLIS	3	3	1	3	3	3	3	3	3	2	3	3	1	3	3			2.64	0.52
	WLIS	3	3	1	3	3	3	3	3	3	2	3	3	1	3	3			2.64	0.52
	hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.5	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3			2.93	0.07
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.6 (no 2's)	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3			2.86	0.27
	CLIS	3	1	1	3	3	1	3	3	3	3	2	3	3	3	3			2.50	0.68
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.7	ELIS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1.00	0.00
	CTRiver	1	1	1	1	1	1	1	2	1	1	1	1	3	1	2			1.29	0.35
	CLIS	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2			1.93	0.07
	WLIS	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1			1.07	0.07
	Hybrid	1	1	1	1	1	1	1	1			1	1		1	1	1		1.00	0.00
1.8	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CTRiver	2	2	2	2	2	2	2	2	2	3	2	2	2	3	2			2.14	0.12
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	1	2	3			2.79	0.31
	Hybrid	3	3	3	3	3	3	3	3			3	3			3	3		3.00	0.00
1.9	ELIS	2	2	2	2	2	3	2	2	2	2	1	2	2	1	2			1.93	0.21
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CLIS	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0			0.21	0.31
	WLIS	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2			1.86	0.12
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.10	ELIS	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2			1.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
1.11	ELIS	3	3	3	3	3	3	3	3	3	1	3	3	2	3	3			2.79	0.31
	CTRiver	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	CLIS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			2.00	0.00
	WLIS	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1			0.93	0.07
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
		Disagree	1	3	0	0	3	0	1	0	15	3	0	26	0	1	0	53	7%	
		Agree	54	52	55	55	52	55	54	44	29	52	55	18	55	54	11	695	93%	
																		748		

Higher than recommended
Lower than recommended
Same as recommended

Criteria2_Sum

		Recommended	Rev1	Rev2	Rev3	Rev4	Rev5	Rev6	Rev7	Rev8	Rev9	Rev10	Rev11	Rev12	Rev13	Rev14	Rev15		Mean	Variance
2.1	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
2.2	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	3	2	2	3	3	3	3	3	3	3	3	3	2	2	3			2.71	0.20
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	Hybrid	3	3	3	2	3	3	3	3			3	3		3	3	3		2.92	0.08
2.3	ELIS	3	3	3	3	2	3	3	3	3	3	2	3	3	3	3			2.86	0.12
	CTRiver	2	2	3	2	2	2	2	3	2	2	2	2	2	3	2			2.21	0.17
	CLIS	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2			2.07	0.07
	WLIS	3	3	3	3	2	3	3	3	3	3	3	3	2	3	3			2.86	0.12
	Hybrid	3	3	3	2	3	3	3	3			3	3		3	3	3		2.92	0.08
2.4	ELIS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			2.00	0.00
	CTRiver	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2			2.14	0.12
	CLIS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			2.00	0.00
	WLIS	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2			1.93	0.07
	Hybrid	2	3	3	2	2	2	2	2			2	2		2	2	2		2.17	0.14
2.5	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	2	2	3	2	2	2	2	3	2	2	2	2	2	3	2			2.21	0.17
	CLIS	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2			2.07	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3			2.93	0.07
	Hybrid	2	3	2	2	2	3	2	3			2	3		2	2	2		2.33	0.22
		Disagree	4	5	3	2	1	0	3	0	0	3	1	5	3	0	0	30	9%	
		Agree	21	20	22	23	24	25	22	20	20	22	24	15	22	25	5	310	91%	
																		340		

Higher than recommended
Lower than recommended
Same as recommended

Criteria3_Sum

		Recommended	Rev1	Rev2	Rev3	Rev4	Rev5	Rev6	Rev7	Rev8	Rev9	Rev10	Rev11	Rev12	Rev13	Rev14	Rev15		Mean	Variance
3.1	ELIS	2	2	2	3	2	2	2	2	2	3	2	2	3	2	2			2.21	0.17
	CTRiver	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2			2.07	0.07
	CLIS	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2			1.93	0.07
	WLIS	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2			2.07	0.07
	Hybrid	2	3	2	2	2	2	2	2			2	2		2	2	2		2.08	0.08
3.2	ELIS	1	3	1	3	1	1	1	1	2	2	1	1	3	1	2			1.64	0.66
	CTRiver	3	3	3	2	3	3	3	3	2	2	3	3	2	3	2			2.64	0.23
	CLIS	1	3	1	1	1	1	1	1	2	2	1	1	2	2	2			1.50	0.39
	WLIS	1	3	1	1	1	1	1	1	1	2	1	1	3	1	2			1.43	0.53
	Hybrid	3	3	3	3	3	3	3	3			3	3		2	2	3		2.83	0.14
3.3	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2			2.93	0.07
	CTRiver	3	3	3	2	3	3	3	3	3	3	3	3	2	3	2			2.79	0.17
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2			2.86	0.12
	WLIS	3	3	3	3	3	3	3	3	3	1	3	3	3	3	2			2.79	0.31
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	2	3		2.92	0.08
3.4	ELIS	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2			2.14	0.12
	CTRiver	2	2	2	1	3	2	2	2	2	2	2	2	3	3	2			2.14	0.27
	CLIS	1	2	1	1	1	1	1	1	1	2	1	1	3	1	2			1.36	0.37
	WLIS	2	2	2	2	2	2	2	2	2	3	1	2	3	2	2			2.07	0.21
	Hybrid	2	2	2	2	3	2	2	2			2	2		2	2	2		2.08	0.08
		Disagree	5	0	5	3	0	0	0	3	9	1	0	12	4	11	0	53	19%	
		Agree	15	20	15	17	20	20	20	13	7	19	20	4	16	9	4	219	81%	
																		272		

Higher than recommended
Lower than recommended
Same as recommended

Criteria4_Sum

		Recommended	Rev1	Rev2	Rev3	Rev4	Rev5	Rev6	Rev7	Rev8	Rev9	Rev10	Rev11	Rev12	Rev13	Rev14	Rev15		Mean	Variance
4.1	ELIS	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2			2.07	0.07
	CTRiver	2	3	2	2	2	2	2	2	2	2	2	2	3	2	2			2.14	0.12
	CLIS	2	3	2	2	2	2	2	2	2	3	2	2	3	2	2			2.21	0.17
	WLIS	1	2	1	1	1	1	1	1	1	1	1	1	3	1	1			1.21	0.31
	Hybrid	2	3	2	2	2	2	2	2			2	2		3	2	2		2.17	0.14
4.2	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3			2.86	0.27
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
4.3	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	CLIS	1	1	1	1	1	1	1	1	1	2	1	1	3	2	1			1.29	0.35
	WLIS	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1			1.07	0.07
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
4.4	ELIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	CTRiver	2	3	2	2	3	2	2	2	2	3	3	2	2	2	2			2.29	0.20
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			3.00	0.00
	WLIS	2	3	2	2	2	2	2	2	2	3	2	2	3	2	2			2.21	0.17
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
4.5	ELIS	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	CTRiver	3	3	3	3	3	2	3	3	3	2	3	3	2	3	3			2.79	0.17
	CLIS	3	3	3	3	3	3	3	3	3	1	3	3	2	3	3			2.79	0.31
	WLIS	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1			1.07	0.07
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
4.6 (no 1's)	ELIS	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2			2.07	0.07
	CTRiver	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2			2.07	0.07
	CLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	WLIS	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3			2.93	0.07
	Hybrid	3	3	3	3	3	3	3	3			3	3		3	3	3		3.00	0.00
4.7	ELIS	1	2	1	1	1	1	1	1	1	2	1	1	3	1	1			1.29	0.35
	CTRiver	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	CLIS	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2			2.07	0.07
	WLIS	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	Hybrid	2	3	2	2	2	2	2	2			2	2		2	2	2		2.08	0.08
4.8	ELIS	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2			2.07	0.07
	CTRiver	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	CLIS	1	1	2	2	2	2	1	1	1	2	1	1	2	1	1			1.43	0.24
	WLIS	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0			0.14	0.27
	Hybrid	2	3	2	2	2	2	2	2			2	2		2	2	2		2.08	0.08
4.9	ELIS	3	3	3	3	3	3	3	3	3	2	3	3	2	3	3			2.86	0.12
	CTRiver	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2			2.07	0.07
	CLIS	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2			1.93	0.07
	WLIS	2	2	2	2	2	2	2	2	2	0	2	2	3	2	2			1.93	0.35
	Hybrid	2	3	2	2	2	2	2	2			2	2		2	2	2		2.08	0.08
		Disagree	9	1	1	2	2	0	0	0	17	1	0	28	3	0	0	64	10%	
		Agree	36	44	44	43	43	45	45	36	19	44	45	8	42	45	9	548	90%	
																		612		

Higher than recommended
Lower than recommended
Same as recommended

		Recommended	Rev1	Rev2	Rev3	Rev4	Rev5	Rev6	Rev7	Rev8	Rev9	Rev10	Rev11	Rev12	Rev13	Rev14	Rev15		Mean	Variance
5.1	ELIS	3	3	2	3	3	3	3	3	3	3	3	3	2	3	3			2.86	0.12
	CTRiver	2	2	3	2	2	2	2	2	2	3	2	2	1	2	2			2.07	0.21
	CLIS	2	2	1	2	2	2	2	2	2	3	2	2	2	2	2			2.00	0.14
	WLIS	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2			2.07	0.07
	Hybrid	3	3	3	3	2	3	3	3			3	3		3	3	3		2.92	0.08
5.2	ELIS	3	3	2	3	3	3	3	3	3	2	3	3	3	3	3			2.86	0.12
	CTRiver	2	2	3	2	2	2	2	2	2	2	2	2	1	2	2			2.00	0.14
	CLIS	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2			1.93	0.07
	WLIS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			2.00	0.00
	Hybrid	3	3	3	3	2	3	3	3			3	3		3	3	3		2.92	0.08
5.3	ELIS	2	3	2	2	2	3	2	2	2	2	2	2	2	2	2			2.14	0.12
	CTRiver	2	3	3	2	2	2	2	2	2	2	2	2	1	2	2			2.07	0.21
	CLIS	3	2	3	3	3	2	3	3	3	2	3	3	1	3	3			2.64	0.37
	WLIS	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			2.00	0.00
	Hybrid	2	3	2	2	3	2	2	2			2	2		2	2	2		2.17	0.14
		Diasagree	4	7	0	3	2	0	0	0	5	0	0	5	0	0	0	26	13%	
		Agree	11	8	15	12	13	15	15	12	7	15	15	7	15	15	3	178	87%	
																		204		

Higher than recommended
Lower than recommended
Same as recommended

Final Overall Scoring Values

	ELIS	CT River	CLIS	WLIS	Hybrid	High Score Frequency	
Rev1	86.46%	84.38%	72.92%	75.00%	93.75%	Hybrid	9
Rev2	80.21%	87.50%	66.67%	69.79%	86.46%	ELIS	4
Rev3	85.42%	79.17%	73.96%	71.88%	83.33%	CT River	2
Rev4	81.25%	83.33%	72.92%	70.83%	85.42%		
Rev5	84.38%	78.13%	70.83%	71.88%	86.46%		
Rev6	82.29%	81.25%	72.92%	71.88%	85.42%		
Rev7	82.29%	84.38%	72.92%	71.88%	86.46%		
Rev8	83.33%	80.21%	73.96%	71.88%			
Rev9	82.29%	81.25%	75.00%	67.71%			
Rev10	80.21%	82.29%	72.92%	68.75%	85.42%		
Rev11	82.29%	81.25%	72.92%	71.88%	86.46%		
Rev12	83.33%	68.75%	71.88%	78.13%			
Rev13	81.25%	87.50%	73.96%	68.75%	85.42%		
Rev14	82.29%	80.21%	73.96%	71.88%	83.33%		
Rev15					85.42%		
Ave	***82.66%***	***81.40%***	***72.69%***	***71.58%***	***86.11%***		

(yellow)	High score

With a score of **86.11**, the Hybrid site received the highest overall score, besting the next closest scorers (ELIS at 82.66 and CT River at 81.40) by 3.45 and 4.71, respectively. The differential between the hybrid and ELIS (3.45) more than doubles the previous differential of 1.26 between ELIS and CT River from the initial scoring. CLIS and WLIS sites were both at a comparatively lower tier, with final scores of 72.69 and 71.58 respectively.

Therefore, the Hybrid site is offered as the CT NERR nominee.

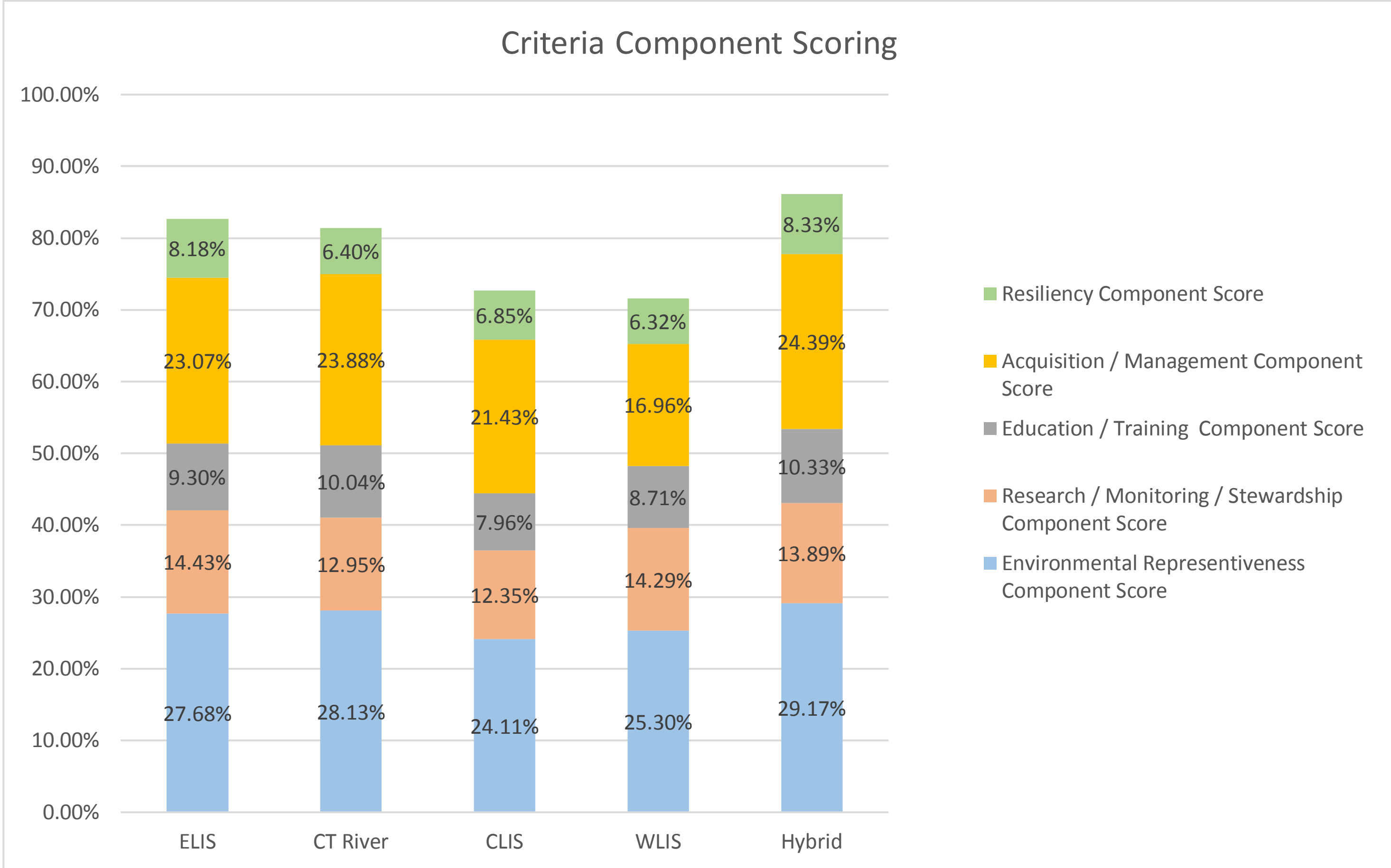
The tables and charts provide a breakdown of how the scoring contributed to the overall site scores, as well as how sites compared when looking at criteria groups. In general:

- When looking at the distribution of final scores, the Hybrid Site was identified as the high score by 9 of the 15 reviewers. ELIS was second with 4 high scores, and CT River third with 2. CLIS and WLIS scored well, but did not receive a high score by any reviewer. Due to the fact that there were two rounds of scoring with slightly different scorer compositions, 3 of the ELIS scores did not have a hybrid score to compete against and 1 of the Hybrid scores had no competing scores. If those were removed from consideration and only those reviewers providing scores for all 5 sites are considered, the hybrid had 8 high scores, ELIS 1 and CTRiver 2.

- When considering the impact of selection criteria, the Hybrid site scored very highly across the board, representing the class lead in 4 of the 5 criteria groups: Environmental Representativeness, Education and Training, Acquisition and Management, and Resiliency. Although third to ELIS and WLIS in overall ratings for Research/Monitoring/Stewardship, the differentials were extremely

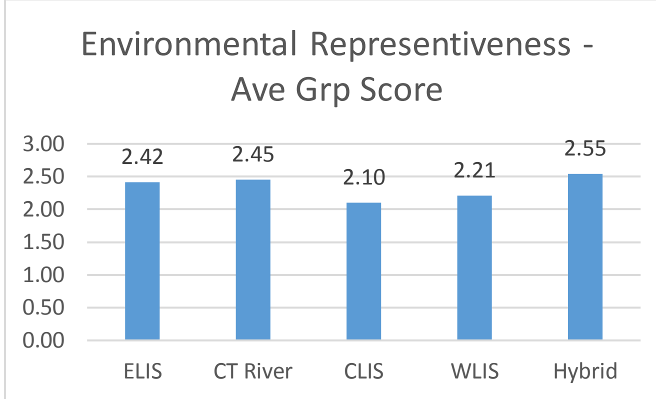
Component Scoring: Contribution of each Criteria Group to the Overall Score

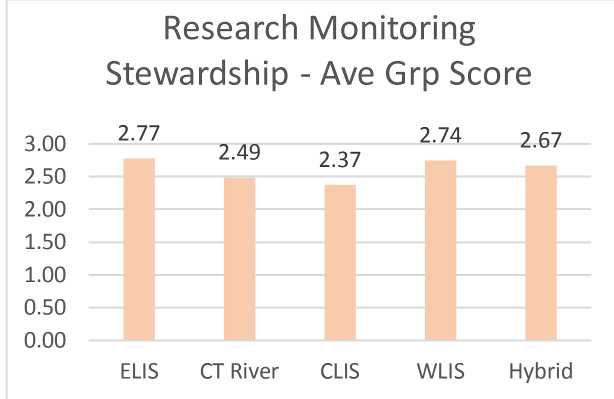
	Environmental Representiveness Component Score	Research / Monitoring / Stewardship Component Score	Education / Training Component Score	Acquisition / Management Component Score	Resiliency Component Score	Overall Score
ELIS	27.68%	14.43%	9.30%	23.07%	8.18%	82.66%
CT River	28.13%	12.95%	10.04%	23.88%	6.40%	81.40%
CLIS	24.11%	12.35%	7.96%	21.43%	6.85%	72.69%
WLIS	25.30%	14.29%	8.71%	16.96%	6.32%	71.58%
Hybrid	29.17%	13.89%	10.33%	24.39%	8.33%	86.11%

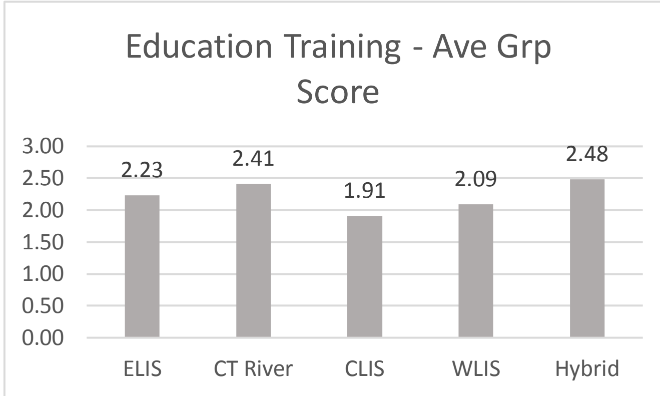


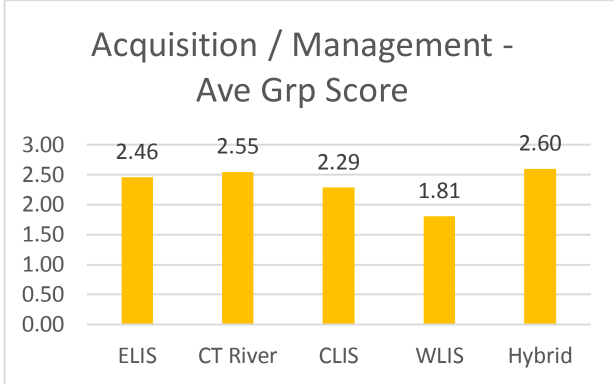
Average Scoring of Criteria Groups

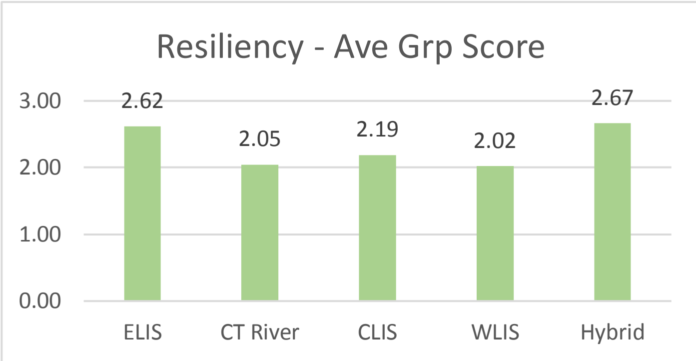
	Environmental Representiveness Ave Group Score	Research / Monitoring / Stewardship Ave Group Score	Education / Training Ave group Score	Acquisition / Management Ave Group Score	Resiliency Ave Group Score
ELIS	2.42	2.77	2.23	2.46	2.62
CT River	2.45	2.49	2.41	2.55	2.05
CLIS	2.10	2.37	1.91	2.29	2.19
WLIS	2.21	2.74	2.09	1.81	2.02
Hybrid	2.55	2.67	2.48	2.60	2.67











Section	Criteria	Min Score	Max Score	Score Adjustment	Finalist Sites				
					ELIS	**CT River**	**CLIS**	**WLIS**	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	1	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	...	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	3	3	2	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	3	2	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	2	2	2	1	3
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	3	2	2	3	3
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	2	2	2	2	3
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	3	3	3	3	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	2	2	2	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...	2	3	3	2	3
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	...	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	3	3	3	3	3
4.5	Controlled Land and Water Access	*0*	*3*	...	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...	2	3	2	3	3
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	2	3	1	0	3
4.9	Future Development Plans	*0*	*3*	...	3	2	2	2	3
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	...	3	3	2	2	3
	Totals:	***2***	***96***		**83**	**81**	**70**	**72**	**90**

					Finalist Sites				
Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	…	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	…	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	…	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	1	1	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	…	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	1	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	…	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	…	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	…	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	…	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	…	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	…	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	…	3	3	2	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	…	3	3	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	…	2	3	2	2	3
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	…	3	3	2	3	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	…	2	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	…	1	3	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	…	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	…	2	2	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	…	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	…	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	…	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	…	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	…	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	…	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	…	2	3	2	0	2
4.9	Future Development Plans	*0*	*3*	…	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	…	2	3	1	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	…	2	3	1	2	3
5.3	Resource Resiliency	*0*	*3*	…	2	3	3	2	2
	Totals:	***2***	***96***		***77***	***84***	***64***	***67***	***83***

Section	Criteria	Min Score	Max Score	Score Adjustment	ELIS	CT River	CLIS	WLIS	Hybrid
					Finalist Sites				
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	...	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	3	3	3	3	2
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	3	2	2	3	2
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	2	**3**	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	3	2	2	3	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	3	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	3	2	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	3	2	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	2	1	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	...	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	...	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumptive / Non-consumptive Uses	*0*	*3*	...	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	2	3	2	0	2
4.9	Future Development Plans	*0*	*3*	...	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	...	2	2	3	2	2
	Totals:	***2***	***96***		***82***	***76***	***71***	***69***	***80***

					Finalist Sites				
Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	*…*	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	*…*	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	*…*	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	*…*	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	*…*	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	*…*	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	*…*	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	*…*	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	*…*	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	*…*	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	*…*	3	3	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	*…*	2	2	2	2	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	*…*	2	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	*…*	3	2	2	3	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	*…*	2	2	1	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	*…*	1	3	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	*…*	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	*…*	2	3	1	2	3
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	*…*	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	*…*	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	*…*	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Mana	*0*	*3*	*…*	3	**3**	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	*…*	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive	*0*	*3*	*…*	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	*…*	2	3	2	0	2
4.9	Future Development Plans	*0*	*3*	*…*	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	*…*	3	2	2	2	2
5.2	Facility Resiliency - Vulnerability	*0*	*3*	*…*	3	2	2	2	2
5.3	Resource Resiliency	*0*	*3*	*…*	2	2	3	2	3
	Totals:	***2***	***96***		***78***	***80***	***70***	***68***	***82***

Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
					Finalist Sites				
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	1	1	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	3	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	...	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	3	3	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	3	2	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	2	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	3	2	2	3	3
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	2	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	1	3	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	2	2	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	...	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	...	3	2	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	2	3	2	0	2
4.9	Future Development Plans	*0*	*3*	...	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	...	3	2	2	2	2
	Totals:	***2***	***96***		***81***	***75***	***68***	***69***	***83***

Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
					Finalist Sites				
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	...	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	3	3	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	3	2	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	2	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	3	2	2	3	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	2	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	1	3	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	2	2	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	...	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	...	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	2	3	1	0	2
4.9	Future Development Plans	*0*	*3*	...	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	...	2	2	3	2	2
	Totals:	***2***	***96***		***79***	***78***	***70***	***69***	***82***

					Finalist Sites				
Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	…	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	…	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	…	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	…	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	…	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	…	3	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*		1	2	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	…	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	…	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	…	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	…	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	…	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	…	3	3	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*		3	3	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	…	2	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*		3	3	2	3	3
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	…	2	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	…	1	3	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	…	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	…	2	2	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	…	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	…	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	…	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	…	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	…	3	3	3	1	3
4.6	Site Security	*0*	*3*	…	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	…	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	…	2	3	1	0	2
4.9	Future Development Plans	*0*	*3*	…	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	…	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	…	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	…	2	2	3	2	2
	Totals:	***2***	***96***		***79***	***81***	***70***	***69***	***83***

Section	Criteria	Min Score	Max Score	Score Adjustment	Finalist Sites: ELIS	CT River	CLIS	WLIS
1	Environmental Representativeness & Characterisitics							
1.1	Ecosystem Composition	*0*	*3*	...	**3**	**3**	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	**0**	**0**	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	**3**	**3**	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	**3**	**3**	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	**3**	**3**	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	**3**	**3**	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	**1**	**1**	2	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	**3**	**2**	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	**2**	**3**	0	2
1.10	Salinity Gradient	*0*	*3*	...	**3**	**3**	2	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	**3**	**3**	2	1
2	Value for Research Monitoring & Stewardship							
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	**3**	**3**	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	**3**	**3**	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	**3**	**2**	2	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	**2**	**2**	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	**3**	**2**	2	3
3	Value for Training, Education, and Interpretation							
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	**2**	**2**	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	**2**	**2**	2	1
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	**3**	**3**	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	**2**	**2**	1	2
4	Acquisition & Management							
4.1	Land Ownership	*1*	*3*	...	**2**	**2**	2	1
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	**3**	**3**	3	3
4.3	Availability of Facilities	*0*	*3*	...	**3**	**3**	1	1
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	**3**	**2**	3	2
4.5	Controlled Land and Water Access	*0*	*3*	...	**3**	**3**	3	1
4.6	Site Security	*0*	*3*	*no 1's*	**2**	**2**	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...	**1**	**3**	2	3
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	**2**	**3**	1	0
4.9	Future Development Plans	*0*	*3*	...	**3**	**2**	2	2
5	Climate Resiliency							
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	**3**	**2**	2	2
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	**3**	**2**	2	2
5.3	Resource Resiliency	*0*	*3*	...	**2**	**2**	3	2
	Totals:	***2***	***96***		***80***	***77***	***71***	***69***

					Finalist Sites			
Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**
1	Environmental Representativeness & Characterisitics							
1.1	Ecosystem Composition	*0*	*3*	…	**3**	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	…	**1**	1	1	1
1.3	Habitat Composition / Complexity	*1*	*3*	…	**3**	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	**3**	3	2	2
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	…	**3**	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	**3**	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	…	**1**	1	2	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	…	**3**	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	…	**2**	3	1	1
1.10	Salinity Gradient	*0*	*3*	…	**2**	3	1	2
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	…	**1**	2	2	0
2	Value for Research Monitoring & Stewardship							
2.1	Suitability of the Site for Long Term Research	*0*	*3*	…	**3**	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	…	**3**	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	…	**3**	2	2	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	…	**2**	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	…	**3**	2	2	3
3	Value for Training, Education, and Interpretation							
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	…	**3**	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	…	**2**	2	2	2
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	…	**3**	3	3	1
3.4	Diversity and Availability of Target Audiences	*0*	*3*	…	**3**	2	2	3
4	Acquisition & Management							
4.1	Land Ownership	*1*	*3*	…	**2**	2	3	1
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	…	**3**	3	3	3
4.3	Availability of Facilities	*0*	*3*	…	**3**	3	2	1
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	…	**3**	3	3	3
4.5	Controlled Land and Water Access	*0*	*3*	…	**2**	2	1	1
4.6	Site Security	*0*	*3*	*no 1's*	**3**	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	…	**2**	2	2	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	…	**2**	2	2	0
4.9	Future Development Plans	*0*	*3*	…	**2**	2	1	0
5	Climate Resiliency							
5.1	Facility Resiliency - Accessibility	*0*	*3*	…	**3**	3	3	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	…	**2**	2	2	2
5.3	Resource Resiliency	*0*	*3*	…	**2**	2	2	2
	Totals:	***2***	***96***		***79***	***78***	***72***	***65***

Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
					Finalist Sites				
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	…	**3**	**3**	**3**	**3**	3
1.2	Balanced Ecosystem Composition	*0*	*3*	…	**0**	**0**	**0**	**0**	0
1.3	Habitat Composition / Complexity	*1*	*3*	…	**3**	**3**	**3**	**3**	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	**3**	**3**	**3**	**3**	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	…	**3**	**3**	**3**	**3**	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	**3**	**3**	**2**	**3**	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	…	**1**	**1**	**2**	**1**	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	…	**3**	**2**	**3**	**3**	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	…	**1**	**3**	**0**	**1**	3
1.10	Salinity Gradient	*0*	*3*	…	**3**	**3**	**2**	**3**	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	…	**3**	**3**	**2**	**1**	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	…	**3**	**3**	**3**	**3**	3
2.2	Previous and Current Research Efforts	*0*	*3*	…	**3**	**3**	**3**	**3**	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	…	**2**	**2**	**3**	**3**	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	…	**2**	**2**	**2**	**2**	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	…	**3**	**2**	**2**	**2**	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	…	**2**	**2**	**2**	**2**	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	…	**1**	**3**	**1**	**1**	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	…	**3**	**3**	**3**	**3**	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	…	**2**	**2**	**1**	**1**	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	…	**2**	**2**	**2**	**1**	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	…	**3**	**3**	**3**	**3**	3
4.3	Availability of Facilities	*0*	*3*	…	**3**	**3**	**1**	**1**	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	…	**3**	**3**	**3**	**2**	3
4.5	Controlled Land and Water Access	*0*	*3*	…	**3**	**3**	**3**	**1**	3
4.6	Site Security	*0*	*3*	*no 1's*	**2**	**2**	**3**	**3**	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	…	**1**	**3**	**2**	**3**	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	…	**2**	**3**	**1**	**0**	2
4.9	Future Development Plans	*0*	*3*	…	**3**	**2**	**2**	**2**	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	…	**3**	**2**	**2**	**2**	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	…	**3**	**2**	**2**	**2**	3
5.3	Resource Resiliency	*0*	*3*	…	**2**	**2**	**3**	**2**	2
	Totals:	***2***	***96***		***77***	***79***	***70***	***66***	***82***

Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	Finalist Sites: ELIS	CT River	CLIS	WLIS	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	1	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	...	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	3	3	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	3	2	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	2	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	3	2	2	3	3
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	2	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	1	3	1	1	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	3	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	2	2	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	...	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	...	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	2	3	1	0	2
4.9	Future Development Plans	*0*	*3*	...	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	...	2	2	3	2	2
	Totals:	***2***	***96***		***79***	***78***	***70***	***69***	***83***

Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	Finalist Sites			
					ELIS	**CT River**	**CLIS**	**WLIS**
1	Environmental Representativeness & Characterisitics							
1.1	Ecosystem Composition	*0*	*3*	…	**3**	2	2	3
1.2	Balanced Ecosystem Composition	*0*	*3*	…	**3**	2	2	3
1.3	Habitat Composition / Complexity	*1*	*3*	…	**3**	2	2	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	**1**	1	1	1
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	…	**2**	3	2	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	**3**	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	…	**1**	3	1	2
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	…	**2**	2	2	1
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	…	**2**	3	2	2
1.10	Salinity Gradient	*0*	*3*	…	**2**	2	2	2
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	…	**2**	2	2	1
2	Value for Research Monitoring & Stewardship							
2.1	Suitability of the Site for Long Term Research	*0*	*3*	…	**3**	2	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	…	**3**	2	2	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	…	**3**	2	2	2
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	…	**2**	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	…	**3**	2	3	3
3	Value for Training, Education, and Interpretation							
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	…	**3**	2	2	3
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	…	**3**	2	2	3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	…	**3**	2	2	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	…	**3**	3	3	3
4	Acquisition & Management							
4.1	Land Ownership	*1*	*3*	…	**3**	3	3	3
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	…	**2**	2	2	1
4.3	Availability of Facilities	*0*	*3*	…	**3**	2	3	2
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	…	**3**	2	3	3
4.5	Controlled Land and Water Access	*0*	*3*	…	**2**	2	2	2
4.6	Site Security	*0*	*3*	*no 1's*	**2**	2	2	2
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	…	**3**	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	…	**3**	2	2	2
4.9	Future Development Plans	*0*	*3*	…	**2**	2	2	3
5	Climate Resiliency							
5.1	Facility Resiliency - Accessibility	*0*	*3*	…	**2**	1	2	2
5.2	Facility Resiliency - Vulnerability	*0*	*3*	…	**3**	1	2	2
5.3	Resource Resiliency	*0*	*3*	…	**2**	1	1	2
	Totals:	***2***	***96***		***80***	***66***	***69***	***75***

					Finalist Sites				
Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	**ELIS**	**CT River**	**CLIS**	**WLIS**	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	*...*	**3**	3	3	2	3
1.2	Balanced Ecosystem Composition	*0*	*3*	*...*	**0**	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	*...*	**3**	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	**3**	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	*...*	**3**	3	3	2	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	**3**	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	*...*	**1**	1	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	*...*	**3**	3	3	2	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	*...*	**1**	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	*...*	**3**	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	*...*	**3**	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	*...*	**3**	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	*...*	**3**	3	2	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	*...*	**3**	3	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	*...*	**2**	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	*...*	**3**	3	2	3	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	*...*	**2**	3	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	*...*	**1**	3	2	1	2
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	*...*	**3**	3	3	3	3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	*...*	**2**	3	1	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	*...*	**2**	2	2	1	3
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	*...*	**3**	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	*...*	**3**	3	2	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	*...*	**3**	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	*...*	**3**	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	**2**	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	*...*	**1**	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	*...*	**2**	3	1	0	2
4.9	Future Development Plans	*0*	*3*	*...*	**3**	3	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	*...*	**3**	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	*...*	**3**	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	*...*	**2**	2	3	2	2
	Totals:	***2***	***96***		*78*	*84*	*71*	*66*	*82*

Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	Finalist Sites: ELIS	CT River	CLIS	WLIS	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...	3	3	3	3	3
1.2	Balanced Ecosystem Composition	*0*	*3*	...	0	0	0	0	0
1.3	Habitat Composition / Complexity	*1*	*3*	...	3	3	3	3	3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*	3	3	3	3	3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...	3	3	3	3	3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*	3	3	3	3	3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...	1	2	2	1	1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...	3	2	3	3	3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...	2	3	0	2	3
1.10	Salinity Gradient	*0*	*3*	...	3	3	2	3	3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...	3	3	2	1	3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...	3	3	3	3	3
2.2	Previous and Current Research Efforts	*0*	*3*	...	3	3	3	3	3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...	3	2	2	3	3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...	2	2	2	2	2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...	3	2	2	3	2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...	2	2	2	2	2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...	2	2	2	2	2
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...	2	2	2	2	2
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...	2	2	2	2	2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...	2	2	2	1	2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...	3	3	3	3	3
4.3	Availability of Facilities	*0*	*3*	...	3	3	1	1	3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...	3	2	3	2	3
4.5	Controlled Land and Water Access	*0*	*3*	...	3	3	3	1	3
4.6	Site Security	*0*	*3*	*no 1's*	2	2	3	3	3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...	1	3	2	3	2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...	2	3	1	0	2
4.9	Future Development Plans	*0*	*3*	...	3	2	2	2	2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...	3	2	2	2	3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...	3	2	2	2	3
5.3	Resource Resiliency	*0*	*3*	...	2	2	3	2	2
	Totals:	***2***	***96***		*79*	*77*	*71*	*69*	*80*

					Finalist Sites				
Section	Criteria	*Min Score*	*Max Score*	*Score Adjustment*	ELIS	CT River	CLIS	WLIS	**Hybrid**
1	Environmental Representativeness & Characterisitics								
1.1	Ecosystem Composition	*0*	*3*	...					3
1.2	Balanced Ecosystem Composition	*0*	*3*	...					0
1.3	Habitat Composition / Complexity	*1*	*3*	...					3
1.4	Uniqueness of Habitat	*0*	*3*	*no 2's*					3
1.5	Importance of Habitat for Significant Flora / Fauna	*0*	*3*	...					3
1.6	New or Exemplary Typology	*0*	*3*	*no 2's*					3
1.7	Site's Relationship to Tidally Influenced Drainage Basin	*0*	*3*	...					1
1.8	Geologic Uniqueness / Diversity of the Site	*0*	*3*	...					3
1.9	Hydrographic Uniqueness / Diversity of the Site	*0*	*3*	...					3
1.10	Salinity Gradient	*0*	*3*	...					3
1.11	Degree Developed and Potential Impacts to Water Quality	*0*	*3*	...					3
2	Value for Research Monitoring & Stewardship								
2.1	Suitability of the Site for Long Term Research	*0*	*3*	...					3
2.2	Previous and Current Research Efforts	*0*	*3*	...					3
2.3	Suitability of the Site for Environmental Monitoring	*0*	*3*	...					3
2.4	Suitability of the Site for Stewardship Program Development	*0*	*3*	...					2
2.5	Ability to Address Local, State, and Regional Coastal Management Issues	*0*	*3*	...					2
3	Value for Training, Education, and Interpretation								
3.1	Value of the Site for Environmental Education, Interpretation, and Training Programs	*0*	*3*	...					2
3.2	Diversity and Quality of Education and Interpretation Opportunities	*0*	*3*	...					3
3.3	Previous and Current Education / Outreach Efforts	*0*	*3*	...					3
3.4	Diversity and Availability of Target Audiences	*0*	*3*	...					2
4	Acquisition & Management								
4.1	Land Ownership	*1*	*3*	...					2
4.2	Publically Owned Lands and Feasibility of Land Acquisition	*0*	*3*	...					3
4.3	Availability of Facilities	*0*	*3*	...					3
4.4	Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers	*0*	*3*	...					3
4.5	Controlled Land and Water Access	*0*	*3*	...					3
4.6	Site Security	*0*	*3*	*no 1's*					3
4.7	Compatibility with Existing Management Practices and Consumtive / Non-consumptive Uses	*0*	*3*	...					2
4.8	Compatibility with Adjacent Land and Water Uses	*0*	*3*	...					2
4.9	Future Development Plans	*0*	*3*	...					2
5	Climate Resiliency								
5.1	Facility Resiliency - Accessibility	*0*	*3*	...					3
5.2	Facility Resiliency - Vulnerability	*0*	*3*	...					3
5.3	Resource Resiliency	*0*	*3*	...					2
	Totals:	***2***	***96***		*0*	*0*	*0*	*0*	*82*

CTNERR Site Hybrid Scoring Summary Comments - Final
August 8, 2018

Overview:

Theses are comments received from scoring sheets from the hybrid scoring. These were anonymized and organized in quasi-random fashion. Reformatting – as needed – was applied to present a consistent and easy-to-read look; comment contents were unaltered.

Original Hybrid Scoring Comments:

1. Environmental Representativeness & Characteristics

1.1 Ecosystem Composition

- *n/a*

1.2 Balanced Ecosystem Composition

- *n/a*

1.3 Habitat Composition / Complexity

- *n/a*

1.4 Uniqueness of Habitat

- In the summer of 2017, NOAA designated the Lower Connecticut River as a critical habitat for the Atlantic sturgeon. This designation process was led by Kimberly Camon-Randal, Director of the Protected Resources Division, Greater Atlantic Regional Fisheries Office, National Marine Fisheries Service, NOAA based on research conducted by Tom Savoy and Stephen Gephard, CT DEEP and Boyd Kynard, UMASS Amherst, retired. (no scoring change)

1.5 Importance of Habitat for Significant Flora / Fauna

- n/a

1.6 New or Exemplary Typology

- n/a

1.7 Site's Relationship to Tidally Influenced Drainage Basin

- n/a

1.8 Geologic Uniqueness / Diversity of the Site

- *n/a*

1.9 Hydrographic Uniqueness / Diversity of the Site

- Rocky Geyer, WHOI and Patrick MacCready, U of Washington classified the Connecticut River as a time dependent salt wedge river (other such rivers include the Chang Jiang River, the Merrimack River, the Amazon River and the Columbia River). The Hudson is classified as a strongly stratified river with only occasional salt wedge characteristics. Time Dependent Salt Wedge rivers have both strong fresh water outflows and very strong tidal flows. These counter flows facilitate high rates of sediment deposition which increases the likelihood of wetlands expanding vertically at the rate of sea level rise, if they are able to move laterally. [Geyer, Rocky and MacCready, Patrick (2014) *The Estuarine Circulation,* Annual Review of Fluid Mechanics, 46: 175-197]

  For example, Connecticut River suspended sediment concentration (SSC) ranges from 15 mg/l to 150 mg/l on average (maximum is 454 mg/l).This very high SSC enables the Connecticut to meet the threshold to withstand the forecast ranges of sea level rise even though the Connecticut River only has a 1 meter tidal range (especially where lateral expansion is available) [based on Kirwan, Matthew et al *Overestimation of marsh vulnerability to sea level rise* (2016) Nature Climate Change, Vol 6.]

More recently, Brian Yellen and Jonathan Woodward (UMASS) and David Ralston (WHOI) et al summarized their research in the Connecticut River estuary as follows. "Off-river coves and embayments provide accommodation space for sediment accumulation, particularly for sandy estuaries where high energy in the main channel prevents significant long-term storage of fine-grained material. Seasonal sediment inputs to Hamburg Cove in the Connecticut Estuary (USA) were monitored to understand the timing and mechanisms for sediment storage there. Unlike in freshwater tidal coves, sediment was primarily trapped here during periods of low-discharge, when the salinity intrusion extended upriver to the cove entrance. During periods of low discharge and high sediment accumulation, deposited sediment displayed geochemical signatures consistent with a marine source (e.g., for the river's plume in the Long Island Sound). Numerical simulations reveal that low discharge conditions provide several important characteristics that maximize sediment trapping.

- First, these conditions allow the estuarine turbidity maximum (ETM) to be located in the vicinity of the cove entrance., which increases sediment concentrations during flood tide (is it flood or ebb).
- Second, the saltier water in the main channel can enter the cove as a density current, enhancing near-bed velocities and re-suspending sediment, providing an efficient delivery mechanism.
- Finally, higher salinity water accumulates in the deep basis of the cove, creating a stratified region that becomes uncoupled from ebb currents, promoting retention of sediment in the cove.

