Saltmarsh Restoration Priorities for the Saltmarsh Sparrow

New York

Last Updated May 20, 2024

Saltmarsh Sparrow. Ray Hennessy

Saltmarsh Sparrow. Alison Kocek

Goal Statement

The Saltmarsh Sparrow (*Ammospiza caudacuta*) is a High Priority Species of Conservation Need in New York. This document is intended to provide those interested in salt marsh and Saltmarsh Sparrow conservation with information that will help with conservation implementation. It identifies areas containing salt marsh that are good candidates for restoration, enhancement, and/or conservation to provide persistent high-quality Saltmarsh Sparrow nesting habitat in the next 6 years in addition to long-term salt marsh resilience.

Saltmarsh Sparrow Objectives from the Atlantic Coast Joint Venture (ACJV)

The ACJV's Saltmarsh Sparrow Conservation Plan (Hartley and Weldon, 2020) identifies state-by-state population and habitat goals for the Saltmarsh Sparrow based on a goal population of 25,000 birds. New York's breeding Saltmarsh Sparrow population is estimated to be 8.7% of the regional population as of 2011/2012 (Wiest et al. 2019). Its population goal was therefore calculated as 8.7% of the regional population goal of 25,000 birds. Habitat goals listed in the table below are the minimum acres of high-quality habitat (defined below) needed to support the state's population goal. The short-term habitat goal sets a realistic target for the next 6 years (by 2030); the long-term habitat goal is set to achieve and sustain the state's Saltmarsh Sparrow population goal

	2011/2012 Population Estimate*	State's %	Population Goal (Indiv)	2030 high marsh goal (ac)**	Total marsh needed to meet 2030 goal (ac)***	Long-term (2069) High Marsh Goal** (ac)	Total marsh needed to meet 2069 goal (ac)**
New York	5,300 (+/-1,300)	8.7%	2170	1,338	3,717	4,286	11,906
Regional	60,000		25,000	22,943	63,731	79,603	221,119

** Acreage based on the assumption that ~36% of tidal marsh acreage is high marsh (Correll et al. 2019).*
***Current high marsh acres do not represent high-quality high marsh; most existing high marsh acreage has been altered and needs restoration to be high quality habitat.*

High-quality Habitat for Saltmarsh Sparrows

High-quality habitat is defined as conditions that allow sufficient reproductive success to support a stable or growing Saltmarsh Sparrow population. Conservation should focus on preserving, restoring, or enhancing high-quality breeding habitat, which will have the following characteristics:

Morning mist over the marsh. Alison Kocek

- High marsh patches with the lowest flooding frequency which provide a relatively safe window of at least 24 days with limited flooding.
- Extensive and dense *Spartina patens* vegetation with a deep, well-developed thatch layer; short-form *S. alterniflora*, *Distichlis spicata*, and *Juncus gerardii* also comprise high marsh areas and can support Saltmarsh Sparrow nesting.
- The highest quality high marsh habitat is most often found in the least modified marshes, such as those without ditching, or that are downstream, or free of tidal restrictions like road crossings.

Marsh Identification and Prioritization Process

Marsh parcels were identified and characterized by first identifying the highest-ranked marsh patches identified by the ACJV Saltmarsh Sparrow Habitat Prioritization Tool (top 10%; ACJV 2020). They were then reviewed and refined by a group of non-profit, academic, state, and federal partners. Marsh summaries were created, informed, and finalized via partner working groups (see Acknowledgements for full partner list). This group has sorted the following marshes into the following subcategories to further refine this prioritization within the state.

Priority Marshes: Marshes prioritized for ongoing restoration planning and action to support the Saltmarsh Sparrow in New York.

Reference Marshes: These marshes are in near-pristine condition and can act as reference marshes for restoration efforts in the state. Long-term preservation of these areas and the open space around them to facilitate long-term marsh migration is important, but no immediate restoration action is suggested for them.

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Honorable Mention: The following marshes were identified by the partner group as important to keep in mind for future work but needing additional assessment before any work can be planned.

The information in this document including spatial delineations of priority marshes are