This process of estuarine-enhanced sediment accumulation in off-river coves will likely extend upriver during future sea level rise." [Yellen, Brian, Woodward, Jonathan and Ralston, David et al (2017) Journal of Geophysical Research: Oceans, 122].
When Jonathan lectured in Old Lyme he estimated that there was a high likelihood that the above factors may allow the wetlands to keep pace with the most forecast for most forecast levels of sea level rise.

1.10 Salinity Gradient
- *n/a*

1.11 Degree Developed and Potential Impacts to Water Quality
- n/a

2. Value for Research Monitoring & Stewardship

2.1 Suitability of the Site for Long Term Research
- *n/a*

2.2 Previous and Current Research Efforts
- I question the <u>variety</u> of research topics at the hybird site warrants a score of '3', particularly regarding the 'variety of topics' requirement to score at 3 for this criteria -research on terrestial or intertidal resources (especially degraded tidal wetlands) appears to be limted AND there is no clear nexus between the 5 terrestial/interidal sites constiuting the hybrid site (Great Island WMA, Lord Cove WMA, Bluff Pt., Haley Farm S.P.) and past research of this kind to rank this site as '3' (e.g., ELIS Research citaion #35 does NOT include any of the hybrid property sites-Barn Island and Mamacoke Island only). When comparing the terrestial/intertidal research history of ELIS to the hybrid site, given that both sites contain Bluff Pt/Haley Farm, we are only comparing the relative depth and breadth of research history of Great Island/Lord Cove (GI/LC) to Barn Island. Given the more extensive # and time-frame of this type of research at BI vs. the more

limited research at GI/LC, , the hybrid site should not be scored comparably to ELIS, since the former does not include BI I therefore scored the hybrid a '2' (relative to ELIS score of '3').

2.3 Suitability of the Site for Environmental Monitoring

- Because this criteria indicates a preference for sites with capacity for long term research and monitoring and the suitability of a site to serve as a reference area for assessing long-term trends, the removal of Barn Island (with provides over 40 years of nearly continuous research on tidaal marsh response to restoration practicies), from the ELIS component of the hybrid site, this site can no longer be considered a good existing long term reference site for tidal marsh management. Given the near total lack of a signficant upland areas assocaited with the Lord Cove and Great Island WMAs, this signifcantly detracts from the access and operability of monitoring activities at this stie, outside of Bluff Point, which has more limited tidal wetland research capacities, especially compated to Barn Island.

2.4 Suitability of the Site for Stewardship Program Development

- Suggest the hybrid could be viewed as a "new" site as it raises the opportunity to conduct comparative and synergistic stewardship activities in different settings based on variation in drainage basins and related metrics

2.5 Ability to Address Local, State, and Regional Coastal Management Issues

- As with the previous criteria, I suggest the hybrid presents an exceptional opportunity to address management issues across multiple levels of jurisdiction. Of course this all depends on how the questions are asked, but I view the opportunity to coordinate under at NERR as exceptional.
- Many of the comments and rationale provided for the recommended score appear to be subjective and driven by a significant reliance on personal knowledge rather than on recent research, reports and current or proposed activities in the hybrid area. As a result, the comments and scores attributed to the hybrid site appear to have overlooked some important current and proposed commercial uses (such as kelp farming and proposed additional/new shellfish operations), coastal management opportunities (such as submerged habitat protection/restoration which may be more likely to succeed in the hybrid site than other parts of the Sound), and coastal management issues (such as embayment eutrophication, and the non-SLR impacts of climate change - higher temperatures and ocean acidification). All of these, and other management issues not directly considered (such as coastal governance issues/opprtunities) - are relevant in the hybrid site, thus, I feel the hybrid site warrants a 3.
- hybrid site includes various gradients of river basin drainage, archaeological sites, varying degrees of pollution and dredge activity, varied shoreline topography for sea level rise modeling
- The Hybrid Site has demonstrated at least three times a strong capability effectively to address local, regional and state coastal management issues. The first was the overturnbing in 2017 of a Federal Railroad Authority plan to reroute the Northeast Rail Corridor roadbed across the CT River and through Old Lyme without consideration of the route's environmental impact. The Connecticut Audubon Society's Roger Tory Peterson Estuary Center was instrumetal in mobilizing a team of local government officials, the state's two senators, and legal and environmental experts to defeat the environmentally disasterous plan Earlier in 1967, the Groton Open Space Assoication successfully spearheaded efforts to rescue Haley Farm by providing matching funds to purchase 200 acres and then appealing to the State to take over the property, which is now Haley Farm State Park. To thiis day the Groton Open Space Association is involved with the stewardship of the Farm. Five year later the Groton Open Space Association joined the Bluff Point Advisory Council, which successfully petitioined the State to aquire and protect Bluff Point, wihch is now called Bluff

Point State Park and Coastal Reserve. For these reasons and the fact that the activist organizations (along with many others) are still vibrant, I boosted the Hybrid's Site score on this criterion from 2 to 3.

3. Value for Training, Education, and Interpretation

3.1 Value of the Site for Environmental Education, Interpretation, and Training Programs

- I gave a "2" for each of the hybrid component sites last time but suggest the hybrid greatly enhances value for diversity of environmental settings for use in education and outreach.

3.2 Diversity and Quality of Education and Interpretation Opportunities

- n/a

3.3 Previous and Current Education / Outreach Efforts

- n/a

3.4 Diversity and Availability of Target Audiences

- Still don't agree with numerical gymnastics as the only way to compare sites. A NERR is supposed to teach decision-makers far and wide so whatever process was used to capture "decision-makers" within some boundary seems questionable. Given all criteria are met in some fashion, equal scores given across sites.
- I adjusted hybrid to a 3 because: Although it doesn't have the highest audience numbers, all of the audiences exist and with such high rankings for accessibility it follows that they can easily access the site= 3.

4. Acquisition & Management

4.1 Land Ownership

- I would consider DEEP agency as one owner. Not listing the different Divisions of DEEP as owners. So therefore giving a score of 3 seems more appropriate.
- I used my original scores for the two component sites and used highest of two in hybrid.

4.2 Publically Owned Lands and Feasibility of Land Acquisition

- *n/a*

4.3 Availability of Facilities

- n/a

4.4 Proximity and Accessibility of Site to Researchers, Educators, and Environmental Managers

- n/a

4.5 Controlled Land and Water Access

- n/a

4.6 Site Security

- This is the only criteria in this section where I ignored my earlier scores, as somehow the criteria team went from a score of "2" for each component site and came up with "3" for the hybrid, with little explanation, so hard to argue for a lower score.
- Not clear if ELIS and CT River are both 2 why this is a 3. I'm assuming it must have to do with taking out Barn Island?

4.7 Compatibility with Existing Management Practices and Consumptive / Non-consumptive Uses

- n/a

4.8 Compatibility with Adjacent Land and Water Uses

- *n/a*

4.9 Future Development Plans

- *n/a*

5. Climate Resiliency

5.1 Facility Resiliency – Accessibility

- n/a

5.2 Facility Resiliency – Vulnerability

- *n/a*

5.3 Resource Resiliency

- n/a

Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 7:

NERR November 13, 2018 Public Meeting Materials

1. Federal Register and Local Newspaper Notices
2. Meeting Announcement Materials
3. Summary of Meeting Comments and Responses
4. Invitees and Attendees
5 Written Comments and Letters Received

California; and (3) along the Western Antarctic Peninsula. The objectives are to determine the density and distribution of non-listed pinnipeds using risk adverse and low impact technology. The LOC expires on November 15, 2022.

File No. 19826–02: Issued to Deanna Rees, Naval Undersea Warfare Center, Division Newport, 1176 Howell Street, Newport, RI 02841 on November 28, 2017, to conduct ground and vessel surveys, photo-identification, and behavioral observations of gray, harbor, and harp seals in Virginia and Narragansett Bay, RI. The amended LOC changes the Principal Investigator. The objectives do not change from those authorized under LOC No. 19826–01. The LOC expires on January 31, 2021.

File No. 19613: Issued to Eric Zolman, NOAA National Ocean Service, Hollings Marine Laboratory, 331 Ft. Johnson, Charleston, SC, 29412–9110 on December 21, 2017, to conduct research on bottlenose dolphins (*Tursiops truncatus*) within coastal waters of the southeastern United States (including the western North Atlantic and northern Gulf of Mexico). Dolphins may be closely approached during vessel surveys for the purposes of photo-identification and behavioral observations to address the following objectives: (1) To estimate abundance of specific inshore bottlenose dolphin stocks; (2) to better define stock boundaries in targeted regions; and (3) to assess the status and health of targeted dolphin populations. The LOC expires on January 1, 2023.

File No. 18101–03: Issued to Jens Currie, Pacific Whale Foundation, 300 Ma'alaea Rd., Suite 211, Wailuku, HI 96793 on March 23, 2018. The amended Letter of Confirmation changes the Principal Investigator and applicant, and extends the LOC by one year for vessel-based research activities on cetaceans within the Maui-4 islands area. The objectives do not change from those authorized under LOC No. 18101–02. The LOC expires on June 21, 2019.

File No. 21932: Issued to Jessica Taylor, Outer Banks Center for Dolphin Research, 310 West Eden St., Kill Devil Hills, NC 27948 on April 4, 2018, to conduct vessel surveys of bottlenose dolphins in the waters of northern North Carolina. Animals may be approached for photo-identification, behavioral observations, and focal follows. The objective of the research is to continue to monitor the presence, identity, ecology, and behavior of bottlenose dolphins in the area. The LOC expires on April 30, 2023.

File No. 21889: Issued to Lesley Thorne, Ph.D., School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY, 11794 on April 23, 2018, to conduct vessel and unmanned aircraft system (UAS) surveys of 18 cetacean species. Animals may be approached for photo-identification, photogrammetry, behavioral observations, and abundance estimates. Research may occur in the New York Bight up to 120 nm offshore. The objective of the research is to provide detailed species-level information on the abundance, distribution, movements and body condition of cetaceans within the study area to the New York State Department of Environmental Conservation as part of an offshore monitoring program. The LOC expires on July 30, 2023.

File No. 21556: Issued to Stephen McCulloch, Dolphins Plus, 31 Corrine Place, Key Largo, FL 33037 on May 14, 2018 to conduct vessel surveys targeting bottlenose dolphins to include close approach for counts, photo-identification, video recording, and behavioral observations in the Upper Florida Keys, between North Key Largo to Islamorada, FL. The objectives of the research are to provide a contemporary account of common bottlenose dolphins utilizing the Upper Florida Keys. The LOC expires on May 15, 2023.

File No. 22198: Issued to Samuel Wasser, Ph.D., Center for Conservation Biology, University of Washington, Seattle, WA 98195 on May 22, 2018, to conduct boat-based vessel surveys targeting killer whales (*Orcinus orca,* West Coast Transient stock) within the inland waters of Washington State. Whales may be approached during focal follows for photo-identification, behavioral observations, and fecal sample collection. The objective of the research is to, through analysis of feces, address the physiologic measures of nutritional stress with variation in prey abundance, toxicant levels and boat traffic to endpoint measures such as successful birth outcomes and annual mortality. The LOC expires on July 15, 2019.

File No. 20519–01: Issued to Peggy Stap, Marine Life Studies, P.O. Box 884, Monterey, CA 93942–0884 on June 27, 2018. The amended LOC allows for the use of small UAS to determine the number of marine mammals in a group and for photogrammetry of Transient and Offshore killer whales. The objectives do not change from those authorized under LOC 20519. The LOC expires on December 31, 2021.

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), a final determination has been made that the activities are categorically excluded from the requirement to prepare an environmental assessment or environmental impact statement.

Dated: October 24, 2018.

Julia Harrison,

Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2018–23653 Filed 10–29–18; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Public Meeting for Recommending a National Estuarine Research Reserve Site in Connecticut's Lower Connecticut River and Eastern Long Island Sound

AGENCY: Office for Coastal Management, National Ocean Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

ACTION: Public meeting notice.

SUMMARY: Notice is hereby given that a public meeting will be held for the purpose of providing information and receiving comments on the preliminary recommendation by the State of Connecticut that portions of the Lower Connecticut River and Eastern Long Island Sound be proposed to NOAA for designation as a National Estuarine Research Reserve.

The public meeting will be held at 6 p.m. on November 13, 2018 in the Academic Building Auditorium at the University of Connecticut's Avery Point campus, located at 1084 Shennecossett Rd, Groton, CT 06340.

The state agencies holding the meeting: The Connecticut Department of Energy and Environmental Protection's Coastal Management Program; the University of Connecticut; and Connecticut Sea Grant. NOAA's Office for Coastal Management will assist with the meeting.

The proposed research reserve site is comprised of the following state-owned properties: Lord Cove Wildlife Management Area; Great Island Wildlife Management Area; Bluff Point State Park and Coastal Reserve and Natural Area Preserve; Haley Farm State Park; and the public trust portions of waterbodies defined by:

(a) Long Island Sound ranging approximately west to east from the mouth of the Connecticut River to Mason's Island and north to south waterward of the mean high water shoreline to just shy of the Connecticut state boundary in Long Island Sound;

(b) the area waterward of the mean high shoreline of the lower Thames River from approximately the Gold Star Bridge south to the area described in (a);

(c) the area waterward of the mean high shoreline of the lower Connecticut River from approximately Lord Cove south to the area described in (a).

The views of interested persons and organizations regarding the proposed site recommendation are solicited. This information may be expressed orally and in written statements. A presentation about the proposed site and the National Estuarine Research Reserve System will be provided. Written comments may be also be sent to: Kevin O'Brien, Connecticut Department of Energy and Environmental Protection—Land & Water Resources Division, 79 Elm Street, Hartford, CT 06106–5127 or to: *kevin.obrien@ct.gov.* All written comments must be received no later than seven calendar days following the public meeting. All comments received will be considered by the State in formally nominating a site to NOAA.

The research reserve system is a federal and state partnership program administered by the federal government, specifically the National Oceanic and Atmospheric Administration (NOAA). The research reserve system currently has 29 sites and protects more than 1.3 million acres of estuarine and Great Lakes habitat for long-term research, monitoring, education, and stewardship. Established by the Coastal Zone Management Act of 1972, each reserve is managed by a lead state agency or university, with input from local partners. NOAA provides partial funding and national programmatic guidance.

This particular site selection effort is a culmination of several years of local, grassroots-support for a research reserve site in Connecticut. The preliminary site recommendation follows a comprehensive evaluation process that sought the views of the public, affected landowners, and other interested parties. State and local agency representatives, as well as estuarine experts, served as committee members and evaluated site proposals. The committee is recommending the Lower Connecticut River and Eastern Long Island Sound as the preferred site for the state to nominate to NOAA.

FOR FURTHER INFORMATION CONTACT: Ms. Erica Seiden, Office for Coastal Management, National Ocean Service, NOAA, 1305 East West Highway, N/OCM, Silver Spring, MD 20910 or Email: *erica.seiden@noaa.gov.*

Persons with disabilities please contact Michelle MarcAurele at the University of Connecticut Avery Point campus by November 6, 2018 to make arrangements. Phone: 860–405–9115, Email: *michelle.marcaurele@uconn.edu.*

(Federal Domestic Assistance Catalog Number 11.420 (Coastal Zone Management) Research Reserves)

Dated: October 22, 2018.

Paul M. Scholz,

Associate Assistant Administrator for Management and CFO/CAO, Ocean Services and Coastal Zone Management.

[FR Doc. 2018–23607 Filed 10–29–18; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Submission for OMB Review; Comment Request

The Department of Commerce will submit to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: National Oceanic and Atmospheric Administration (NOAA).

Title: Pacific Islands Region Coral Reef Ecosystems Logbook and Reporting.

OMB Control Number: 0648–0462.

Form Number(s): None.

Type of Request: Regular (extension of a currently approved information collection).

Number of Respondents: 5.

Average Hours per Response: Pre-trip and pre-landing notifications, 3 minutes; logbook reports, 30 minutes; transshipment reports, 15 minutes.

Burden Hours: 18.

Needs and Uses: This request is for extension of a current information collection.

The National Marine Fisheries Service (NMFS) requires any U.S. citizen issued a Special Coral Reef Ecosystem Fishing Permit to complete logbooks and submit them to NMFS (50 CFR 665). The Special Coral Reef Ecosystem Fishing Permit is authorized under the Fishery Ecosystem Plans for American Samoa Archipelago, Hawaiian Archipelago, Mariana Archipelago, and Pacific Remote Island Areas. The information in the logbooks is used to obtain fish catch/fishing effort data on coral reef fishes and invertebrates harvested in designated low-use marine protected areas and on those listed in the regulations as potentially-harvested coral reef taxa in waters of the U.S. exclusive economic zone in the western Pacific region. These data are needed to determine the condition of the stocks, whether the current management measures are having the intended effects, and to evaluate the benefits and costs of changes in management measures. The logbook information includes interactions with protected species, including sea turtles, monk seals, and other marine mammals, which are used to monitor and respond to incidental takes of endangered and threatened marine species.

Affected Public: Business or other for-profit organizations; individuals or households.

Frequency: On occasion.

Respondent's Obligation: Mandatory.

This information collection request may be viewed at reginfo.gov. Follow the instructions to view Department of Commerce collections currently under review by OMB.

Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to *OIRA_Submission@omb.eop.gov* or fax to (202) 395–5806.

Dated: October 25, 2018.

Sarah Brabson,

NOAA PRA Clearance Officer.

[FR Doc. 2018–23640 Filed 10–29–18; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XG567

Nominations for the 2019–2022 General Advisory Committee and the Scientific Advisory Subcommittee to the United States Delegation to the Inter-American Tropical Tuna Commission

AGENCY: National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Commerce.

ACTION: Notice; request for nominations.

SUMMARY: National Marine Fisheries Service, on behalf of the Secretary of Commerce, is seeking nominations for the General Advisory Committee to the U.S. delegation to the Inter-American Tropical Tuna Commission, as well as to a Scientific Advisory Subcommittee of the General Advisory Committee. The purpose of the General Advisory Committee and its Scientific Advisory Subcommittee is to provide public input

Department of Energy and Environmental Protection
Land and Water Resources Division
Public Notice Worksheet

Today's Date: October 24, 2018

Staff: Kevin O'Brien

Application No.: CT NERR

Town(s): — Statewide

Newspaper(s): The Day, The Hartford Courant, Middletown Press
The Norwich Bulletin.

Publishing Date: October 26, 2018
Hearing November 13, 2018

Comment Period Ending: November 20, 2018 (December 20, 2018)

Email: ADS@graystoneadv.com: October 24, 2018

Invoice Amount: $ X

Invoice Request Date (Accounts Receivable): X
Invoice Receive Date (Accounts Receivable):

Portal Date: 10/25/18 **Approval Date:** 10/25/18

Return Date to Staff: 10/26/18

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Notice of Public Hearing
State of Connecticut Proposal to Nominate a National Estuarine Research Reserve
Towns of Lyme, Old Lyme, Groton

The Commissioner of the Department of Energy and Environmental Protection (DEEP) hereby gives notice of a public hearing concerning the preliminary recommendation by the State of Connecticut that portions of the Lower Connecticut River, Bluff Point, Haley Farm State Park and adjacent areas of Long Island Sound be proposed to National Oceanic and Atmospheric Administration (NOAA) for designation as a National Estuarine Research Reserve. The hearing, to be held on November 13, 2018, is more thoroughly described herein.

The proposed research reserve site is comprised of the following state-owned properties: Lord Cove Wildlife Management Area; Great Island Wildlife Management Area; Bluff Point State Park and Coastal Reserve and Natural Area Preserve; Haley Farm State Park; and the public trust portions of waterbodies defined by:

(a) Long Island Sound ranging approximately west to east from the mouth of the Connecticut River to Mason's Island and north to south waterward of the mean high water shoreline to just shy of the Connecticut state boundary in Long Island Sound;
(b) the area waterward of the mean high shoreline of the lower Thames River from approximately the Gold Star Bridge south to the area described in (a);
(c) the area waterward of the mean high shoreline of the lower Connecticut River from approximately Lord Cove south to the area described in (a)

NOTICE OF HEARING
DEEP will hold a public hearing on this application on November 13, 2018 at 6:00 p.m. in the Academic Building Auditorium at the University of Connecticut's Avery Point campus, located at 1084 Shennecossett Rd, Groton, CT 06340. The public hearing will consist of informational presentations and collection of public comment. Written comments may also be submitted at the public hearing and will be accepted until the close of business on November 20, 2018. Written comments may be submitted by mail to Kevin O'Brien, Land & Water Resources Division, Department of Energy and Environmental Protection, 79 Elm Street, Hartford, Connecticut 06106 or by e-mail to kevin.obrien@ct.gov.

Members of the public should refer to the DEEP Calendar of Events at www.ct.gov/deep/calendar for the official schedule in this matter, including cancellations, or other schedule alterations.

Interested persons who wish to obtain more information regarding the proposed nomination may do so at the DEEP website www.ct.gov/deep/nerr or by contacting Kevin O'Brien of the Land and Water Resources Division at kevin.obrien@ct.gov or 860-424-3432. DEEP is an Affirmative Action and Equal Opportunity Employer that is committed to complying with the Americans with Disabilities Act. To request an accommodation contact Michelle MarcAurele at the University of Connecticut Avery Point campus by November 6th, 2018. Phone: 860-405-9115, e-mail: michelle.marcaurele@uconn.edu.

Date:

Approved By: ______________________
Brian P. Thompson, Director

Luciano, Eneida

From:	Robert Taylor <RTaylor@graystoneadv.com>
Sent:	Thursday, October 25, 2018 4:38 PM
To:	Luciano, Eneida
Subject:	FW: Public Hearing #CT NERR
Attachments:	CTNERR Cover Letter.doc; CTNERR Notice.docx

Hi Eneida,

This notice is set to run tomorrow.
$1,963.50

Thanks,

Robert Taylor

Graystone Group Advertising
www.graystoneadv.com
2710 North Avenue, Suite 200
Bridgeport, CT 06604
Phone: 203-549-0060
Toll Free: 800-544-0005
Fax: 203-549-0061

From: ADS <ADS@graystoneadv.com>
Date: Wednesday, October 24, 2018 at 1:25 PM
To: Microsoft Office User <rtaylor@graystoneadv.com>
Subject: FW: Public Hearing #CT NERR

From: "Luciano, Eneida" <Eneida.Luciano@ct.gov>
Date: Wednesday, October 24, 2018 at 12:39 PM
To: ads <ads@graystoneadv.com>
Subject: Public Hearing #CT NERR

Hello Robert Taylor,

Please publish the attached public notice in **The Day, The Hartford Courant, The Middletown Press, The Norwich Bulletin** on **Friday, October 26, 2018**. Please send me a confirmation.

Thank you,

Eneida Luciano

Luciano, Eneida

From: ADS <ADS@graystoneadv.com>
Sent: Wednesday, October 24, 2018 1:26 PM
To: Luciano, Eneida
Subject: Re: Public Hearing #CT NERR

Good day!

Thanks so much for your ad request.
We will be in touch shortly and look forward to serving you.

Remember to ask about diversity options when you receive your quote. Remember, "Quotes are Free". You only pay for the placements you approve.

If you have any questions or concerns, please don't hesitate to contact us at the number below.

We sincerely appreciate your business.

Thank you,
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E-mail new ad requests to: ***ads@graystoneadv.com***
http://www.graystoneadv.com/

From: "Luciano, Eneida" <Eneida.Luciano@ct.gov>
Date: Wednesday, October 24, 2018 at 12:39 PM
To: ads <ads@graystoneadv.com>
Subject: Public Hearing #CT NERR

Hello Robert Taylor,

Please publish the attached public notice in **The Day, The Hartford Courant, The Middletown Press, The Norwich Bulletin** on **Friday, October 26, 2018**. Please send me a confirmation.

Thank you,

Eneida Luciano
Land and Water Resources Division
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3942 | F: 860.424.4054 | E: Eneida.Luciano@ct.gov

Luciano, Eneida

From:	O'Brien, Kevin
Sent:	Wednesday, October 24, 2018 9:46 AM
To:	Luciano, Eneida
Cc:	Francis, Peter
Subject:	Public Hearing notice - CT NERR
Attachments:	CTNERR_DEEP_hearing_notice_final.docx

Eneida –

Attached is the word version of the paper copy Brian signed. Please send this to the **New London Day**, the **Hartford Courant**, the **Middletown Press**, and the **Norwich Bulletin.**

This should be posted no later than Monday 10/29. Earlier is fine.

Let me know if you need anything else or if there are any questions.

Thanks!
-Kevin

~~~~~~

Kevin P. O'Brien
Sr. Environmental Analyst
Land & Water Resources Division - Coastal Resources Section
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3432 | F: 860.424.4054 | E: kevin.obrien@ct.gov

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

www.ct.gov/deep

Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.
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Dear Partner:

We are pleased to announce a public meeting on Tuesday November 13th, 2018 from 6:00 pm to 8:00 pm in the second floor Auditorium of the Academic Building at the University of Connecticut's Avery Point Campus in Groton CT. At the meeting we will provide an update on Connecticut's effort to identify and propose a location for a National Estuarine Research Reserve (NERR or "Reserve") in our state.

The NERR system is a federal/state partnership that establishes a location dedicated to estuarine research, monitoring, education, and stewardship. A Connecticut-based Reserve would complement and extend many existing scientific, environmental management, and education activities through the addition of funding, resources, and expertise. Additionally, it would help identify and enable new directions and initiatives by leveraging national programs.

Since the Spring of 2016, members of a multi-disciplinary team have worked to identify, evaluate, and recommend a potential Reserve. This meeting will provide a forum to share the results of their efforts, to describe the site proposed for nomination, and to provide an overview of what the next stages of the process will entail. Representatives from the National Oceanic and Atmospheric Administration (NOAA) will also attend the meeting to answer questions about the national system. *Most importantly, this will also be an opportunity to find out more about what establishing a Reserve means, to ask questions, and to provide your comments.*

NOAA will announce meeting details in a Federal Register Notice no later than October 29, 2018, and notice will also be provided via local newspapers. An agenda and informational material are enclosed with this invitation, and the project website contains additional information as well (www.ct.gov/deep/NERR).

We have endeavored to target relevant individuals and groups that are aligned geographically or topically with a potential Connecticut Reserve, but please feel free to forward this invitation to other interested parties as needed.

We hope that you are able to participate and look forward to seeing you on November 13th.

Sincerely,

Brian Thompson, Director, Connecticut Department of Energy and Environmental Protection, Land and Water Resources Division

Evan Ward, Ph.D., Department Chair, University of Connecticut Department of Marine Sciences

Sylvain De Guise, Ph.D., Director, Connecticut Sea Grant College Program

Connecticut Department of ENERGY & ENVIRONMENTAL PROTECTION

UCONN UNIVERSITY OF CONNECTICUT

Sea Grant Connecticut

CT National Estuarine Research Reserve: Public Meeting Agenda

Where:
Auditorium of the Academic Building, Second Floor
University of Connecticut Avery Point Campus, 1080 Shennecossett Rd., Groton, CT 06340.

When:
Tuesday, November 13th from 6:00 pm to 8:00 pm

Schedule:

Welcome/Meeting Goals	6:00 – 6:10
NERR System Overview (NOAA)	6:10 – 6:20
CT Selection Process (CT) • Big Picture (Teams/Members, Major steps, timeline) • Preliminary Selection Process and Results • Detailed Screening & Results	6:20 – 6:40
Site Overview (CT)	6:40 – 6:50
Next Steps: (CT & NOAA) • Nomination submission to NOAA • Management Plan & EIS Efforts	6:50 – 7:00
Public Q&A / Comments / Discussion	7:00 – 7:40
Wrap-up & Adjourn	7:45 – 8:00

Additional Information:

Directions and Parking:

- For driving directions and parking information please visit: http://marinesciences.uconn.edu/wp-content/uploads/sites/459/2015/11/Avery-Point-map.pdf
- After 5:00 p.m., visitors may park for free in any on-campus space not designated as reserved, restricted, or limited.

Persons with Disability Requirements:

- Please contact Michelle MarcAurele at the UCONN Avery Point campus by November 6th, 2018 to make arrangements. (E-mail: michelle.marcaurele@uconn.edu, Phone: 860-405-9115)

Comments:

- Written comments may be also be sent to: Kevin O'Brien, Connecticut Department of Energy and Environmental Protection - Land & Water Resources Division**,** 79 Elm Street, Hartford, CT 06106-5127 or to: kevin.obrien@ct.gov. The deadline is no later than seven (7) days following the public meeting. All comments received will be considered by the State in formally nominating a site.

General Questions:

- Please contact Kevin O'Brien at the Connecticut Department of Energy & Environmental Protection (E-mail: kevin.obrien@ct.gov, Phone: 860-424-3432)

COMMON QUESTIONS & ANSWERS – CONNECTICUT RESERVE NOMINATION PUBLIC MEETING

QUESTION: *What is the National Estuarine Research Reserve System?*
ANSWER: The National Estuarine Research Reserve System (https://coast.noaa.gov/nerrs/) is a network of protected areas representative of the various biogeographic regions and estuarine types in the United States. Reserves are established for long-term research, education, and interpretation to promote informed management of the nation's estuaries and coastal habitats.

QUESTION: *What programs and benefits do research reserves offer?*
ANSWER: Reserves apply science and education to improve the management of estuaries. They do this by working with communities to address natural resource management issues, such as nonpoint source pollution, habitat restoration and invasive species, on a local scale. Each reserve brings together local stakeholders, scientists, land management professionals, and educators to understand coastal management issues and generate local, integrated solutions. In addition to collecting and disseminating nationally and locally relevant data, reserves also provide the trainers and educators needed to bring the reserve-generated data and information to local citizens and decision makers. Reserves further benefit their surrounding community by leveraging existing NOAA resources and bringing in additional federal funding that is only available to designated Reserves. Here are some key facts compiled in 2017 by the National Estuarine Research Reserve Association (www.nerra.org), a non-profit Reserve advocacy group:

- Reserves protect more than 1.3 million acres of coastal and estuarine lands that provide flood protection, keep water clean, sustain and create jobs, support fish and wildlife, and offer outdoor recreation.
- Every year, programs offered at reserves attract more than a half a million visitors, and educate approximately 85,000 *s*tudents and 3,200 teachers.
- Decision makers from more than 2,500 cities and towns and 570 businesses benefit by reserve-based science and technical expertise nationwide each year.
- Reserves leverage additional funding for their surrounding communities. In some states, this can be as much as $1.5 million.
- Reserve protection and management of estuaries keeps commercial and recreational fishermen successful. The national system contributes billions of dollars to the shellfish and seafood industry in states with a reserve, and tens of billions of dollars in ocean-dependent industries.

QUESTION: *How many reserves are in the national system, and where are they located?*
ANSWER: There are currently 29 reserves across 24 different U.S. states and territories. The most recent addition to the reserve system was in January 2017, when the state of Hawaii designated the only reserve in the Pacific Islands. While all thirty-five coastal and Great Lakes states and U.S. territories are eligible to designate a reserve, Connecticut and Louisiana are the only saltwater coastal states in the country lacking a National Estuarine Research Reserve.

QUESTION: *What is the difference between a National Estuarine Research Reserve and a National Marine Sanctuary?*
ANSWER:

- **Statutory Authority:** Reserves are established under the Coastal Zone Management Act, while Sanctuaries are established under the National Marine Sanctuaries Act.

- **Ecosystem Components:** Reserves generally consist of state lands and waters and may include uplands, beaches and dry land associated with the estuaries. Sanctuaries may include state and federal waters and the submerged lands under them but do not include any dry land.

- **Management:** Reserves are operated by a state in partnership with NOAA's Office for Coastal Management under a 70-30 federal-state funding match for annual operations support using cooperative agreements. Sanctuaries are managed by NOAA's Office of National Marine Sanctuaries under federal protection.

- **Regulations**: While Sanctuaries may establish new limitations on permissible activities within their boundaries (e.g. take limits, harvesting exclusions), the activities within a Reserve are governed by existing state laws and regulations. In short, the establishment of Reserve does not create federal prohibitions that overrule State control of land and water areas. For example, no one would need to obtain a new permit to fish within a site at the reserve; existing state-wide licenses and permits issued by CT DEEP would suffice.

Although the systems do defer in their underlying legislation and management structure, they serve similar goals of place-based conservation, fostering science-based management, and working on the ground with local communities. Both housed within NOAA's National Ocean Service, these programs are increasingly working together to share lessons across the two systems.

QUESTION: *What is the difference between the nomination and designation of a National Estuarine Research Reserve?*
ANSWER: Designation officially recognizes the site as a reserve in the National Estuarine Research Reserve System, while nomination simply starts the formal process to develop the information necessary for NOAA to make its decision regarding whether to designate this site as part of the System. Nomination of a reserve requires the governor of a state or territory submit a nomination of a proposed site to NOAA for consideration. The nomination package must include a detailed site selection process and a description of the public participation process used to support site selection. Designation of a reserve is only considered after an environmental review is completed under the National Environmental Protection Act, and a management plan is developed for the proposed site.

QUESTION: *Why is Connecticut nominating a reserve?*
ANSWER: Connecticut is one of only two salt-water states in the nation without a designated Reserve. A Connecticut-based Reserve could complement and extend the scientific, educational, and stewardship activities and needs of programs like the EPA National Estuary Program (Long Island Sound Study), the Connecticut Coastal Management Program, the Connecticut Sea Grant office, and various academic institutions through the addition of funding, resources, and expertise. Additionally, it could enable new directions and initiatives by leveraging nation-wide programs. The health of the Sound's ecosystem and the many human uses that depend on it would benefit from establishing a Reserve.

QUESTION: *Will the state have to purchase land for a Connecticut reserve?*
ANSWER: No. Connecticut is considering sites from existing publicly owned lands consisting of state owned property and adjacent public trust waters. Municipal and non-profit property may be considered, and could be part of a reserve through a cooperative agreement with the State.

QUESTION*: Will a new reserve involve NOAA taking land from the State?*
ANSWER: NOAA does not own or manage the land within a reserve, nor does the designation of a reserve add new state or federal regulations. Memoranda of Agreement are used to articulate roles and responsibilities between relevant partners and landowners in the state, and NOAA.

QUESTION: *If the reserve site is designated, will there be restrictions to the existing cultural, recreational or commercial activities that occur in the area?*
ANSWER: No. Designation of a research reserve site does not preclude existing uses and does not result in the total preservation of the area. Each reserve develops a management plan which takes into consideration the beneficial consumptive (resource harvesting such as hunting, fishing, shellfishing) and non-consumptive uses (recreational activities such as hiking, birdwatching, biking) and the compatibility with adjacent land uses.

QUESTION: *Will a reserve bring more federal rules and regulations?*
ANSWER: No. Reserve designation does not add any new regulations. As part of the site designation process, NOAA will examine whether a proposed site is adequately protected for long-term research and education by existing state authorities. There are no new federal regulations imposed as a result of reserve designation.

QUESTION: *What is the process for nominating a reserve in Connecticut?*
ANSWER: The process for nominating a National Estuarine Research Reserve involves several steps and many individuals and organizations. Reserves are based on partnerships, with NOAA serving as the lead federal partner. The Connecticut designation process is being led at the state level by the Connecticut Department of Energy and Environmental Protection (CTDEEP), working closely with the University of Connecticut and Connecticut Sea Grant. These partners formed several teams to support the designation process, which researched various sites to consider for nomination and then scored the sites based on identified criteria. After seeking input from affected landowners on the highest ranking sites, CTDEEP identified a final site and is coordinating a site selection package to submit to NOAA for review.

QUESTION: *Who is funding the nomination process?*
ANSWER: Once NOAA determines that it can accept a new nomination, the lead state agency may submit an application to NOAA for predesignation assistance funding (70 federal/30 state match requirement). A state is eligible for a total of $100,000 in federal funds for predesignation activities, which include site selection, a limited basic characterization of the physical, chemical, and biological characteristics of the site, preparation of the required management plan, and providing data and information to NOAA for development of the draft

and final Environmental Impact Statements. To date, Connecticut has received $48,000 of predesignation assistance. The state is using these funds to finalize its site selection process.

QUESTION: *Is there funding for the reserve program in the FY 2019 President's Budget?*
ANSWER: No, the FY 2019 President's Budget does not include funding for the National Estuarine Research Reserve System. However, the reserve system continues to receive strong Congressional support. The FY 2019 House mark increased funding to $27 million, and the Senate FY 2019 mark increased funding to $27.5 million.

QUESTION: *What criteria must a proposed site meet to be eligible to nominated as a research reserve?*
ANSWER: Reserve sites are chosen to reflect regional variations and ecosystem types, termed "biogeographic regions," and unique estuarine habitat features within each biogeographic region. NOAA will give priority consideration to designation proposals that establish a reserve in a biogeographic region or sub-region that is not currently represented by the reserve system or that incorporates unique habitat types that are not represented by the system. NOAA would also evaluate the site based on whether it would be adequately protected for long-term research, education, and stewardship.

QUESTION: *Where is the proposed reserve site located in Connecticut, and what are the proposed boundaries?*
ANSWER: The proposed reserve site is comprised of the following state-owned properties: Lord Cove Wildlife Management Area; Great Island Wildlife Management Area; Bluff Point State Park, Coastal Reserve and Natural Area Preserve; Haley Farm State Park; and the public trust portions of waterbodies defined by:

> (a) Long Island Sound ranging approximately west to east from the mouth of the Connecticut River to Mason's Island and north to south waterward of the mean high water shoreline to just shy of the Connecticut state boundary in Long Island Sound;
> (b) the area waterward of the mean high shoreline of the lower Thames River from approximately the Gold Star Bridge south to the area described in (a);
> (c) the area waterward of the mean high shoreline of the lower Connecticut River from approximately Lord Cove south to the area described in (a).

The proposed land and water boundaries are subject to input from the public and other stakeholders, and will be refined during the nomination and DEIS/DMP development phases.

QUESTION: *How can I learn more about this site and the nomination process?*
ANSWER: The state, in conjunction with NOAA, will hold a public meeting in the vicinity of the site being considered. The meeting will be publicized in a local newspaper and in the Federal Register at least fifteen (15) days before being held. More information on the Connecticut nomination process can be found on CTDEEP's website: www.ct.gov/deep/nerr

QUESTION: *If I am unable to attend the public meeting, can I submit a written comment on the proposed Reserve nomination?*

ANSWER: Written statements by interested persons and organizations on the proposed site may be sent to Kevin O'Brien, Connecticut Department of Energy and Environmental Protection - Land & Water Resources Division**,** 79 Elm Street, Hartford, CT 06106-5127 or to: kevin.obrien@ct.gov. The deadline is no later than seven (7) days following the public meeting. All comments received will be considered by the State in formally nominating a site to NOAA.

QUESTION: *After the meeting, what are the next steps in the nomination process?*
ANSWER: After the meeting, the state would be expected to submit final site-selection documents. NOAA may request additional information or suggest changes to the nomination. The governor would submit to the NOAA Administrator a nomination letter identifying the proposed site and confirming the lead state agency. NOAA then reviews the site-selection document and sends a letter to the governor accepting or rejecting the nomination.

QUESTION: *If NOAA accepts the state's nomination, when could a reserve be designated?*
ANSWER: Should NOAA accept the State's nomination, it would kick off NOAA's development of an environmental impact statement to consider the State's recommended site and other options; the State's development of a draft Management Plan for NOAA's review; and additional public meetings and opportunities for public comment. This could take 12 to 24-months.

QUESTION: *Does the NERR designation process relate to the Connecticut Blue Plan?*
ANSWER: The Connecticut "Blue Plan" (www.ct.gov/deep/lisblueplan) is a spatial plan to guide future use of Long Island Sound's waters and submerged lands, driven by state legislation that called on the Connecticut Department of Energy and Environmental Protection to inventory the Sound's natural resources and uses. Though separate processes, it is anticipated that the certain elements of Blue Plan and a reserve management plan could potentially benefit from and inform each other.

Name/Title	Group/Org/Position	Sector
Adam Blank	Norwalk: Planning & Zoning Chair	
Alexis Cherichetti	Norwalk: Senior Environmental Officer	
Alicia Mozian	Westport: Director, Conservation & Env. Commission	
Brian Carey	Fairfield: Conservation Director	
Chester: Chester Land Trust	Chester: Chester Land Trust	
Diana Johnson	Old Lyme: Chair of Open Space Commission	
Tammy Daugherty	New London: Town Planner	
Deb Jones	Groton (town): Environmental Planner	
Don Murphy	Stonington (town): Shellfish Chair	
Keith Byrnes	Stonington (town): Town Planner / Conservation Commission Liason	
C. Michael Crowley	Stonington (town): Recreation Commission Chair	
Ethan Grimes	Stonington (town): Waterfront Commission	
Jason Vincent	Stonington (town): Director of Planning	
Tommie Major	New London: Director of Recreation	
Stephen Tracy	New London: Interim School Superintendent	
Louis Allen	New London: Executive Director of Schools	
Frank Todisco	Stonington (town): Board of Education Chair	
Seeley Hubbard	Norwalk: Chair, Conservation & Env Commission	
Dorothy Wilson	Norwalk: Senior Planner	
Clinton: Clinton Land Conservation Trust	Clinton: Clinton Land Conservation Trust	
George Moore	Lyme: Lyme Land Trust Executive Director	
Groton (town): Groton Open Space Association	Groton (town): Groton Open Space Association	

Dennis Goderre	Groton (city): City Planner	
Mary Hill	Groton (city): Recreation Director	
Jonathan Reiner	Groton (town): Director of Planning	
Mark Berry	Groton (town): Director of Recreation	
Susan Austin	Groton School Asst. Superintendent	
Micheal Graner	Groton School Superintendent	
Mary Haburay	Madison: Land Use Assistant	
Jim Denham	Essex: Essex Land Trust President	
Madison: Conservation and Env. Commission	Madison: Conservation and Env. Commission	
Norwalk: Norwalk Land Trust	Norwalk: Norwalk Land Trust	
James Smith	Stonington (town): Land Trust President	
Abby Piersall	Waterford: Town Planner	
Brian Flaherty	Waterford: Director of Recreation	targeted town-level groups/positions from SeaGrant list, other recommendations (harbor management commissions, DEEP boating, CT BA/BA, Tribes)
Maureen Fitzgerald	Waterford: Environmental Plannner	
Joel Stocker	Waterford: Waterford Land Trust President	
Joe Bienkowski	Fairfield: Environmental Planner	
John Dockendorff	Milford: Milford Land Conservation Trust	
Kathleen Tucker	Essex: Chair, Conservation & Env Commision	
James Ventres	East Haddam: Land Use Administrator	
Peter Johnson	Norwalk: Shellfish Chair	
Lawrence Ouellette	Clinton: Chair, Conservation & Env Commission	
Mike Urban	Old Saybrook: Old Saybrook Land Trust President	
	East Haddam: East Haddam Land Trust	

Wendy Hill	Lyme: Open Space Coordinator
Richard Esty	Old Saybrook: Chair, Conservation & Env Commission
Janis Esty	Old Saybrook: Chair, Planning & Zoning Commission
Ryan Mann	Westport: Westport Land Conservation Trust
Samuel Gold	Old Saybrook: Executive Director
Shirley Nichols	Darien: Darien Land Trust Executive Director
Fairfield: Planning & Zoning Commission	Fairfield: Planning & Zoning Commission
Wayne Church	Clinton: Shellfish Chairman
William Minor	Bridgeport: Land Use and Construction Review Director
Edward Martin	Groton (town): Shellfish Chair
Kim Barrows	Old Lyme: Land Use
City of Groton HMC	City of Groton HMC
Wayne Church	Clinton HMC
Donald Landers	East Lyme HMC
Jeff Going	Essex HMC
Bruce Arneill	Fenwick HMC
John Henningson	Guilford HMC
Robert Post	Milford HMC
David Carreau	Mystic HMC
Carol Huskes	Pawcatuck River HMC
Tony D'Andrea	Norwalk HMC
Steven Ross	Old Lyme HMC
Ray Collins	Old Saybrook HMC

David Cocker	Waterford HMC	
William Rock	Stratford HMC	
Peter Vermilya	Stonington HMC	
VACANT	Branford Harbor Master	CT Harbor Masters
Ryan, Conrad J.	Bridgeport Harbor Master	
Libby, Ernest M.	Chester Harbor Master	
Church, Wayne W.	Clinton Harbor Master	
Bell, Thomas G.	Darien Harbor Master	
Reyher, Mark	Deep River Harbor Master	
Moscato Sr., Anthony D.	East Haven Harbor Master	
Morris, Robert E	East Lyme/Niantic Harbor Master	
Riggio, Paul F.	Essex Harbor Master	
Riggio, Paul F.	Essex Harbor Master	
Christensen, William	Fenwick/Old Saybrook Harbor Master	
Macmillan, William	Greenwich Harbor Master	
Dziedzic, Jeffrey D.	Groton Harbor Master	
Lotring Jr., Arnold Otto	Groton Long Point Harbor Master	
Brisbois, Frederick	Guilford Harbor Master	
Tabor, Robert W.	Lords Point/Stonington Harbor Master	
Reynolds, Leland T.	Lyme/Hamburg Cove Harbor Master	
Adkins, Steven M.	Madison Harbor Master	
Kuryla, Bruce S.	Milford Harbor Master	
Procko, Donald F.	Mystic Harbor Master	
Izzo, John Paul	New Haven Harbor Master	
Crocker, David W.	New London Harbor Master	
Burdick, Bryan	Noank Harbor Master	
Scully, Gregg	Norwalk Harbor Master	
Scully, Gregg	Norwalk Harbor Master	
Thayer, Richard Jr.	Norwich Harbor Master	
Plaut, Harry S.	Old Lyme Harbor Master	
Mitchell, Scott	Old Saybrook Harbor Master	
VACANT	Pawcatuck Harbor Master	
Allyn, Rufus	Ram Island/Masons Island Harbor Master	
Schueler, Louis O.	Southport Harbor Master	
Schueler, Louis O.	Southport Harbor Master	
Knott, Eric.	Stamford Harbor Master	
Knott, Eric.	Stamford Harbor Master	
Donch, Eric	Stonington Harbor Master	
Hatfield, Ross W.	Stratford Harbor Master	
Crocker, David W.	Waterford Harbor Master	
Pimer, Robert M.	West Haven Harbor Master	

VACANT	Westbrook Harbor Master	
Giunta, Robert J.	Westport Harbor Master	
Mohegan Community	Mohegan Community	suggested people/groups from SST, SC, other
Mike Boland	Mashantucket Land Use Commission	
Lori Brown	CT League of Conservation Voters	
Friends of Hammonasset State Park	Friends of Hammonasset State Park	
Friends of Sherwood Island State Park	Friends of Sherwood Island State Park	
Coalition of Connecticut Sportsmen	Coalition of Connecticut Sportsmen	
Andrew Fisk	Connecticut River Conservancy (Connecticut River Watershed Council)	
Kathleen Burns	CT Marine Trades Association	
Jim McCauley	Project Oceanology	
Jon Hare	National Marine Fisheries Service - Milford Lab	
Mark Tedesco	US Environmental Protection Agency - LISS Office	
Andrew French	US Fish & Wildlife Service - Stewart B. McKinney National Wildlife Refuge	
David Brandt	Aspetuck Land Trust (Fairfield/Westport)	
Janet Stone	Deep River Land Trust	
Peter Reid	Wildlife in Crisis Land Trust (Bridgeport/Stratford)	
John Dockendorff	Milford Land Conservation Trust, Inc.	
John Moeling	Norwalk LandTrust	
Michael Houde	Clinton Land Conservation Trust	
J.H. Torrance Downes	Lower Connecticut River Land Trust	
Mike Urban	Old Saybrook Land Trust, Inc.	
Jessica Gay	Lynde Point Land Trust	
Nancy Rambeau	Essex Land Trust, Inc.	
Richard Harrall	Chester Land Trust, Inc.	
Gail Reynolds	Haddam Land Trust, Inc.	
Peter Govert	East Haddam Land Trust, Inc.	
David Brown	Middlesex Land Trust, Inc.	
Heather Milardo	Avalonia Land Conservancy (Groton/Stonington)	
Mike Maloney	Madison Land Conservation Trust	
Christina Clayton	Old Lyme Land Trust	
Trust for Public Land (CT)	Trust for Public Land (CT)	
Eric Hammerling	Connecticut Forest and Parks Assoc. - Executive Director	
Curt Johnson	Save the Sound/CFE	

Matt Fulda	MetroCOG - Exec Director	
Sam Gold	Lower Connecticut River Valley Council of Governments - Executive Director	
Carl Amento	South Central Regional Council of Governments - Executive Director	
James Butler	Southeastern Connecticut Council of Governments - Executive Director	
Francis Pickering	Western Connecticut Council of Governments - Executive Director	
Shelly Phelan	Fairfield University - Dept. of Biology	
David Downie	Fairfield University - Dept. of Environmental Studies	
Dana Royer	Wesleyan University - Earth and Environmental Sciences Department	
Pat Young	Eightmile River Wild and Scenic Coordinating Committee	
Jim Lockheart	Salmon River Watershed Partnership	
Lisette Henrey	Friends of Outer Island	
Franklin Bloomer	Calf Island Conservancy	
Faulkner's Light Brigade	Faulkner's Light Brigade	
Norwalk Seaport Association	Norwalk Seaport Association	
Brian Davis	Maritime Aquarium at Norwalk	
Stephen Coan	Mystic Aqaurium Pres/CEO	
Kelly Matis	Mystic Aquarium Sr VP - Education Conservation	
Roz Gilhuly	Mystic Aquarium Sr VP - External Relations	
Margaret Miner	Rivers Alliance	
Alicea Charamut	CT River Watershed Council - River Steward for CT	
Dianna R. Wentzell	CT Dept. of Education	
Roger Wolfe	DEEP - Wetland Habitat & Mosquito Mangement Program	
David Carey	CT Dept of Agriculture/Bureau of Aquaculture	
Justin Davis	DEEP Fisheries	
Mike Payton	DEEP Boating	
Laurie Fortin	DEEP - Wildlife	NERR Kick-off attendees (non-CT NERR team members)
Ann Kilpatrick	DEEP - Wildlife/Habitat Management	
Paul Stacey	Great Bay National Estuarine Research Reserve	
Rebecca Roth	National Estuarine Research Reserve Association	
Lisa Krall	Natural Resources Conservation Service	
Sally McGee	Nature Conservancy CT	

Mary Mushinsky	River Advocates of South Central CT	team members)
Martin Mador	Sierra Club	
Beth Lawrence	UCONN - Dept Natural Resources/Environment	
Jim O'Donnell	UCONN - Dept of Marine Science/CIRCA	
John Mullaney	USGS - CT Water Science Station	
FIRST SELECTMAN	TOWN OF BRANFORD	Municipal elected officials project area towns)
MAYOR	CITY OF BRIDGEPORT	
FIRST SELECTMAN	TOWN OF CHESTER	
FIRST SELECTMAN	TOWN OF CLINTON	
MAYOR	TOWN OF CROMWELL	
FIRST SELECTMAN	TOWN OF DARIEN	
FIRST SELECTMAN	TOWN OF DEEP RIVER	
FIRST SELECTMAN	TOWN OF EAST HADDAM	
TOWN MANAGER	TOWN OF EAST HAMPTON	
MAYOR	TOWN OF EAST HAVEN	
FIRST SELECTMAN	TOWN OF EAST LYME	
FIRST SELECTMAN	TOWN OF ESSEX	
FIRST SELECTMAN	TOWN OF FAIRFIELD	
FIRST SELECTMAN	TOWN OF GREENWICH	
MAYOR	TOWN OF GROTON	
MAYOR	CITY OF GROTON	
FIRST SELECTMAN	TOWN OF GUILFORD	
FIRST SELECTMAN	TOWN OF HADDAM	
MAYOR	TOWN OF HAMDEN	
MAYOR	TOWN OF LEDYARD	
FIRST SELECTMAN	TOWN OF LYME	
FIRST SELECTMAN	TOWN OF MADISON	
MAYOR	CITY OF MIDDLETOWN	
MAYOR	CITY OF MILFORD	
MAYOR	TOWN OF MONTVILLE	
MAYOR	CITY OF NEW HAVEN	
MAYOR	CITY OF NEW LONDON	
FIRST SELECTMAN	TOWN OF NORTH HAVEN	
MAYOR	CITY OF NORWALK	
MAYOR	CITY OF NORWICH	
FIRST SELECTMAN	TOWN OF OLD LYME	
FIRST SELECTMAN	TOWN OF OLD SAYBROOK	
FIRST SELECTMAN	TOWN OF ORANGE	
FIRST SELECTMAN	TOWN OF PORTLAND	
FIRST SELECTMAN	TOWN OF PRESTON	
MAYOR	CITY OF SHELTON	
MAYOR	CITY OF STAMFORD	
FIRST SELECTMAN	TOWN OF STONINGTON	

MAYOR	TOWN OF STRATFORD	
FIRST SELECTMAN	TOWN OF WATERFORD	
FIRST SELECTMAN	TOWN OF WESTBROOK	
MAYOR	CITY OF WEST HAVEN	
FIRST SELECTMAN	TOWN OF WESTPORT	
Joe Schnierlein	public	Other Interested parties, etc
David Hudson	Maritime Aquarium at Norwalk	
Catherine Young	Groton/New London Airport	
Catherine Young	Groton/New London Airport	
Ken Sprankle, Project Leader	Connecticut River Fish and Wildlife	
William Heiple	Fuss & O'Neill	
Beverly Propen	public	
David Chapman	public	
Gary Wikfors	NOAA NFSC	
Steven Bartush	public	
Emilee Mooney Scott	Robinson & Cole	
Colleen Scheetz	Project Oceanology	
Anne Roberts Pierson	Groton Open Space	
Phil Brencher	LISS/CAC Sound School	
Rick Newton	Avalonia Land Conservancy (Groton/Stonington)	
Ellen Graham	Blumenthal - CT	
Diane Swan	East Lyme Schools	
Pat Young	Eightmile River Wild and Scenic Coordinating Committee	
Pat Young	Salmon River Watershed Committee	
Olaf Bertram-Nithangal	Marsh & Bay Expeditions	
Bob Stankelis	Narr. Bay NERR Manager	
Maureen Dewire	Narr. Bay NERR Education Coord	
Chris Bowser	Hudson Riv. NERR Education Coord	
Betsy Blair	Hudson Riv. NERR Manager (retired)/Blair Environmental Consulting	
Tonna-Marie Rogers	Waquoit Bay NERR Acting Manager/Coastal Training Program Coordinator	
Susan Beckman	Old Saybrook Economic Development Director	
US Coast Guard Station - New London	US Coast Guard Station - New London	
Alicea Charamut	Connecticut River Conservancy	
Humphrey Tyler	Connecticut River Conservancy	
Shennecossett YC	Shennecossett YC	
Pine Island Marina	Pine Island Marina	
Rich Kehoe	Blumenthal - CT	CT Congressional Delegation (project area)
Matthew Kelly	Blumenthal - DC	
Emily Smith	Murphy - DC	

Alexa Combelic	Courtney - DC	
	CT Planners Listserv	other mailing lists
	LISS Citizens Advisory Council Mailing List	
	DEEP Sound Outlook Mailing List	
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Patsy McCook	RTPEC	
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Questions/Comments during CT NERR Site Selection Meeting
Tuesday, November 13, 2018

1. **How will you determine who is involved in developing the management plan?**
    a. No firm decision on that process yet, but will likely be similar to how the Site Selection Team was formed. DEEP and the Steering Committee will first look to engage key partners within and outside the agency based on topical relevance/expertise and then augment with other interested parties.

2. **Will you be able to receive partial funding and start up programs prior to designation or do you have to wait?**
    a. NOAA provides grant funding (as available) to assist with steps relevant to designating a Reserve. However funding for operations and programs are not available until after a Reserve is officially designated.

3. **There are oyster aquaculture grounds in the proposed boundary; you should be aware and take that into consideration.**
    a. DEEP and the Steering Committee are aware of the oyster grounds and we will engage the fishing and aquaculture industries as the management plan is developed.

4. **Can I get more detailed maps of the proposed area?**
    a. Yes – if you send a request DEEP can provide more detailed maps.

5. **Explain more about the difference between a core and buffer area.**
    a. Core areas are primarily designed to encompass those areas of the Reserve that represent key habitats and ecologically significant areas that would be reflected in the research, monitoring, education and stewardship programs. Buffer areas are generally designed to help these areas ensure stability or provide pathways expand into if conditions change. Areas that denote facilities (in CT's case this would be UCONN Avery Point and Ct DEEP Marine headquarters) are defined by NOAA as being buffer areas.

6. **In scoring sites, did you consider healthy watersheds and water quality? For example, the smaller watershed feeding into the CT River. Could you extend the proposed area upstream?**
    a. Regarding boundaries: At present, we are not adjusting boundaries as part of the selection effort and nomination to NOAA. It is worth nothing that, if CT's nomination is approved, the next phases of developing the Environmental Impact Statement and creating the Management Plan could result in boundaries being shifted or adjusted.
    b. Regarding watersheds: The detailed selection criteria did address issues of watersheds and water quality. We did not include a complete run-down of all the aspects of the selection criteria for this presentation. The nomination report, which contains links to the Selection Team materials, will be made available on the project website (www.ct.gov/DEEP/NERR) after it is submitted to NOAA

7. **Concern about new regulations on aquaculture and commercial fishing industries. Please consider this. Felt there was inadequate notice of this meeting, so asked for another one.**
    a. DEEP and the Steering Committee are aware of the aquaculture and fishing industries interests in the area, and we will engage with these groups as the

management plan is developed. As covered in subsequent questions, the establishment of a Reserve does not bring with it any new regulations regarding uses.

b. Per NOAA regulations, the meeting was posted in the Federal Register by NOAA on October 30, 2018 and notice was provided by CTDEEP to the Hartford Courant, the New London Day, and the Middletown Press on October 26, 2018. In addition, other announcements included:
    - Invitations via email (sent three weeks prior with a reminder the preceding week) to:
        - over 200 individuals, organizations, and municipal officials whose roles or interests may overlap with the Reserve program;
        - Connecticut State legislators representing the NERR Project area towns; and
        - the Washington D.C. and Connecticut offices of U.S. Senators Richard Blumenthal and Chris Murphy and U.S. Representative Joe Courtney;
    - Postings to electronic listservs:
        - CT Town Planners and Planning;
        - Long Island Sound Study Citizens Advisory Council;
        - Long Island Sound Study Scientific Advisory Committee;
    - CTDEEP “Sound Outlook” newsletter email distribution list;
    - Postings to social media platforms (CTDEEP Facebook and Twitter, Long Island Sound Study Facebook;)
    - A formal CTDEEP press release on November 9, 2018;
    - Mailings and phone calls by CTNERR partners from the Roger Tory Peterson Estuary Center and Connecticut Audubon Society in the Lower Connecticut River.

    In light of the broad distribution of notices, there won’t be another meeting as part of the nomination effort. However, there will be additional meetings planned to support the Environmental Impact Statement and Management Planning phases.

8. Project Oceanology is a fan of the NERRS, but a little worried about the NERRS education program’s impact on them. When does CT DEEP/UCONN reach out to them to figure this out?

a. This will be addressed generally within the management planning phase, and much more substantially after a Reserve is designated wherein an outreach “Needs Assessment” is done. Important to note that Reserves don’t find much if any value in replicating or recreating efforts already in place. The focus is more on filling gaps and voids, and potentially strengthening or extending current efforts where practicable.

9. Another comment about reaching out to the fishing community.

a. DEEP and the Steering Committee are aware of the fishing interests and we will engage the fishing community as the management plan is developed.

10. Will there be restrictions on dredging?

a. There are no restrictions on dredging based simply on the presence of a NERR. For instance, a Reserve would not pose any additional regulatory burden to activities like fishing, shellfishing, or boating. As appropriate, individuals or businesses involved in these would continue to seek authorizations from the State and or municipalities and follow rules as currently established. There would be no need to get an additional “NERR Permit” to work or recreate within the waters or on the uplands of a Reserve. As a rule of thumb, any questions about specific activities tidal wetlands and in tidal, coastal or navigable waters and whether or not they require State approval should be directed to the Land and Water Resources Division of the Connecticut Department of Energy & Environmental Protection at 860-424-3034.

11. **Will there be a physical location (center/building)?**
    a. Both UCONN Avery Point and CTDEEP Marine Headquarters may be able to provide space that could support the administration and operations of a Reserve. The details of how these may play out will covered in subsequent phases. The Reserve system can sometimes assist with funding to help with capital expenses if budgets allow, although the sums are somewhat modest. At present there are no plans for any new buildings but we will look at this issue more closely as we develop the management plan.

12. **Water quality is important, so need to bring in other parties, including those not living right on the water,**
    a. Agreed, and it is these type of aspects that Reserves tend to excel at by reaching out to broad audiences and helping to deal with issues outside of their boundaries.

13. **Doesn’t seem like a lot of funding for the NERRS. Can it really do much?**
    a. The reserve system uses its limited funds strategically and with partnerships in mind to reach intended audiences and make significant impact in the coastal management community. The education program’s needs assessment and a facility and acquisition plan are examples example of how operations can be targeted to maximize returns on even a modest investment. Additionally, the reserve system can provide access to a nationwide network of programs, data, research, and best practices.

14. A**re you working with the USFWS, especially on habitat and species issues?**
    a. We did engage staff form the USFWS on the selection effort. At present, since there is not Reserve established yet, there is no coordination with any existing USFWS programs. We do however expect to continue to engage with USFWS going forward.

15. **Supports the proposal, likes the hybrid approach.**

16. **How does designation affect nearby homeowners? CT should develop a fact sheet and get that widely distributed.**
    a. Reserves operate within their own boundaries in terms of access and uses for programming and science. While it is hoped that neighbors and groups within the community can develop working partnerships with Reserves, there are no requirements to this effect. At a minimum the expectation is to at least maintain a respectful neighbor status where each goes about their business and doesn’t bother the other. As this moves forward, we expect to have more opportunities to discuss and interact with communities on these points.

17. **Is it possible to modify the boundary, especially on the west side of the proposed site?**
    a. We are not modifying any of the current upland or offshore boundaries as part of the nomination effort. As noted earlier, it may be the case that the EIS and management planning processes may end up altering some of the current proposed boundaries as a result of the input and requirements for those work tasks.

18. **The project is important. Can you use medical expertise to work on issues?**
    a. It is certainly possible.

19. **Will there be more regulation on commercial shellfisheries?**
    a. No. A NERR does not add additional regulations. Reserves respect the existing regulatory structures for each state. In the case of Connecticut, existing entities such as CT DEEP, the Department of Agriculture/Bureau of Aquaculture, and local municipalities regulate shellfishing. These groups would continue to do so and would not be affected by a Reserve. Similarly, individuals or groups seeking to work within the industry would need to seek and receive the proper approvals as presently required, regardless of whether it is in a Reserve or not. Shellfisheries would NOT need to seek special permissions just to work within a Reserve.

20. **Likes the NERRS; time for one in CT to facilitate research and education, and better public access. People shouldn't be concerned with overreach.**

21. **A summary of what this person heard – no new regulations, the management plan will account for this.**

22. **Audubon Connecticut - Comment in support of the proposal.**

23. **The LIS Study could use sentinel sites, would like to see long-term monitoring, maybe the NERR can help with?**
    a. Yes – as part of the requirements for establishing a Reserve there must be on-site monitoring of several environmental parameters (water quality, meteorology) This is part of the SWMP – System Wide Monitoring Program – which has been collecting and providing data for several decades. The data is collected and made available, often in near real time. This type of effort would clearly support long-term monitoring in LIS. We would look strategically with partners at where to deploy monitoring equipment.

24. **A NERR should help manage education programs smartly so facilities/sites are not overrun.**

25. **Applaud efforts and the many partners engaged to get this effort going, a NERR will be an asset.**

26. **Pls involve CT Audubon, lots of interest/opportunity at Roger Tory Peterson site in the Connecticut River.**

From:	Norm Needleman
To:	O"Brien, Kevin
Subject:	RE: REMINDER: CT National Estuarine Research Reserve Public Meeting
Date:	Tuesday, November 13, 2018 7:13:16 PM
Attachments:	image001.png

Hi kevin

I'm sorry I wasn't able to make the meeting tonight, but I am still catching up after the election. The chairman of our harbor commission is attending, but can you forward any materials that are handed out at your meeting. As a first selectman of a river town and now as a senator elect of a bunch of long island sound and river towns, this is important and interests me greatly

Maybe at some point when things settle down, we can chat and you can bring me up to speed

Best

norm

From: O'Brien, Kevin [mailto:Kevin.OBrien@ct.gov]
Sent: Tuesday, November 06, 2018 10:41 AM
Subject: REMINDER: CT National Estuarine Research Reserve Public Meeting

Dear Partner:

As a reminder, we are holding a public meeting on Tuesday November 13th, 2018 from 6:00 pm to 8:00 pm in the second floor Auditorium of the Academic Building at the University of Connecticut's Avery Point Campus in Groton CT.   At the meeting we will provide an update on Connecticut's effort to identify and propose a location for a National Estuarine Research Reserve (NERR or "Reserve") in our state.

The NERR system is a federal/state partnership that establishes a location dedicated to estuarine research, monitoring, education, and stewardship. A Connecticut-based Reserve would complement and extend many existing scientific, environmental management, and education activities through the addition of funding, resources, and expertise. Additionally, it would help identify and enable new directions and initiatives by leveraging national programs.

Since the Spring of 2016, members of a multi-disciplinary team have worked to identify, evaluate, and recommend a potential Reserve. This meeting will provide a forum to share the results of their efforts, to describe the site proposed for nomination, and to provide an overview of what the next stages of the process will entail.   Representatives from the National Oceanic and Atmospheric Administration (NOAA) will also attend the meeting to answer questions about the national system. *Most importantly, this will also be an opportunity to find out more about what establishing a Reserve means, to ask questions, and to provide your comments.*

NOAA will announce meeting details in a Federal Register Notice no later than October 29, 2018, and notice will also be provided via local newspapers.

An agenda and informational material are enclosed with this invitation, and the project website contains additional information as well (www.ct.gov/deep/NERR).

We have endeavored to target relevant individuals and groups that are aligned geographically or topically with a potential Connecticut Reserve, but please feel free to forward this invitation to other interested parties as needed.

We hope that you are able to participate and look forward to seeing you on November 13th.

Sincerely,

Brian Thompson, Director, Connecticut Department of Energy and Environmental Protection, Land and Water Resources Division

From:	Humphrey Tyler
To:	O"Brien, Kevin
Cc:	banningwood@gmail.com
Subject:	Conn NERRS
Date:	Thursday, November 15, 2018 9:43:22 AM

Mr. O'Brien -

Thank you for the very worthwhile & informative presentation Tuesday night at UConn Avery Point on the proposed Connecticut NERRS.

I am the member of the audience who asked for more detailed maps.

Could you please send me detailed maps showing the areas in the Town of Lyme on Lords Cove that are proposed to be included in the Connecticut NERRS?

I am requesting these maps on behalf of Lyme Selectman Parker Lord, who asked me to attend Tuesday night's meeting to gather information on the proposed Conn NERRS.

I would like to be able to show Selectman Lord and other town officials what areas of the town would be included in the NERRS, so I will need maps showing enough detail to determine where the NERRS boundary lines will run in the Town of Lyme.

Please send the files to: hstyler45@yahoo.com

If the files are too large to send as attachments, we can use DropBox or some other FTP app.

Thanks much.

Humphrey S. Tyler
hstyler45@yahoo.com
518-253-4844
Sent from Yahoo Mail for iPhone

Evan Ward, Ph.D., Department Chair, University of Connecticut Department of Marine Sciences

Sylvain De Guise, Ph.D., Director, Connecticut Sea Grant College Program

~~~~~~

Kevin P. O'Brien
Sr. Environmental Analyst
Land & Water Resources Division - Coastal Resources Section
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3432 | F: 860.424.4054 | E: kevin.obrien@ct.gov

Connecticut Department of
ENERGY &
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www.ct.gov/deep

Conserving, improving and protecting our natural resources and environment;
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~~~~~~

Dear attendees,

Aspects of this reserve could be beneficial. It's important that fishermen, aquaculture, and the working waterfront are adequately represented at this meeting and in development of this plan. Literature and FAQ's published below this article, state (I believe falsely) that this program will not lead to increased regulation. Any reserve should provide irrevocable protection to fishermen, aquaculture, maritime transport/industries, the Port Authority, and the US NAVY.

The DEEP needs to modify the tenor and attitude they lead with. They currently lead with an authoritarian attitude and treat businesses, individuals, and many municipalities as the enemy. A strong open minded approach with a reverence for the environment that encourages creative thinking to responsibly overcome emerging environmental challenges would benefit us all. Currently fear of retaliation from CT DEEP stifles free and open debate necessary to reach the best solution to any problem.

This meeting was publicized in the Sunday paper, before a Monday holiday, for a Tuesday meeting. I strongly urge CT DEEP to schedule another public meeting to solicit the opinions of working water industry that will be affected by this preserve. Written comments submitted to DEEP do not carry the same weight as those voiced at a public meeting covered by the Newspaper, the Newspaper, the Newspaper.

Kevin Blacker,
108 Main Street,
Noank, CT 06340

From:	Old Lyme Land Trust
To:	O"Brien, Kevin
Subject:	More detailed NERR map of Lord's Cove
Date:	Wednesday, November 14, 2018 7:12:34 AM

Dear Mr. O'Brien,

Thank you very much for the NERR presentation last night!   I was there presenting the Old Lyme Land Trust and we appreciate the tremendous amount of work that's gone into this project.

I wanted to reiterate the request for a more detailed map of the Lords Cove area. The Old Lyme Land Trust has two properties in the vicinity — part of Goose Island and the John Lohmann CT River Preserve. It is difficult to make out the maze of boundary lines on the current map to determine exactly where these properties stand.

Also it would be helpful if you could confirm that property owners in the area will loose none of there existing rights, including the right to limit public access or even to limit some forms of scientific research on their property.

Thank you again.

Anne Galliher
Secretary, Old Lyme Land Trust

From:	Jeff
To:	O"Brien, Kevin
Subject:	NERR
Date:	Thursday, November 15, 2018 1:08:43 PM

Kevin,

Very good presentation Tuesday.

In reviewing the site plan for the proposed NEER, I see that western border in the Essex area runs through or along Thatchbed Island. The island is owned by State of Connecticut and Essex Land Trust.

The Thatchbed was once more than 20 acres and is now less than 8. We have lost valuable habitat and breeding ground. DEP in the early 2000's mowed and sprayed to get rain of phragmite. Part of the fallout from that action lost the root structure that was holding the island together.

Efforts are being made to preserve what is left and possibly restore much of what we lost.

From your presentation it sounds as if inclusion in the NERR would be beneficial to our preservation and restoration efforts. As Chairman of the Essex Harbor Management Commission, I am very interested in this situation. The Commission is in the last stages of surveys and studies that include river current analysis from Thatchbed across the river. This information will be available if there is any interest.

Please let me know if the Thatchbed is included in the site.

Thank you,

Jeff Going, Chair
Essex Harbor Management Commission
860-961-5090

Sent from my iPad

From: Penny Heller
To: O"Brien, Kevin
Subject: Quick update re: NERR
Date: Friday, November 30, 2018 8:57:56 PM

Hi Kevin - Just so you have the whole story (since I missed some important details when I talked with you this morning), Deb Pacileo asked if the western boundary of the proposed reserve could be moved from Lynn Pt to Cornfield Pt in Saybrook. This very small change would align the reserve boundaries with the sturgeon ESA block as shown on the Blue Plan map. The current boundary cuts the sturgeon block just about in half. If this western diagonal boundary was drawn somewhat arbitrarily, moving it a mile or 2 (after the public comment period or whenever appropriate) to match up with the ESA makes sense so its placement carries a definite reason while making the reserve only slightly larger.This request should be viewed as comment from the Marine Fisheries Division since they weren't able to participate in the prior process due to lack of staff.

Thanks!   Penny

From:	Roger Sherman
To:	O"Brien, Kevin; tessa.getchis@uconn.edu
Subject:	Comments to Proposed CT NERR
Date:	Friday, November 30, 2018 3:47:53 PM

Kevin I would like to comment on the Proposed CT NERR. In my 30 years on the Groton Shellfish Commission it has become apparent that the single most adverse effect on water quality is the Municipal Sewer Systems inadequacy. I would recommend a complete survey of the systems in the proposed area.

I will give you two examples in the Groton area, About ten years ago we were experiencing high fecal counts in the Poqounock River. This situation continued for two years until we formed a clean water task force of which I was a member. I complained about the number of homeowners who smelled sewage in the area. The head of the Sewage Dept. said they knew they had problems in the Fort Hill Homes loop (650 homes). I asked him what he meant. He said on a dry day they had 200 K gallons in that loop. And on a rainy day they had 2 Million gallons. After dye tests which the Shellfish Commission paid for, it became apparent that the Sewage was ending up in the storm drains and then into the river, Two years and $7 Million bond issue later we had all laterals and all mains relined.

Recently the Stonington, Mystic River Plant, which we had studied extensively for two years in an effort to extend the Direct Harvest area in the winter for our commercial leases, was sited by DEEP for a number of inadequacies. Among them was high fecal counts and that the plant was operating at over 90% of capacity. I understand that there are no firm plans for expansion. Meanwhile, in the Mystic area they are planning new housing in the Mystic Village area.

I have no info on the numerous other plants and systems in this area. Groton shellfishing areas are affected by the Stonington River Sewage System, the Groton system, the City of Groton system, the New London system, the Norwich system. I think these systems are the " long pole in the tent" for the Proposed CT NERR. Thank you for the opportunity to comment . Feel free to call me. Roger M. Sherman 860-536-1893

-----Original Message-----
From: Getchis, Tessa <tessa.getchis@uconn.edu>
To: Roger Sherman <rmsherman67@aol.com>
Sent: Fri, Nov 30, 2018 11:12 am
Subject: Re: Proposed CT NERR

Hi Roger,
For now, comments can be directed to: Kevin O’Brien at CT DEEP (kevin.obrien@ct.gov). Let me know if you have any questions.
Best,
Tessa

From: Roger Sherman <rmsherman67@aol.com>
Date: Wednesday, November 28, 2018 at 4:38 PM
To: "Getchis, Tessa" <tessa.getchis@uconn.edu>
Subject: Proposed CT NERR

Tessa Please send me the contact info for comments on the proposal. My comments will concentrate on the need for a complete survey of the Sewer Treatment facilities that discharge "treated sewage" in to the proposed reserve. In my time with the shellfish commission, over 30 years, that has been the single most degrading effect on water quality. Recently we learn that the Mystic River Treatment Plant is operating at over 90% of capacity, with no firm plans for expansion . Of course it is not only the plants but the systems. Thank You, Roger

Connecticut River Conservancy

Clean water. Healthy habitat. Thriving communities.

Lower Valley: deKoven House
27 Washington Street, Middletown, CT 06457
860.704.0057 · www.ctriver.org

November 7, 2018

Kevin O'Brien
Connecticut Department of Energy and Environmental Protection
Land & Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

Dear Mr. O'Brien,

The Connecticut River Conservancy and our partners below enthusiastically support the nomination of a Natural Estuarine Research Reserve in Connecticut as presented in the materials distributed in advance of the November 13, 2018 public meeting.

Since 1952, the Connecticut River Conservancy (CRC) has worked to protect your rivers from source to sea so everyone can enjoy them. Our rivers belong to all of us. We are their voice. This means we find environmental problems and fix them, across all four river states. We run community river cleanups. We remove deadbeat dams. We plant trees. We protect and restore wildlife. We speak up on behalf of your rivers.

The health of our estuary and Long Island Sound is extremely important to all of us that work within the Connecticut River watershed. Our collective work contributes, in some way, toward a healthier Long Island Sound. While conditions in LIS have improved substantially over the last few decades, further effort must be made in order to achieve goals set for its health and productivity. Any and all resources to help to further our understanding of the challenges LIS and our estuary face in a changing climate are most welcome.

The time to establish a Natural Estuarine Research Reserve is now. We encourage CT DEEP to move forward with the nomination.

Sincerely,

Alicea Charamut
River Steward

The following organizations sign in support of nomination of Natural Estuarine Research Reserve in Connecticut:

The Connecticut Council of Trout Unlimited
Jack Kovach, Vice Chair

The Farmington Valley Chapter of Trout Unlimited
John DiVenere, Chapter President

Farmington River Watershed Association
Aimee Petras, Education and Outreach Coordinator

Chicopee 4 Rivers Watershed Association (MA)
Keith Davies, President

Millers River Watershed Council (MA)
Ivan Ussach, Director

Lyme Land Conservation Trust
Kristina White, Executive Director

Rivers Alliance of Connecticut
Margaret Miner, Executive Director

November 13, 2018

Kevin O'Brien
Connecticut Department of Energy and Environmental Protection
Land & Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

Dear Mr. O'Brien,

As current Chair of the Friends of the Silvio O. Conte National Fish and Wildlife Refuge, I am writing to express our coalition's enthusiastic support for the establishment of the lower Connecticut River as part of a proposed National Estuarine Research Reserve (NERR).

The Friends of Conte was established in 2005 with the mission to cultivate and sustain a healthy Connecticut River watershed for all. We represent a thriving network of more than 70 public and private organizations working to enhance outdoor recreation, environmental education and conservation opportunities. Collectively, our member organizations comprise more than 100,000 members living and working across the watershed.

We recognize that the work that we do collectively across the entire Connecticut River watershed to support the legislative purposes of the Conte Refuge has a direct relationship to the health of Long Island Sound and its estuaries. The presence of a NERR in Connecticut will add valuable resources and scientific information to our ongoing efforts to protect and improve our natural resources and local economies.

Yours sincerely,

Markelle Smith

Markelle Smith
Chair, Friends of the Silvio O. Conte National Fish and Wildlife Refuge
Landscape Partnership Manager, The Nature Conservancy
136 West St., Suite 202
Northampton, MA 01060

Cc: Executive Committee, Friends of the Silvio O. Conte National Fish and Wildlife Refuge:

Andy Fisk, *Executive Director, Connecticut River Conservancy*
Patrick Comins, *Executive Director, Audubon Connecticut*
Melissa Ocana, *Climate Adaptation Coordinator and Extension Project Manager, University of Massachusetts*
Kristen Sykes, *Director of Conservation Strategies, Appalachian Mountain Club*
David Stier, *Director, Springfield Science Museum*

Lower Connecticut River Valley
Regional Planning Committee

145 Dennison Road
Essex, CT 06426
860/581-8554 FAX: 860/581-8543
www.rivercog.org

Chester, Clinton, Cromwell,
Deep River, Durham, East Haddam,
East Hampton, Essex, Haddam,
Killingworth, Lyme, Middlefield
Middletown, Old Lyme, Old Saybrook
Portland, Westbrook

November 15, 2018

Mr. Kevin O'Brien
Connecticut Department of Energy and Environmental Protection
Land & Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

SUBJECT: Nomination of the Natural Estuarine Research Reserve in Connecticut

Dear Mr. O'Brien:

The Lower Connecticut River Valley Regional Planning Committee enthusiastically supports the nomination of a Natural Estuarine Research Reserve (NERR) in Connecticut as presented at the public meeting held on Tuesday, November 13, 2018. Although only a portion of the RPC's seventeen member municipalities are located on Long Island Sound or the Connecticut River waterfront, those two natural and economic resources and their protection are of significant importance to the region and the state's chief economic driver, eco-tourism. The establishment of a NERR in the State of Connecticut, and specifically within the estuary of the lower Connecticut River Valley, will only serve to enhance the region and the state as a whole, be a benefit to our residents and to the health of the region's ecosystem. The RPC's draft Regional Plan of Conservation and Development highlights the importance of economic development as it relates to Long Island Sound and the Connecticut River and discusses the importance of educational opportunities for the citizens of the region and the state. The greater understanding of Long Island Sound and the Connecticut River that will result through the research that takes place at the NERR will enhance the environmental and ecological health of these important waters which will in turn be a benefit to all of us.

The Lower Connecticut River Valley Regional Planning Committee urges the CT DEEP to move forward with the nomination.

For the members of the Regional Planning Committee,

J H Torrance Downes, Deputy Director
Lower CT River Valley Council of Governments

145 Dennison Road
Essex, CT 06475
Phone: 860-581-8554
FAX: 860-581-8543
www.ctrivergateway.org

Chester
Deep River
East Haddam
Essex
Haddam
Lyme
Old Lyme
Old Saybrook

November 15, 2018

Mr. Kevin O'Brien
Connecticut Department of Energy and Environmental Protection
Land & Water Resrouces Division
79 Elm Street
Hartford, CT 06106-5127

SUBJECT: Nomination of the Natural Estuarine Research Reserve in Connecticut

Dear Mr. O'Brien:

The Connecticut River Gateway Commission enthusiastically supports the nomination of a Natural Estuarine Research Reserve in Connecticut as presented at the public meeting held on Tuesday, November 13, 2018. The Commission especially supports the establishment of the reserve within the estuary of the lower Connecticut River, the area within which the Gateway Commission has its statutory authority (Section 25-102a through Section 25-102s CGS).

Through the adoption of zoning standards and through the acquisition of over 1,100 acres of undeveloped land in the lower Connecticut River Valley with partners and by itself, the Gateway Commission has been protecting the environmental and visual integrity of the estuary since 1973. The establishment of the Natural Estuarine Research Reserve within the valley would capitalize on the pristine nature of the lower river and provide educational resources to further study this amazing local, regional, national and international asset.

The Gateway Commission has partnered with many environmental organizations through the years including the US Fish & Wildlife Service, the Connecticut DEEP, the Connecticut River Conservancy, Rivers Alliance of Connecticut, Connecticut Forest & Park Association, The Nature Conservancy, the Connecticut Audobon Society, the Trust for Public Land, the Connecticut Land Conservation Council, the Middlesex Land Trust as well as the local municipalities and land trusts which operate in the lower river valley. Through these partnerships, the lower Connecticut River is the pre-eminent resource that it is. The establishment of the NERR will serve to add another important partnership and further enhance this amazing part of the State.

The Connecticut River Gateway Commission urges the CT DEEP to move forward with the nomination.

For the Gateway Commission,

J H Torrance Downes, Deputy Director
Lower CT River Valley Council of Governments

Protecting the River Since 1973

Connecticut River Valley
Council of Governments
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www.rivercog.org
East Hampton, Essex, Haddam,
Killingworth, Lyme, Middlefield,
Middletown, Old Lyme,
Old Saybrook, Portland, Westbrook

November 16, 2018

Mr. Kevin O'Brien
Connecticut Department of Energy and Environmental Protection
Land & Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

SUBJECT: Nomination of the Natural Estuarine Research Reserve in Connecticut

Dear Mr. O'Brien:

The Lower Connecticut River Valley Council of Governments enthusiastically supports the nomination of a Natural Estuarine Research Reserve (NERR) in Connecticut as presented at the public meeting held on Tuesday, November 13, 2018. Although only a portion of RiverCOG's seventeen member municipalities are located on Long Island Sound or the Connecticut River waterfront, those two natural and economic resources and their protection are of significant importance to the region and state's chief economic driver, eco-tourism. The establishment of a NERR in the State of Connecticut, and specifically within the estuary of the lower Connecticut River Valley will only serve to enhance the region and the state as a whole and be a benefit to our residents. The research that will take place at the NERR and the increased educational opportunities it will provide will be important and welcomed in all of our communities and will enhance the environmental and ecological health of the region and state.

Although we understand that the boundary of the NERR cannot be amended during the nomination process, should the site be selected to proceed, we encourage all involved to consider modifying said boundary to include the northern portion of the original Connecticut River site, from Essex and Lords Cove to Cromwell and Portland. Inclusion of these ecologically-significant coves and fresh water tidal marsh locations as core or buffer areas would not detract from the existing character of the NERR which will be submitted for nomination, but enhance the Reserve's research and educational opportunities.

The Lower Connecticut River Valley Council of Governments urges the CT DEEP to move forward with the nomination.

For the Chief Elected Officials of the seventeen RiverCOG municipalities,

J H Torrance Downes, Deputy Director
Lower CT River Valley Council of Governments

Lowell Weicker, Jr.
PO Box 877
Old Lyme, Connecticut 06371

November 12,

Mr. Kevin P. O'Brien
Sr. Environmental Analyst
Land & Water Resource Division
Bureau of Water Protection
Connecticut Department of DEEP
79 Elm Street
Hartford, Connecticut 06106

Dear Mr. O'Brien:

I write today as a private citizen and resident of Old Lyme. Unfortunately, I am unable to be with you this evening in Groton but am well represented by my neighbors.

As a United States Senator I maintained a strong interest in and support for the marine research programs of NOAA. With three-quarters of the earth's surface covered by water, it is important that we understand this resource and conserve the multitudes of species that inhabit our waters. As Governor of Connecticut, I located the DEEP near the mouth of the Connecticut River Estuary in recognition of its importance to the state. The Estuary is a breeding ground, nursery, habitat and migratory stopover for countless species of plants, fish, birds and other wildlife.

I am in wholehearted support of the proposal to establish a dual sited NERR in upper Long Island Sound and the Connecticut River Estuary. Given the importance of the Sound to the State of Connecticut and the importance of the Connecticut River Estuary to the Sound, this proposal is long overdue. We live at a time of great change and our waters and the species that inhabit them are fragile resources. The challenges presented by nature require that we better understand these issues. This can only be done through more research.

Sincerely,

Lowell Weicker, Jr.
Former United States Senator and
Governor of Connecticut

FRIENDS OF WHALEBONE COVE

PO Box 333, Hadlyme, CT 06349

October 27, 2018

Kevin P. O'Brien
Senior. Environmental Analyst
Land & Water Resources Division - Coastal Resources Section
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT, 06106-5127 **RE: NERR Nomination of Connecticut River Estuary**

Dear Mr. O'Brien:

Friends of Whalebone Cove is a 501(c)(3) neighborhood conservation organization dedicated to the preservation of the natural condition of Whalebone Cove, a freshwater tidal marsh in the Connecticut River estuary of worldwide prestige and prominence.

Friends of Whalebone Cove supports the nomination and designation of the Connecticut River estuary *as a National Estuarine Research Reserve under the federal Coastal Zone Management Act.*

Located in the Hadlyme section of northern Lyme, Whalebone Cove is a tranquil 116-acre tidal wetland hidden on the east shore of the Connecticut River that is a nature sanctuary within the Silvio O. Conte Wildlife Refuge of the U.S. Fish & Wildlife Service. It abounds in wildlife year-round and provides fishing, hunting and paddle craft recreational opportunities. It also has the largest stand of wild rice in Connecticut.

Whalebone Cove is listed in the Ramsar Convention on International Wetlands as one of the freshwater marshlands in the Connecticut River Estuary Complex that is of global importance. The Nature Conservancy has called Whalebone Cove "one of the most undisturbed and biologically significant freshwater marshes along the Connecticut River," and the Cove is included within The Nature Conservancy's list of 40 "Last Great Places" in the western hemisphere.

The Cove is an important wintering area for bald eagles and black ducks, and is also a significant foraging area for migratory waterfowl, including Canada geese, mallards, and wood ducks. Other bird species that feed and breed in the Cove and its upland shoreline are great blue herons, sora, least bittern, marsh wren, Carolina wren, white-eyed vireo, osprey, and red-tailed hawks.

Designation of the Connecticut River estuary as a NERR site will be an important step in helping to provide much needed research and educational programs in the lower Connecticut River Valley that will contribute to the ecological security for the Whalebone Cove habitat, and indeed throughout the region.

For these reasons, Friends of Whalebone Cove strongly endorses nomination and designation of the Connecticut River Estuary as a National Estuarine Research Reserve.

Thank you for your consideration of our endorsement.

Sincerely,

Humphrey S. Tyler
President
Friends of Whalebone Cove, Inc.

FOOTPRINTS IN THE WATER

14 November 2018

TO: Mr. Kevin P. O'Brien, Sr. Environmental Analyst
Land & Water Resources Division - Coastal Resources Section
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127

RE: CT NATIONAL ESTUARINE RESEARCH RESERVE PUBLIC MEETING COMMENTS

Dear Mr. O'Brien,

Congratulations on taking a major step forward with the CT NERR nomination! Judging from the number of participants at last night's meeting, and the tenor of their comments, the nomination is off to a good start. Let me add my voice to the chorus of support for a long overdue NERR in CT.

Just to formalize and provide more detail on my comments provided orally at last night's meeting:

1. I encourage the nomination committee and SST to continue with their good work, and the thoughtful process that's beginning to shape the design of the Reserve. December 18 is not far off, and there's still a lot of work to be done.

2. I also encourage you to provide supporting documentation for the selection process so the public can gain a better appreciation of the procedural mechanics; understand some of the rationale and terminology, which is new to many; and provide more thoughtful input and recommendations, as well as support for the nomination. Despite a very well-structured presentation last evening, it was difficult to keep pace and understand the many nuances of the selection process, criteria and scoring.

3. As I noted at the meeting, I suggest a closer look at the NERRS Goals and Objectives found in the 2017-2022 Strategic Plan, as well as NOAA agency-wide plans. I think *NOAA's Next-Generation Strategic Plan* (December 2010), though probably outdated, provides an excellent entrée into how the committee might want to frame its arguments for nomination. In the cover letter by then NOAA Administrator Jane Lubchenco, she writes of "…the highest priority opportunities for NOAA to contribute substantially to the advancement of society." I think these priorities unarguably set the tone for a successful nomination and the nomination should speak to each one: *availability and quality of freshwater; exposure of people and communities to high impact weather; stresses of urbanization of the coasts; the exploitation of ocean and coastal resources; and pervasive effects of climate change on society and the environment.* She caps the list with, "…these are the central challenges we must face if

we are to improve human welfare and sustain the ecosystems upon which we depend." Dr. Lubchenco really brought to the fore the concepts of ecosystem-based management and the integration of science-service-stewardship, directly aimed at those stated human and environmental outcomes, as a viable path forward that persists today. I can think of no better philosophical roadmap to attain the NOAA vision of *Resilient Ecosystems, Communities, and Economies*. That spirit should pervade the nomination.

And that spirit does pervade the NERRS Strategic Plan and its Vision for *Resilient estuaries and coastal watersheds where human and natural communities thrive.* My suggestion last night was to go beyond the remarkable habitat attributes and value beyond the shoreline to acknowledge the importance of healthy watersheds to estuaries in your site-selection process, and in making your case. While the size of the proposed Reserve will undoubtedly provide ample opportunities to link estuaries and their watersheds, it was disappointing to me that it was not considered in the site selection process. It is so important to water quality but also to the shoreline squeeze on estuarine resources, and the relationship between land and water is amply reflected in the NERRS vision as well as many of the goals and objectives where watersheds are prominently identified as important to resiliency objectives, scientific understanding, education, stewardship and, most importantly, to coastal planning and decisions since communities are in the upland (mostly), and not in the water.

I do diverge on one point (and digress here) – I think NOAA has over-emphasized climate change effects to the detriment of an integrated management approach that balances other important drivers of change, especially development, almost to the point of introducing a bias to the objectivity of science. Granted, climate is important, and threatening, but its effects are not easily disentangled from the myriad stressors that come from the multiple drivers of change – climate, yes, but also development, agriculture, resource extraction (living and non-living), habitat destruction, and invasive species – collective contributors to the perils our environment and society endure now, and fear in the future. I hope the nomination committee will consider this point, and maintain objectivity in their plan that sustains the integrity of science and its application to management. The emphasis on climate is also unfortunate as it is such an intractable problem, with widely-unpredictable consequences for the future. Management dollars are, in my opinion, much more effective in sustaining healthy, resilient ecosystems as best we can, which means allowing recovery and transition to changing conditions rather than so-called "resilient" communities, which only defer climate impacts to a future date.

4. My final recommendation is to revisit the proposed Reserve boundary to at least assure there are adequate opportunities to research, monitor and develop management relationships between watershed health and estuarine health. I am not suggesting that the watersheds be incorporated into the Reserve boundary, though I wouldn't object to that either if the possibility exists. As I noted in my oral comments, I really see the

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Salmon and Eight Mile Rivers as ideal field laboratories to research water quality effects and impacts from land to a tidal river, and the Niantic River for a more direct relationship to coastal estuaries as well as a test-bed for management and training. There has been so much invested in managing watersheds to benefit coastal estuaries, especially for nutrients, but also for biointegrity and biocondition gradients that are becoming more prominent in ecosystem management. The effect of nitrogen on eelgrass, for example, is a high priority for NERRS, and the water quality SWMP stations are designed to study nutrient impacts. It's an add-in that I think is simple and beneficial to a well-rounded nomination, and easy to highlight as focus areas. I do suggest extending the CT River boundary upriver to the Haddam area to capture the Salmon and Eight Mile, but also to have Machimoodus and Haddam Meadows State Parks in the Reserve. They could provide potential Reserve facility sites or ancillary access and education sites as well. If you need to trim areas, I think the Thames River estuary might become a "buffer" area, trading it for the Niantic buffer area, which could be elevated to a focus watershed-estuary area.

I hope these comments are well-received as constructive and helpful to the nomination. As you know, I am available to advise on the nomination, or to simply elaborate on issues or concepts I've offered. Thank you very much for your kind attention.

Sincerely,

Paul E. Stacey

Owner and Principal Scientist

Cc: Betsey Wingfield, Chief, Bureau of Water Protection and Land Reuse
Brian Thompson, Director, Land and Water Resources Division

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November 18, 2018
Mr. Kevin O'Brien (kevin.obrien@ct.gov)
CT Dept. of Energy & Environmental Protection
Land & Water Resources Division
79 Elm Street.
Hartford, CT 06106

Subject: Comments on Connecticut National Estuarine Research Reserve (NERR)

As way of introduction, I am David Robinson a local resident of East Lyme and Waterford, Connecticut. I live on the water of the Niantic River watershed and have for the past 38 years; I share a cottage in Pleasure Beach, Waterford that has been part of our family for 73 years. I am a professional engineer licensed in New York and Connecticut. I am an avid water-person both professionally and recreationally and am personally familiar with the coastline from Barn Island through Bluff Point, Mystic River, Thames River, Jordan Cove, Niantic River and Bay through the Connecticut River watershed. I have been in the business of inspecting and rehabilitating underwater structures throughout the Northeast for the past 48 years. A former USCG licensed captain, NAUI Instructor, USN trained in Deep Sea Diving and Salvage, former submariner, ADCI Air Diving Supervisor.

First, I support the designation of the mapped areas as a designated Connecticut NERR.

As a board member of Save the River-Save the Hills, I have a strong interest in having the Niantic River watershed and Niantic Bay be designated as part of the buffer zone to the proposed Core areas of our regional Connecticut National Estuarine Research Reserve. These are important recreational and commercial marine areas. Additionally, there are previous studies, and ongoing studies of water quality and chemistry that can be tapped for any research chosen by NERR. In addition to caring for our watershed, we have a strong interest in assisting any who would provide research or betterment proposals to our regional watershed. We have a core group that can be tapped for support in these areas.

Please consider this letter as a request to be considered for adding the Niantic River Watershed and the Niantic Bay to the Buffer Zone for the proposed Connecticut National Estuarine Research Reserve (NERR).

Very truly yours,

David R. Robinson

David R. Robinson, P.E.
PO Box 909, East Lyme, CT 06333   Cell: 203-395-2609

CONNECTICUT RIVER JOINT COMMISSIONS INC

Connecticut River Joint Commissions
10 Water Street, Suite 225
Lebanon, NH 03766
(603) 727-9484
http://www.crjc.org

November 20, 2018

Kevin P. O'Brien Senior. Environmental Analyst
kevin.obrien@ct.gov
Land & Water Resources Division - Coastal Resources Section
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT, 06106-5127

Dear Mr. O'Brien

New Hampshire's Connecticut River Valley Resource Commission, created by the legislature in 1987 and Vermont's Connecticut River Watershed Advisory Commission, similarly created in 1988, was directed to cooperate with each other to preserve and protect the resources of the Connecticut River Valley, and to guide its growth and development. They have met together as the Joint Commissions since 1989 to advocate for and ensure public involvement in decisions affecting the region.

As President of the Connecticut River Joint Commissions and as a practicing wetland scientist for nearly thirty years I am aware of the global significance of the Connecticut River estuary and tidal wetlands complex, and wholeheartedly support the creation of a National Estuarine Research Reserve System (NERRS) site in the Connecticut River estuary.

As you may know, this estuarine system is one of only 38 wetlands within the United States that is recognized by the Ramsar Convention, an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Ramsar website provides the following description of the Connecticut River estuary and wetlands.

"Shifting sandbars have preserved the river's extraordinary assemblage of natural and undisturbed plant and animal communities. The site includes open water; fresh, salt and brackish tidal wetlands; floodplains, river islands, beaches, and dunes. The system serves as essential habitat for numerous regionally, nationally, and globally rare or otherwise significant species and forms an extensive biological corridor that links marine and estuarine waters of the Atlantic Ocean. Many migratory and Neotropical bird species nest or winter in the marshes, which regularly support over 10,000 individuals, consisting of 18 species of waterfowl. Two million people live in the river basin that supports active commercial and recreational fisheries, various tourist facilities and activities."

The Connecticut River Joint Commissions wishes to enthusiastically support the creation of a NERRS site in the Connecticut River estuary.

Sincerely yours,

Jim McClammer, President

From: Craig Repasz
To: O"Brien, Kevin
Cc: pauster@mysticaquarium.org; ls.broker@cox.net; "Thomas Robben"
Subject: COA Support for the NERR Designation for selected sites along Long Island Sound
Date: Monday, December 03, 2018 10:23:41 AM

Dear Kevin

The Connecticut Ornithological Association strongly supports the effort to designate the selected sites along Long Island Sound to be part of the National Estuarine Research Reserve. These habitats are at great risk due to sea level rise, invasives, development and pollution. It is important to understand the impact that these factors will have on wildlife. Conservation efforts must be grounded in the strong research and monitoring that the NERR would provide. It is critical that Connecticut has sites in the NERR program.

We look forward to collaborating with the NERR on both research and educational initiatives after the site is established.
Thank you for your efforts and consideration.

Craig Repasz
Connecticut Ornithological Association
Conservation Chair

MYSTIC AQUARIUM
RESEARCH
PROTECT OUR OCEANS

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W mysticaquarium.org

December 3, 2018

Kevin P. O'Brien
Environmental Analyst
Land and Water Resources Division
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127

Via E-mail: kevin.obrien@ct.gov

Dear Mr. O'Brien:

Mystic Aquarium would like to express our strong support for designation of a National Estuarine Research Reserve (NERR) in the Connecticut waters of Long Island Sound. The proposed NERR, as detailed by our Department of Energy and Environmental Protection will be a unique addition to the network of NERR sites off the northeast United States. We look forward to collaborating with the NERR on both research and educational initiatives after the site is established.

Thank you, in advance, for your consideration.

Sincerely,

Katie Cubina
Senior Vice President, Mission Programs

Connecticut National Estuarine Research Reserve Site
Selection & Nomination Report - December 21, 2018
APPENDIX 8:

Significant Flora and Fauna Materials

1. NOAA Environmental Sensitivity Index Summaries
2. Long Island Sound Stewardship Ecological Sites Inventory Update (Final Report) and Data Pages

ENVIRONMENTAL SENSITIVITY INDEX: LONG ISLAND SOUND

INTRODUCTION

This Environmental Sensitivity Index (ESI) atlas was developed for the marine and coastal areas of Long Island Sound. The ESI represents a compilation of information about three main categories: shoreline habitats, sensitive biological resources, and human-use resources. Though the data will be useful for many shoreline applications, the goal of the ESI data is to present a concise summary of resources that may be particularly vulnerable to spilled oil. The intent of the data should caveat other uses. As an example, the ESI is not intended to present a catalog or comprehensive listing of species present in an area, rather the focus is on species particularly sensitive to oiling and life stages where vulnerability may increase.

SHORELINE HABITAT MAPPING

The shoreline and classifications were fully updated using the following sources and methods. The shoreline and intertidal habitats were delineated using a mapped sequence of Light Detection and Ranging (LiDAR) and high resolution digital orthophotography datasets. The LiDAR data was acquired in 2014 as part of a post-Super Storm Sandy contract for the United States Geological Survey (USGS). This task required the LiDAR data be collected at a nominal pulse spacing (NPS) of 0.7 meters. The window for tidally impacted waters within the area of interest was mean low water (MLW) +/- 2 hours exclusive of neap tide. Seven (7) missions were flown between April 3, 2014 and April 21, 2014, as part of the USGS project.

The base shoreline was compiled at Mean Higher High Water (MHHW) first by LiDAR extraction, then refined within a Geographic Information System (GIS) utilizing high resolution digital orthophotos. After the shoreline was delineated, digital orthoimagery from various sources was used to classify shoreline segments using the standardized ESI rankings (see below). Imagery from the New York State Office of Information Technology Service (2013 and 2011), the New Jersey Office of Information Technology (2013), Connecticut Department of Transportation (2012), as well as various imagery sources for Google Earth and Bing Maps (2014) was used during the classification phase.

Shoreline features of 10 meters (m) or greater in length were classified. In addition, wetland polygon datasets originally created by the United States Fish and Wildlife Service National Wetland Inventory (NWI) were modified and updated to be used in conjunction with the ESI shoreline. The data was visually reviewed and classified against the aerial imagery and adjusted where necessary to allow for proper classification.

The ESI shoreline classification and ranking scale has been used to assess vulnerability of shoreline to spilled oil since the mid-1970s. Rankings range from 1 – least vulnerable, to 10 –

most vulnerable, with a variety of qualifiers unique to the geographic region. The scale incorporates the following considerations:

1) Shoreline type (substrate, grain size, tidal elevation, origin)
2) Exposure to wave and tidal energy
3) Biological productivity and sensitivity
4) Ease of cleanup

Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury and ease of cleanup of spilled oil are also important factors in the ESI shoreline ranking. Thus, shorelines exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered shorelines with associated high biological activity have the highest ranking. The shoreline types delineated for Long Island Sound presented in order of increasing sensitivity to spilled oil, are listed below.

1A) Exposed Rocky Shores
1B) Exposed, Solid Man-made Structures
2A) Exposed, Wave-cut Platforms in Clay
2B) Exposed Scarps and Steep Slopes in Mud
3A) Fine- to Medium-grained Sand Beaches
3B) Scarps and Steep Slopes in Sand
4) Coarse-grained Sand Beaches
5) Mixed Sand and Gravel Beaches
6A) Gravel Beaches
6B) Riprap
7) Exposed Tidal Flats
8A) Sheltered Rocky Shores
8B) Sheltered, Solid Man-made Structures
8C) Sheltered Riprap
9A) Sheltered Tidal Flats
9B) Vegetated Low Banks
10A) Salt- and Brackish-water Marshes
10B) Freshwater Marshes
10C) Swamps
10D) Scrub-Shrub Wetlands

For each of these shoreline types, a photo and description of the physical attributes, predicted oil behavior, and response considerations is included at the end of the introductory pages.

SENSITIVE BIOLOGICAL RESOURCES

Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource managers from the following institutions:

- Atlantic States Marine Fisheries Commission
- Coastal Research and Education Society of Long Island
- Connecticut Department of Agriculture
- Connecticut Department of Energy and Environmental Protection
- Connecticut Natural Diversity Database
- Cornell University Cooperative Extension Service
- Long Island Sound Study
- Manomet Center for Conservation Sciences
- National Audubon Society
- National Oceanic and Atmospheric Administration
- New York State Department of Environmental Conservation
- New York State Department of State
- New York State Natural Heritage Program
- Peconic Bay Estuary Program
- Riverhead Foundation for Marine Research and Preservation
- Saltmarsh Habitat and Avian Research Program
- The Maritime Aquarium at Norwalk
- The Nature Conservancy
- United States Fish and Wildlife Service
- United States Geological Survey

The above institutions provided the majority of the biological information included in the atlas. A full list of data contributors can be found in the sources table and also in the metadata accompanying the digital atlas product.

The biological resources shown in this atlas were extracted from the ESI GIS data compiled for this region. The extracted features were mapped at scale of 1:50,000 and appear on the maps referenced by a combination of number and letter. For example, Map 1B will show the biological features in conjunction with the ESI shoreline. The biology on these maps is “layered” in the PDF files. This allows the user to turn off the biological features to more clearly see the underlying shoreline and habitat polygons.

Mapping Qualifiers and Guidelines

Element	Qualifier	Guidelines
All	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the area of interest.
All	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features.
All	Vulnerable Occurrence	Intended for records of rare species with discrete occurrences, where the conservation value of the species should be highlighted for spill response.
Birds, Herpetofauna, Marine Mammals, Fish, Invertebrates	Migration	Used when an area is a known staging area of high importance to the species for birds; and/or areas are potential or known migration corridors in the marine environment for other elements.
Birds, Herpetofauna	Nesting	Applicable to all nesting birds and herps. Should represent known nesting areas rather than all potential nesting habitat.
Birds	Rafting	Similar to 'Concentration Area' qualifier, but specific to large on-water concentrations.
Birds	Wintering	Designates known areas of importance to wintering birds.
Benthic	High Ecological Value	For use in areas where benthic organisms provide high ecological services, high quality habitat, or known areas of high biodiversity.
Fish and Invertebrates	Harvest Area	May be used as a qualifier for distributions in special cases, where the general distribution was not mapped and/or widespread and the distribution of the harvested resources is used to depict important areas.
Fish and Invertebrates	Nursery Area	Refers to specific areas of known importance to early life history stages (e.g., larvae, juveniles) of a species.
Fish and Invertebrates	Spawning Area	Areas where animals are spawning. Spawning is loosely defined as the release of gametes or eggs from the adult.

MARINE MAMMALS

Marine mammals depicted in this atlas include seals, dolphins and whales. The most common seal found in the atlas area is the harbor seal. Harbor seals have established several regular haul out sites in Long Island. Harbor seals generally start showing up in Long Island Sound around late August in small numbers and then in larger numbers later in the fall and will stay through the winter months and into March. By April most will have left the area but a few will still be present. The harbor seal population is noted to have been steadily increasing in recent years. In Long Island Sound, harbor seals typically haul out on the sheltered parts of offshore rocky ledges and boulders during low tide. Gray seals are also common but not nearly as abundant as the harbor seal, except on Little Gull Island where they have established a year round haul out. Gray seals may be expected to be sighted in low numbers wherever harbor seals haul out and may be present year round. Other seal species that may occasionally show up in Long Island but not mapped here are harp and hooded seals. When they are sighted, it is usually among the many harbor seals at seal haul out sites.

Small numbers of bottlenose dolphin sightings are possible throughout Long Island Sound from May through September. Large pods of dolphins (75 – 150 individuals) enter the sound on occasion, most likely attracted by large schools of bait fish. These larger occurrences are unpredictable and usually occur many years apart (2015 and 2009 most recently). Although harbor porpoises are known to frequent the waters of Long Island Sound, there are no existing surveys and very little is known about their actual numbers or distribution. The common dolphin, saddle-backed dolphin and Atlantic white sided dolphin are not considered common in Long Island Sound, although they may be occasionally sighted.

The only regular sightings of whales occur in the far eastern part of Long Island Sound, where humpback and right whales are known to occur with some frequency. For the most part whale occurrences are uncommon and unpredictable in rest of the sound. Humpback, beluga, minke, long finned pilot and finback whales all have been occasionally spotted, separated by many years at a time, and there is no predictability for when they might enter the sound.

Also, it should be noted that a Florida Manatee will occasionally (once every several years) stray into Long Island Sound during the warm summer months.

Expert contacts for Long Island Sound marine mammals* are:

Name	Agency	Location	Phone	Species
Arthur Kopelman	Coastal Research and Education Society of Long Island	West Sayville, NY	631-319-6003	Marine mammals
Robert DiGiovanni	Riverhead Foundation for Marine Research	Riverhead, NY	631-369-9840	Marine mammals
Joseph Schnierlein	The Maritime Aquarium at Norwalk	Norwalk, CT	203-852-0700	Marine mammals
Janelle Schuh	Mystic Aquarium	Mystic, CT	860-572-5955	Marine mammals

***Note: this list is not meant to represent all marine mammal experts for the region.**

Major Data Sources Used: Marine Mammals

Riverhead Foundation for Marine Research and Preservation. 2015. Seal haulout sites around Long Island, NY and CT. Riverhead, NY, PDF map.

Coastal Research and Education Society of Long Island, Dr. Arthur Kopelman. 2015. Whales, dolphins and seals of Long Island Sound. West Sayville, NY, expert knowledge.

The Maritime Aquarium at Norwalk. 2016. Seal cruise count data. Norwalk, CT, spreadsheet.

BIRDS

Birds displayed in this atlas include: alcids, diving birds, gulls, terns, passerines, pelagic birds, raptors, shorebirds, wading birds, and waterfowl. Species that are federally and state listed, and those that are considered at risk due to oil spills or other potential disasters are included. Particular focus was paid to identifying "special use areas" such as migratory or wintering areas, nesting sites, concentration areas, roosting areas, and vulnerable occurrences.

Colonial waterbirds, shorebirds, and wading birds – Data for this species group came primarily from US Fish and Wildlife Service, New York Natural Heritage Program, Saltmarsh Habitat and Avian Research Program, Connecticut Natural Diversity Database, International Shorebird Survey, and New York State Significant Coastal Fish and Wildlife Habitats.

Waterfowl – Data for these species came primarily from US Fish and Wildlife Service, Mid-Winter Waterfowl Survey, the US Geological Survey Compendium of Avian Occurrence Information, and New York Significant Coastal Fish and Wildlife Habitats.

Seabirds – Data on the distribution of Seabirds was primarily provided by the US Geological Survey Compendium of Avian Occurrence Information.

Expert contacts for Long Island Sound birds* are:

Name	Agency	Location	Phone	Species
Patrick Comins	Connecticut Audubon Society	Southbury, CT	203-405-9115	CT birds
Karen Zyko	CT Natural Diversity Database	Hartford, CT	860-424-3585	CT birds
Nick Conrad	NY Natural Heritage Program	Albany, NY	518-402-8944	NY birds
Chris Elphick	University of Connecticut	Storrs, CT	860-486-4547	Saltmarsh species

***Note: this list is not meant to represent all bird experts for the region.**

Major Data Sources Used: Birds

CT Department of Energy and Environmental Protection. 2015. CT Natural Diversity Database, vector digital data.

NYS Natural Heritage Program. 2015. NYS NHP Biodiversity Database, vector digital data.

Connecticut Audubon Society. 2014. Expert input.

Manomet Center for Conservation Sciences. 2014. International Shorebird Survey. Vector digital data.

Saltmarsh Habitat and Avian Research Program. 2014. Vector digital data.

New York Department of State. 2014. Significant Fish and Coastal Wildlife Habitats. Vector digital data.

U.S. Fish and Wildlife Service. 2014. Mid-Winter Waterfowl Survey. Vector digital Data.

U.S. Geological Survey. 2014. Compendium of Avian Occurrence Information for the Continental Shelf Waters Along the Atlantic Coast of the United States. Vector digital data.

New York State Department of Environmental Conservation. 2014. Long Island Coastal Waterbird Survey. Vector digital data.

HERPETOFAUNA

Reptiles - All of the sea turtles in the Long Island Sound atlas area are federally protected threatened/endangered species. Juvenile loggerhead, Kemp's ridley, and green sea turtles regularly migrate to the waters of Long Island Sound for foraging during the warmer months from late June through late fall. Leatherback sea turtles only make use of the far eastern end of the Long Island Sound atlas area (east of Fishers Island). Sea turtles are not known to nest in any of the Long Island Sound area.

Terrestrial turtles that are state species of special concern that were mapped for this atlas include the diamondback terrapin, spotted turtle, Eastern box turtle, and wood turtle. In addition, the Eastern mud turtle is a state endangered species in New York. The diamondback terrapin has also been identified as a species of greatest conservation need in the Northeast United States. The Eastern hog-nosed snake is a state species of concern in both New York and Connecticut. The common wormsnake is a species of concern in New York only.

Amphibians - The Southern leopard frog, Northern leopard frog, Eastern spadefoot toad, marbled salamander, and blue-spotted salamander are all state species of concern in one or both states. The tiger salamander is a state endangered species in the New York portion of the study area.

Expert contacts for Long Island Sound reptiles and amphibians* are:

Name	Agency	Location	Phone	Species
Arthur Kopelman	Coastal Research and Education Society of Long Island	West Sayville, NY	631-319-6003	Sea turtles
Robert DiGiovanni	Riverhead Foundation for Marine Research	Riverhead, NY	631-369-9840	Sea turtles
Janelle Schuh	Mystic Aquarium	Mystic, CT	860-572-5955	Sea turtles
Karen Zyko	CT Natural Diversity Database	Hartford, CT	860-424-3585	Reptiles and amphibians
Nick Conrad	NY Natural Heritage Program	Albany, NY	518-402-8944	Reptiles and amphibians
Russell Burke	Hofstra University	Hempstead, NY	516-463-5521	Terrapins
Mike Bottini	Long Island Nature Organization	Upton, NY	631-267-5228	Spotted Turtles

***Note: this list is not meant to represent all reptile/amphibian experts for the region.**

Major Data Sources Used: Reptiles and Amphibians

CT Department of Energy and Environmental Protection. 2015. CT Natural Diversity Database. Hartford, CT, vector digital data.

NYS Natural Heritage Program. 2015. NYS NHP Biodiversity Database. Albany, NY, vector digital data.

NYS Department of State. 2013. Significant Coastal Fish and Wildlife Habitats of New York. Albany, NY, vector digital data.

FISH

Species selected - Eighty nine species of fish are represented in this atlas, but this is not intended to include all species present within the study area. Fish species depicted in this atlas include select marine, estuarine, diadromous, and freshwater species. Species of conservation interest, ecological importance, or commercial or recreational importance are emphasized. In most cases, terms to describe species abundance include the commonly used terms of rare, common, and abundant.

Spatial framework – The central features of the study area include Long Island Sound, one of the Nation's largest estuaries, and adjacent waters. Fish polygons were created based on the natural geography of the estuarine, tidal, and fresh waters of the study area, combined with species information from published reports, field survey data (e.g. trawl and seine), and expert knowledge. The HYDROLOGY layer in this ESI digital atlas, derived from recent aerial imagery, defined the shoreline of Long Island Sound and tidal tributaries, generally up to the extent of tidal influence and/or the first barrier upstream. Rather than adopt a grid cell spatial framework, we divided the estuarine seascape of the study area into commonly used units including Eastern, Western, and Central Basins of Long Island Sound; Western and Eastern Narrows; Fishers Island Sound; Gardiners Bay; Peconic Bay; and Block Island Sound. Coastal embayments were clipped from these mainstem areas and considered as distinct estuarine units along the New York and Connecticut shores. Major tributaries such as the Connecticut River were subdivided to reflect the salinity gradient within tidal areas, and to separate tidal from non-tidal waters upstream. Some areas were delineated based on known concentrations of high-priority species using GIS data provided by regional experts (CT DEEP 2015a,b,c,d; NYS NHP 2015). Additional non-tidal fresh water bodies (i.e. lakes and streams) were adopted from the HYDROLOGY layer in cases where information was available to attribute these inland polygons with fish species (Jacobs and O'Donnell 2009, 2012; NYS DEC 2015 a, b). In some cases, stream polygons were developed by buffering a stream line feature to create a 10m-wide polygon. In all, the distributions of 89 fish species within the study area are represented by 614 polygons. A total of 75 sources were cited to develop the FISH layer.

Atlantic and shortnose sturgeon – Atlantic and shortnose sturgeon (both Federal and State Endangered) were mapped to areas where they are known to occur in rivers and estuarine waters of the study area, primarily in Connecticut River (SSSRT 2010) and certain estuarine areas. Areas where Atlantic sturgeon are known to congregate in Long Island Sound are based on GIS data provided by CT DEEP and NYS DEC staff, published literature, and expert knowledge (CT DEEP 2015c, Anderson et al. 2015, Savoy and Pacileo 2003, Waldman et al. 2013).

Alewife, blueback herring, American shad, and other diadromous species - Alewife and blueback herring (collectively known as river herring), and American shad are anadromous fish that once supported large commercial and recreational fisheries on the Atlantic Coast, but have become depleted due to barriers to migration, habitat loss, and overfishing. Spawning runs were mapped using published information from NYS DEC and CT DEEP as well as knowledge from regional experts (Benway 2015, CRASC 2015; Greene et al. 2009; Hattala et al. 2011; Jacobs and O'Donnell 2009, 2012; Savoy et al. 2004; Young 2013). River herring runs were mapped to the first known barrier such as a dam or impassable gradient, unless a fish passage facility is known to exist. If the run went beyond the water features in the ESI HYDROLOGY layer, then it was mapped using stream line features and buffered to create a 10m-wide polygon feature. These areas are designated with "Spawning Area" and "Nursery Area" mapping qualifiers to emphasize these important life history stages. Tidal rivers and embayments that are important to early life stages of river herring and were included as nursery areas. River herring pre-spawning movements in certain rivers were mapped as migration areas. Timing of migration and spawning was based on published life history summaries. Other diadromous (migratory) species in the study area include American eel, striped bass, sea lamprey, hickory shad, and sea-run brown trout. These species were mapped using published information from CT DEEP, NYS DEC, and other sources.

Long Island Sound mainstem areas –Major sources of information for fish in Long Island Sound include the published reports from the Long Island Sound Trawl Survey, conducted by Connecticut's Marine Fisheries Division in Old Lyme, CT (Gotschall and Pacileo 2015, Gotschall et al. 2000). A recent study by

The Nature Conservancy is based on these trawl survey data, and reports results on a per-species basis (Anderson et al. 2015). These sources were used to attribute fish species to the spatial framework polygons for Long Island Sound.

Coastal embayments - For the coastal embayments on the New York shore, NYSDEC staff provided Western Long Island (WLI) beach seine data for 1984 – 2013 that was used to develop species lists and concentrations for individual bays (NYS DEC 2014b). The WLI surveys are conducted from May to October and sampling stations are fixed locations based on accessibility. Bays surveyed include Little Neck Bay, Manhassett Bay, Hempstead Harbor, Oyster Bay, Stony Brook Harbor, Port Jefferson Harbor, and Peconic Bay. Trawl survey data were also provided for Peconic Bay (NYS DEC 2014a), and results were used to identify fishes and invertebrates common to that estuary. New York Department of State has designated certain areas as "Significant Coastal Fish and Wildlife Habitat", and published assessments with information on fish, invertebrate, and wildlife species present (NYDS 2015). These narratives were used to supplement fish survey data for many areas, especially coastal embayments and shoals. For the coastal embayments and tidal tributaries on the Connecticut Shore, results of the Connecticut Beach Seine Surveys, Inshore Surveys, and other site-specific sources were applied (Molnar and Howell 2015, Howell 2015, Benway 2015).

Freshwater fishes in New York - Two state-listed freshwater fish species, the banded sunfish (NY state threatened), and swamp darter (NY state threatened), occur in the portions of the Peconic River system on Long Island and was mapped using New York State Natural Heritage Program data (NYS NHP 2015). Other fish species in freshwater streams, lakes, and ponds of Long Island were mapped using information published by New York Dept. Environmental Conservation (NYS DEC 2015 a, b), and also in the Bronx River (Rachlin et al. 2007, Bronx River Alliance 2015). Seasonality and was described using published summaries of life history parameters.

Freshwater fishes in Connecticut - State freshwater fish species within the study area that are either listed or special concern in Connecticut include the banded sunfish (CT state special concern), blueback herring (CT state special concern), American brook lamprey (CT state endangered), bridle shiner (CT state special concern), and rainbow smelt (CT state endangered). These species were mainly mapped using GIS data from Connecticut's Natural Heritage Program (CT DEEP 2015), supplemented with other sources (CT DEEP 2015a; Jacobs and O'Donnell 2009, 2012). Other fish species in freshwater streams, lakes, and ponds of Connecticut were mapped using information published by Connecticut's Dept. of Environmental Conservation and other sources (CT DEEP 2015e, Jacobs and O'Donnell 2009, 2012; Jacobs et al. 2004). Seasonality was described using published summaries of life history parameters.

Expert contacts for Long Island Sound fish* are:

Name	Agency	Location	Phone	Species
Penny Howell	CT Dept. Energy & Environmental Protection	Old Lyme, CT	860-447-4307	CT marine and estuarine fish
Deb Pacileo	CT Dept. Energy & Environmental Protection	Old Lyme, CT	860-447-4312	CT marine and estuarine fish
Karen Zyko	CT Natural Diversity Database	Hartford, CT	860-424-3585	CT marine and estuarine fish
Nick Conrad	NY Natural Heritage Program	Albany, NY	518-402-8944	NY marine and estuarine fish
Eileen O'Donnel	CT Dept. Energy & Environmental Protection	Hartford, CT	860-424-4177	CT freshwater and anadromous fish
Kim McKown	NY State Dept. Environmental Conservation	East Setauket, NY	631-444-0454	NY marine and estuarine fish
Byron Young	NY State Dept. Environmental Conservation (retired)	East Quogue, NY	631-294-9612	NY anadromous fish
John Maniscalco	NY State Dept. Environmental Conservation	East Setauket, NY	631-444-0437	NY marine and estuarine fish

***Note: this list is not meant to represent all fish experts for the region.**

Major Data Sources Used: Fish

Anderson, M., N. Frohling, K. Ruddock, S. Lloyd, and N. Maher. 2015. The Long Island Sound Ecological Assessment. The Nature Conservancy, New Haven CT. 89 pp. + appendices and digital data sets.

Benway, J.M. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 7: American shad monitoring and inshore seine surveys. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 22 pp.

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CRASC. 2015. River Herring Restoration Status and Plans in the Connecticut River Basin. Connecticut River Atlantic Salmon Commission. U.S. Fish and Wildlife Service, Connecticut River Coordinator's Office, Sunderland MA. Technical Subcommittee for River Herring. February 10, 2015.

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Connecticut Department of Energy and Environmental Protection. 2015b. Marine Recreational Fishing Areas in Connecticut. GIS Data. Provided by D. Pacileo, Old Lyme, CT.

Connecticut Department of Energy and Environmental Protection. 2015c. Sturgeon Gear Restriction Areas. GIS Data. Provided by D. Pacileo, Old Lyme CT.

Connecticut Department of Energy and Environmental Protection. 2015d. Connecticut Natural Diversity Database, vector digital data.

Connecticut Department of Energy and Environmental Protection. 2015e. 2015 Connecticut Angler's Guide – Inland and Marine Fishing. 60 pp. www.ct.gov/deep/fishing

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Gotschall, K.F., and D. Pacileo. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 5: Marine Finfish Survey. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 142 pp.

Gotschall, K.F., M.W. Johnson, and D.G. Simpson. 2000. The Distribution and Size Composition of Finfish, American Lobster, and Long-Finned Squid in Long Island Sound Based on the Connecticut Fisheries Division Bottom Trawl Survey, 1984–1994. NOAA Technical Report NMFS 148. 195 pp.

Greene, K.E., J.L. Zimmerman, R.W. Laney, and J.C. Thomas-Blate. 2009. Atlantic coast diadromous fish habitat: A review of utilization, threats, recommendations for conservation, and research needs. ASMFC Habitat Management Series No. 9. Report + CD-ROM with digital GIS data. Atlantic States Marine Fisheries Commission, Washington, DC.

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Howell, P., and D. Molnar. 2004. Stock Assessment of White Perch in the Lower Connecticut River. Pp. 379-390 in Jacobson, P.M. et al (eds). The Connecticut River ecological study (1965-1973) revisited: ecology of the lower Connecticut River 1973-2003. Monograph 9, American Fisheries Society, Bethesda MD.

Howell, P.T. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 9: Volunteer estuarine fisheries database. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 14 pp.

Jacobs, R.P., and E.B. O'Donnell. 2012. A Fisheries Guide to Lakes and Ponds of Connecticut, Including the Connecticut River and its Coves. Bulletin 35, Connecticut Dept. Environmental Protection, Hartford CT. 354 pp.

Jacobs, R.P., and E.B. O'Donnell. 2009. A Pictorial Guide to Freshwater Fishes of Connecticut. Connecticut Dept. Environmental Protection, Bulletin 42. Hartford CT. 242 pp.

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Malek, A., M. LaFrance, and J. King. 2010. Fisheries Ecology in Rhode Island and Block Island Sounds for the Rhode Island Special Area Management Plan. University of Rhode Island, Narragansett RI. Technical Report #14. November 30, 2010. 57 pp.

Molnar, D.R., and P.T. Howell. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 8: Estuarine seine survey. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 28 pp.

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NYS DEC. 2014a. Peconic Bay Trawl Survey. Microsoft Access digital database, provided by J. Maniscalco, New York Dept. Environmental Conservation, Marine Fisheries Division, East Setauket, NY.

NYS DEC. 2014b. Western Long Island Sound Beach Seine Survey. Microsoft Access digital database, provided by J. Maniscalco, New York Dept. Environmental Conservation, Marine Fisheries Division, East Setauket, NY.

NYS DEC. 2015a. Fish Atlas Maps of New York. New York State Dept. Environmental Conservation. http://www.dec.ny.gov/animals/84622.html

NYS DEC. 2015b. New York - Long Island Public Fishing Lakes and Ponds. GIS Data. Albany NY.

NYS Natural Heritage Program. 2015. NYS NHP Biodiversity Database, vector digital data.

Rachlin, J.W., B.E. Warkentine, and A. Pappantoniou. 2007. An Evaluation of the Ichthyofauna of the Bronx River, a Resilient Urban Waterway. Laboratory for Marine and Estuarine Research (LaMER), Lehman College, Bronx NY. Northeastern Naturalist 14(4): 531-544

Savoy, T., and D. Pacileo. 2003. Movements and Important Habitats of Subadult Atlantic Sturgeon in Connecticut Waters. Transactions of the American Fisheries Society 132(1):1-8.

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Socrates, J.B. 2010. A Study of Striped Bass in the Marine District of New York State. New York State Dept. Environmental Conservation, Bureau of Marine Resources, Albany NY. May 2010. 82 pp.

SSSRT. 2010. A Biological Assessment of shortnose sturgeon (Acipenser brevirostrum). Prep. By Shortnose Sturgeon Status Review Team. Report to National Marine Fisheries Service, Northeast Regional Office. November 1, 2010. 417 pp.

Stone, S.L., T.A. Lowery, J.D. Field, S.H. Jury, D.M. Nelson, M.E. Monaco, C.D. Williams, and L.A. Andreasen. 1994. Distribution and abundance of fishes and invertebrates in Mid-Atlantic estuaries. ELMR Rep. No. 12. NOAA/NOS SEA Division, Silver Spring MD. 280 p.

Waldman, J.R., T. King, T. Savoy, L. Maceda, C. Grunwald, I. Wirgin. 2013. Stock Origins of Subadult and Adult Atlantic Sturgeon, Acipenser oxyrinchus, in a Non-natal Estuary, Long Island Sound. Estuaries and Coasts 36: 257-267.

Young, B. 2013. Alewife Monitoring Report for the Peconic River and Alewife Creek – 2013. Peconic River Fish Restoration Commission. 18 pp.

INVERTEBRATES

Thirty-three species of invertebrates are represented in this atlas, and this is not intended to include all species present within the study area. Species were selected based on conservation interest (i.e. endangered, threatened, or special concern), ecological importance, or commercial or recreational importance. Mollusk species include nine bivalves, one cephalopod (longfin squid), and one gastropod (channeled whelk). Ten insect species are included, most of which are considered rare, threatened, or endangered. Other arthropod species include seven decapod crabs, three shrimps, horseshoe crab, and American lobster. In all, a total of 698 polygons are used to represent the distributions of the 33 selected invertebrate species. A total of 29 sources were cited to develop the invertebrate data set.

Distributions of rare, endangered, or threatened invertebrate species (e.g., coastal barrens buckmoth, scarlet bluet) were represented by developing polygons based on information provided state Natural Heritage Programs in both Connecticut and New York (CT DEEP 2015, NYS NHP 2015). Locations of horseshoe crab spawning areas were identified from published reports and digital GIS data provided by regional experts (Cornell Univ. 2016, Molloy Coll. 2015, Sacred Heart Univ. 2016).

Bivalve shellfish species in inshore waters include blue and ribbed mussels, bay scallop, eastern oysters, quahog (hard clam), softshell clam, and Atlantic surf clam. In New York portions of Long Island Sound and embayments, these species were largely mapped based on landings data and harvest zone polygons provided by NYS Department of Conservation (NYS DEC 2013). Bivalve shellfish in areas along the

Connecticut shore were largely mapped using polygon representations of shellfish beds provided by CT Department of Agriculture – Bureau of Aquaculture (CT Dept. Ag. 2016).

In mainstem areas of Long Island Sound, information on invertebrate species was provided by published reports from the Long Island Sound Trawl Survey, conducted by Connecticut's Marine Fisheries Division in Old Lyme, CT (Gotschall and Pacileo 2015). A recent study by The Nature Conservancy is based on these trawl survey data, and presents results on a per-species basis (Anderson et al. 2015). Invertebrate species featured in these sources include American lobster, longfin squid, horseshoe crab, and others.

In coastal embayments of the New York shore, Western Long Island (WLI) beach seine survey data (provided by NYSDEC staff) reported catch of invertebrate species as well as fishes (NYS DEC 2014b). Areas surveyed include Little Neck Bay, Manhassett Bay, Hempstead Harbor, Oyster Bay, Stony Brook Harbor, Port Jefferson Harbor, and Peconic Bay. Beach seine methods are especially effective for inshore species including blue crab, green crab, horseshoe crab, and spider crabs. Trawl survey data were also provided for Peconic Bay, with lady crab, spider crabs, blue crab, mantis shrimp, horseshoe crab, and longfin squid prominent in the catch (NYS DEC 2014a). New York Department of State's assessments of "Significant Coastal Fish and Wildlife Habitat" provided additional information on invertebrate species present in specific areas (NYDS 2015). For the coastal embayments and tidal tributaries on the Connecticut shore, results of the Connecticut Beach Seine Surveys, Inshore Surveys, and other site-specific surveys were applied (Howell 2015, Molnar and Howell 2015, Fell et al. 2003).

Expert contacts for Long Island Sound invertebrates* are:

Name	**Agency**	**Location**	**Phone**	**Species**
David Carey	CT Dept. of Agriculture, Bureau of Aquaculture	Milford, CT	203-874-0696	CT Shellfish
Jennifer O'Dwyer	NY Department of Environmental Conservation	East Setauket, NY	631-444-0489	NY Shellfish
Kim McKown	NY State Dept. Environmental Conservation	East Setauket, NY	631-444-0454	NY Estuarine Invertebrates
John Tanacredi	Malloy College/CERCOM	Rockville Centre, NY	516-323-3591	NY Horseshoe Crabs
Matthew Sclafani	Cornell University Cooperative Extension	Riverhead, NY	631-727-7850	NY Horseshoe Crabs
Jennifer Mattei	Sacred Heart University	Fairfield, CT	203-365-7577	CT Horseshoe Crabs
Karen Zyko	CT Natural Diversity Database	Hartford, CT	860-424-3585	CT Rare Insects
Nick Conrad	NY Natural Heritage Program	Albany, NY	518-402-8944	NY Rare Insects

***Note: this list is not meant to represent all invertebrate experts for the region.**

Major Data Sources Used: Invertebrates

Anderson, M., N. Frohling, K. Ruddock, S. Lloyd, and N. Maher. 2015. The Long Island Sound Ecological Assessment. The Nature Conservancy, New Haven CT. 89 pp. + appendices and digital data sets.

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Connecticut Dept. of Agriculture, Bureau of Aquaculture. 2016. Connecticut shellfish beds, vector digital data.

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Gotschall, K.F., and D. Pacileo. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 5: Marine Finfish Survey. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 142 pp.

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Howell, P.T. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 9: Volunteer estuarine fisheries database. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 14 pp.

Malek, A., M. LaFrance, and J. King. 2010. Fisheries Ecology in Rhode Island and Block Island Sounds for the Rhode Island Special Area Management Plan. University of Rhode Island, Narragansett RI. Technical Report #14. November 30, 2010. 57 pp.

Malloy College/CERCOM. 2015. Horseshoe crab spawning areas in Long Island, vector digital data.

Molnar, D.R., and P.T. Howell. 2015. A Study of Marine Recreational Fisheries in Connecticut. Job 8: Estuarine seine survey. Connecticut Dept. Energy and Environmental Protection, Bureau of Natural Resources, Marine Fisheries Division, Hartford CT. Federal Aid in Sport Fish Restoration, F-54-33 Annual Performance Report, March 1, 2013 – February 28,2014. 28 pp.

New York Department of State. 2015. Significant Coastal Fish and Wildlife Habitats – Long Island Sound and Long Island. New York State, Department of State, Office of Planning and Development. http://www.dos.ny.gov/opd/programs/consistency/scfwhabitats.html#li

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New York State Department of Environmental Conservation. 2014b. Western Long Island Sound Beach Seine Survey. Microsoft Access digital database, provided by J. Maniscalco, New York Dept. Environmental Conservation, Marine Fisheries Division, East Setauket, NY.

New York State Department of Environmental Conservation. 2013. New York shellfish harvest areas, vector digital data.

New York State Natural Heritage Program. 2015. New York State Natural Heritage Program, Biodiversity Database, vector digital data.

Sacred Heart University. 2016. Project Limulus juvenile horseshoe crab spawning density, document.

Stone, S.L., T.A. Lowery, J.D. Field, S.H. Jury, D.M. Nelson, M.E. Monaco, C.D. Williams, and L.A. Andreasen. 1994. Distribution and abundance of fishes and invertebrates in Mid-Atlantic estuaries. ELMR Rep. No. 12. NOAA/NOS SEA Division, Silver Spring MD. 280 p.

HABITATS

Plant species that are threatened, endangered or species of concern were mapped in this atlas. Submerged aquatic vegetation was mapped under the Benthic section. The plant data included in the atlas is based primarily on digital data obtained from the state natural heritage programs.

Expert contacts for Long Island Sound habitats* are:

Name	Agency	Location	Phone	Species
Karen Zyko	CT Natural Diversity Program	Hartford, CT	860-424-3585	CT Plants
Nick Conrad	NY Natural Heritage Program	Albany, NY	518-402-8944	NY Plants

***Note: this list is not meant to represent all rare plant experts for the region.**

Major Data Sources Used: Habitats

CT Department of Energy and Environmental Protection. 2015. CT Natural Diversity Database, vector digital data.

NYS Natural Heritage Program. 2015. NYS NHP Biodiversity Database, vector digital data.

BENTHIC

Benthic plant species that are threatened, endangered or species of concern were mapped in this atlas.

Expert contacts for Long Island Sound benthic organisms* are:

Name	Agency	Location	Phone	Species
Ralph Tiner	US Fish and Wildlife Service Northeastern Region	Hadley, MA	413-253-8200	Eelgrass
Alison Branco	Peconic Estuary Program	Yaphank, NY	631-852-5805	Eelgrass
Karen Zyko	CT Natural Diversity Program	Hartford, CT	860-424-3585	CT rare benthic organisms
Nick Conrad	NY Natural Heritage Program	Albany, NY	518-402-8944	NY rare benthic organisms

***Note: this list is not meant to represent all benthic organism experts for the region.**

Major Data Sources Used: Benthic

CT Department of Energy and Environmental Protection. 2015. CT Natural Diversity Database, vector digital data.
NYS Natural Heritage Program. 2015. NYS NHP Biodiversity Database, vector digital data.
Peconic Estuary Program. 2014. Peconic Eelgrass Mapping 2014 Groundtruthed Final, vector digital data.

TERRESTRIAL MAMMALS

With regard to oil or chemical spills, the most noteworthy terrestrial mammals found in the Long Island Sound study area are the semi-aquatic mammals, which include the northern river otter, muskrat, mink and beaver. There are notable differences in populations of these mammals between the Connecticut coastal area and Long Island in New York.

The northern river otter (*Lontra Canadensis*) had previously been extirpated from Long Island, but recently has re-established a breeding population. The area from Oyster Bay east through the Nissequogue River have definite established populations and this area has been mapped as a vulnerable occurrence. Additionally, experts believe recolonization is actively occurring in the entire Long Island portion of the study area, so all bays, coves, marshes, tidal creeks and adjacent freshwater bodies should be considered to potentially have resident river otters, especially eastward all the way toward Orient Point. In Connecticut, the River Otter population is considered healthy and they should be considered as potentially present in all coastal areas where there are riverine, tidal creek, marsh and nearshore freshwater pond environments.

In both Connecticut and New York, the muskrat is considered ubiquitous in all nearshore aquatic environments including fresh and estuarine marshes, riverine environments and freshwater ponds and upper reaches of salt ponds. Because of their ubiquitous nature, the muskrat is not mapped in this atlas, however, they should be considered as potentially present in all of the above mentioned environments.

Along the Connecticut coastal area, mink are less common than the muskrat, but may be present anywhere where muskrat are found. On Long Island they are also present wherever muskrat may be found, but very uncommon. Mink are not mapped in this atlas due to lack of reliable distribution information.

The beaver while widely distributed in Connecticut, has been extirpated from Long Island. Reliable distribution data for the Connecticut population is not available and therefore beaver is not mapped here. Beavers however should be considered possibly present in the riparian zone anywhere in the Connecticut portion of the study area.

Also noteworthy is the least shrew (*Cryptotis parva*), a state endangered small mammal found only in a small part of the Connecticut coastal area. The New England Cottontail is a US Fish and Wildlife Service candidate listing species. The red bat, silver-haired bat, and hoary bat all are a species of special concern in Connecticut.

Expert contacts for Long Island Sound terrestrial mammals* are:

Name	Agency	Location	Phone	Species
Karen Zyko	CT Natural Diversity Database	Hartford, CT	860-424-3585	CT Terrestrial Mammals
Mike Bottini	Long Island Nature Organization	Upton, NY	631-267-5228	NY Terrestrial Mammals

***Note: this list is not meant to represent all terrestrial mammal experts for the region.**

Major Data Sources Used: Terrestrial Mammals

CT Department of Energy and Environmental Protection. 2015. CT Natural Diversity Database, vector digital data.

Long Island Nature Organization. 2016. Terrestrial Mammals on Long Island, expert knowledge.

INVASIVE SPECIES

The spread of invasive or non-native species can degrade habitat, increase the potential for crop damage and diseases in humans, livestock and natural resources, reduce biodiversity through competition and limit recreational opportunities. Invasive species often opportunistically spread after disturbance events alter the natural landscape. Oil spill response and clean up often alters the landscape in a manner conducive to the spread of invasive species as crews often mobilize from all over the U.S. in response to large scale spill events. Boats, trailers, waders and clean up equipment can spread invasive species from waterbody to waterbody unless properly cleaned after use. Invasive species that were mapped are shown on the HUMAN-USE RESOURCE maps.

Boats, trailers, waders and other fishing equipment can spread invasive species from waterbody to waterbody unless properly cleaned after use. Regulations prohibit boats from launching from or leaving DEC launch sites without first draining the boat and cleaning the boat, trailer and equipment of visible plant and animal material. Many New York counties, towns and villages also have laws in place that prohibit the transport of aquatic invasive species on boats, trailers and equipment.

Asiatic sand sedge and water chestnut are invasive species of particular concern to land managers in this AOI. Asiatic sand sedge is an exotic plant that threatens beaches and the rare species that rely on them such as seabeach amaranth and piping plover. It was recently discovered in New York on Staten Island and Long Island following Hurricane Sandy and a large effort is underway to eradicate it. Invasive plants can also form dense monocultures that could impede oil spill response. Water chestnut, a freshwater invasive floating aquatic plant, forms thick, impenetrable mats in June and July. Invasive species are not included on the ESI maps as they are not priority resources for protection, but planners and responders should be aware of their presence and coordinate response activities with the appropriate invasive species coordinator and/or land manager to prevent the spread of these species.

New York Invasive Species Information: http://www.nyis.info/index.php

Connecticut Invasive Species Information:
http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323494&deepNav_GID=1641%20

Invasive species that were mapped are shown on the HUMAN-USE RESOURCE maps.

WILDLIFE REHABILITATION

The following contact provides veterinary care and/or retrieval of wildlife adversely affected by an event:

Tri-State Bird Rescue & Research. 170 Possum Hollow Road, Newark, DE 19711. (302)-737-9543.

ACKNOWLEDGMENTS

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The biological and human-use data included on the maps were provided by numerous individuals and agencies. Staff at the New York State Department of Environmental Conservation, New York State Natural Heritage Program, and Audubon of New York contributed a vast amount of information to this effort, including first-hand expertise, publications, maps, and digital data. Other agencies and organizations contributing to data development and review included: New Jersey Department of Environmental Protection, U.S. Fish and Wildlife Service, New York Office of Parks, Recreation and Historic Preservation, and the New York Department of State.

At Quantum Spatial (QSI), numerous scientific, GIS, and graphic staff were involved with different phases of the project. Jennifer Halleran was Project Manager. The biological and human-use data were collected, compiled, and produced into the geodatabase by Jennifer Bohannon, Tim Marcella, and Mark Yoders. Jennifer Bohannon, Tim Marcella, and Mark Yoders prepared the final text documents and metadata.

The basemap, shoreline and wetland habitat collection and classification was completed by Woolpert Inc.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural and human-use resources for the purposes of oil and chemical spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held any contributing agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural and cultural resource agencies, or in place of field surveys. This atlas should not be used for navigation.

The following descriptions are taken from NOAA ESI Metadata records for the following resources:

BIRDS: Birds displayed include: alcids, diving birds, gulls, terns, passerines, pelagic birds, raptors, shorebirds, wading birds, and waterfowl. Species that are federally and state listed, and those that are considered at risk due to oil spills or other potential disasters are included. Particular focus was paid to identifying "special use areas" such as migratory or wintering areas, nesting sites, concentration areas, roosting areas, and vulnerable occurrences.

FISH: Eighty nine species of fish are represented in this atlas, but this is not intended to include all species present within the study area. Fish species depicted in this atlas include select marine, estuarine, diadromous, and freshwater species. Species of conservation interest, ecological importance, or commercial or recreational importance are emphasized. In most cases, terms to describe species abundance include the commonly used terms of rare, common, and abundant.

INVERTEBRATES: Thirty-three species of invertebrates are represented in this atlas, and this is not intended to include all species present within the study area. Species were selected based on conservation interest (i.e. endangered, threatened, or special concern), ecological importance, or commercial or recreational importance. Mollusk species include nine bivalves, one cephalopod (longfin squid), and one gastropod (channeled whelk). Ten insect species are included, most of which are considered rare, threatened, or endangered. Other arthropod species include seven decapod crabs, three shrimps, horseshoe crab, and American lobster.

MARINE MAMMALS: Marine mammals depicted in this atlas include seals, dolphins and whales. The most common seal found in LIS is the harbor seal, which typically hauls out on the sheltered parts of offshore rocky ledges and boulders during low tide. Gray seals are also common but not nearly as abundant as the harbor seal, except on Little Gull Island where they have established a year round haul out. Other seal species that may occasionally show up in Long Island but not mapped here are harp and hooded seals. Small numbers of bottlenose dolphin sightings are possible from May through September. Large pods of dolphins (75 – 150 individuals) enter the sound on occasion, most likely attracted by large schools of bait fish. The common dolphin, saddle-backed dolphin and Atlantic white sided dolphin are not considered common in LIS, although they may be occasionally sighted. The only regular sightings of whales occur in the far eastern part of the Sound, where humpback and The only regular sightings of whales occur in the far eastern part of the Sound, where humpback and right whales are known to occur with some frequency. For the most part whale occurrences are uncommon and unpredictable in rest of LIS.

REPTILES & AMPHIBINAS: All sea turtles in Long Island Sound are federally protected threatened/endangered species. Juvenile loggerhead, Kemp's Ridley, and green sea turtles regularly migrate to LIS for foraging during late June through late fall. Leatherback sea turtles only make use of the far eastern end of LIS (east of Fishers Island). Sea turtles are not known to nest in any of the LIS area. Terrestrial turtles that are state species of special concern that were mapped for this atlas include the diamondback terrapin, spotted turtle, Eastern box turtle, and wood turtle. In addition, the Eastern mud turtle is a state endangered species in New York. The diamondback terrapin has also been identified as a species of greatest conservation need in the Northeast United States. The Eastern hog-nosed snake is a state species of concern in both New York and Connecticut. The common wormsnake is a species of concern in New York only. The Southern leopard frog, Northern leopard frog, Eastern spadefoot toad, marbled salamander, and blue-spotted salamander are all state species of concern in one or both states. The tiger salamander is a state endangered species in the New York portion of the study area.

PLANT HABITATS: Plant species that are threatened, endangered or species of concern were mapped in this atlas. Submerged aquatic vegetation was mapped under the Benthic section. The plant data included in the atlas is based primarily on digital data obtained from the state natural heritage programs.

OBJECTID	ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANK	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM	G_SOURCE	S_SOURCE	BREED
12452	FISH	e_nursery	Black sea bass	Centropristis striata				0	0	GNR	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001126	28300465	28300406	98
12561	FISH	e_nursery	Black sea bass	Centropristis striata				0	0	GNR	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001132	28300465	28300406	98
12440	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	CONCENTRATION AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001126	28300465	28300406	96
12417	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	CONCENTRATION AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001125	28300465	28300405	96
12551	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	CONCENTRATION AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001132	28300465	28300406	96
12450	FISH	diadromous	Hickory shad	Alosa mediocris				0	0	G5	200412	CONCENTRATION AREA	COMMON	Jun-Nov						X	X	X	X	X	X		Jun-Aug	Jun-Aug	Jun-Aug	Jul-Nov	Jun-Nov	283001126	28300465	28300401	120
13815	FISH	diadromous	Hickory shad	Alosa mediocris				0	0	G5	200412	CONCENTRATION AREA	COMMON	Jun-Nov						X	X	X	X	X	X		Jun-Aug	Jun-Aug	Jun-Aug	Jul-Nov	Jun-Nov	283001004	28300465	28300401	120
12459	FISH	e_nursery	Scup	Stenotomus chrysops				0	0	GNR	201503	CONCENTRATION AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001126	28300465	28300406	129
12516	FISH	e_nursery	Scup	Stenotomus chrysops				0	0	GNR	201503	CONCENTRATION AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001128	28300465	28300406	129
12568	FISH	e_nursery	Scup	Stenotomus chrysops				0	0	GNR	201503	CONCENTRATION AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001132	28300465	28300406	129
12425	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001125	28300465	28300405	98
12449	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001126	28300404	28300406	98
12507	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001128	28300465	28300406	98
12559	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001132	28300465	28300406	98
13814	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	CONCENTRATION AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001004	28300465	28300406	98
12451	FISH	e_nursery	Summer flounder	Paralichthys dentatus				0	0		0	CONCENTRATION AREA	ABUNDANT	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001126	28300465	28300406	121
12426	FISH	e_nursery	Summer flounder	Paralichthys dentatus				0	0		0	CONCENTRATION AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001125	28300465	28300405	121
12560	FISH	e_nursery	Summer flounder	Paralichthys dentatus				0	0		0	CONCENTRATION AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001132	28300465	28300406	121
12512	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	CONCENTRATION AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001128	28300465	28300406	124
12421	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001125	28300465	28300405	105
12444	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001126	28300465	28300406	105
12502	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001128	28300465	28300406	105
13810	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001004	28300465	28300406	105
12430	FISH	m_benthic	American sand lance	Ammodytes americanus				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Nov-Mar	Nov-Mar	Dec-Jun	Jan-Dec	Jan-Dec	283001125	28300411	28300405	133
13130	FISH	freshwater	Channel catfish	Ictalurus punctatus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300401	144
13166	FISH	freshwater	Channel catfish	Ictalurus punctatus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300401	144
13123	FISH	freshwater	Common carp	Cyprinus carpio				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001097	28300402	28300401	136
13159	FISH	freshwater	Common carp	Cyprinus carpio				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001109	28300402	28300401	136
13124	FISH	diadromous	Gizzard shad	Dorosoma cepedianum				0	0	G5	200412	GENERAL DISTRIBUTION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec	283001097	28300402	28300401	137
13160	FISH	diadromous	Gizzard shad	Dorosoma cepedianum				0	0	G5	200412	GENERAL DISTRIBUTION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec	283001109	28300402	28300401	137
12920	FISH	diadromous	Gizzard shad	Dorosoma cepedianum				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec	283001001	28300401	28300401	137
13818	FISH	diadromous	Gizzard shad	Dorosoma cepedianum				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec	283001004	28300401	28300401	137
13134	FISH	freshwater	Golden shiner	Notemigonus crysoleucas				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300401	106
13170	FISH	freshwater	Golden shiner	Notemigonus crysoleucas				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300401	106
13128	FISH	freshwater	Largemouth bass	Micropterus salmoides				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	May-Jul	Jan-Dec	Jan-Dec	283001097	28300402	28300401	141
13164	FISH	freshwater	Largemouth bass	Micropterus salmoides				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	May-Jul	Jan-Dec	Jan-Dec	283001109	28300402	28300401	141
13131	FISH	freshwater	Pumpkinseed	Lepomis gibbosus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001097	28300402	28300401	136
13167	FISH	freshwater	Pumpkinseed	Lepomis gibbosus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001109	28300402	28300401	136
13138	FISH	freshwater	Redbreast sunfish	Lepomis auritus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001097	28300402	28300401	136
13174	FISH	freshwater	Redbreast sunfish	Lepomis auritus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001109	28300402	28300401	136
13127	FISH	freshwater	Rock bass	Ambloplites rupestris				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001097	28300402	28300401	136
13163	FISH	freshwater	Rock bass	Ambloplites rupestris				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001109	28300402	28300401	136
13129	FISH	freshwater	Smallmouth bass	Micropterus dolomieu				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001097	28300402	28300401	136
13165	FISH	freshwater	Smallmouth bass	Micropterus dolomieu				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec	283001109	28300402	28300401	136
13125	FISH	freshwater	Spottail shiner	Notropis hudsonius				0	0	G5	200412	GENERAL DISTRIBUTION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Jul	Jun-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300401	139
13161	FISH	freshwater	Spottail shiner	Notropis hudsonius				0	0	G5	200412	GENERAL DISTRIBUTION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Jul	Jun-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300401	139
12924	FISH	freshwater	White catfish	Ameiurus catus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001001	28300401	28300401	144
13137	FISH	freshwater	White catfish	Ameiurus catus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300401	144
13173	FISH	freshwater	White catfish	Ameiurus catus				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jul	May-Jul	Jun-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300401	144
13126	FISH	freshwater	White sucker	Catostomus commersoni				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-May	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec	283001097	28300402	28300401	140
13162	FISH	freshwater	White sucker	Catostomus commersoni				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-May	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec	283001109	28300402	28300401	140
13122	FISH	freshwater	Yellow perch	Perca flavescens				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-May	Mar-May	Mar-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300401	130
13158	FISH	freshwater	Yellow perch	Perca flavescens				0	0	G5	200412	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-May	Mar-May	Mar-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300401	130
13103	FISH	diadromous	Alewife	Alosa pseudoharengus				0	0	G5	200412	MIGRATION	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001097	28300402	28300401	102
13140	FISH	diadromous	Alewife	Alosa pseudoharengus				0	0	G5	200412	MIGRATION	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001109	28300402	28300401	102
12418	FISH	diadromous	Alewife	Alosa pseudoharengus				0	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001125	28300402	28300401	102
13111	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001097	28300402	28300401	112
13147	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001109	28300402	28300401	112
12398	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001124	28300404	28300495	112
12423	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001125	28300402	28300405	112
12447	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001126	28300404	28300406	112
12505	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001128	28300404	28300406	112
12558	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001132	28300404	28300406	112
12718	FISH	diadromous	American eel	Anguilla rostrata				0	0	G4	201503	MIGRATION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001140	28300404	28300406	112
13105	FISH	diadromous	American shad	Alosa sapidissima				0	0	G5	201503	MIGRATION	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001097	28300461	28300401	104
13142	FISH	diadromous	American shad	Alosa sapidissima				0	0	G5	201503	MIGRATION	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001109	28300461	28300401	104
13104	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001097	28300402	28300401	103
13141	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001109	28300402	28300401	103
12393	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001124	28300405	28300405	103
12419	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001125	28300409	28300405	103
12442	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001126	28300405	28300405	103
12500	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001128	28300405	28300405	103
12553	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001132	28300405	28300405	103
12713	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	G5	200412	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001140	28300405	28300405	103
13821	FISH	diadromous	Brown trout (sea run)	Salmo trutta (sea run)				0	0		0	MIGRATION	UNCOMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Oct-Nov	Oct-Apr	Feb-May	Jan-Dec	Sep-Jan	283001004	28300427	28300427	153
13116	FISH	diadromous	Hickory shad	Alosa mediocris				0	0	G5	200412	MIGRATION	COMMON	Jun-Nov						X	X	X	X	X	X		Jun-Aug	Jun-Aug	Jun-Aug	Jul-Nov	Jun-Nov	283001097	28300402	28300460	120
13152	FISH	diadromous	Hickory shad	Alosa mediocris				0	0	G5	200412	MIGRATION	COMMON	Jun-Nov						X	X	X	X	X	X		Jun-Aug	Jun-Aug	Jun-Aug	Jul-Nov	Jun-Nov	283001109	28300402	28300460	120
12923	FISH	diadromous	Sea lamprey	Petromyzon marinus				0	0	G5	200412	MIGRATION	COMMON	Apr-Jul				X	X	X	X						May-Jun	May-Jun	Jan-Dec	Apr-Jul	Apr-Jul	283001001	28300401	28300401	152
13136	FISH	diadromous	Sea lamprey	Petromyzon marinus				0	0	G5	200412	MIGRATION	COMMON	Apr-Jul				X	X	X	X						May-Jun	May-Jun	Jan-Dec	Apr-Jul	Apr-Jul	283001097	28300402	28300401	152
13172	FISH	diadromous	Sea lamprey	Petromyzon marinus				0	0	G5	200412	MIGRATION	COMMON	Apr-Jul				X	X	X	X						May-Jun	May-Jun	Jan-Dec	Apr-Jul	Apr-Jul	283001109	28300402	28300401	152
13115	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		-	-	-	Apr-Nov	Apr-Nov	283001097	28300402	28300401	119
13151	FISH	diadromous	Striped bass	Morone saxatilis				0	0	G5	201503	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		-	-	-	Apr-Nov	Apr-Nov	283001109	28300402	28300401	119

13800	FISH	diadromous	Striped bass	Morone saxatilis	0	0	G5	201503	MIGRATION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		-	-	-	Apr-Nov	Apr-Nov	283000998	28300402	28300401	119
12392	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Jun	Mar-Jun	Mar-Jun	Mar-Oct	Mar-Oct	283001124	28300406	28300494	101
12441	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Jun	Mar-Jun	Mar-Jun	Mar-Oct	Mar-Oct	283001126	28300436	28300405	101
12499	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Jun	Mar-Jun	Mar-Jun	Mar-Oct	Mar-Oct	283001128	28300436	28300405	101
12552	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Jun	Mar-Jun	Mar-Jun	Mar-Oct	Mar-Oct	283001132	28300436	28300405	101
12712	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Jun	Mar-Jun	Mar-Jun	Mar-Oct	Mar-Oct	283001140	28300436	28300405	101
12906	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001001	28300407	28300405	102
12926	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001002	28300401	28300405	102
12941	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001003	28300401	28300405	102
13009	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001009	28300401	28300405	102
13782	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283000997	28300401	28300401	102
13793	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283000998	28300401	28300401	102
13806	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001000	28300401	28300401	102
13809	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001004	28300401	28300405	102
13822	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001011	28300401	28300405	102
13832	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001012	28300401	28300405	102
14112	FISH	diadromous	Alewife	Alosa pseudoharengus	0	0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001075	28300401	28300401	102
12912	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001001	28300407	28300405	112
12933	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001002	28300401	28300405	112
12948	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001003	28300401	28300405	112
12961	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001005	28300401	28300405	112
13016	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001009	28300401	28300405	112
13788	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283000997	28300401	28300401	112
13799	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283000998	28300401	28300401	112
13808	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001000	28300401	28300401	112
13812	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001004	28300401	28300405	112
13828	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001011	28300401	28300405	112
13838	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001012	28300401	28300405	112
14115	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001075	28300401	28300401	112
14701	FISH	diadromous	American eel	Anguilla rostrata	0	0	G4	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001230	28300401	28300405	112
12420	FISH	diadromous	American shad	Alosa sapidissima	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001125	28300461	28300401	104
12394	FISH	diadromous	American shad	Alosa sapidissima	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001124	28300404	28300406	104
12443	FISH	diadromous	American shad	Alosa sapidissima	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001126	28300404	28300406	104
12501	FISH	diadromous	American shad	Alosa sapidissima	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001128	28300404	28300406	104
12554	FISH	diadromous	American shad	Alosa sapidissima	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001132	28300404	28300406	104
12714	FISH	diadromous	American shad	Alosa sapidissima	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001140	28300404	28300406	104
12405	FISH	e_nursery	Atlantic herring	Clupea harengus	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Mar-May	Jan-Dec	Jan-Dec	283001124	28300404	28300490	126
12456	FISH	e_nursery	Atlantic herring	Clupea harengus	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Mar-May	Jan-Dec	Jan-Dec	283001126	28300404	28300406	126
12513	FISH	e_nursery	Atlantic herring	Clupea harengus	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Mar-May	Jan-Dec	Jan-Dec	283001128	28300404	28300406	126
12565	FISH	e_nursery	Atlantic herring	Clupea harengus	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Mar-May	Jan-Dec	Jan-Dec	283001132	28300404	28300406	126
12726	FISH	e_nursery	Atlantic herring	Clupea harengus	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	Mar-May	Jan-Dec	Jan-Dec	283001140	28300404	28300406	126
12406	FISH	m_pelagic	Atlantic mackerel	Scomber scombrus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jun	Apr-Jun	Apr-Jun	Apr-Nov	Apr-Nov	283001124	28300404	28300483	127
12457	FISH	m_pelagic	Atlantic mackerel	Scomber scombrus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jun	Apr-Jun	Apr-Jun	Apr-Nov	Apr-Nov	283001126	28300404	28300406	127
12514	FISH	m_pelagic	Atlantic mackerel	Scomber scombrus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jun	Apr-Jun	Apr-Jun	Apr-Nov	Apr-Nov	283001128	28300404	28300406	127
12566	FISH	m_pelagic	Atlantic mackerel	Scomber scombrus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jun	Apr-Jun	Apr-Jun	Apr-Nov	Apr-Nov	283001132	28300404	28300406	127
12727	FISH	m_pelagic	Atlantic mackerel	Scomber scombrus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Jun	Apr-Jun	Apr-Jun	Apr-Nov	Apr-Nov	283001140	28300404	28300406	127
12454	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001126	28300404	28300406	123
12511	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001128	28300404	28300406	123
12724	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001140	28300404	28300406	123
12917	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001001	28300407	28300405	123
12935	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001002	28300408	28300405	123
12949	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001003	28300408	28300405	123
12962	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001005	28300408	28300405	123
13017	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001009	28300408	28300405	123
13118	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001097	28300402	28300405	123
13154	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001109	28300402	28300405	123
13789	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283000997	28300408	28300405	123
13801	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283000998	28300408	28300405	123
13816	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	ABUNDANT	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001004	28300401	28300401	123
12403	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001124	28300404	28300496	123
12563	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001132	28300404	28300406	123
13829	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001011	28300408	28300405	123
13839	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001012	28300408	28300405	123
14116	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001075	28300408	28300405	123
14702	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001230	28300408	28300405	123
14728	FISH	e_nursery	Atlantic menhaden	Brevoortia tyrannus	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Oct	May-Oct	May-Nov	Apr-Nov	Apr-Nov	283001010	28300408	28300405	123
12909	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001001	28300407	28300405	106
12930	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001002	28300408	28300405	106
12945	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001003	28300408	28300405	106
12958	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001005	28300408	28300405	106
13013	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001009	28300408	28300405	106
13785	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000997	28300408	28300405	106
13796	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000998	28300408	28300405	106
12396	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001124	28300404	28300406	106
12445	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001126	28300404	28300406	106
12503	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001128	28300404	28300406	106
12556	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001132	28300404	28300406	106
12716	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001140	28300404	28300406	106
13108	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300405	106
13145	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300405	106
13826	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001011	28300408	28300405	106
13836	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001012	28300408	28300405	106
14113	FISH	e_resident	Atlantic silverside	Menidia menidia	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001075	28300408	28300405	106

14699	FISH	e_resident	Atlantic silverside	Menidia menidia				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001230	28300408	28300405	106
14726	FISH	e_resident	Atlantic silverside	Menidia menidia				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001010	28300408	28300405	106
12448	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Jan-Dec	Jan-Dec	283001126	28300404	28300406	113
12506	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Jan-Dec	Jan-Dec	283001128	28300404	28300406	113
12719	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Jan-Dec	Jan-Dec	283001140	28300404	28300406	113
12913	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Sep-May	X	X	X	X	X				X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Sep-May	Sep-May	283001001	28300401	28300401	114
13112	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Sep-May	X	X	X	X	X				X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Sep-May	Sep-May	283001097	28300402	28300405	114
13148	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Sep-May	X	X	X	X	X				X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Sep-May	Sep-May	283001109	28300402	28300405	114
13813	FISH	m_benthic	Atlantic tomcod	Microgadus tomcod				0	0	G5	200412	NURSERY AREA	COMMON	Sep-May	X	X	X	X	X				X	X	X	X	Nov-Feb	Nov-Mar	Dec-May	Sep-May	Sep-May	283001004	28300401	28300401	114
12402	FISH	e_nursery	Bay anchovy	Anchoa mitchilli				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Nov	Jan-Dec	Jan-Dec	283001124	28300404	28300406	122
12453	FISH	e_nursery	Bay anchovy	Anchoa mitchilli				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Nov	Jan-Dec	Jan-Dec	283001126	28300404	28300406	122
12510	FISH	e_nursery	Bay anchovy	Anchoa mitchilli				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Nov	Jan-Dec	Jan-Dec	283001128	28300404	28300406	122
12562	FISH	e_nursery	Bay anchovy	Anchoa mitchilli				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Nov	Jan-Dec	Jan-Dec	283001132	28300404	28300406	122
12723	FISH	e_nursery	Bay anchovy	Anchoa mitchilli				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Nov	Jan-Dec	Jan-Dec	283001140	28300404	28300406	122
12916	FISH	e_nursery	Bay anchovy	Anchoa mitchilli				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Nov	Jan-Dec	Jan-Dec	283001001	28300407	28300405	122
12401	FISH	e_nursery	Black sea bass	Centropristis striata				0	0	GNR	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001124	28300404	28300492	98
12509	FISH	e_nursery	Black sea bass	Centropristis striata				0	0	GNR	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001128	28300404	28300406	98
12722	FISH	e_nursery	Black sea bass	Centropristis striata				0	0	GNR	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001140	28300404	28300406	98
12907	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-	CT/NY	201602		0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001001	28300462	28300462	103
13010	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-	CT/NY	201602		0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001009	28300408	28300405	103
13823	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-	CT/NY	201602		0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001011	28300408	28300405	103
13833	FISH	diadromous	Blueback herring	Alosa aestivalis	C/-	CT/NY	201602		0	G5	200412	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001012	28300408	28300405	103
12905	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	ABUNDANT	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001001	28300465	28300405	97
12391	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001124	28300404	28300491	96
12498	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001128	28300404	28300406	96
12711	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001140	28300404	28300406	96
12925	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001002	28300408	28300405	97
12940	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001003	28300408	28300405	97
12954	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001005	28300408	28300405	97
13008	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001009	28300408	28300405	97
13102	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001097	28300402	28300405	97
13139	FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	G5	201503	NURSERY AREA	COMMON	Jun-Oct						X	X	X	X	X			-	-	-	Jun-Oct	Jun-Oct	283001109	28300402	28300405	97
12461	FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0		0	NURSERY AREA	ABUNDANT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001126	28300404	28300406	134
12518	FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0		0	NURSERY AREA	ABUNDANT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001128	28300404	28300406	134
12731	FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0		0	NURSERY AREA	ABUNDANT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001140	28300404	28300406	134
12410	FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0		0	NURSERY AREA	COMMON	May-Dec					X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001124	28300404	28300484	134
12431	FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0		0	NURSERY AREA	COMMON	May-Dec					X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001125	28300409	28300405	134
12570	FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0		0	NURSERY AREA	COMMON	May-Dec					X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001132	28300404	28300406	134
12434	FISH	e_resident	Grubby	Myoxocephalus aenaeus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec	283001125	28300411	28300475	148
12938	FISH	e_resident	Grubby	Myoxocephalus aenaeus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec	283001002	28300408	28300475	148
12952	FISH	e_resident	Grubby	Myoxocephalus aenaeus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec	283001003	28300408	28300475	148
12965	FISH	e_resident	Grubby	Myoxocephalus aenaeus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec	283001005	28300408	28300475	148
13018	FISH	e_resident	Grubby	Myoxocephalus aenaeus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec	283001009	28300408	28300475	148
12433	FISH	e_nursery	Hogchoker	Trinectes maculatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001125	28300409	28300405	106
13135	FISH	e_nursery	Hogchoker	Trinectes maculatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300405	106
13171	FISH	e_nursery	Hogchoker	Trinectes maculatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300405	106
13830	FISH	e_nursery	Hogchoker	Trinectes maculatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001011	28300402	28300405	106
13840	FISH	e_nursery	Hogchoker	Trinectes maculatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001012	28300407	28300405	106
13132	FISH	e_resident	Inland silverside	Menidia beryllina				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300405	106
13168	FISH	e_resident	Inland silverside	Menidia beryllina				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300405	106
12437	FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	GNR	200612	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001125	28300409	28300405	156
12465	FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	GNR	200612	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001126	28300404	28300406	156
12522	FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	GNR	200612	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001128	28300404	28300406	156
12735	FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	GNR	200612	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001140	28300404	28300406	156
12414	FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	GNR	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001124	28300404	28300487	156
12574	FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	GNR	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001132	28300404	28300406	156
12931	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001002	28300408	28300405	109
12946	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001003	28300408	28300405	109
12959	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001005	28300408	28300405	109
13786	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283000997	28300408	28300405	109
13797	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283000998	28300408	28300405	109
14114	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001075	28300408	28300405	109
12910	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001001	28300407	28300405	109
13014	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001009	28300408	28300405	109
13109	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001097	28300402	28300401	109
13146	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001109	28300402	28300401	109
13811	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001004	28300401	28300401	109
13827	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001011	28300408	28300405	109
13837	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001012	28300408	28300405	109
14700	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001230	28300408	28300405	109
14727	FISH	e_resident	Mummichog	Fundulus heteroclitus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001010	28300408	28300405	109
12429	FISH	e_nursery	Northern kingfish	Menticirrhus saxatilis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Jun-Sep	Jun-Sep	Jun-Sep	Apr-Nov	Apr-Nov	283001125	28300409	28300405	131
12435	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001125	28300409	28300405	149
12922	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001001	28300407	28300405	149
12939	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001002	28300408	28300405	149
12953	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001003	28300408	28300405	149
12966	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001005	28300408	28300405	149
13019	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001009	28300408	28300405	149
13791	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283000997	28300408	28300405	149
13804	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283000998	28300408	28300405	149
13831	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001011	28300408	28300405	149
13841	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001012	28300408	28300405	149
14729	FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001010	28300408	28300405	149

12413	FISH	m_benthic	Northern searobin	Prionotus carolinus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001124	28300404	28300406	150
12436	FISH	m_benthic	Northern searobin	Prionotus carolinus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001125	28300409	28300405	150
12464	FISH	m_benthic	Northern searobin	Prionotus carolinus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001126	28300404	28300406	150
12521	FISH	m_benthic	Northern searobin	Prionotus carolinus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001128	28300404	28300406	150
12573	FISH	m_benthic	Northern searobin	Prionotus carolinus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001132	28300404	28300406	150
12734	FISH	m_benthic	Northern searobin	Prionotus carolinus	0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001140	28300404	28300406	150
12937	FISH	e_nursery	Rainwater killifish	Lucania parva	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001002	28300408	28300405	109
12951	FISH	e_nursery	Rainwater killifish	Lucania parva	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001003	28300408	28300405	109
12964	FISH	e_nursery	Rainwater killifish	Lucania parva	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001005	28300408	28300405	109
13820	FISH	e_nursery	Rainwater killifish	Lucania parva	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001004	28300401	28300401	109
12409	FISH	m_benthic	Red hake	Urophycis chuss	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001124	28300404	28300480	121
12460	FISH	m_benthic	Red hake	Urophycis chuss	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001126	28300404	28300406	121
12517	FISH	m_benthic	Red hake	Urophycis chuss	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001128	28300404	28300406	121
12569	FISH	m_benthic	Red hake	Urophycis chuss	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001132	28300404	28300406	121
12730	FISH	m_benthic	Red hake	Urophycis chuss	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001140	28300404	28300406	121
12408	FISH	e_nursery	Scup	Stenotomus chrysops	0	0	GNR	201503	NURSERY AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001124	28300404	28300485	129
12729	FISH	e_nursery	Scup	Stenotomus chrysops	0	0	GNR	201503	NURSERY AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001140	28300404	28300406	129
12428	FISH	e_nursery	Scup	Stenotomus chrysops	0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001125	28300409	28300405	129
12919	FISH	e_nursery	Scup	Stenotomus chrysops	0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001001	28300407	28300405	129
13121	FISH	e_nursery	Scup	Stenotomus chrysops	0	0	GNR	201503	NURSERY AREA	UNCOMMON	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001097	28300402	28300405	129
13157	FISH	e_nursery	Scup	Stenotomus chrysops	0	0	GNR	201503	NURSERY AREA	UNCOMMON	May-Nov					X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001109	28300402	28300405	129
12936	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001002	28300408	28300405	145
12950	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001003	28300408	28300405	145
12963	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001005	28300408	28300405	145
12921	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001001	28300401	28300401	145
13133	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001097	28300402	28300401	145
13169	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001109	28300402	28300401	145
13790	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283000997	28300408	28300405	145
13803	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283000998	28300408	28300405	145
13819	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001004	28300401	28300401	145
14703	FISH	e_resident	Sheepshead minnow	Cyprinodon variegatus	0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec	283001230	28300408	28300405	145
12407	FISH	m_benthic	Silver hake	Merluccius bilinearis	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	May-Oct	Mar-Nov	Mar-Nov	283001124	28300404	28300489	128
12458	FISH	m_benthic	Silver hake	Merluccius bilinearis	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	May-Oct	Mar-Nov	Mar-Nov	283001126	28300404	28300406	128
12515	FISH	m_benthic	Silver hake	Merluccius bilinearis	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	May-Oct	Mar-Nov	Mar-Nov	283001128	28300404	28300406	128
12567	FISH	m_benthic	Silver hake	Merluccius bilinearis	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	May-Oct	Mar-Nov	Mar-Nov	283001132	28300404	28300406	128
12728	FISH	m_benthic	Silver hake	Merluccius bilinearis	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	May-Oct	Mar-Nov	Mar-Nov	283001140	28300404	28300406	128
12415	FISH	m_benthic	Smooth dogfish	Mustelus canis	0	0	GNR	201503	NURSERY AREA	COMMON	May-Oct					X	X	X	X	X	X			-	-	-	May-Oct	May-Oct	283001124	28300404	28300406	157
12438	FISH	m_benthic	Smooth dogfish	Mustelus canis	0	0	GNR	201503	NURSERY AREA	COMMON	May-Oct					X	X	X	X	X	X			-	-	-	May-Oct	May-Oct	283001125	28300409	28300405	157
12466	FISH	m_benthic	Smooth dogfish	Mustelus canis	0	0	GNR	201503	NURSERY AREA	COMMON	May-Oct					X	X	X	X	X	X			-	-	-	May-Oct	May-Oct	283001126	28300404	28300406	157
12523	FISH	m_benthic	Smooth dogfish	Mustelus canis	0	0	GNR	201503	NURSERY AREA	COMMON	May-Oct					X	X	X	X	X	X			-	-	-	May-Oct	May-Oct	283001128	28300404	28300406	157
12575	FISH	m_benthic	Smooth dogfish	Mustelus canis	0	0	GNR	201503	NURSERY AREA	COMMON	May-Oct					X	X	X	X	X	X			-	-	-	May-Oct	May-Oct	283001132	28300404	28300406	157
12736	FISH	m_benthic	Smooth dogfish	Mustelus canis	0	0	GNR	201503	NURSERY AREA	COMMON	May-Oct					X	X	X	X	X	X			-	-	-	May-Oct	May-Oct	283001140	28300404	28300406	157
12412	FISH	m_benthic	Spotted hake	Urophycis regia	0	0	GNR	201503	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001124	28300404	28300406	121
12463	FISH	m_benthic	Spotted hake	Urophycis regia	0	0	GNR	201503	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001126	28300404	28300406	121
12520	FISH	m_benthic	Spotted hake	Urophycis regia	0	0	GNR	201503	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001128	28300404	28300406	121
12572	FISH	m_benthic	Spotted hake	Urophycis regia	0	0	GNR	201503	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001132	28300404	28300406	121
12733	FISH	m_benthic	Spotted hake	Urophycis regia	0	0	GNR	201503	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001140	28300404	28300406	121
12399	FISH	diadromous	Striped bass	Morone saxatilis	0	0	G5	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001124	28300404	28300406	98
12720	FISH	diadromous	Striped bass	Morone saxatilis	0	0	G5	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	Jan-Dec	Jan-Dec	283001140	28300404	28300406	98
12914	FISH	diadromous	Striped bass	Morone saxatilis	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		-	-	-	Apr-Nov	Apr-Nov	283001001	28300465	28300401	119
12934	FISH	diadromous	Striped bass	Morone saxatilis	0	0	G5	201503	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		-	-	-	Apr-Nov	Apr-Nov	283001002	28300465	28300405	119
12929	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001002	28300408	28300405	109
12944	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001003	28300408	28300405	109
12957	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001005	28300408	28300405	109
13012	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001009	28300408	28300405	109
13784	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283000997	28300408	28300405	109
13795	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283000998	28300408	28300405	109
13807	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001000	28300401	28300405	109
13107	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001097	28300402	28300401	109
13144	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001109	28300402	28300401	109
13825	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001011	28300408	28300405	109
13835	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001012	28300408	28300405	109
14698	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001230	28300408	28300405	109
14725	FISH	e_resident	Striped killifish	Fundulus majalis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec	283001010	28300408	28300405	109
12416	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001124	28300404	28300406	150
12439	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001125	28300409	28300405	150
12467	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001126	28300404	28300406	150
12524	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001128	28300404	28300406	150
12576	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001132	28300404	28300406	150
12737	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001140	28300404	28300406	150
13020	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001009	28300408	28300469	150
13792	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283000997	28300408	28300469	150
13805	FISH	m_benthic	Striped searobin	Prionotus evolans	0	0	G5	200704	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283000998	28300408	28300469	150
12400	FISH	e_nursery	Summer flounder	Paralichthys dentatus	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001124	28300404	28300486	121
12508	FISH	e_nursery	Summer flounder	Paralichthys dentatus	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001128	28300404	28300406	121
12721	FISH	e_nursery	Summer flounder	Paralichthys dentatus	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001140	28300404	28300406	121
12915	FISH	e_nursery	Summer flounder	Paralichthys dentatus	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001001	28300407	28300405	121
13117	FISH	e_nursery	Summer flounder	Paralichthys dentatus	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001097	28300402	28300405	121
13153	FISH	e_nursery	Summer flounder	Paralichthys dentatus	0	0		0	NURSERY AREA	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		-	-	-	Mar-Nov	Mar-Nov	283001109	28300402	28300405	121
12397	FISH	m_benthic	Tautog	Tautoga onitis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001124	28300404	28300478	110
12422	FISH	m_benthic	Tautog	Tautoga onitis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001125	28300409	28300405	110
12446	FISH	m_benthic	Tautog	Tautoga onitis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001126	28300465	28300406	110
12504	FISH	m_benthic	Tautog	Tautoga onitis	0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001128	28300465	28300406	110

12557	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001132	28300465	28300406	110
12717	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001140	28300404	28300406	110
12911	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283001001	28300407	28300405	111
12932	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283001002	28300408	28300405	111
12947	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283001003	28300408	28300405	111
12960	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283001005	28300408	28300405	111
13015	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283001009	28300408	28300405	111
13787	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283000997	28300408	28300405	111
13798	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283000998	28300408	28300405	111
13110	FISH	m_benthic	Tautog	Tautoga onitis				0	0		0	NURSERY AREA	UNCOMMON	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Sep	Apr-Sep	May-Sep	Apr-Nov	Apr-Nov	283001097	28300402	28300405	111
12928	FISH	e_resident	Threespine stickleback	Gasterosteus aculeatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Oct	May-Dec	Jan-Dec	283001002	28300408	28300497	107
12943	FISH	e_resident	Threespine stickleback	Gasterosteus aculeatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Oct	May-Dec	Jan-Dec	283001003	28300408	28300497	107
12956	FISH	e_resident	Threespine stickleback	Gasterosteus aculeatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Oct	May-Dec	Jan-Dec	283001005	28300408	28300497	107
14697	FISH	e_resident	Threespine stickleback	Gasterosteus aculeatus				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	May-Oct	May-Dec	Jan-Dec	283001230	28300408	28300497	107
12427	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	ABUNDANT	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001125	28300409	28300405	124
12404	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001124	28300404	28300406	124
12455	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001126	28300404	28300406	124
12564	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001132	28300404	28300406	124
12725	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001140	28300404	28300406	124
13119	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001097	28300402	28300405	124
13155	FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	GNR	201503	NURSERY AREA	COMMON	May-Nov					X	X	X	X	X	X	X		May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001109	28300402	28300405	124
12918	FISH	e_nursery	White perch	Morone americana				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec	283001001	28300401	28300401	125
13120	FISH	e_nursery	White perch	Morone americana				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec	283001097	28300402	28300401	125
13156	FISH	e_nursery	White perch	Morone americana				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec	283001109	28300402	28300401	125
13802	FISH	e_nursery	White perch	Morone americana				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec	283000998	28300401	28300401	125
13817	FISH	e_nursery	White perch	Morone americana				0	0	G5	200412	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec	283001004	28300401	28300401	125
12432	FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	G5	200612	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001125	28300409	28300405	135
12411	FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	G5	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001124	28300404	28300481	135
12462	FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	G5	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001126	28300404	28300406	135
12519	FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	G5	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001128	28300404	28300406	135
12571	FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	G5	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001132	28300404	28300406	135
12732	FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	G5	200612	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001140	28300404	28300406	135
12395	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001124	28300404	28300482	105
12555	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001132	28300404	28300406	105
12715	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001140	28300404	28300406	105
12908	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001001	28300465	28300405	105
12927	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001002	28300408	28300405	105
12942	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001003	28300408	28300405	105
12955	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001005	28300408	28300405	105
13011	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001009	28300408	28300405	105
13783	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283000997	28300408	28300405	105
13794	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283000998	28300408	28300405	105
13106	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001097	28300402	28300405	105
13143	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001109	28300402	28300405	105
13824	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001011	28300408	28300405	105
13834	FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001012	28300408	28300405	105
12424	FISH	diadromous	Atlantic sturgeon	Acipenser oxyrinchus	E/-	E	CT/NY	201602	201602	G3	201503	VULNERABLE OCCURRENCE	RARE	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jun	Jan-Dec	Jan-Dec	283001125	28300477	28300403	118
13114	FISH	diadromous	Atlantic sturgeon	Acipenser oxyrinchus	E/-	E	CT/NY	201602	201602	G3	201503	VULNERABLE OCCURRENCE	RARE	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jun	Jan-Dec	Jan-Dec	283001097	28300403	28300401	118
13150	FISH	diadromous	Atlantic sturgeon	Acipenser oxyrinchus	E/-	E	CT/NY	201602	201602	G3	201503	VULNERABLE OCCURRENCE	RARE	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	May-Jun	May-Jun	Jan-Dec	Jan-Dec	283001109	28300403	28300401	118
13113	FISH	diadromous	Shortnose sturgeon	Acipenser brevirostrum	E/E	E	CT/NY	201602	201602	G3	201503	VULNERABLE OCCURRENCE	RARE	Nov-May	X	X	X	X	X						X	X	-	-	-	Nov-May	Nov-May	283001097	28300402	28300455	117
13149	FISH	diadromous	Shortnose sturgeon	Acipenser brevirostrum	E/E	E	CT/NY	201602	201602	G3	201503	VULNERABLE OCCURRENCE	RARE	Nov-May	X	X	X	X	X						X	X	-	-	-	Nov-May	Nov-May	283001109	28300402	28300455	117

NAME	MAPPING_QUALIFIER
Black sea bass	CONCENTRATION AREA
Bluefish	CONCENTRATION AREA
Hickory shad	CONCENTRATION AREA
Scup	CONCENTRATION AREA
Striped bass	CONCENTRATION AREA
Summer flounder	CONCENTRATION AREA
Weakfish	CONCENTRATION AREA
Winter flounder	CONCENTRATION AREA
American sand lance	GENERAL DISTRIBUTION
Channel catfish	GENERAL DISTRIBUTION
Common carp	GENERAL DISTRIBUTION
Gizzard shad	GENERAL DISTRIBUTION
Golden shiner	GENERAL DISTRIBUTION
Largemouth bass	GENERAL DISTRIBUTION
Pumpkinseed	GENERAL DISTRIBUTION
Redbreast sunfish	GENERAL DISTRIBUTION
Rock bass	GENERAL DISTRIBUTION
Smallmouth bass	GENERAL DISTRIBUTION
Spottail shiner	GENERAL DISTRIBUTION
White catfish	GENERAL DISTRIBUTION
White sucker	GENERAL DISTRIBUTION
Yellow perch	GENERAL DISTRIBUTION
Alewife	MIGRATION
American eel	MIGRATION
American shad	MIGRATION
Blueback herring	MIGRATION
Brown trout (sea run)	MIGRATION
Hickory shad	MIGRATION
Sea lamprey	MIGRATION
Striped bass	MIGRATION
Alewife	NURSERY AREA
American eel	NURSERY AREA
American shad	NURSERY AREA
Atlantic herring	NURSERY AREA
Atlantic mackerel	NURSERY AREA
Atlantic menhaden	NURSERY AREA
Atlantic silverside	NURSERY AREA
Atlantic tomcod	NURSERY AREA
Bay anchovy	NURSERY AREA
Black sea bass	NURSERY AREA
Blueback herring	NURSERY AREA
Bluefish	NURSERY AREA
Butterfish	NURSERY AREA
Grubby	NURSERY AREA
Hogchoker	NURSERY AREA
Inland silverside	NURSERY AREA
Little skate	NURSERY AREA
Mummichog	NURSERY AREA
Northern kingfish	NURSERY AREA
Northern pipefish	NURSERY AREA
Northern searobin	NURSERY AREA
Rainwater killifish	NURSERY AREA
Red hake	NURSERY AREA
Scup	NURSERY AREA
Sheepshead minnow	NURSERY AREA
Silver hake	NURSERY AREA
Smooth dogfish	NURSERY AREA
Spotted hake	NURSERY AREA
Striped bass	NURSERY AREA
Striped killifish	NURSERY AREA
Striped searobin	NURSERY AREA
Summer flounder	NURSERY AREA
Tautog	NURSERY AREA
Threespine stickleback	NURSERY AREA
Weakfish	NURSERY AREA
White perch	NURSERY AREA
Windowpane	NURSERY AREA
Winter flounder	NURSERY AREA
Atlantic sturgeon	VULNERABLE OCCURRENCE
Shortnose sturgeon	VULNERABLE OCCURRENCE

OBJECTID	ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANK	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM	G_SOURCE	S_SOURCE	BREED
15332	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000848	28300903	28300903	164
15533	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000818	28300903	28300903	164
15534	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000817	28300903	28300903	164
15542	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000814	28300903	28300903	164
15818	INVERT	crab	Atlantic rock crab	Cancer irroratus				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Oct	Jan-Dec	May-Oct	Jan-Dec	Jan-Dec	283000915	28300913	28300920	174
15333	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000848	28300912	28300910	168
15345	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000845	28300912	28300910	168
15535	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000817	28300914	28300910	168
15543	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000814	28300912	28300910	168
15741	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000892	28300912	28300910	168
15762	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000899	28300912	28300910	168
15767	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000900	28300912	28300910	168
15770	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000902	28300914	28300910	168
15774	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000903	28300914	28300910	168
15779	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000904	28300914	28300910	168
15783	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000905	28300925	28300910	168
15786	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000906	28300914	28300910	168
15797	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000909	28300914	28300910	168
15798	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000910	28300914	28300910	168
15816	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000915	28300913	28300910	168
15820	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000916	28300912	28300910	168
15822	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000917	28300912	28300910	168
15840	INVERT	crab	Blue crab	Callinectes sapidus				0	0	GNR	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000924	28300913	28300910	168
15765	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000900	28300903	28300910	164
15343	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000845	28300903	28300903	164
15358	INVERT	bivalve	Eastern oyster	Crassostrea virginica				0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000842	28300903	28300903	164
15773	INVERT	crab	Fiddler crab	Uca sp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000902	28300914	28300928	170
15777	INVERT	crab	Fiddler crab	Uca sp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000903	28300914	28300928	170
15782	INVERT	crab	Fiddler crab	Uca sp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000904	28300914	28300910	170
15785	INVERT	crab	Fiddler crab	Uca sp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000905	28300925	28300910	170
15788	INVERT	crab	Fiddler crab	Uca sp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000906	28300914	28300910	170
15776	INVERT	shrimp	Grass shrimp	Palaemonetes spp.				0	0		0	GENERAL DISTRIBUTION	CO+I236:J236MMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Oct	May-Oct	May-Oct	May-Oct	Jan-Dec	283000903	28300914	28300910	171
15772	INVERT	shrimp	Grass shrimp	Palaemonetes spp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Oct	May-Oct	May-Oct	May-Oct	Jan-Dec	283000902	28300914	28300910	171
15781	INVERT	shrimp	Grass shrimp	Palaemonetes spp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Oct	May-Oct	May-Oct	May-Oct	Jan-Dec	283000904	28300914	28300910	171
15784	INVERT	shrimp	Grass shrimp	Palaemonetes spp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Oct	May-Oct	May-Oct	May-Oct	Jan-Dec	283000905	28300925	28300910	171
15787	INVERT	shrimp	Grass shrimp	Palaemonetes spp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Oct	May-Oct	May-Oct	May-Oct	Jan-Dec	283000906	28300914	28300910	171
15344	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000845	28300911	28300913	165
15359	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000842	28300911	28300913	165
15815	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000915	28300913	28300928	165
15821	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000917	28300911	28300913	165
15829	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000920	28300911	28300913	165
15839	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000924	28300921	28300928	165
15813	INVERT	crab	Jonah crab	Cancer borealis				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Nov-Jun	May-Nov	Jun-Oct	Jan-Dec	Jan-Dec	283000914	28300921	28300920	176
15334	INVERT	cephalopod	Longfin squid	Loligo pealeii				0	0		0	GENERAL DISTRIBUTION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000848	28300911	28300922	169
15361	INVERT	cephalopod	Longfin squid	Loligo pealeii				0	0		0	GENERAL DISTRIBUTION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000842	28300911	28300922	169
15812	INVERT	cephalopod	Longfin squid	Loligo pealeii				0	0		0	GENERAL DISTRIBUTION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000914	28300911	28300922	169
15817	INVERT	cephalopod	Longfin squid	Loligo pealeii				0	0		0	GENERAL DISTRIBUTION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000915	28300911	28300922	169
15831	INVERT	cephalopod	Longfin squid	Loligo pealeii				0	0		0	GENERAL DISTRIBUTION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000920	28300911	28300922	169
15841	INVERT	cephalopod	Longfin squid	Loligo pealeii				0	0		0	GENERAL DISTRIBUTION	COMMON	Apr-Nov				X	X	X	X	X	X	X	X		May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283000924	28300911	28300922	169
15331	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000848	28300903	28300910	164
15342	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000845	28300903	28300910	164
15532	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000818	28300903	28300910	164
15541	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000814	28300903	28300910	164
15761	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000899	28300903	28300910	164
15764	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000900	28300903	28300910	164
15778	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000904	28300903	28300910	164
15814	INVERT	bivalve	Northern quahog	Mercenaria mercenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Oct	Jun-Oct	Jun-Nov	Jan-Dec	Jan-Dec	283000915	28300903	28300910	164
15771	INVERT	bivalve	Ribbed mussel	Geukensia demissa				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000902	28300914	28300928	170
15775	INVERT	bivalve	Ribbed mussel	Geukensia demissa				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000903	28300914	28300928	170
15780	INVERT	bivalve	Ribbed mussel	Geukensia demissa				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000904	28300914	28300910	170
15799	INVERT	bivalve	Ribbed mussel	Geukensia demissa				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec	283000910	28300914	28300928	170
15763	INVERT	bivalve	Softshell clam	Mya arenaria				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec	283000900	28300903	28300910	162
15346	INVERT	crab	Spider crabs	Libinia spp.				0	0		0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Sep	May-Sep	May-Sep	Jan-Dec	Jan-Dec	283000845	28300912	28300919	168
15360	INVERT	lobster	American lobster	Homarus americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Nov	Jan-Dec	May-Aug	Jan-Dec	Jan-Dec	283000842	28300911	28300910	166
15811	INVERT	lobster	American lobster	Homarus americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Nov	Jan-Dec	May-Aug	Jan-Dec	Jan-Dec	283000914	28300921	28300910	166
15830	INVERT	lobster	American lobster	Homarus americanus				0	0		0	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Nov	Jan-Dec	May-Aug	Jan-Dec	Jan-Dec	283000920	28300911	28300910	166
15766	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000900	28300911	28300913	165
15819	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	NURSERY AREA	COMMON	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000916	28300911	28300913	165
15326	INVERT	crab	Horseshoe crab	Limulus polyphemus				0	0	G5	201503	SPAWNING AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	May-Jun	Jun-Jul	-	Jan-Dec	Jan-Dec	283000850	28300908	28300908	165
15558	INVERT	insect	Rare insect					0	0		0	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	Jan-Dec	283000806	28300902	28300902	177
15562	INVERT	insect	Rare insect					0	0		0	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	Jan-Dec	283000804	28300902	28300902	177
15559	INVERT	insect	Threatened insect		E/-	T	CT/NY	201604	201604		0	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	Jan-Dec	283000806	28300902	28300902	177

NAME	MAPPING_QUALIFIER
Eastern oyster	**CONCENTRATION AREA**
Atlantic rock crab	GENERAL DISTRIBUTION
Blue crab	GENERAL DISTRIBUTION
Eastern oyster	GENERAL DISTRIBUTION
Fiddler crab	GENERAL DISTRIBUTION
Grass shrimp	GENERAL DISTRIBUTION
Horseshoe crab	GENERAL DISTRIBUTION
Jonah crab	GENERAL DISTRIBUTION
Longfin squid	GENERAL DISTRIBUTION
Northern quahog	GENERAL DISTRIBUTION
Ribbed mussel	GENERAL DISTRIBUTION
Softshell clam	GENERAL DISTRIBUTION
Spider crabs	GENERAL DISTRIBUTION
American lobster	**NURSERY AREA**
Horseshoe crab	**NURSERY AREA**
Horseshoe crab	**SPAWNING AREA**
Rare insect	VULNERABLE OCCURRENCE
Threatened insect	VULNERABLE OCCURRENCE

OBJECTID	ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANK	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM	G_SOURCE	S_SOURCE	BREED
1952	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000404	28300312	28300311	1
4731	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000281	28300312	28300311	1
4863	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000269	28300312	28300311	1
4926	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000267	28300312	28300311	1
4976	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000266	28300312	28300311	1
5018	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000265	28300312	28300311	1
7671	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000148	28300312	28300311	1
8415	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000095	28300312	28300311	1
8484	BIRD	wading	Black rail	Lateralluss jamaicensis				0	0	G4	200412	CONCENTRATION AREA	LOW	May-Dec*					X	X			X	X		X	-	-	-	-	-	283000093	28300312	28300311	1
1951	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000404	28300312	28300311	5
4730	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300312	28300311	5
4862	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300312	28300311	5
4923	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300312	28300311	5
4975	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300312	28300311	5
5017	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000265	28300312	28300311	5
7670	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000148	28300312	28300311	5
8413	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300312	28300311	5
8481	BIRD	wading	Clapper rail	Rallus longirostris				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300312	28300311	5
5253	BIRD	waterfowl	Common eider	Somateria mollissima				0	0	G5	200412	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	Sep-May	-	-	-	-	283000250	28300312	28300311	40
1969	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000404	28300312	28300311	94
4763	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000281	28300312	28300311	94
4805	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000276	28300312	28300311	94
4847	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000270	28300312	28300311	94
4892	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000269	28300312	28300311	94
4904	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000268	28300312	28300311	94
4958	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000267	28300312	28300311	94
5005	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000266	28300312	28300311	94
5032	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000265	28300312	28300311	94
7533	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000163	28300312	28300311	94
7543	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000162	28300312	28300311	94
7549	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000161	28300312	28300311	94
7684	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000148	28300312	28300311	94
8182	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000103	28300312	28300311	94
8440	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000095	28300312	28300311	94
8507	BIRD	waterfowl	Dabbling ducks					0	0		0	CONCENTRATION AREA	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000093	28300312	28300311	94
1970	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000404	28300312	28300311	1
4764	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000281	28300312	28300311	1
4893	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000269	28300312	28300311	1
4959	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000267	28300312	28300311	1
5006	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000266	28300312	28300311	1
5033	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000265	28300312	28300311	1
7685	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000148	28300312	28300311	1
8441	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000095	28300312	28300311	1
8508	BIRD	waterfowl	Diving ducks					0	0		0	CONCENTRATION AREA	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000093	28300312	28300311	1
1966	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000404	28300312	28300311	56
4749	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000281	28300312	28300311	56
4804	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000276	28300312	28300311	56
4845	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000270	28300312	28300311	56
4880	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000269	28300312	28300311	56
4903	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000268	28300312	28300311	56
4947	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000267	28300312	28300311	56
4992	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000266	28300312	28300311	56
5030	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000265	28300312	28300311	56
7532	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000163	28300312	28300311	56
7542	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000162	28300312	28300311	56
7548	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000161	28300312	28300311	56
7682	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000148	28300312	28300311	56
8164	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000103	28300312	28300311	56
8431	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000095	28300312	28300311	56
8498	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	CONCENTRATION AREA	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000093	28300312	28300311	56
1963	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000404	28300312	28300311	49
4743	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000281	28300312	28300311	49
4874	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000269	28300312	28300311	49
4941	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000267	28300312	28300311	49
4987	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000266	28300312	28300311	49
5028	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000265	28300312	28300311	49
7680	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000148	28300312	28300311	49
8427	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000095	28300312	28300311	49
8493	BIRD	wading	Sora	Porzana carolina				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Sep-Oct									X	X			-	-	Sep-Oct	-	-	283000093	28300312	28300311	49
4846	BIRD	passerine	Tree swallow	Tachycineta bicolor				0	0	G5	200412	CONCENTRATION AREA	HIGHLY ABUNDANT	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000270	28300312	28300311	33
1962	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000404	28300312	28300311	5
4741	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300312	28300311	5
4873	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300312	28300311	5
4940	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300312	28300311	5
4986	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300312	28300311	5
5027	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000265	28300312	28300311	5
7679	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000148	28300312	28300311	5
8426	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300312	28300311	5
8492	BIRD	wading	Virginia rail	Rallus limicola				0	0	G5	200412	CONCENTRATION AREA	MIGRATION	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300312	28300311	5
1955	BIRD	shorebird	Willet	Tringa semipalmata				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000404	28300312	28300311	36
4734	BIRD	shorebird	Willet	Tringa semipalmata				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000281	28300312	28300311	36
4866	BIRD	shorebird	Willet	Tringa semipalmata				0	0	G5	201503	CONCENTRATION AREA	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000269	28300312	28300311	36

4931	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	CONCENTRATION AREA	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000267	28300312	28300311	36
4979	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	CONCENTRATION AREA	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000266	28300312	28300311	36
5022	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	CONCENTRATION AREA	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000265	28300312	28300311	36
7674	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	CONCENTRATION AREA	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000148	28300312	28300311	36
8419	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	CONCENTRATION AREA	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000095	28300312	28300311	36
8487	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	CONCENTRATION AREA	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000093	28300312	28300311	36
10928	BIRD	passerine	Acadian flycatcher	Empidonax virescens			0	0	G5	201512	GENERAL DISTRIBUTION		5	May-Sep					X	X	X	X	X				Jun-Jul	May-Jun	Aug-Sep	-	-	283000015	28300303	28300311	83
10673	BIRD	passerine	Acadian flycatcher	Empidonax virescens			0	0	G5	201512	GENERAL DISTRIBUTION	10s		May-Sep					X	X	X	X	X				Jun-Jul	May-Jun	Aug-Sep	-	-	283000022	28300303	28300311	83
10661	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	100s		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000022	28300302	28300311	48
10924	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000015	28300302	28300311	48
1961	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000404	28300308	28300311	48
1977	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000403	28300308	28300311	48
4740	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000281	28300308	28300311	48
4802	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000276	28300308	28300311	48
4843	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000270	28300308	28300311	48
4872	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000269	28300308	28300311	48
4901	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000268	28300308	28300311	48
4939	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000267	28300308	28300311	48
4985	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000266	28300308	28300311	48
5026	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000265	28300308	28300311	48
5039	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000264	28300308	28300311	48
5051	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000261	28300308	28300311	48
5056	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000260	28300308	28300311	48
5070	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000259	28300308	28300311	48
5239	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000251	28300308	28300311	48
5258	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000250	28300308	28300311	48
5306	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000248	28300308	28300311	48
5337	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000247	28300308	28300311	48
5364	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000246	28300308	28300311	48
5373	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000245	28300308	28300311	48
7530	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000163	28300308	28300311	48
7540	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000162	28300308	28300311	48
7554	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000160	28300308	28300311	48
7558	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000159	28300308	28300311	48
7577	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000156	28300308	28300311	48
7582	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000155	28300308	28300311	48
7590	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000153	28300308	28300311	48
7678	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000148	28300308	28300311	48
7994	BIRD	waterfowl	American black duck	Anas rubripes			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	Apr-May	Mar-Apr	Sep-Nov	-	-	283000114	28300308	28300311	48
10639	BIRD	waterfowl	American coot	Fulica americana			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300302	28300311	2
5243	BIRD	waterfowl	American coot	Fulica americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000250	28300304	28300311	2
4952	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5346	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8503	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
4997	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
5268	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
4753	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
4885	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
5084	BIRD	passerine	American crow	Corvus brachyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
4998	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
5269	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
4886	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
5085	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5312	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
8170	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
8334	BIRD	passerine	American goldfinch	Carduelis tristis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5254	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		2	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000250	28300304	28300311	34
8325	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		2	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000098	28300304	28300311	34
5330	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		3	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000247	28300304	28300311	34
4927	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000267	28300304	28300311	34
5301	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000248	28300305	28300311	34
7584	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000154	28300305	28300311	34
7686	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000147	28300305	28300311	34
10654	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000022	28300305	28300311	34
4887	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
5270	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
8335	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5086	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION		8	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
4754	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
4999	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
5313	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
5347	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8171	BIRD	passerine	American robin	Turdus migratorius			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
10658	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	9
5305	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000248	28300308	28300311	9
5336	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000247	28300308	28300311	9
5363	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000246	28300308	28300311	9
5372	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000245	28300308	28300311	9
7553	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000160	28300308	28300311	9
7576	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000156	28300308	28300311	9
7581	BIRD	waterfowl	American wigeon	Anas americana			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000155	28300308	28300311	9
4956	BIRD	waterfowl	Atlantic Brant	Branta bernicla hrota			0	0		0	GENERAL DISTRIBUTION	100s		Oct-May	X	X	X	X	X					X	X	X	-	-	Oct-Nov	-	-	283000267	28300304	28300311	79
4898	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000268	28300305	28300311	30

4969	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000266	28300305	28300311	30
4751	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION		2	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000281	28300304	28300311	36
8167	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION		7	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000103	28300304	28300311	36
4949	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION		9	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000267	28300304	28300311	36
5265	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION		10	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000250	28300304	28300311	36
5343	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION		10	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000247	28300304	28300311	36
8501	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION	100s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000093	28300304	28300311	36
5079	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000259	28300304	28300311	36
5310	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000248	28300304	28300311	36
8331	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000098	28300304	28300311	36
8434	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000095	28300304	28300311	36
4995	BIRD	passerine	Barn Swallow	Hirundo rustica			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000266	28300304	28300311	36
5071	BIRD	passerine	Belted kingfisher	Ceryle alcyon			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
10672	BIRD	waterfowl	Black brant	Branta bernicla nigricans			0	0		0	GENERAL DISTRIBUTION	100s		Oct-May	X	X	X	X	X					X	X	X	-	May	Oct	-	-	283000022	28300302	28300311	78
7578	BIRD	waterfowl	Black brant	Branta bernicla nigricans			0	0		0	GENERAL DISTRIBUTION	PRESENT		Oct-May	X	X	X	X	X					X	X	X	-	May	Oct	-	-	283000156	28300308	28300311	78
10663	BIRD	waterfowl	Black scoter	Melanitta americana			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	9
10652	BIRD	gull_tern	Black skimmer	Rynchops niger	-/C	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000022	28300301	28300311	33
8172	BIRD	passerine	Black-capped chickadee	Poecile atricapillus			0	0		0	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
4755	BIRD	passerine	Black-capped chickadee	Poecile atricapillus			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
5087	BIRD	passerine	Black-capped chickadee	Poecile atricapillus			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5271	BIRD	passerine	Black-capped chickadee	Poecile atricapillus			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
4728	BIRD	wading	Black-crowned night-heron	Nycticorax nycticorax			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
10649	BIRD	pelagic	Black-legged kittiwake	Rissa tridactyla			0	0	G5	200412	GENERAL DISTRIBUTION		2	Nov-Mar	X	X	X								X	X	-	-	-	-	-	283000022	28300303	28300311	39
10920	BIRD	pelagic	Black-legged kittiwake	Rissa tridactyla			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Mar	X	X	X								X	X	-	-	-	-	-	283000015	28300303	28300311	39
4761	BIRD	passerine	Blue jay	Cyanocitta cristata			0	0	G5	201512	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Apr-Aug	Mar-May	Sep-Oct	-	-	283000281	28300304	28300311	82
10662	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION		2	Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000022	28300302	28300311	50
1964	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000404	28300308	28300311	50
1978	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000403	28300308	28300311	50
4744	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000281	28300308	28300311	50
4803	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000276	28300308	28300311	50
4844	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000270	28300308	28300311	50
4875	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000269	28300308	28300311	50
4902	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000268	28300308	28300311	50
4942	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000267	28300308	28300311	50
4988	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000266	28300308	28300311	50
5029	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000265	28300308	28300311	50
5040	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000264	28300308	28300311	50
7541	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000162	28300308	28300311	50
7681	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000148	28300308	28300311	50
10925	BIRD	waterfowl	Blue-winged teal	Anas discors			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	Mar-May	Sep-Nov	-	-	283000015	28300308	28300311	50
10642	BIRD	gull_tern	Bonaparte's gull	Larus philadelphia			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300303	28300311	2
10912	BIRD	gull_tern	Bonaparte's gull	Larus philadelphia			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000015	28300303	28300311	2
5266	BIRD	passerine	Brown thrasher	Toxostoma rufum	C/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
5083	BIRD	passerine	Brown-headed cowbird	Molothrus ater			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
10633	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	100s		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000022	28300302	28300311	12
10906	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000015	28300302	28300311	12
1944	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000404	28300308	28300311	12
1973	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000403	28300308	28300311	12
4718	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000281	28300308	28300311	12
4797	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000276	28300308	28300311	12
4839	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000270	28300308	28300311	12
4852	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000269	28300308	28300311	12
4896	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000268	28300308	28300311	12
4909	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000267	28300308	28300311	12
4963	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000266	28300308	28300311	12
5009	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000265	28300308	28300311	12
5036	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000264	28300308	28300311	12
5237	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000251	28300308	28300311	12
5290	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000248	28300308	28300311	12
5318	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000247	28300308	28300311	12
5359	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000246	28300308	28300311	12
5368	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000245	28300308	28300311	12
7526	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000163	28300308	28300311	12
7536	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000162	28300308	28300311	12
7551	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000160	28300308	28300311	12
7556	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000159	28300308	28300311	12
7580	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000155	28300308	28300311	12
7663	BIRD	waterfowl	Bufflehead	Bucephala albeola			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Jun	X	X	X	X	X	X				X	X	X	-	Oct-Jun	-	-	-	283000148	28300308	28300311	12
4849	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000269	28300304	28300311	6
8402	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000095	28300304	28300311	6
8318	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000098	28300304	28300311	6
5241	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION		7	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000250	28300304	28300311	6
4906	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION		8	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000267	28300304	28300311	6
10624	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	1000s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000022	28300302	28300311	6
5058	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000259	28300304	28300311	6
10900	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000015	28300302	28300311	6
5234	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000251	28300308	28300311	6
5357	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000246	28300308	28300311	6
5366	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000245	28300308	28300311	6
7574	BIRD	waterfowl	Canada goose	Branta canadensis			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	Jan-Dec	-	-	-	283000156	28300308	28300311	6
10629	BIRD	waterfowl	Canvasback	Aythya valisineria			0	0	G5	201503	GENERAL DISTRIBUTION		4	Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000022	28300302	28300311	3
5236	BIRD	waterfowl	Canvasback	Aythya valisineria			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000251	28300308	28300311	3
8336	BIRD	passerine	Cedar waxwing	Bombycilla cedrorum			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5

5348	BIRD	passerine	Cedar waxwing	Bombycilla cedrorum			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
5095	BIRD	passerine	Chimney swift	Chaetura pelagica			0	0	G5	201512	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Jun-Jul	Apr-May	Aug-Sep	-	-	283000259	28300304	28300311	80
8173	BIRD	passerine	Chipping sparrow	Spizella passerina			0	0	G5	200412	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
4756	BIRD	passerine	Chipping sparrow	Spizella passerina			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
8482	BIRD	wading	Clapper rail	Rallus longirostris			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
8414	BIRD	wading	Clapper rail	Rallus longirostris			0	0	G5	201503	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
4924	BIRD	wading	Clapper rail	Rallus longirostris			0	0	G5	201503	GENERAL DISTRIBUTION		10	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5300	BIRD	wading	Clapper rail	Rallus longirostris			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
5329	BIRD	wading	Clapper rail	Rallus longirostris			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
10650	BIRD	waterfowl	Common eider	Somateria mollissima			0	0	G5	200412	GENERAL DISTRIBUTION	1000s		Sep-May	X	X	X	X	X				X	X	X	X	Sep-May	-	-	-	-	283000022	28300303	28300311	40
10921	BIRD	waterfowl	Common eider	Somateria mollissima			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Sep-May	X	X	X	X	X				X	X	X	X	Sep-May	-	-	-	-	283000015	28300302	28300311	40
10632	BIRD	waterfowl	Common goldeneye	Bucephala clangula			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Nov-Apr	X	X	X	X							X	X	-	Nov-Apr	-	-	-	283000022	28300302	28300311	11
10905	BIRD	waterfowl	Common goldeneye	Bucephala clangula			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Nov-Apr	X	X	X	X							X	X	-	Nov-Apr	-	-	-	283000015	28300302	28300311	11
5003	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
8178	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
4890	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
5315	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
8340	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5354	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8438	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
5276	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION		7	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
5093	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
4955	BIRD	passerine	Common grackle	Quiscalus quiscula			0	0	G5	200507	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
10896	BIRD	diving	Common loon	Gavia immer	C/C	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000015	28300302	28300311	1
10620	BIRD	diving	Common loon	Gavia immer	C/C	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	1
10637	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000022	28300302	28300311	3
1945	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000404	28300308	28300311	3
1974	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000403	28300308	28300311	3
4719	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000281	28300308	28300311	3
4798	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000276	28300308	28300311	3
4840	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000270	28300308	28300311	3
4853	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000269	28300308	28300311	3
4897	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000268	28300308	28300311	3
4910	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000267	28300308	28300311	3
4964	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000266	28300308	28300311	3
5010	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000265	28300308	28300311	3
5037	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000264	28300308	28300311	3
7527	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000163	28300308	28300311	3
7537	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000162	28300308	28300311	3
7664	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000148	28300308	28300311	3
10908	BIRD	waterfowl	Common merganser	Mergus merganser			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Nov-Apr	X	X	X	X							X	X	-	-	-	-	-	283000015	28300308	28300311	3
5061	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		2	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000259	28300304	28300311	15
5245	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		2	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000250	28300304	28300311	15
5320	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		2	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000247	28300304	28300311	15
8468	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		2	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000093	28300304	28300311	15
8321	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		5	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000098	28300304	28300311	15
5292	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		10	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000248	28300304	28300311	15
4912	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000267	28300304	28300311	15
10643	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000022	28300303	28300311	15
4965	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000266	28300304	28300311	15
7588	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000153	28300305	28300311	15
7592	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000152	28300305	28300311	15
10913	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000015	28300305	28300311	15
4752	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		3	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000281	28300304	28300311	38
5082	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		3	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000259	28300304	28300311	38
4884	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		5	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000269	28300304	28300311	38
5267	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		6	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000250	28300304	28300311	38
5345	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		6	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000247	28300304	28300311	38
8169	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		7	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000103	28300304	28300311	38
8333	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION		8	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000098	28300304	28300311	38
4950	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000267	28300304	28300311	38
4996	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000266	28300304	28300311	38
5311	BIRD	passerine	Common yellowthroat	Geothlypis trichas			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000248	28300304	28300311	38
10671	BIRD	pelagic	Cory's shearwater	Calonectris diomedea			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jun-Nov						X	X	X	X	X	X		-	Jun-Nov	-	-	-	283000022	28300303	28300311	63
4960	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
5288	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
8317	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
8466	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
4905	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		5	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5057	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		10	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5316	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION		10	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
10623	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION	100s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000022	28300303	28300311	5
4848	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
5240	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
8401	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
10899	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000015	28300303	28300311	5
5322	BIRD	shorebird	Dunlin	Calidris alpina			0	0	G5	201503	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Apr-May	Oct-Nov	-	-	283000247	28300304	28300311	22
8181	BIRD	passerine	Eastern phoebe	Sayornis phoebe			0	0	G5	201512	GENERAL DISTRIBUTION	PRESENT		Apr-Nov				X	X	X	X	X	X	X	X		May-Jul	Apr-May	Sep-Nov	-	-	283000103	28300304	28300311	88
5350	BIRD	passerine	Eastern towhee	Pipilo erythrophthalmus			0	0	G5	200412	GENERAL DISTRIBUTION		5	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8337	BIRD	passerine	Eastern towhee	Pipilo erythrophthalmus			0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
10670	BIRD	waterfowl	Eurasian wigeon	Anas penelope			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300302	28300311	2
4757	BIRD	passerine	European starling	Sturnus vulgaris			0	0		0	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
5088	BIRD	passerine	European starling	Sturnus vulgaris			0	0		0	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5

5272	BIRD	passerine	European starling	Sturnus vulgaris			0	0		0	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
5349	BIRD	passerine	European starling	Sturnus vulgaris			0	0		0	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
4953	BIRD	passerine	European starling	Sturnus vulgaris			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5094	BIRD	passerine	Fish crow	Corvus ossifragus			0	0	G5	200507	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
10656	BIRD	waterfowl	Gadwall	Anas strepera			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	-	-	-	-	283000022	28300302	28300311	44
4934	BIRD	waterfowl	Gadwall	Anas strepera			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	-	-	-	-	283000267	28300304	28300311	44
7552	BIRD	waterfowl	Gadwall	Anas strepera			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	-	-	-	-	283000160	28300308	28300311	44
7575	BIRD	waterfowl	Gadwall	Anas strepera			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	-	-	-	-	283000156	28300308	28300311	44
8412	BIRD	wading	Glossy ibis	Plegadis falcinellus	C/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000095	28300304	28300311	34
4729	BIRD	wading	Glossy ibis	Plegadis falcinellus	C/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000281	28300304	28300311	34
4861	BIRD	wading	Glossy ibis	Plegadis falcinellus	C/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000269	28300304	28300311	34
8480	BIRD	wading	Glossy ibis	Plegadis falcinellus	C/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000093	28300304	28300311	34
5344	BIRD	passerine	Gray catbird	Dumetella carolinensis			0	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
4883	BIRD	passerine	Gray catbird	Dumetella carolinensis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
5081	BIRD	passerine	Gray catbird	Dumetella carolinensis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
8168	BIRD	passerine	Gray catbird	Dumetella carolinensis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
8332	BIRD	passerine	Gray catbird	Dumetella carolinensis			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5251	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
4922	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5328	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
10646	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000022	28300303	28300311	5
5067	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5299	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
10918	BIRD	gull_tern	Great black-backed gull	Larus marinus			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000015	28300303	28300311	5
8153	BIRD	wading	Great blue heron	Ardea herodias			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
4967	BIRD	wading	Great blue heron	Ardea herodias			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
10666	BIRD	diving	Great cormorant	Phalacrocorax carbo			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	9
4974	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
8324	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
8411	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
4727	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
5249	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
4920	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5065	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5326	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8478	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
5297	BIRD	wading	Great egret	Ardea alba	T/-	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
10903	BIRD	waterfowl	Greater scaup	Aythya marila			0	0	G5	200412	GENERAL DISTRIBUTION		8	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000015	28300302	28300311	9
10630	BIRD	waterfowl	Greater scaup	Aythya marila			0	0	G5	200412	GENERAL DISTRIBUTION	100s		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	9
5062	BIRD	shorebird	Greater yellowlegs	Tringa melanoleuca			0	0	G5	200412	GENERAL DISTRIBUTION		4	May-Oct					X	X	X	X	X	X			-	May-Jun	Sep-Oct	-	-	283000259	28300304	28300311	18
8470	BIRD	shorebird	Greater yellowlegs	Tringa melanoleuca			0	0	G5	200412	GENERAL DISTRIBUTION	10s		May-Oct					X	X	X	X	X	X			-	May-Jun	Sep-Oct	-	-	283000093	28300304	28300311	18
5293	BIRD	shorebird	Greater yellowlegs	Tringa melanoleuca			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			-	May-Jun	Sep-Oct	-	-	283000248	28300304	28300311	18
5252	BIRD	wading	Green heron	Butorides virescens			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000250	28300304	28300311	32
10627	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000022	28300302	28300311	10
1943	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000404	28300308	28300311	10
1972	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000403	28300308	28300311	10
4717	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000281	28300308	28300311	10
4796	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000276	28300308	28300311	10
4838	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000270	28300308	28300311	10
4851	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000269	28300308	28300311	10
4895	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000268	28300308	28300311	10
4908	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000267	28300308	28300311	10
4962	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000266	28300308	28300311	10
5008	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000265	28300308	28300311	10
5035	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000264	28300308	28300311	10
5049	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000261	28300308	28300311	10
7525	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000163	28300308	28300311	10
7535	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000162	28300308	28300311	10
7545	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000161	28300308	28300311	10
7662	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000148	28300308	28300311	10
10902	BIRD	waterfowl	Green-winged teal	Anas crecca			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Sep-Apr	X	X	X	X					X	X	X	X	-	Mar-Apr	Sep-Oct	-	-	283000015	28300308	28300311	10
4720	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
8320	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		5	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5060	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5291	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		8	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
5244	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		9	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
5319	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		9	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8467	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION		10	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
4911	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
8403	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
10640	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000022	28300303	28300311	5
10910	BIRD	gull_tern	Herring gull	Larus argentatus			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000015	28300303	28300311	5
10664	BIRD	waterfowl	Hooded merganser	Lophodytes cucullatus			0	0	G5	201503	GENERAL DISTRIBUTION	100s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300302	28300311	2
7559	BIRD	waterfowl	Hooded merganser	Lophodytes cucullatus			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000159	28300308	28300311	2
10898	BIRD	diving	Horned grebe	Podiceps auritus			0	0	G5	201503	GENERAL DISTRIBUTION		3	Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000015	28300302	28300311	4
10622	BIRD	diving	Horned grebe	Podiceps auritus			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000022	28300302	28300311	4
4760	BIRD	passerine	House finch	Carpodacus mexicanus			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
5090	BIRD	passerine	House finch	Carpodacus mexicanus			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
8437	BIRD	passerine	House sparrow	Passer domesticus			0	0		0	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
5091	BIRD	passerine	House sparrow	Passer domesticus			0	0		0	GENERAL DISTRIBUTION		9	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5295	BIRD	shorebird	Killdeer	Charadrius vociferus			0	0	G5	200412	GENERAL DISTRIBUTION		2	Feb-Nov		X	X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000248	28300304	28300311	26
10648	BIRD	gull_tern	Laughing gull	Larus atricilla			0	0	G5	201503	GENERAL DISTRIBUTION		4	Apr-Nov				X	X	X	X	X	X	X	X		Apr-Aug	-	-	-	-	283000022	28300303	28300311	38
1958	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000404	28300305	28300311	46

1976	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000403	28300305	28300311	46
4801	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000276	28300305	28300311	46
4869	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000269	28300305	28300311	46
4936	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000267	28300304	28300311	46
8159	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000103	28300305	28300311	46
8423	BIRD	wading	Least bittern	Ixobrychus exilis	T/T	CT/NY	2016	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000095	28300305	28300311	46
4915	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION		2	Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000267	28300304	28300311	19
5063	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION		2	Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000259	28300304	28300311	19
5321	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION		3	Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000247	28300304	28300311	19
8406	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION		6	Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000095	28300304	28300311	19
5246	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION		9	Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000250	28300304	28300311	19
8472	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000093	28300304	28300311	19
5294	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000248	28300304	28300311	19
8323	BIRD	shorebird	Least sandpiper	Calidris minutilla			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000098	28300304	28300311	19
5325	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION		3	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000247	28300304	28300311	32
8476	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION		7	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000093	28300304	28300311	32
5015	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000265	28300305	28300311	32
5044	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000262	28300305	28300311	32
5248	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000250	28300304	28300311	32
10645	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000022	28300301	28300311	32
10915	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000015	28300305	28300311	32
10631	BIRD	waterfowl	Lesser scaup	Aythya affinis			0	0	G5	200412	GENERAL DISTRIBUTION		3	Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300302	28300311	2
10904	BIRD	waterfowl	Lesser scaup	Aythya affinis			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000015	28300303	28300311	2
8322	BIRD	shorebird	Lesser yellowlegs	Tringa flavipes			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			-	Apr-Jun	Aug-Oct	-	-	283000098	28300304	28300311	19
10916	BIRD	wading	Little blue heron	Egretta caerulea	C/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000015	28300305	28300311	32
10634	BIRD	waterfowl	Long-tailed duck	Clangula hyemalis			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000022	28300302	28300311	4
4961	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
8319	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5317	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
5059	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5242	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
10625	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	100s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000022	28300302	28300311	5
1942	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000404	28300308	28300311	5
1971	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000403	28300308	28300311	5
4716	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300308	28300311	5
4795	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000276	28300308	28300311	5
4837	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000270	28300308	28300311	5
4850	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300308	28300311	5
4894	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000268	28300308	28300311	5
4907	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300308	28300311	5
5007	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000265	28300308	28300311	5
5034	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000264	28300308	28300311	5
5048	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000261	28300308	28300311	5
5054	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000260	28300308	28300311	5
5235	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000251	28300308	28300311	5
5289	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300308	28300311	5
5358	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000246	28300308	28300311	5
5367	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000245	28300308	28300311	5
7524	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000163	28300308	28300311	5
7534	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000162	28300308	28300311	5
7544	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000161	28300308	28300311	5
7550	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000160	28300308	28300311	5
7555	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000159	28300308	28300311	5
7579	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000155	28300308	28300311	5
7587	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000153	28300308	28300311	5
7661	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000148	28300308	28300311	5
7993	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000114	28300308	28300311	5
10901	BIRD	waterfowl	Mallard	Anas platyrhynchos			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000015	28300308	28300311	5
4745	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000281	28300304	28300311	32
4876	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000269	28300304	28300311	32
4944	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000267	28300304	28300311	32
4989	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000266	28300304	28300311	32
5073	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000259	28300304	28300311	32
8161	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000103	28300304	28300311	32
8428	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000095	28300304	28300311	32
8495	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000093	28300304	28300311	32
5338	BIRD	passerine	Marsh wren	Cistothorus palustris			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000247	28300304	28300311	32
8166	BIRD	passerine	Mourning dove	Zenaida macroura			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
5078	BIRD	passerine	Mourning dove	Zenaida macroura			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5264	BIRD	passerine	Mourning dove	Zenaida macroura			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
8330	BIRD	passerine	Mourning dove	Zenaida macroura			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
5072	BIRD	waterfowl	Mute swan	Cygnus olor			0	0		0	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Sep	-	-	-	-	283000259	28300304	28300311	52
8494	BIRD	waterfowl	Mute swan	Cygnus olor			0	0		0	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Sep	-	-	-	-	283000093	28300304	28300311	52
4943	BIRD	waterfowl	Mute swan	Cygnus olor			0	0		0	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Sep	-	-	-	-	283000267	28300304	28300311	52
10926	BIRD	waterfowl	Mute swan	Cygnus olor			0	0		0	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Sep	-	-	-	-	283000015	28300302	28300311	52
10665	BIRD	waterfowl	Mute swan	Cygnus olor			0	0		0	GENERAL DISTRIBUTION	100s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Sep	-	-	-	-	283000022	28300302	28300311	52
5259	BIRD	waterfowl	Mute swan	Cygnus olor			0	0		0	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Sep	-	-	-	-	283000250	28300304	28300311	52
4951	BIRD	passerine	Nelson's sparrow	Ammodramus nelsoni			0	0	G5	200412	GENERAL DISTRIBUTION		3	May-Nov*					X				X	X	X		-	-	Sep-Nov	-	-	283000267	28300304	28300311	70
8435	BIRD	passerine	Nelson's sparrow	Ammodramus nelsoni			0	0	G5	200412	GENERAL DISTRIBUTION		4	May-Nov*					X				X	X	X		-	-	Sep-Nov	-	-	283000095	28300304	28300311	70
8502	BIRD	passerine	Nelson's sparrow	Ammodramus nelsoni			0	0	G5	200412	GENERAL DISTRIBUTION		5	May-Nov*					X				X	X	X		-	-	Sep-Nov	-	-	283000093	28300304	28300311	70
5092	BIRD	passerine	Northern cardinal	Cardinalis cardinalis			0	0	G5	200507	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	73
8177	BIRD	passerine	Northern cardinal	Cardinalis cardinalis			0	0	G5	200507	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	73
8505	BIRD	passerine	Northern cardinal	Cardinalis cardinalis			0	0	G5	200507	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	73

4889	BIRD	passerine	Northern cardinal	Cardinalis cardinalis				0	0	G5	200507	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	73
5002	BIRD	passerine	Northern cardinal	Cardinalis cardinalis				0	0	G5	200507	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	73
5275	BIRD	passerine	Northern cardinal	Cardinalis cardinalis				0	0	G5	200507	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	73
5353	BIRD	passerine	Northern cardinal	Cardinalis cardinalis				0	0	G5	200507	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	73
10923	BIRD	pelagic	Northern gannet	Morus bassanus				0	0	G5	201503	GENERAL DISTRIBUTION		2	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000015	28300303	28300311	9
10657	BIRD	pelagic	Northern gannet	Morus bassanus				0	0	G5	201503	GENERAL DISTRIBUTION		4	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000022	28300303	28300311	9
5097	BIRD	passerine	Northern mockingbird	Mimus polyglottos				0	0	G5	201512	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5277	BIRD	passerine	Northern mockingbird	Mimus polyglottos				0	0	G5	201512	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
5355	BIRD	passerine	Northern mockingbird	Mimus polyglottos				0	0	G5	201512	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
10626	BIRD	waterfowl	Northern pintail	Anas acuta				0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	9
10628	BIRD	waterfowl	Northern shoveler	Anas clypeata				0	0	G5	201503	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300302	28300311	2
8179	BIRD	passerine	Orchard oriole	Icterus spurius				0	0	G5	201512	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Jun-Jul	Apr-May	Aug-Sep	-	-	283000103	28300304	28300311	84
4857	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		2	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000269	28300304	28300311	31
4971	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		8	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000266	28300304	28300311	31
4917	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	100s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000267	28300304	28300311	31
8408	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	100s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000095	28300304	28300311	31
5064	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000259	28300304	28300311	31
8474	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000093	28300304	28300311	31
4724	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000281	28300304	28300311	31
5296	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000248	28300304	28300311	31
5324	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000247	28300304	28300311	31
8155	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000103	28300304	28300311	31
10659	BIRD	diving	Pied-billed grebe	Podilymbus podiceps	E/T		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000022	28300302	28300311	1
4929	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000267	28300305	28300311	42
5020	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000265	28300305	28300311	42
5038	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000264	28300305	28300311	42
5041	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000263	28300305	28300311	42
5046	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000262	28300305	28300311	42
5255	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000250	28300305	28300311	42
5332	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000247	28300305	28300311	42
5361	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000246	28300305	28300311	42
5370	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000245	28300305	28300311	42
8417	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000095	28300305	28300311	42
10655	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000022	28300301	28300311	42
10922	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	GENERAL DISTRIBUTION	PRESENT		Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000015	28300305	28300311	42
5080	BIRD	passerine	Purple martin	Progne subis	C/-		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		3	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000259	28300304	28300311	36
10644	BIRD	alcid	Razorbill	Alca torda				0	0	G5	200412	GENERAL DISTRIBUTION		3	Dec-Mar	X	X	X									X	-	-	-	-	-	283000022	28300303	28300311	29
10914	BIRD	alcid	Razorbill	Alca torda				0	0	G5	200412	GENERAL DISTRIBUTION		4	Dec-Mar	X	X	X									X	-	-	-	-	-	283000015	28300303	28300311	29
5096	BIRD	passerine	Red-bellied woodpecker	Melanerpes carolinus				0	0	G5	201512	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Jul	Apr-May	Aug-Nov	-	-	283000259	28300304	28300311	85
8180	BIRD	passerine	Red-bellied woodpecker	Melanerpes carolinus				0	0	G5	201512	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Jul	Apr-May	Aug-Nov	-	-	283000103	28300304	28300311	85
10638	BIRD	waterfowl	Red-breasted merganser	Mergus serrator				0	0	G5	200412	GENERAL DISTRIBUTION	100s		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000022	28300302	28300311	4
10909	BIRD	waterfowl	Red-breasted merganser	Mergus serrator				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000015	28300302	28300311	4
5238	BIRD	waterfowl	Red-breasted merganser	Mergus serrator				0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000251	28300308	28300311	4
7557	BIRD	waterfowl	Red-breasted merganser	Mergus serrator				0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000159	28300308	28300311	4
10651	BIRD	waterfowl	Redhead	Aythya americana				0	0	G5	201503	GENERAL DISTRIBUTION		4	Nov-Mar	X	X	X								X	X	-	Nov-Mar	-	-	-	283000022	28300302	28300311	41
10897	BIRD	diving	Red-throated loon	Gavia stellata				0	0	G5	200412	GENERAL DISTRIBUTION		2	Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000015	28300303	28300311	2
10621	BIRD	diving	Red-throated loon	Gavia stellata				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300303	28300311	2
4746	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
4877	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
4945	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
4990	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
5074	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5260	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
5307	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
5339	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
8162	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
8328	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
8429	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300304	28300311	5
8496	BIRD	passerine	Red-winged blackbird	Agelaius phoeniceus				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
10911	BIRD	gull_tern	Ring-billed gull	Larus delawarensis				0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000015	28300303	28300311	1
10641	BIRD	gull_tern	Ring-billed gull	Larus delawarensis				0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000022	28300303	28300311	1
10660	BIRD	waterfowl	Ring-necked duck	Aythya collaris				0	0	G5	201503	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	-	-	-	-	283000022	28300302	28300311	2
10647	BIRD	gull_tern	Roseate tern	Sterna dougallii	E/E	E	CT/NY	2016	2016	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000022	28300301	28300311	37
10919	BIRD	gull_tern	Roseate tern	Sterna dougallii	E/E	E	CT/NY	2016	2016	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000015	28300305	28300311	37
10653	BIRD	waterfowl	Ruddy duck	Oxyura jamaicensis				0	0	G5	201503	GENERAL DISTRIBUTION	100s		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000022	28300302	28300311	4
5075	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION		5	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000259	28300304	28300311	56
8432	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION		5	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000095	28300304	28300311	56
4993	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION		6	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000266	28300304	28300311	56
5341	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION		6	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000247	28300304	28300311	56
4948	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	10s		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000267	28300304	28300311	56
5309	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	10s		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000248	28300304	28300311	56
8499	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	10s		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000093	28300304	28300311	56
1967	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000404	28300305	28300311	56
1980	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000403	28300305	28300311	56
4750	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000281	28300304	28300311	56
4881	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000269	28300305	28300311	56
5042	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000263	28300305	28300311	56
5052	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000261	28300305	28300311	56
5262	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000250	28300305	28300311	56
5374	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	GENERAL DISTRIBUTION	PRESENT		May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000245	28300305	28300311	56
8483	BIRD	passerine	Savannah sparrow	Passerculus sandwichensis	C/-		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300304	28300311	5
4925	BIRD	passerine	Savannah sparrow	Passerculus sandwichensis	C/-		CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		8	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
10667	BIRD	waterfowl	Scaup	Aythya spp.				0	0		0	GENERAL DISTRIBUTION	10s		Oct-Apr	X	X	X	X						X	X	X	-	Mar-Apr	Oct-Nov	-	-	283000022	28300302	28300311	57

10668	BIRD	waterfowl	Scoters	Melanitta spp.			0	0		0	GENERAL DISTRIBUTION	1000s		Sep-May	X	X	X	X	X				X	X	X	X	-	Apr-May	Sep-Nov	-	-	283000022	28300302	28300311	59
4991	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION		4	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000266	28300304	28300311	15
5340	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION		4	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000247	28300304	28300311	15
5308	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION		7	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000248	28300304	28300311	15
4946	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	10s		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000267	28300304	28300311	15
8430	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	10s		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000095	28300304	28300311	15
8497	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	10s		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000093	28300304	28300311	15
1965	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000404	28300305	28300311	15
1979	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000403	28300305	28300311	15
4748	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000281	28300304	28300311	15
4879	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000269	28300305	28300311	15
10927	BIRD	passerine	Seaside sparrow	Ammodramus maritimus	T/C	CT/NY	2016	0	G4	201503	GENERAL DISTRIBUTION	PRESENT		May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000015	28300305	28300311	15
5247	BIRD	shorebird	Semipalmated plover	Charadrius semipalmatus			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Apr-Nov				X	X	X	X	X	X	X	X		-	Apr-Jun	Sep-Nov	-	-	283000250	28300304	28300311	25
5303	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	GENERAL DISTRIBUTION		4	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000248	28300304	28300311	43
5323	BIRD	shorebird	Short-billed dowitcher	Limnodromus griseus			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			-	-	Aug-Oct	-	-	283000247	28300304	28300311	23
1957	BIRD	raptor	Short-eared owl	Asio flammeus	T/E	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	Oct-Apr	-	-	-	283000404	28300305	28300311	45
1975	BIRD	raptor	Short-eared owl	Asio flammeus	T/E	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	Oct-Apr	-	-	-	283000403	28300305	28300311	45
8422	BIRD	raptor	Short-eared owl	Asio flammeus	T/E	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-Apr	X	X	X	X						X	X	X	-	Oct-Apr	-	-	-	283000095	28300305	28300311	45
5250	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		2	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000250	28300304	28300311	33
5327	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		3	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000247	28300304	28300311	33
8479	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		4	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000093	28300304	28300311	33
4921	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		5	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000267	28300304	28300311	33
5066	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION		9	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000259	28300304	28300311	33
4860	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000269	28300304	28300311	33
5298	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000248	28300304	28300311	33
8157	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000103	28300304	28300311	33
10917	BIRD	wading	Snowy egret	Egretta thula	T/-	CT/NY	2016	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000015	28300305	28300311	33
4982	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION		5	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300304	28300311	5
4935	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION		7	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300304	28300311	5
5304	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION		7	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000248	28300304	28300311	5
4868	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION		8	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
4737	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION		9	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
5335	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION		9	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000247	28300304	28300311	5
5069	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000259	28300304	28300311	5
5257	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000250	28300304	28300311	5
8327	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000098	28300304	28300311	5
8158	BIRD	passerine	Song sparrow	Melospiza melodia			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
10636	BIRD	waterfowl	Surf scoter	Melanitta perspicillata			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000022	28300302	28300311	4
10907	BIRD	waterfowl	Surf scoter	Melanitta perspicillata			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Oct-May	X	X	X	X	X					X	X	X	-	-	-	-	-	283000015	28300303	28300311	4
4747	BIRD	passerine	Swamp sparrow	Melospiza georgiana			0	0	G5	200412	GENERAL DISTRIBUTION		4	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
4878	BIRD	passerine	Swamp sparrow	Melospiza georgiana			0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300304	28300311	5
8163	BIRD	passerine	Swamp sparrow	Melospiza georgiana			0	0	G5	200412	GENERAL DISTRIBUTION		6	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
5000	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		2	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000266	28300304	28300311	33
5089	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		5	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000259	28300304	28300311	33
5314	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		5	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000248	28300304	28300311	33
4954	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		6	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000267	28300304	28300311	33
5351	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		7	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000247	28300304	28300311	33
5273	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		8	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000250	28300304	28300311	33
8436	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION		9	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000095	28300304	28300311	33
4758	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000281	28300304	28300311	33
8174	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000103	28300304	28300311	33
8338	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000098	28300304	28300311	33
8504	BIRD	passerine	Tree swallow	Tachycineta bicolor			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	-	-	-	-	283000093	28300304	28300311	33
4742	BIRD	wading	Virginia rail	Rallus limicola			0	0	G5	200412	GENERAL DISTRIBUTION		2	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300304	28300311	5
8160	BIRD	wading	Virginia rail	Rallus limicola			0	0	G5	200412	GENERAL DISTRIBUTION		3	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000103	28300304	28300311	5
4888	BIRD	passerine	Warbling vireo	Vireo gilvus			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000269	28300304	28300311	36
8175	BIRD	passerine	Warbling vireo	Vireo gilvus			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000103	28300304	28300311	36
10635	BIRD	waterfowl	White-winged scoter	Melanitta fusca			0	0	G5	200412	GENERAL DISTRIBUTION	100s		Sep-May	X	X	X	X	X				X	X	X	X	-	Sep-May	-	-	-	283000022	28300302	28300311	14
8326	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION		3	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000098	28300304	28300311	36
5302	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION		4	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000248	28300304	28300311	36
4980	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION		8	Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000266	28300304	28300311	36
4735	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000281	28300304	28300311	36
4932	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000267	28300304	28300311	36
5068	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000259	28300304	28300311	36
5334	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000247	28300304	28300311	36
8420	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000095	28300304	28300311	36
8488	BIRD	shorebird	Willet	Tringa semipalmata			0	0	G5	201503	GENERAL DISTRIBUTION	10s		Apr-Sep				X	X	X	X	X	X				Apr-Aug	-	-	-	-	283000093	28300304	28300311	36
5001	BIRD	passerine	Willow flycatcher	Empidonax traillii			0	0	G5	200412	GENERAL DISTRIBUTION		2	May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000266	28300304	28300311	37
5352	BIRD	passerine	Willow flycatcher	Empidonax traillii			0	0	G5	200412	GENERAL DISTRIBUTION		3	May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000247	28300304	28300311	37
8339	BIRD	passerine	Willow flycatcher	Empidonax traillii			0	0	G5	200412	GENERAL DISTRIBUTION		3	May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000098	28300304	28300311	37
5274	BIRD	passerine	Willow flycatcher	Empidonax traillii			0	0	G5	200412	GENERAL DISTRIBUTION		7	May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000250	28300304	28300311	37
4759	BIRD	passerine	Willow flycatcher	Empidonax traillii			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000281	28300304	28300311	37
8176	BIRD	passerine	Willow flycatcher	Empidonax traillii			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		May-Sep					X	X	X	X	X				May-Aug	-	-	-	-	283000103	28300304	28300311	37
10669	BIRD	pelagic	Wilson's storm-petrel	Oceanites oceanicus			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Jun-Sep						X	X	X	X				-	-	-	-	-	283000022	28300303	28300311	61
7531	BIRD	waterfowl	Wood duck	Aix sponsa			0	0	G5	201503	GENERAL DISTRIBUTION	PRESENT		Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000163	28300308	28300311	5
8500	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION		2	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000093	28300304	28300311	32
5077	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION		3	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000259	28300304	28300311	32
8165	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION		5	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000103	28300304	28300311	32
5263	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION		7	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000250	28300304	28300311	32
4882	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION		9	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000269	28300304	28300311	32
8329	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION		9	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000098	28300304	28300311	32
5342	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION	10s		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000247	28300304	28300311	32
4994	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT		Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000266	28300304	28300311	32

8433	BIRD	passerine	Yellow warbler	Setophaga petechia			0	0	G5	200412	GENERAL DISTRIBUTION	PRESENT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000095	28300304	28300311	32
1947	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000404	28300312	28300311	20
4722	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000281	28300312	28300311	20
4855	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000269	28300312	28300311	20
4914	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000267	28300312	28300311	20
4968	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000266	28300312	28300311	20
5012	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000265	28300312	28300311	20
7666	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000148	28300312	28300311	20
8405	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000095	28300312	28300311	20
8471	BIRD	shorebird	Red knot	Calidris canutus	T		0	2016	G4	201503	MIGRATION	PRESENT	May-Nov					X	X	X	X	X	X	X		-	May-Jun	Sep-Nov	-	-	283000093	28300312	28300311	20
1956	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000404	28300312	28300311	43
4736	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000281	28300312	28300311	43
4867	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000269	28300312	28300311	43
4933	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000267	28300312	28300311	43
4981	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000266	28300312	28300311	43
5023	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000265	28300312	28300311	43
7675	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000148	28300312	28300311	43
8421	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000095	28300312	28300311	43
8489	BIRD	shorebird	Semipalmated sandpiper	Calidris pusilla			0	0	G5	200412	MIGRATION	PRESENT	May-Oct					X	X	X	X	X	X			-	-	Jul-Oct	-	-	283000093	28300312	28300311	43
1968	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000404	28300312	28300311	94
4762	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000281	28300312	28300311	94
4891	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000269	28300312	28300311	94
4957	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000267	28300312	28300311	94
5004	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000266	28300312	28300311	94
5031	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000265	28300312	28300311	94
5098	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000259	28300312	28300311	94
7683	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000148	28300312	28300311	94
8439	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000095	28300312	28300311	94
8506	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000093	28300312	28300311	94
5278	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000250	28300312	28300311	94
5356	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000247	28300312	28300311	94
5365	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000246	28300312	28300311	94
5375	BIRD	shorebird	Shorebirds				0	0		0	MIGRATION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	Jan-Dec	-	-	-	283000245	28300312	28300311	94
1953	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000404	28300312	28300311	34
4732	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000281	28300312	28300311	34
4864	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000269	28300312	28300311	34
4928	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000267	28300312	28300311	34
4977	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000266	28300312	28300311	34
5019	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000265	28300312	28300311	34
5045	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000262	28300312	28300311	34
5050	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000261	28300312	28300311	34
5055	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000260	28300312	28300311	34
5331	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000247	28300312	28300311	34
5360	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000246	28300312	28300311	34
5369	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000245	28300312	28300311	34
7589	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000153	28300312	28300311	34
7593	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000152	28300312	28300311	34
7672	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000148	28300312	28300311	34
8416	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000095	28300312	28300311	34
8485	BIRD	shorebird	American oystercatcher	Haematopus palliatus	T/-	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000093	28300312	28300311	34
1948	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000404	28300312	28300311	30
4723	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000281	28300312	28300311	30
4799	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000276	28300312	28300311	30
4841	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000270	28300312	28300311	30
4856	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000269	28300312	28300311	30
4899	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000268	28300312	28300311	30
4916	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000267	28300312	28300311	30
4970	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000266	28300312	28300311	30
5013	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000265	28300312	28300311	30
7528	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000163	28300312	28300311	30
7538	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000162	28300312	28300311	30
7546	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000161	28300312	28300311	30
7667	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000148	28300312	28300311	30
8154	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000103	28300312	28300311	30
8407	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000095	28300312	28300311	30
8473	BIRD	raptor	Bald eagle	Haliaeetus leucocephalus	T/T	CT/NY	2016	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Feb-Aug	-	-	-	-	283000093	28300312	28300311	30
1946	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000404	28300312	28300311	15
4721	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000281	28300312	28300311	15
4854	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000269	28300312	28300311	15
4913	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000267	28300312	28300311	15
4966	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000266	28300312	28300311	15
5011	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000265	28300312	28300311	15
7665	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000148	28300312	28300311	15
8404	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000095	28300312	28300311	15
8469	BIRD	gull_tern	Common tern	Sterna hirundo	E/T	CT/NY	2016	0	G5	200412	NESTING	ABUNDANT	May-Oct					X	X	X	X	X	X			May-Aug	-	-	-	-	283000093	28300312	28300311	15
5043	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000262	28300312	28300311	5
5047	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000261	28300312	28300311	5
5053	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000260	28300312	28300311	5
7586	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000153	28300312	28300311	5
7591	BIRD	diving	Double-crested cormorant	Phalacrocorax auritus			0	0	G5	201503	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000152	28300312	28300311	5
7583	BIRD	wading	Glossy ibis	Plegadis falcinellus	C/-	CT/NY	2016	0	G5	200412	NESTING	PRESENT	Mar-Oct			X	X	X	X	X	X	X	X			Mar-Aug	-	-	-	-	283000154	28300312	28300311	34
1950	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000404	28300312	28300311	32
4726	BIRD	gull_tern	Least tern	Sternula antillarum	T/T	CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000281	28300312	28300311	32

4859	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000269	28300312	28300311	32
4919	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000267	28300312	28300311	32
4973	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000266	28300312	28300311	32
5016	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000265	28300312	28300311	32
7669	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000148	28300312	28300311	32
8410	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000095	28300312	28300311	32
8477	BIRD	gull_tern	Least tern	Sternula antillarum	T/T		CT/NY	2016	0	G4	201503	NESTING	ABUNDANT	Apr-Oct				X	X	X	X	X	X	X			Apr-Aug	-	-	-	-	283000093	28300312	28300311	32
1949	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000404	28300312	28300311	31
4725	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000281	28300312	28300311	31
4800	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000276	28300312	28300311	31
4842	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000270	28300312	28300311	31
4858	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000269	28300312	28300311	31
4900	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000268	28300312	28300311	31
4918	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000267	28300312	28300311	31
4972	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000266	28300312	28300311	31
5014	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000265	28300312	28300311	31
7529	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000163	28300312	28300311	31
7539	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000162	28300312	28300311	31
7547	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000161	28300312	28300311	31
7668	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000148	28300312	28300311	31
8156	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000103	28300312	28300311	31
8409	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000095	28300312	28300311	31
8475	BIRD	raptor	Osprey	Pandion haliaetus	-/C		CT/NY	2016	0	G5	200412	NESTING	COMMON	Mar-Nov			X	X	X	X	X	X	X	X	X		Mar-Aug	Mar-Jun	Jul-Nov	-	-	283000093	28300312	28300311	31
1954	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000404	28300312	28300311	42
4733	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000281	28300312	28300311	42
4865	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000269	28300312	28300311	42
4930	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000267	28300312	28300311	42
4978	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000266	28300312	28300311	42
5021	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000265	28300312	28300311	42
5256	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000250	28300312	28300311	42
5333	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000247	28300312	28300311	42
5362	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000246	28300312	28300311	42
5371	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000245	28300312	28300311	42
7673	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000148	28300312	28300311	42
8418	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000095	28300312	28300311	42
8486	BIRD	shorebird	Piping plover	Charadrius melodus	T/E	T	CT/NY	2016	2016	G3	201503	NESTING	PRESENT	Mar-Sep			X	X	X	X	X	X	X				Mar-Aug	-	-	-	-	283000093	28300312	28300311	42
5076	BIRD	passerine	Saltmarsh sparrow	Ammodramus caudacutus				0	0	G4	200412	NESTING	PRESENT	May-Dec					X	X	X	X	X	X	X	X	May-Aug	-	-	-	-	283000259	28300312	28300311	56
7585	BIRD	wading	Wading birds					0	0		0	NESTING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jan-Dec	-	-	-	-	283000154	28300312	28300311	44
1960	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000404	28300312	28300311	5
4739	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000281	28300312	28300311	5
4871	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000269	28300312	28300311	5
4938	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000267	28300312	28300311	5
4984	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000266	28300312	28300311	5
5025	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000265	28300312	28300311	5
7677	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000148	28300312	28300311	5
8425	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000095	28300312	28300311	5
8491	BIRD	wading	American bittern	Botaurus lentiginosus	E/C		CT/NY	2016	0	G4	200412	WINTERING	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Mar-Aug	-	-	-	-	283000093	28300312	28300311	5
5279	BIRD	diving	Diving birds					0	0		0	WINTERING	ABUNDANT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000250	28300312	28300311	1
5280	BIRD	waterfowl	Diving ducks					0	0		0	WINTERING	PRESENT	Sep-May	X	X	X	X	X				X	X	X	X	-	-	-	-	-	283000250	28300312	28300311	1
1959	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000404	28300312	28300311	46
4738	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000281	28300312	28300311	46
4870	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000269	28300312	28300311	46
4937	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000267	28300312	28300311	46
4983	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000266	28300312	28300311	46
5024	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000265	28300312	28300311	46
7676	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000148	28300312	28300311	46
8424	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000095	28300312	28300311	46
8490	BIRD	wading	Least bittern	Ixobrychus exilis	T/T		CT/NY	2016	0	G5	201503	WINTERING	PRESENT	Apr-Sep				X	X	X	X	X	X				Apr-Aug	Apr	Aug-Sep	-	-	283000093	28300312	28300311	46
5261	BIRD	shorebird	Purple sandpiper	Calidris maritima				0	0	G4	200412	WINTERING	PRESENT	Oct-May	X	X	X	X	X					X	X	X	-	Apr-May	Oct-Nov	-	-	283000250	28300312	28300311	22

SUBELEMENT	NAME	MAPPING_QUALIFIER
alcid	Razorbill	GENERAL DISTRIBUTION
diving	Common loon	GENERAL DISTRIBUTION
diving	Double-crested cormorant	GENERAL DISTRIBUTION
diving	Great cormorant	GENERAL DISTRIBUTION
diving	Horned grebe	GENERAL DISTRIBUTION
diving	Pied-billed grebe	GENERAL DISTRIBUTION
diving	Red-throated loon	GENERAL DISTRIBUTION
diving	Double-crested cormorant	NESTING
diving	Diving birds	WINTERING
gull_tern	Black skimmer	GENERAL DISTRIBUTION
gull_tern	Bonaparte's gull	GENERAL DISTRIBUTION
gull_tern	Common tern	GENERAL DISTRIBUTION
gull_tern	Great black-backed gull	GENERAL DISTRIBUTION
gull_tern	Herring gull	GENERAL DISTRIBUTION
gull_tern	Laughing gull	GENERAL DISTRIBUTION
gull_tern	Least tern	GENERAL DISTRIBUTION
gull_tern	Ring-billed gull	GENERAL DISTRIBUTION
gull_tern	Roseate tern	GENERAL DISTRIBUTION
gull_tern	Common tern	NESTING
gull_tern	Least tern	NESTING
passerine	Saltmarsh sparrow	CONCENTRATION AREA
passerine	Tree swallow	CONCENTRATION AREA
passerine	Acadian flycatcher	GENERAL DISTRIBUTION
passerine	American crow	GENERAL DISTRIBUTION
passerine	American goldfinch	GENERAL DISTRIBUTION
passerine	American robin	GENERAL DISTRIBUTION
passerine	Barn Swallow	GENERAL DISTRIBUTION
passerine	Belted kingfisher	GENERAL DISTRIBUTION
passerine	Black-capped chickadee	GENERAL DISTRIBUTION
passerine	Blue jay	GENERAL DISTRIBUTION
passerine	Brown thrasher	GENERAL DISTRIBUTION
passerine	Brown-headed cowbird	GENERAL DISTRIBUTION
passerine	Cedar waxwing	GENERAL DISTRIBUTION
passerine	Chimney swift	GENERAL DISTRIBUTION
passerine	Chipping sparrow	GENERAL DISTRIBUTION
passerine	Common grackle	GENERAL DISTRIBUTION
passerine	Common yellowthroat	GENERAL DISTRIBUTION
passerine	Eastern phoebe	GENERAL DISTRIBUTION
passerine	Eastern towhee	GENERAL DISTRIBUTION
passerine	European starling	GENERAL DISTRIBUTION
passerine	Fish crow	GENERAL DISTRIBUTION
passerine	Gray catbird	GENERAL DISTRIBUTION
passerine	House finch	GENERAL DISTRIBUTION
passerine	House sparrow	GENERAL DISTRIBUTION
passerine	Marsh wren	GENERAL DISTRIBUTION
passerine	Mourning dove	GENERAL DISTRIBUTION

passerine	Nelson's sparrow	GENERAL DISTRIBUTION
passerine	Northern cardinal	GENERAL DISTRIBUTION
passerine	Northern mockingbird	GENERAL DISTRIBUTION
passerine	Orchard oriole	GENERAL DISTRIBUTION
passerine	Purple martin	GENERAL DISTRIBUTION
passerine	Red-bellied woodpecker	GENERAL DISTRIBUTION
passerine	Red-winged blackbird	GENERAL DISTRIBUTION
passerine	Saltmarsh sparrow	GENERAL DISTRIBUTION
passerine	Savannah sparrow	GENERAL DISTRIBUTION
passerine	Seaside sparrow	GENERAL DISTRIBUTION
passerine	Song sparrow	GENERAL DISTRIBUTION
passerine	Swamp sparrow	GENERAL DISTRIBUTION
passerine	Tree swallow	GENERAL DISTRIBUTION
passerine	Warbling vireo	GENERAL DISTRIBUTION
passerine	Willow flycatcher	GENERAL DISTRIBUTION
passerine	Yellow warbler	GENERAL DISTRIBUTION
passerine	Saltmarsh sparrow	NESTING
pelagic	Black-legged kittiwake	GENERAL DISTRIBUTION
pelagic	Cory's shearwater	GENERAL DISTRIBUTION
pelagic	Northern gannet	GENERAL DISTRIBUTION
pelagic	Wilson's storm-petrel	GENERAL DISTRIBUTION
raptor	Bald eagle	GENERAL DISTRIBUTION
raptor	Osprey	GENERAL DISTRIBUTION
raptor	Short-eared owl	GENERAL DISTRIBUTION
raptor	Bald eagle	NESTING
raptor	Osprey	NESTING
shorebird	Willet	CONCENTRATION AREA
shorebird	American oystercatcher	GENERAL DISTRIBUTION
shorebird	Dunlin	GENERAL DISTRIBUTION
shorebird	Greater yellowlegs	GENERAL DISTRIBUTION
shorebird	Killdeer	GENERAL DISTRIBUTION
shorebird	Least sandpiper	GENERAL DISTRIBUTION
shorebird	Lesser yellowlegs	GENERAL DISTRIBUTION
shorebird	Piping plover	GENERAL DISTRIBUTION
shorebird	Semipalmated plover	GENERAL DISTRIBUTION
shorebird	Semipalmated sandpiper	GENERAL DISTRIBUTION
shorebird	Short-billed dowitcher	GENERAL DISTRIBUTION
shorebird	Willet	GENERAL DISTRIBUTION
shorebird	Red knot	MIGRATION
shorebird	Semipalmated sandpiper	MIGRATION
shorebird	Shorebirds	MIGRATION
shorebird	American oystercatcher	NESTING
shorebird	Piping plover	NESTING
shorebird	Purple sandpiper	WINTERING
wading	Black rail	CONCENTRATION AREA
wading	Clapper rail	CONCENTRATION AREA
wading	Sora	CONCENTRATION AREA

wading	Virginia rail	CONCENTRATION AREA
wading	Black-crowned night-heron	GENERAL DISTRIBUTION
wading	Clapper rail	GENERAL DISTRIBUTION
wading	Glossy ibis	GENERAL DISTRIBUTION
wading	Great blue heron	GENERAL DISTRIBUTION
wading	Great egret	GENERAL DISTRIBUTION
wading	Green heron	GENERAL DISTRIBUTION
wading	Least bittern	GENERAL DISTRIBUTION
wading	Little blue heron	GENERAL DISTRIBUTION
wading	Snowy egret	GENERAL DISTRIBUTION
wading	Virginia rail	GENERAL DISTRIBUTION
wading	Glossy ibis	NESTING
wading	Wading birds	NESTING
wading	American bittern	WINTERING
wading	Least bittern	WINTERING
waterfowl	Common eider	CONCENTRATION AREA
waterfowl	Dabbling ducks	CONCENTRATION AREA
waterfowl	Diving ducks	CONCENTRATION AREA
waterfowl	American black duck	GENERAL DISTRIBUTION
waterfowl	American coot	GENERAL DISTRIBUTION
waterfowl	American wigeon	GENERAL DISTRIBUTION
waterfowl	Atlantic Brant	GENERAL DISTRIBUTION
waterfowl	Black brant	GENERAL DISTRIBUTION
waterfowl	Black scoter	GENERAL DISTRIBUTION
waterfowl	Blue-winged teal	GENERAL DISTRIBUTION
waterfowl	Bufflehead	GENERAL DISTRIBUTION
waterfowl	Canada goose	GENERAL DISTRIBUTION
waterfowl	Canvasback	GENERAL DISTRIBUTION
waterfowl	Common eider	GENERAL DISTRIBUTION
waterfowl	Common goldeneye	GENERAL DISTRIBUTION
waterfowl	Common merganser	GENERAL DISTRIBUTION
waterfowl	Eurasian wigeon	GENERAL DISTRIBUTION
waterfowl	Gadwall	GENERAL DISTRIBUTION
waterfowl	Greater scaup	GENERAL DISTRIBUTION
waterfowl	Green-winged teal	GENERAL DISTRIBUTION
waterfowl	Hooded merganser	GENERAL DISTRIBUTION
waterfowl	Lesser scaup	GENERAL DISTRIBUTION
waterfowl	Long-tailed duck	GENERAL DISTRIBUTION
waterfowl	Mallard	GENERAL DISTRIBUTION
waterfowl	Mute swan	GENERAL DISTRIBUTION
waterfowl	Northern pintail	GENERAL DISTRIBUTION
waterfowl	Northern shoveler	GENERAL DISTRIBUTION
waterfowl	Red-breasted merganser	GENERAL DISTRIBUTION
waterfowl	Redhead	GENERAL DISTRIBUTION
waterfowl	Ring-necked duck	GENERAL DISTRIBUTION
waterfowl	Ruddy duck	GENERAL DISTRIBUTION
waterfowl	Scaup	GENERAL DISTRIBUTION

waterfowl	Scoters	GENERAL DISTRIBUTION
waterfowl	Surf scoter	GENERAL DISTRIBUTION
waterfowl	White-winged scoter	GENERAL DISTRIBUTION
waterfowl	Wood duck	GENERAL DISTRIBUTION
waterfowl	Diving ducks	WINTERING

OBJECTID	ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANK	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM	G_SOURCE	S_SOURCE	BREED
11250	M_MAMMAL	dolphin	Bottlenose dolphin	Tursiops truncatus				0	0	G5	19961115	GENERAL DISTRIBUTION	PRESENT	Jun-Aug						X	X	X					-	-	-	-	-	283000520	28300502	28300502	190
11266	M_MAMMAL	dolphin	Bottlenose dolphin	Tursiops truncatus				0	0	G5	19961115	GENERAL DISTRIBUTION	PRESENT	Jun-Aug						X	X	X					-	-	-	-	-	283000523	28300502	28300502	190
11249	M_MAMMAL	pinniped	Gray seal	Halichoerus grypus				0	0	G4G5	19961119	GENERAL DISTRIBUTION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000520	28300502	28300502	189
11265	M_MAMMAL	pinniped	Gray seal	Halichoerus grypus				0	0	G4G5	19961119	GENERAL DISTRIBUTION	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000523	28300502	28300502	189
11248	M_MAMMAL	dolphin	Harbor porpoise	Phocoena phocoena	C/C		CT/NY	201511	0	G4G5	19961115	GENERAL DISTRIBUTION	PRESENT	Jan-May	X	X	X	X	X								-	-	-	-	-	283000520	28300502	28300509	187
11263	M_MAMMAL	dolphin	Harbor porpoise	Phocoena phocoena	C/C		CT/NY	201511	0	G4G5	19961115	GENERAL DISTRIBUTION	PRESENT	Jan-May	X	X	X	X	X								-	-	-	-	-	283000523	28300502	28300509	187
11247	M_MAMMAL	pinniped	Harbor seal	Phoca vitulina				0	0	G5	19961118	GENERAL DISTRIBUTION	PRESENT	Aug-Mar	X	X	X					X	X	X	X	X	-	-	-	-	-	283000520	28300502	28300502	185
11262	M_MAMMAL	pinniped	Harbor seal	Phoca vitulina				0	0	G5	19961118	GENERAL DISTRIBUTION	PRESENT	Aug-Mar	X	X	X					X	X	X	X	X	-	-	-	-	-	283000523	28300502	28300502	185
11264	M_MAMMAL	whale	Humpback whale	Megaptera novaeangliae	-/E	E	CT/NY	201511	201511	G4	20081126	GENERAL DISTRIBUTION	PRESENT	Jun-Oct						X	X	X	X	X			-	-	-	-	-	283000523	28300502	28300502	188
11251	M_MAMMAL	whale	North Atlantic right whale	Eubalaena glacialis	-/E	E	CT/NY	201511	201511	G1	11961115	GENERAL DISTRIBUTION	PRESENT	Jun-Oct						X	X	X	X	X			-	-	-	-	-	283000520	28300502	28300502	188
11267	M_MAMMAL	whale	North Atlantic right whale	Eubalaena glacialis	-/E	E	CT/NY	201511	201511	G1	11961115	GENERAL DISTRIBUTION	PRESENT	Jun-Oct						X	X	X	X	X			-	-	-	-	-	283000523	28300502	28300502	188

OBJECTID	ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANK	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM	G_SOURCE	S_SOURCE	BREED
11365	HERP	turtle	Green sea turtle	Chelonia mydas	T/T	T	CT/NY	201602	201602	G3	201503	GENERAL DISTRIBUTION	PRESENT	Jun-Nov						X	X	X	X	X	X		-	-	-	Jun-Nov	-	283000566	28300707	28300707	191
11366	HERP	turtle	Kemp's ridley sea turtle	Lepidochelys kempii	E/E	E	CT/NY	201602	201602	G1	201503	GENERAL DISTRIBUTION	PRESENT	Jun-Nov						X	X	X	X	X	X		-	-	-	Jun-Nov	-	283000566	28300707	28300707	191
11367	HERP	turtle	Loggerhead sea turtle	Caretta caretta	T/T	E	CT/NY	201602	201602	G3	201503	GENERAL DISTRIBUTION	PRESENT	Jun-Nov						X	X	X	X	X	X		-	-	-	Jun-Nov	-	283000566	28300707	28300707	191
11377	HERP	turtle	Diamondback terrapin	Malaclemys terrapin	C/-		CT/NY	201602	0	G4	200412	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec	283000571	28300708	28300708	192

OBJECTID	ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANK	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM	G_SOURCE	S_SOURCE	BREED
11846	HABITAT	plant	Cosmopolitan bulrush	Bolboschoenus maritimus ssp. Paludosus	C/-		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000758	28300802	28300802	160
11798	HABITAT	plant	Eastern grasswort	Lilaeopsis chinensis	C/T		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000737	28300802	28300802	160
11835	HABITAT	plant	Eastern grasswort	Lilaeopsis chinensis	C/T		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000755	28300802	28300802	160
11842	HABITAT	plant	Eastern grasswort	Lilaeopsis chinensis	C/T		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000757	28300802	28300802	160
11845	HABITAT	plant	Eastern grasswort	Lilaeopsis chinensis	C/T		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000758	28300802	28300802	160
11850	HABITAT	plant	Eastern grasswort	Lilaeopsis chinensis	C/T		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000759	28300802	28300802	160
11841	HABITAT	plant	Eaton's beggars-tick	Bidens eatonii	E/-		CT/NY	201603	0	G3	201505	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000757	28300802	28300802	160
11807	HABITAT	plant	Field paspalum	Paspalum laeve	E/E		CT/NY	201603	0	G4G5	200801	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000742	28300802	28300802	160
11849	HABITAT	plant	Giant orchid	Pteroglossaspis ecristata					0	G2G3	200703	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000758	28300802	28300802	160
11837	HABITAT	plant	Globefruit primrose-willow	Ludwigia sphaerocarpa	E/T		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000755	28300802	28300802	160
11836	HABITAT	plant	Manyflower marshpennywort	Hydrocotyle umbellata	E/-		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000755	28300802	28300802	160
11838	HABITAT	plant	Nuttall's milkwort	Polygala nuttallii	E/-		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000755	28300802	28300802	160
11443	HABITAT	plant	Purple milkweed	Asclepias purpurascens	C/-		CT/NY	201603	0	G5?	201603	VULNERABLE OCCURRENCE	10	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000615	28300801	28300801	160
11844	HABITAT	plant	Saltmarsh bulrush	Schoenoplectus novae-angliae	C/-		CT/NY	201603	0	G5	200701	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000757	28300802	28300802	160
11848	HABITAT	plant	Saltmarsh bulrush	Schoenoplectus novae-angliae	C/-		CT/NY	201603	0	G5	200701	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000758	28300802	28300802	160
11809	HABITAT	plant	Scotland orache	Atriplex glabriuscula	C/E		CT/NY	201603	0	G4	200801	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000742	28300802	28300802	160
11417	HABITAT	plant	Scottish licorice-root	Ligusticum scoticum ssp. Scoticum	E/E		CT/NY	201603	0	G5T3T5	200711	VULNERABLE OCCURRENCE	LOW	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000595	28300801	28300801	160
11806	HABITAT	plant	Scottish licorice-root	Ligusticum scoticum ssp. Scoticum	E/E		CT/NY	201603	0	G5T3T5	200711	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000742	28300802	28300802	160
11820	HABITAT	plant	Scottish licorice-root	Ligusticum scoticum ssp. Scoticum	E/E		CT/NY	201603	0	G5T3T5	200711	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000746	28300802	28300802	160
11808	HABITAT	plant	Seacoast angelica	Angelica lucida	E/-		CT/NY	201603	0	G5	200801	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000742	28300802	28300802	160
11802	HABITAT	plant	Seaside sandplant	Honckenya peploides	C/-		CT/NY	201603	0	G5	200701	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000740	28300802	28300802	160
11817	HABITAT	plant	Seaside sandplant	Honckenya peploides	C/-		CT/NY	201603	0	G5	200701	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000745	28300802	28300802	160
11833	HABITAT	plant	Sickleleaf silkgrass	Pityopsis falcata	E/-		CT/NY	201603	0	G3G4	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000754	28300802	28300802	160
11805	HABITAT	plant	Slimspike threeawn	Aristida longespica	C/-		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000742	28300802	28300802	160
11834	HABITAT	wetland	Spikerushes	Eleocharis spp.	E/E		CT/NY	201603	0		0	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000755	28300802	28300802	160
11819	HABITAT	plant	Violet woodsorrel	Oxalis violacea	C/-		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000746	28300802	28300802	160
11825	HABITAT	plant	Violet woodsorrel	Oxalis violacea	C/-		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000748	28300802	28300802	160
11773	HABITAT	plant	Water pygmyweed	Crassula aquatica	E/-		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000718	28300802	28300802	160
11847	HABITAT	plant	Water pygmyweed	Crassula aquatica	E/-		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000758	28300802	28300802	160
11851	HABITAT	plant	Water pygmyweed	Crassula aquatica	E/-		CT/NY	201603	0	G5	200507	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000759	28300802	28300802	160
11843	HABITAT	plant	Welsh mudwort	Limosella australis	C/-		CT/NY	201603	0	G4G5	200701	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000757	28300802	28300802	160
11821	HABITAT	plant	Whorled marshpennywort	Hydrocotyle verticillata	E/E		CT/NY	201603	0	G5	200801	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000746	28300802	28300802	160
11816	HABITAT	plant	Woolly beachheather	Hudsonia tomentosa	T/-		CT/NY	201603	0	G5	201103	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000745	28300802	28300802	160
11818	HABITAT	plant	Woolly beachheather	Hudsonia tomentosa	T/-		CT/NY	201603	0	G5	201103	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000746	28300802	28300802	160
11823	HABITAT	plant	Woolly beachheather	Hudsonia tomentosa	T/-		CT/NY	201603	0	G5	201103	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000747	28300802	28300802	160
11824	HABITAT	plant	Woolly beachheather	Hudsonia tomentosa	T/-		CT/NY	201603	0	G5	201103	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000748	28300802	28300802	160
11810	HABITAT	plant	Yellow thistle	Cirsium horridulum	E/-		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000742	28300802	28300802	160
11822	HABITAT	plant	Yellow thistle	Cirsium horridulum	E/-		CT/NY	201603	0	G5	201603	VULNERABLE OCCURRENCE	PRESENT	Jan-Dec	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	283000746	28300802	28300802	160

Final Report
Long Island Sound Stewardship Ecological Sites Inventory Update

Prepared for:
The Long Island Sound Study and
New England Interstate Water Pollution Control Commission
Lowell, MA

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Long Island Sound Study

A Partnership to Restore and Protect the Sound

NEIWPCC

New England Interstate Water Pollution Control Commission

The purpose of this project was to create an Access Database that would document the ecological significance of terrestrial and intertidal sites within the Long Island Sound coastal boundary preliminarily identified by the U.S. Fish and Wildlife Service's Northeast Coastal Program as having potentially significant ecological value. Ultimately this database will aid in the prioritization of lands for conservation purposes.

Objective: Document the ecological significance of 106 terrestrial and intertidal sites within the Long Island Sound coastal boundary preliminarily-identified by the U.S. Fish and Wildlife Service's Northeast Coastal Program as having potentially significant ecological value.

To accomplish this objective, an Access Database was created that would document the ecological significance of the 106 terrestrial and intertidal sites. The Access Database may be queried by site name and is linked to a preliminary GIS database of polygons for sites. Habitats determined to be significant by the LISS and species (both rare and significant) information are included in the database as well as an overall designation of the site (Outstanding Habitat, Exemplary Habitat, Rare Species Habitat or Unique/Rare Habitat).

Results: A 227-page Access database was completed representing a first draft of material for the Stewardship sites. The database includes the entire list of 120 sites provided to the contractor so that there is at least a placeholder for all sites. As was discussed in quarterly reports, most fields of the Access database were completed for the ecological sites where data were available in a first draft for the Ecological Sites Inventory. While only a month of salary was provided, Juliana Barrett put in well over two and a half months of time on the database. Six trips to Hartford, CT were made to gather Connecticut Department of Energy and Environmental Protection (CT DEEP) Natural Diversity Database (NDDB) with mileage and parking paid for by Connecticut Sea Grant. Additionally, a volunteer with GIS experience took the lead in digitizing approximate site boundaries. This provides preliminary information of the Stewardship sites for experts to next determine what should and should not be included within the site boundaries. Habitat delineation within sites based on air photo interpretation will take several months to accomplish, and for certain habitats such as coastal forest versus coastal woodland, or brackish versus freshwater tidal areas, will require expertise in air photo interpretation and knowledge of sites. Barrett is willing to assist with this effort for sites with which she is familiar.

Required fields were input as information was available.

Size: This field was filled in with information from files or internet information. Once site boundaries are officially determined, ArcGIS can be used to determine acreage of sites – as opposed to trying to piece together information, particularly for the extremely large sites.

Ownership: This field was completed as information was available. Many sites have mixed ownership (public and private).

Habitat: Several habitat types that were not included in the drop down menu were input manually.

Significant Communities – State and Global Rarity – this information was only available for a few community types in both NY paper files and the CT NDDB database. These rankings may be out of date.

Species:
A determination needs to be made if this field is for observed species at a site or only breeding. Currently the database for NY includes observed species while the CT sites are mainly breeding populations. This is based on the fact that NY data comes from the U.S. Fish and Wildlife Service (USFWS) paper files which included more general information on sites, while the CT species information comes from the CT DEEP NDDB which mainly focuses on breeding populations.

This field consumed the majority of time due to the necessity of inputting often long lists of common and Latin names. For many NY sites there were pages (> 10 pages) of species lists that had to be cross-referenced with state listed species, Greatest Conservation Need (GCN) species and International Union for Conservation of Nature (IUCN) species. It is assumed that these lists are observations, not necessarily breeding populations. Other NY species information came from narratives in the paper files. Much of the NY information dates to 1984. The next step would be to work with the NY Heritage program to obtain current rare species information.

For Connecticut, the majority of species information came from the CT DEEP NDDB which mainly tracks information on state listed species. So there are many common species, particularly fish and birds, which are likely significant species at many sites, but for which there was no information in the NDDB. The next step here would be to engage CT DEEP Marine Fisheries to determine fish species found at sites and Audubon and CT DEEP biologists to determine bird species that are of interest at sites, particularly waterfowl information.

For some sites there was not enough information to determine Primary Designation or Stewardship Site Identification GIS Tool (SIGT) Habitat Criteria. Some sites covered enormous geographic areas and habitat types and should be broken into smaller units for the SIGT Habitat Criteria to be meaningful. The Primary Designation and SIGT Habitat Criteria were completed for many sites, but left blank for sites that Barrett was not comfortable in designating based on the available information. Many of the Primary Designations are preliminary in nature and should be reviewed by Connecticut and New York experts.

Connecticut:
The two Connecticut experts (Ron Rozsa and Ken Metzler) who originally nominated many of these sites are retired from CT DEEP. Barrett was able to meet with them for an afternoon to go through sites and their knowledge of Connecticut sites is included in the database. All Connecticut sites were reviewed, and they provided input on Primary Designation and SIGT Habitat Criteria for sites with which they are familiar. Both Rozsa and Metzler feel that the SIGT Habitat Criteria are too heavily bird oriented and "as such do not serve the needs of identifying priority areas in the coastal ecoregion." This comes mainly from their thoughts that a number of sites are of ecological significance due to the rare plant communities that are present such as sea level fens or a particular type of forest and that the SIGT criteria do not capture this aspect. Barrett included this information as they provided it in the database information.

New York:
Data included for New York Stewardship sites were based on the paper files provided by the USFWS Southern New England – NY Bight Coastal Program as was agreed upon. These paper files date to 1984 so do not contain the most current and up to date information on sites. Internet sites also provided information and are documented in the Reference section. Paper files provided a great deal of information and sometimes included plant and animal lists. These plants and animals were included in species information as appropriate. However, it was often unclear what animals were breeding versus observed at sites. So while included, not all animals may be appropriate here. Due to the voluminous nature of these plant and animal lists, numerous NY sites took over a day per site to go through these lists and cross reference with NY state listed, GCN and IUCN species.

Due to database restrictions*, time and travel limitations New York State experts were not consulted, other than Andrew MacLachlan (USFWS who retired soon after this project started). So next steps require review/editing of the database by New York experts.

Database restrictions* - CT rare species information (NDDB) is considered exempt from the Freedom of Information Act. The agreement with CT DEEP NDDB in inputting state listed rare species information was that Barrett could only share the database with the contractor and so was unable to send out the database out to experts for input.

Connecticut: Data were collected from the Connecticut DEEP NDDB requiring over 5 trips to Hartford to access the database. NDDB staff were very helpful in providing access but see note

on database restrictions above. Information was gathered from NDDB files where available, from internet sources and from meetings with experts.
Habitat information includes both habitats listed by the CT NDDB as worthy of listing as well as information from internet sources. This is an area of discrepancy among data sources because while a specific habitat may exist at a site, the NDDB may have deemed it not worthy of mapping, while Long Island Sound Study (LISS) information may include the habitat. So effort was made to be inclusive of habitats, but habitat quality may be low.

Audubon information, particularly for areas identified as Important Bird Areas, was especially helpful in completing the database.

LISS Stewardship Site information from the web was incorporated into the database.

Species Lists:
Designating species as IUCN, GCN and State listed was extremely time consuming and required cross-referencing individual species on multiple lists: CT GCN species list from 2009 – 13pp.; NY GCN species list includes over 500 species. In many cases, species listed in site information both online and in paper files do not indicate if observed or breeding. Most CT NDDB species information only includes breeding species, while NY files and online information includes observed species.

CT State listed species: those species provided in the database are taken directly from the CT DEEP NDDB using Connecticut’s Endangered, Threatened and Special Concern Species list. Connecticut does not list GCN species for plants, but the current GCN animal list was used.

IUCN species were provided by Patrick Comins of Audubon Connecticut. (see attached list of species). Every attempt was made to accurately cross check each species. For many sites, there are dozens of animal listings (whether status is observed or breeding is unknown), and cross checking each species on multiple lists became a multi day task. Also, it is unclear if IUCN species are breeding or simply sightings and the NY site files do not distinguish between sightings and breeding animals.

For both CT and NY sites absence of species in the database, particularly common species (particularly birds and fish) as described above, does not mean that they are not present.

GIS Polygons:

This polygon database was completed by Andrea Brendalen, a volunteer with Connecticut Sea Grant who was looking to get some GIS experience. Barrett reviewed the polygons with Brendalen at various stages and when she had completed the database based on available information. Brendalen was only available from January 2014 to April 2014. She spent approximately 1.5 months developing the shape files.

The polygons represent approximate site boundaries based on aerial photographs and information on site boundaries that was obtained off the internet such as State Park boundaries.
Next steps: Each site polygon should be reviewed to determine what ecological elements of each site are desired for inclusion and their extent. Several sites should be divided up into smaller sites such as Fisher's Island Sound. We made preliminary determinations of site boundaries but input is needed to determine for example, how far up an estuary or tidal river, marshes should be included. Also for areas that are estuarine embayments where the focus is on the open water, determinations need to be made for how much of the shoreline, if any, to include.

Access Record ID = ArcGIS polygon Id

Access Database Sites that do not have polygons:

CT Thames River Mouth - benthic
CT Long Sand Shoal - shoal
CT Pond Meadows – could not determine forest tract to be included
CT Large Undeveloped Forested Tract – could not determine where this is
CT Upper Thames River
CT Quinnipiac Sand Plain – need NDDB GIS polygons
CT Farmill River
CT Near Merritt Pkwy - Nameless
CT Stratford Point Grassland –
Per Comins:

NY Wading Brook Access Record ID: 30 and 31 ArcGIS polygon ID: 30
NY Huckleberry Island Complex Access Record ID: 9., 10, 11 ArcGIS polygon ID: 9

HABITAT TYPES:
Beaches and Dunes – These habitats occur across New York and Connecticut and are highly variable in size and quality. In Connecticut, many of the beaches are small pocket beaches with ownership varying between federal, state, municipal and private. New York has several very long (relatively) high quality state owned beaches with mixed recreational use. These habitats are well documented. Many of the sites are managed by state and federal agencies for nesting

birds. Some beaches and dunes have been heavily impacted by recent coastal storms, but this is part of the natural processes impacting these features.

Cliff and Bluffs – These are best developed and documented along the New York shoreline. More site information on their ecological significance is needed. Due to Storms Irene and Sandy, the Connecticut shoreline has a number of areas where small bluffs have been created due to erosion, and a discussion on whether or not any of these sites should be included in the database would be helpful. [G. Basso indicates in her comments that they should be included.]

Coastal Forests – This is likely the most difficult habitat to describe as currently, all forest within the LISS boundary is considered coastal forest with the largest tracts under state ownership in both Connecticut and New York. Many of the coastal forests are impacted by a variety of invasive plant species and by deer browse. Forest tracts under state ownership are usually part of state parks and have trails throughout. There are numerous forest cover types included under the "Coastal Forest" umbrella including maritime forests, subacidic forest of the trap rock ridge system, and oak-hickory forests. For sites that include coastal forest such as state parks, one aspect that needs to be determined is whether or not site polygons should go to the park boundary or beyond that to include all contiguous forest.

Coastal Grasslands – The database includes the largest/highest quality grasslands. Barrett has spoken with Georgia Basso at length about this habitat type through Basso's efforts to assess the habitat quality and determine change in extent of coastal grasslands in Connecticut. It is difficult to assess the habitat quality of this habitat type due to serious data shortages that could be filled in over the next several years. (per Basso) Audubon information was extremely useful in describing these sites and in listing bird species. Vegetation descriptions of grasslands are often lacking, as is information on animals other than birds.
The recently protected grassland in Madison, CT should be added to the database.

Estuarine Embayments – This habitat type is well documented and highly variable in terms of size and quality. Many of the embayments are heavily impacted by surrounding land use. Information from the LISS funded embayment study, once completed, would be valuable to add to the database. Several questions arose with this habitat type in terms of how much area to include along with the open water such as tidal wetlands and shoreline. Many of these sites likely have tidal flats that were not documented.

Freshwater Wetlands – (non-tidal) The majority of this habitat type is in Connecticut and includes Atlantic White Cedar swamps, a reservoir, and mills ponds (in New York). Quality is highly variable due to a diversity of factors. In some cases invasive plants are a threat (Phragmites australis and Lythrum salicaria) and for other sites such as the cedar swamps, impacts date back to Colonial era logging of the cedars. Due to surrounding land use, the majority of sites are impacted by runoff.

Intertidal Flats – More information is needed on this habitat both in terms of physical location and extent and in terms of ecological significance. Intertidal flats are mentioned in some of the hardcopy and internet site information as part of larger habitat complexes, but specific information on the flats themselves is lacking.

Islands – Both New York and Connecticut have a number of ecologically significant island systems. These habitats are well documented and much is known about them. Many of the islands with significant bird populations are managed by federal and state agencies, or in the case of Great Gull Island, by the American Museum of Natural History. It would be helpful to divide up some of the larger sites such as Plum, Little and Great Gull Islands – Plum Gut Complex in the Access Database. This would allow the significance of each island to be highlighted individually. There could then be a larger complex that groups these together as a system.

Riverine Migratory Corridors – Sites with this habitat type are well known, but often site information on fish species is unavailable on websites. Also needed is information on the ecological importance/value of particular rivers or river stretches. (e.g. other aquatic species in addition to fish such as molluscs and insects, fish and other aquatic species habitat and spawning sites, as well as water storage capacity). Meetings with experts for those sites with this habitat type (such as Steve Gephard, CT DEEP) would be the best way to get information on common but ecologically significant fish species into the database. Information on the status of vegetated buffers along waterways (important both as wildlife corridors and to shade and moderate the temperature of the water) is available at: http://clear.uconn.edu/projects/landscapeLIS/galleryRiparian/map.html?webmap=ccc3277ddc244350ab8af9480ec28a85. This information is based on an analysis of land cover change from 1985 to 2010.

Rocky Intertidal Zones - More information is needed on this habitat both in terms of physical location and extent and in terms of ecological significance.

Shellfish Beds and Shellfish Reefs – there are likely many more beds and reefs at sites than are included in the database as they were rarely mentioned in source information. A determination needs to be made if *managed* beds are to be included.
A *managed* shellfish bed database was developed by Connecticut Sea Grant, CT Department of Agriculture and UConn Center for Land Use Education and Research: http://www.cteco.uconn.edu/metadata/dep/document/SHELLFISH_BED_MANAGED_FGDC_Plus.htm. There are many fringing shellfish reefs (at least along Connecticut salt marshes). These are highly variable in space and time (personal communication with Tessa Getchis, Connecticut Sea Grant).

Submerged Aquatic Vegetation Beds– this was taken to mean eelgrass as this is the focus of the LISS. However, the lower Connecticut River, as well as a few other sites, have significant brackish and freshwater submerged aquatic vegetation. So in the future, this could be divided into two categories: Eelgrass and Other SAV. The USFWS GIS data on SAV should be added to the GIS database so that the eelgrass polygons can be included as part of sites. SAV for the lower Connecticut River (brackish and fresh) were field determined in 1995 through funding from the LISS with a polygon database. These polygons could be added to the GIS database. SAV to occur on the other tidal rivers, but Barrett knows of no survey work that documents the extent of these beds.

Tidal Wetlands (Salt, brackish and fresh) –

Salt marsh: this habitat type is the best mapped, characterized and studied of all habitat types. Size and quality is highly variable depending on location, surrounding land use impacts and impacts from invasive plants particularly Phragmites australis, as well as management/restoration history. It would be useful to incorporate information on which wetlands have undergone restoration efforts into the Access database. Some of this information was available via internet documents for particular sites, but if Connecticut and New York have databases of sites for which management/restoration has been conducted, it would be useful to include this information for all applicable sites.

Brackish marsh: this habitat is best developed and documented on the Connecticut River, but other tidal rivers and estuaries have ecologically significant marshes. It would be helpful to engage wildlife experts in providing more information on these sites.

Freshwater tidal marsh: this habitat is best developed and documented on the Connecticut River, but other tidal rivers have ecologically significant marshes. It would be helpful to engage wildlife experts in providing more information on these sites.
New York Heritage Program personnel need to have access to the database (I do not have permission to share it, nor were there travel funds in the grant) so that New York species and natural community information can be amended. Barrett determined that trying to gather information by phone or email would not be effective or cost efficient as there is too much information to go through.

GIS POLYGONS

Review Comments Related to GIS polygons (O'Brien and Kozak): These comments were considered beyond the scope of the contractor's current contract, but are included here as they are critical for the next steps in the building of this database.

Data maintenance: (following comments are beyond scope of contractor's concern/responsibilities but described here to ensure the integrity/completeness of data for sites is maintained/enhanced.)

Because the project provides data for sites throughout the entire LIS coastal boundary (i.e., NY + CT), it is appropriate that the project deliverables (database + GIS files) be stored/maintained at EPA LISS and/or USFWS Northeast Coastal Program Office. Updates to the database by others (e.g., NYSDEC or CT DEEP) should be done in some coordinated fashion through whoever is assigned responsibility for maintaining this data. In the past, this was done by the FWS NE Coastal Program office, but since recent staffing changes in that office, EPA LISS office may be in a better position to maintain/periodically update/add records to the database. Georgia Basso was assigned the 'technical lead' for the project and I'd suggest that her office may be in the best position to provide long term storage and maintenance of this data.

As a related matter, the data from this project should be shared with the Nelson, Pope & Voorhis as it may help is them in with the LIS Urban Design/Stewardship GI/LID project. They may find using the attached site reports and related GIS files most useful. The site reports and GIS files should also be sent to others with knowledge of these sites (e.g, NYSDEC Natural Heritage Program staff) with a request to review existing and provide additional site attribute for possible inclusion in an updated database. This can be done outside of the scope of the current NEIWPCC review of submitted project deliverables. (Kozak and O'Brien)

Review Comments Related to GIS polygons Patrick Comins:

Stratford Point grasslands is located here:

- https://www.google.com/maps/dir/41.1530936,-73.1056583/41.1533601,-73.1042202/@41.1535211,-73.107301,17z/data=!3m1!4b1!4m2!4m1!3e2 (needs to be added as of January 29, 2015)

- In general, you might want overlay DEEPS critical habitat layer, as there are some areas identified by that that are not included in this.

- The New Haven Harbor polygon should probably be extended to include Lighthouse Point Park and also include East Shore Park. Both areas are important for migrant birds. Also, up the West

River which is important for wintering Rusty Blackbirds and to include the Old Field Creek Area, which is important to the ecology of Sandy/Morse Points.

- A larger area around East Rock Park should be included, as this is a very important stopover for migratory landbirds.

- It might be good to extend the area around the East/West River in Guilford up to include more of the East River Preserve because of the coastal forest block there.

- I would consider more offshore waters around Hammonasset Beach State Park

- It is good that Falkner is identified, but what about the foraging areas for the Roseate Terns that nest there? USFWS should have points for that.

- I would extend it more to include the undeveloped area around the Menunketesuck marshes and certainly all of the Salt Meadow Unit of McKinney.

- The sand flats around Menunketesuck Island and waters between Duck and Menunketesuck Islands are important for terns and shorebirds.

- Plum Bank Creek and Back/river in Old Saybrook should be included for Saltmarsh Sparrow nesting, as well as further up the Lieutenant/Blackhall Rivers on the other side of the CT River.

- Especially check the critical habitat polygons around Harkness, as there are proximal critical areas that aren't included in this inventory. Likewise around the mouth of the Thames.

- I would expand it to encompass more of the undeveloped habitat around Barn Island.

- Definitely include all of the sandbars and mudflats at Milford Point and the mouth of the Housatonic. Probably also Stratford point and as mentioned earlier, the waters at the mouth of the river. Short beach should also perhaps be included within that polygon for shorebird use and nesting Piping Plovers.

- I was reexamining the East River polygon and it seems the West River in Guilford isn't included and really should be. It is a key nesting area for Saltmarsh Sparrows.

Sites that should be considered for addition to the Access Database (Comins):

Why not Greenwich Point Park? It is an Important Bird area, and particularly important for wintering/migrant Long-eared and Northern Saw-whet Owls. (Comins)

I’m assuming this is just terrestrial sites, as the waters around the Norwalk Islands in a much larger area around the islands are certainly ecologically important for wintering waterfowl, particularly Long-tailed Duck. Likewise for the waters around the mouth of the Housatonic River, off of Long Beach for Long-tailed Ducks and migrating terns. (Comins)

Silver Sands should be included in addition to Charles Island. It is a regular wintering area for Short-eared Owl and gets a lot of raptor action in migration. It is also a landbird hotspot and the marshes are used by wading birds for foraging. (Comins)

References for future work:

Stenhouse, I.J., Gilbert, A.T. & Hatch, S.K. 2012. Assessment of Colonial Waterbird and Shorebird Data for Coastal Islands and Peninsulas in the Northeast Region. BRI Report number 2012-26. A Report to U.S. Fish &Wildlife Service – Coastal Program. Biodiversity Research Institute, Gorham, ME. 57pp.

Schlesinger, M.D., A.L. Feldmann, and S.M. Young. 2012. Biodiversity and ecological potential of Plum Island, New York. New York Natural Heritage Program, Albany, New York.

IUCN Species (list not necessarily complete per Patrick Comins)

CR – Critically Endangered:

American Burying Beetle (likely extirpated by reintroduction opportunities may exist)
NY GCN, CT GCN

Bog Turtle – NY GCN, CT GCN

Hawksbill Turtle – NY GCN

Kemp's Ridley – NY GCN, CT GCN

Leatherback – NY GCN, CT GCN

EN – Endangered:

Dwarf Wedge Mussel – NY GCN, CT GCN

Fin whale? – NY GCN, CT GCN

Green Turtle? – NY GCN, CT GCN

Indiana Myotis – NY GCN, CT GCN

Loggerhead – NY CGN, CT GCN

Puritan tiger beetle - NY CGN, CT GCN

Spotted turtle - NY CGN, CT GCN

Wood turtle - NY CGN, CT GCN

Yellow lampmussel - NY CGN, CT GCN

VU – Vulnerable:

Atlantic cod?

Atlantic whitefish?

Bicknell's Thrush, migrant only – NY GCN

Blackfish (or Tautog) – CT GCN

Blueback herring - NY CGN, CT GCN

Cerulean Warbler - NY CGN, CT GCN

Eastern Box Turtle - NY CGN, CT GCN

Great white shark?

Haddock?

Long-tailed Duck – NY GCN

New England Cottontail - NY CGN, CT GCN

Ringed boghaunter? – NY GCN

Rusty Blackbird – NY GCN

Saltmarsh Sharptailed Sparrow - NY CGN, CT GCN

Sandbar shark

Sand tiger shark

Shortnose sturgeon - NY CGN, CT GCN

Sperm whale – NY GCN

West Indian Manatee

Whitetip oceanic shark?

Yellowtail flounder?

NT – Near Threatened:

Albacore?

Black Rail, likely extirpated, but may occur as migrant and habitat remains - NY GCN

Black Scoter – NY GCN

Black-tailed Godwit (1-2 records)

Blacktip shark?

Blue shark

Buff-breasted Sandpiper, migrant – NYGCN

Bull shark?

Canada yew

Chestnut-collared Longspur (vagrant)

Chimney Swift: CT GCN

Diamondback terrapin: NY GCN

Golden-winged Warbler, likely extirpated but occurs as a migrant and some habitat restoration opportunities remain, primarily out of LIS boundary – NY GCN

Henslow's Sparrow, now extirpated and even a very rare vagrant – NY GCN

Horseshoe crab – NY GCN

Ivory Gull

Lemon Shark?

Northern Bobwhite, native populations extirpated, but reintroduction opportunities remain - NY GCN

Olive-sided Flycatcher, migrant in LIS boundary, occasional nester in northern CT – NY GCN

Painted Bunting (vagrant)

Piping Plover – NY CGN, CT GCN

Portuguese dogfish?

Red-headed Woodpecker, occasional nester mostly outside of LIS boundary, regular migrant – NY GCN

Semipalmated Sandpiper – NY GCN

Silky shark?

Sooty Shearwater 1-2 records

Spinytail Skate? – NY GCN

Tidewater mucket – NY GCN

Wood Thrush - NY CGN, CT GCN

Data deficient:

Brook floater – NY GCN

Dwarf Sperm Whale (recall that one washed up a few years ago)

Lesser Yellowlegs (not in database) – CT GCN

Long-finned pilot whale?

North Atlantic bottlenosed dolphin?

Pygmy sperm whale?

Short-finned pilot whale?

Other:
Northern Metalmark – NY GCN

Jesup's *Milk-Vetch*?

Greater Scaup…may go on list at some point - NY CGN, CT GCN

Eastern cougar – NY GCN

Little brown bat, should go on list at some point – CT GCN

Five-lined skink…not evaluated – NY GCN

Sandplain gerardia, no listing given – NY GCN

Sea-beach amaranth

Small whorled pogonia – NY GCN

Site Name: *Bluff Point State Park (7)*

RecordID: 40

Town: Groton

State: CT

Size (acres): 800

Ownership: State of Connecticut

Primary Designation Outstanding habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by

Barrett

Component	Habitats
contributing	Beaches and Dunes
contributing	Cliffs and Bluffs
contributing	Coastal Grasslands
contributing	Coastal woodland/shrubland
contributing	Intertidal Flats
contributing	salt water intertidal beaches and shores
contributing	Seepage swamp
contributing	Submerged Aquatic Vegetation Beds
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Coastal woodland/shrubland		
Coastal sand dunes		
Sea level fen		
Saltwater intertidal beaches and shores		
Salt marsh		
Old growth forest		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Lesser yellowlegs	Tringa flavipes (1 nonbreeding individ	☐	☐	☐	☐
invertebrate	Elephant mosquito	Toxorhynchites rutilus	☐	☐	☐	☐
terrestrial mammal	New England cottontail	Sylvilagus transitionalis	☑	☐	☐	☐
bird	Common tern	Sterna hirundo (4 - peak # nonbreedin	☑	☐	☑	☐
bird	Least tern	Sterna antillarum	☑	☐	☑	☐
plant	Canada sand spurry	Spergularia canadensis	☐	☐	☑	☐
invertebrate	Noctuid moth	Shinia spinosae	☐	☐	☑	☐
plant	Seaside dock	Rumex maritimus (historic)	☐	☐	☑	☐
plant	Sickle-leaved golden aster	Pityopsis falcata	☐	☐	☑	☐
invertebrate	Seaside goldenrod stem borer	Papaipema duovata	☐	☐	☑	☐
bird	Osprey	Pandion halieatus	☑	☐	☐	☐
plant	violet wood-sorrel	Oxalis violacea	☐	☐	☑	☐
plant	Cutleaf water-milfoil	Myriophyllum pinnatum	☐	☐	☑	☐
plant	Scotch lovage	Ligusticum scothicum	☐	☐	☑	☐
invertebrate	Sand prairie wainscot	Leucania extincta	☐	☐	☐	☐
invertebrate	Noctuid moth	Lepipolys perscripta	☐	☐	☑	☐
bird	yellow breasted chat	Icteria virens	☑	☐	☑	☐
plant	Whorled pennywort	Hydrocotyle verticillata	☐	☐	☑	☐
plant	False beach-heather	Hudsonia tomentosa	☐	☐	☑	☐
plant	Seabeach sandwort	Honkenya peploides	☐	☐	☑	☐
plant	Bush rock rose	Helianthemum dumosum	☑	☐	☑	☐

Site Name: *Bluff Point State Park (7)*

RecordID: 40

Town: Groton

State: CT

Size (acres): 800

Ownership: State of Connecticut

Primary Designation Outstanding habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by

Barrett

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	American oystercatcher	Haematepus palliatus (1 pr/1 nonbree	☑	☐	☑	☐
invertebrate	Pink streak	Faronta rubripennis	☑	☐	☑	☐
invertebrate	False heather underwing	Drasteria graphica atlantica	☐	☐	☑	☐
plant	Whitlow grass	Draba reptans	☐	☐	☑	☐
plant	Yellow thistle	Cirsium horridulum	☐	☐	☑	☐
invertebrate	Tiger beetle	Cicindela marginata	☑	☐	☑	☐
invertebrate	Tiger beetle	Cicindela hirticollis	☑	☐	☑	☐
bird	Piping plover	Charadrius melodus (5 prs/10 chicks fl	☑	☑	☑	☐
bird	Semipalmated sandpiper	Calidris pusilla (2 nonbreeding individ	☑	☐	☐	☐
invertebrate	Apamea moth	Apamea lintneri	☐	☐	☑	☐
bird	Salt marsh sharp-tailed sparro	Ammodramus caudacutus	☑	☑	☑	☐
plant	Virginia copperleaf	Acalypha virginica	☐	☐	☑	☐
invertebrate	Coastal heathland cutworm	Abagrostis nefascia benjamini	☑	☐	☑	☐

SIGT Habitat Criteria
Cliffs and Bluffs - Is Unarmored
Coastal Forest - Has Unfragmented Block(s) >X acres
Tidal Wetlands - Is Waterfowl Concentration Area
Beaches and Dunes - Has Back Lagoon Foraging Areas

Discusssion of Habitat Mosaic / Complex :

Bluff Point is a state-owned peninsula often considered the last significant undeveloped area on the Connecticut coastline. In 1975, the Connecticut Legislature designated a portion of Bluff Point as a “Coastal Reserve” in recognition of its ecological importance and to preserve its ecological integrity. One of the largest undeveloped coastal areas in the state, this mostly forested 800-acre site contains a variety of habitats supporting state-threatened and-endangered species.

The property includes a variety of coastal habitats including coastal forest, barrier beach and dune, grassland, coastal plain pond, coastal bluff, tidal wetlands, intertidal mud flats, eelgrass beds, and back-barrier sandflat.

More than 200 bird species are found here, including various herons, hawks, cormorants, and federally-endangered piping plover.

Removal of a wastewater treatment plant discharge to Mumford Cove on the east side of Bluff Point resulted in the spontaneous restoration of eelgrass, a type of submerged aquatic vegetation providing critical habitat for shellfish, finfish and waterfowl.

The southeast section of Bluff Point is a designated Connecticut Natural Area Preserve. The designation is due in part to a unique coastal

Site Name: *Bluff Point State Park (7)*

RecordID: 40

Town: Groton

State: CT

Size (acres): 800

Ownership: State of Connecticut

Primary Designation Outstanding habitat

Secondary Designation Rare species habitat

Record Complete? ☑

Data collected by

Barrett

forest on a concave slope, known as a 'cove forest,' which supports trees that are nearly 100-years old.

Geologic Signifcance: See http://www.ct.gov/deep/cwp/view.asp?a=2716&q=398432&deepNav_GID=1650 for geology of Bluff Point State Park.

Threats: Deer browse largely under control due to management by CT DEEP.

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://longislandsoundstudy.net/2012/10/bluff-point/
Grey Literature	Field Observations CT (Comins 2014)

Site Name: *Haley Farm State Park (6)*

RecordID: 39

Town: Groton

State: CT

Size (acres): 267

Ownership: State of Connecticut

Primary Designation

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Component	Habitats
contributing	Coastal Forests
contributing	Poor fen
contributing	Scrub thicket
contributing	Wet meadows

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
bird	Brown thrasher	Toxostoma rufum	☑	☐	☑	☐
plant	seaside crowfoot	Ranunculus cymbalaria	☐	☐	☑	☐
plant	Willow oak	Quercus phellos (planted?)	☐	☐	☐	☐
bird	Osprey	Pandion haliaetus	☑	☐	☐	☐
bird	Yellow-breasted chat	Ictera virens	☑	☐	☑	☐
invertebrate	Affable bumblebee	Bombus affinis	☐	☐	☑	☐
plant	Purple milkweed	Asclepias purpurescens	☐	☐	☑	☐
plant	Arethusa	Arethusa bulbosa	☑	☐	☑	☐
plant	Virginia copperleaf (historic)	Acalypha virginica	☐	☐	☑	☐

Discusssion of Habitat Mosaic / Complex :

Haley Farm State Park is a Connecticut state park preserving Colonial-era farmland as open space in the town of Groton. It was the site of a dairy farm owned by Caleb Haley. The Haley Farm State Park includes 267 acres that is directly connected to Bluff Point Coastal Reserve through a pedestrian bridge over railroad tracks.
From: http://en.wikipedia.org/wiki/Haley_Farm_State_Park
According to Leary, "[t]he park is a mosaic of upland and wetland vegetation types."[11] Algae and intertidal plants can be found on the shore, including salt meadow grass, sedge and sphagnum moss. The swampy areas of Haley Farm State Park have red maple and tulip trees, but the uplands include cherry, hickory and shrubs. The history of the area and region have been revealed through the study of the trees. In 1973, a white oak on the site was found to be 142 years old, in the upper end of the life expectancy of the species. The first 34 years of its life showed rapid growth, believed to have been a result of the 1815 New England hurricane which cleared out many of the older trees and opened the canopy. The rings show a widening in 1918 in response to the chestnut blight and further growth in response to the 1938 New England hurricane. The mid-to-late 1960s shows little growth and serves as evidence of the near-drought conditions of New England. Haley Farm State Park is a rare habitat that "squeezes a great variety of biological diversity into a very small space."[11] The growth and composition of the forest changes based on the major storms and other biological intrusions that result in "constant change and continuous self-adjustment" that allows the forest to thrive.
Per R. Rozsa - site may include a sea level fen.

Site Name: *Haley Farm State Park (6)*

RecordID: 39

Town: Groton

State: CT

Size (acres): 267

Ownership: State of Connecticut

Primary Designation

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Geologic Signifcance:

Threats:

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://en.wikipedia.org/wiki/Haley_Farm_State_Park

Site Name: *Lord Cove (83)*

RecordID: 81

Town: Lyme

State: CT

Size (acres):

Primary Designation Exemplary habitat

Secondary Designation

Record Complete? ☑

Data collected by Barrett

Ownership: The Lord Cove wetlands are predominantly held for conservation purposes by the state, The Nature Conservancy, Lyme Land Conservation Trust, and the Potapaug Gun Club.

Component	Habitats
contributing	Floodplain Forest
contributing	Islands (Nott and Goose)
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Brackish intertidal marsh		
Beachshore (Nott Island)		
Floodplain forest		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Horned pondweed	Zannichellia palustris var. major	☐	☐	☑	☐
plant	Arrowleaf	Sagittaria subulata	☐	☐	☑	☐
plant	Arrowleaf	Sagittaria montevidensis ssp spongios	☐	☐	☑	☐
bird	Virginia rail	Rallus limicola	☑	☐	☑	☐
bird	King rail	Rallus elegans	☑	☐	☑	☐
bird	Savannah sparrow	Passerculus sandwichensis	☑	☐	☑	☐
plant	Field paspalum	Paspalum laeve	☐	☐	☑	☐
bird	Osprey	Pandion haliaetus	☑	☐	☑	☐
reptile/amphibian	Diamondback terrapin	Malaclemys terrapin	☑	☑	☑	☐
plant	Mudwort	Limosella australis	☐	☐	☑	☐
plant	Lilaeopsis	Lilaeopsis chinensis	☐	☐	☑	☐
bird	Least bittern	Ixobrychus exilis	☑	☐	☑	☐
bird	Bald eagle (nesting and winteri	Haliaeetus leucocephalus	☑	☐	☑	☐
bird	Sedge wren	Cistothorus platensis	☑	☐	☑	☐
bird	Norther Harrier	Circus cyaneus	☑	☐	☑	☐
plant	Saltmarsh bulrush	Bolboschoenus novae-angliae	☐	☐	☑	☐
plant	Eaton's beggar's tick	Bidens eatonii	☑	☐	☑	☐
plant	Orache	Atriplex glabiuscula	☐	☐	☑	☐
bird	Gadwall	Anas strepera	☐	☐	☑	☐

Discusssion of Habitat Mosaic / Complex : An extensive area of brackish reed marsh and floodplain forest. Includes Nott, Goose, and Calves Islands.
Brackish intertidal marsh with Typha angustifolia and Phragmites australis
Goose Island is mainly brackish marsh.

Geologic Signifcance:

Threats: Invasive plant - Phragmites australis

Site Name: Lord Cove (83)

RecordID: 81

Town: Lyme

State: CT

Size (acres):

Primary Designation Exemplary habitat

Secondary Designation

Record Complete? ☑

Data collected by Barrett

Ownership: The Lord Cove wetlands are predominantly held for conservation purposes by the state, The Nature Conservancy, Lyme Land Conservation Trust, and the Potapaug Gun Club.

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://nctc.fws.gov/resources/knowledge-resources/pubs5/ramsar/web_link/sites.htm

Site Name: *Great Island Marsh - Roger Tory Peterson NAP (27)*

RecordID: 60

Town: Old Lyme

State: CT

Size (acres): 588

Ownership: State of Connecticut (mainly)

Primary Designation Outstanding habitat

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Component	Habitats
contributing	Intertidal Flats
primary	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Saltwater intertidal flat		
Brackish intertidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
plant	Horned pondweed	Zannichellia palustris var. major	☐	☐	☑	☐
bird	Barn owl	Tyto alba (1983 H?)	☑	☐	☑	☐
invertebrate	Soldier fly	Sargus fasciatus (1990 - Lieutenant Ri	☐	☐	☑	☐
plant	Arrowleaf	Sagittaria montevidensis ssp. spongio	☐	☐	☑	☐
plant	Cursed crowfoot	Ranunculus sceleratus (1990 - Lieute	☐	☐	☑	☐
bird	Virginia rail	Rallus limicola (1991)	☑	☐	☑	☐
bird	King rail	Rallus elegans (1997)	☑	☐	☑	☐
bird	Sora	Porzana carolina (1985 H?)	☑	☐	☑	☐
bird	Savannah sparrow	Passerculus sandwichensis (1994)	☑	☐	☑	☐
bird	Osprey	Pandion haliaetus (1994)	☑	☐	☑	☐
plant	Eastern prickly pear	Opuntia humifusa (1992)	☐	☐	☑	☐
bird	Common merganser	Mergus merganser (1984 H?)	☑	☐	☑	☐
plant	Mudwort	Limosella australis (1990)	☐	☐	☑	☐
plant	Lilaeopsis	Lilaeopsis chinensis (2010)	☐	☐	☑	☐
bird	Least bittern	Ixobrychus exilis (2011)	☑	☐	☑	☐
bird	Piping plover	Charadrius melodus (2012)	☑	☑	☑	☐
bird	Willet	Catoptrophorus semipalmatus (1993)	☑	☐	☑	☐
plant	Bayonet grass	Bolboschoenus maritimus ssp. paludo	☐	☐	☑	☐
bird	Short-eared owl	Asio flammeus (2008)	☑	☐	☑	☐
bird	Gadwall	Anas strepera (1986 H?)	☐	☐	☑	☐
bird	Blue-winged teal	Anas discors (1985)	☑	☐	☑	☐
bird	Seaside sparrow	Ammodramus maritimus (2012)	☑	☐	☑	☐
bird	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus (2012)	☑	☑	☑	☐

SIGT Habitat Criteria
Tidal Wetlands - Supports Nesting Shorebirds
Tidal Wetlands - Is Migratory Shorebird Concentration Area
Tidal Wetlands - Is Waterfowl Concentration Area

Site Name: *Great Island Marsh - Roger Tory Peterson NAP (27)*

RecordID: 60

Town: Old Lyme

State: CT

Size (acres): 588

Ownership: State of Connecticut (mainly)

Primary Designation Outstanding habitat

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

SIGT Habitat Criteria
Tidal Wetlands - Has High Forage Fish Productivity
Beaches and Dunes - Has Roosting Areas

Discusssion of Habitat Mosaic / Complex : This 588-acre tidal marsh, located at the mouth of the Connecticut River, provides habitat for a wide variety of wildlife, especially birds. This mainly brackish tidal marsh includes numerous creeks and channels. Unfortunately, the ecological value of the Peterson Wildlife Area and the area's use by wildlife had been greatly diminished from the effects of grid ditching and the encroachment of the invasive plant, phragmites.
The goal of the Peterson Wildlife Area project was to restore 300 acres of degraded marsh habitat to a mixture of brackish meadows interspersed with shallow, open water areas, a condition that approximates the pre-ditched marsh environment. The restoration also involved the elimination of 200 acres of phragmites by plugging and filling ditches to restore the natural tidal flow of saltwater into the marsh. A 180-acre site at the Peterson Wildlife Area now has 30 new ponds with pannes and plugged grid ditches. Native plants and grasses have been able to return to the area, benefiting wildlife.
Owl Roost (2002) short-eared owls   AT GREAT ISLAND IS A SIGNIFICANT WINTERING AREA FOR OWLS (ESPECIALLY SHORT-EARED OWLS).

Geologic Signifcance:

Threats:

Notes/Justification

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP Natural Diversity Database
Website	http://www.ct.gov/DEep/cwp/view.asp?a=2723&q=326132&deepNav_GID=1655

Site Name: CT River (30)

RecordID: 63

Town: Old Lyme, Old Saybrook/Essex/Lyme

Primary Designation Outstanding habitat

Record Complete? ☑

State: CT

Secondary Designation

Data collected by Barrett

Size (acres):

Ownership: State/NGO/private/public trust

Component	Habitats
primary	Riverine Migratory Corridors
contributing	Submerged Aquatic Vegetation Beds
contributing	Tidal Wetlands

Significant Communities	Rarity (global)	Rarity (State)
Salt marsh		
Saltwater intertidal beaches and shores		
Brackish intertidal marsh		
Freshwater tidal marsh		

Species Type	Common Name	Scientific name	GCN	IUCN	CT Listed	NY Listed
fish	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus (199	☑	☐	☑	☐
fish	Shortnose sturgeon	Acipenser brevirostrum (1989)	☑	☐	☑	☐

SIGT Habitat Criteria
Riverine Migratory Corridors - Has High Concentration of Migratory Species
Tidal Wetlands - Is Migratory Shorebird Concentration Area
Tidal Wetlands - Is Waterfowl Concentration Area
Tidal Wetlands - Supports Nesting Shorebirds
Tidal Wetlands - Has High Forage Fish Productivity

Discusssion of Habitat Mosaic / Complex :

Per http://longislandsoundstudy.net/2012/07/lower-connecticut-river/: The Connecticut River is the longest tidal river in the northeastern United States. With its headwaters in the Connecticut Lakes region of New Hampshire near the Canadian border, it flows for 410 miles before discharging into Long Island Sound.The tidal segment of the river and associated tidal wetlands are a haven for fish, wildlife and plants including the endangered shortnose sturgeon, American bittern, and Parker’s pipewort. As the only major river in the Northeast without a large port or harbor at its mouth, the Lower Connecticut River remains relatively undisturbed by development and offers of a variety of nature-based outdoor recreational opportunitiesThe Lower Connecticut River is recognized as containing “Wetlands of International Importance” under the intergovernmental Ramsar Convention.

The Connecticut River has the most extensive fresh and brackish tidal wetland systems in the Northeast.

The Lower Connecticut River is part of a massive 7.2-million acre watershed, stretching 410 miles from the Canadian border to Long Island Sound.

It contains one of the least disturbed and most pristine large-river tidal marsh systems in the nation.

Its habitats provide vital breeding, foraging, resting, and migratory pathways for rare and diverse bird species. Prominent species include the American black duck, mallard, mute swan, Virginia rail, piping plover, osprey, snowy egret, and bald eagle.

It also contains the highest fish diversity in the region with 78 species, including Atlantic salmon, American shad, largemouth bass, winter and summer flounder, channel and white catfish, and the endangered shortnosed and Atlantic sturgeon.

Site Name: CT River (30)

RecordID: 63

Town: Old Lyme, Old Saybrook/Essex/Lyme

State: CT

Size (acres):

Ownership: State/NGO/private/public trust

Primary Designation Outstanding habitat

Secondary Designation

Record Complete? ☑

Data collected by

Barrett

Geologic Signifcance:

Threats:

Notes/Justification NDDB information here just for the riverine section; rare species and plant communities listed under individual sites.
Lower Connecticut River recognized as containing "Wetlands of International Importance" under the Ramsar Convention. Area contains outstanding brackish-tidal fresh marsh complex.

Follow up comments

Citations/References:

Type of Data	Citation/Source
Spatial Dataset (GIS)	CT DEEP NDDB
Website	http://longislandsoundstudy.net/2012/07/lower-connecticut-river/
Website	http://www.ramsar.org/connecticut-river-estuary-and-tidal-river-wetlands-complex
Grey Literature	Long Island Sound Stewardship Initiative 2006 Stewardship Atlas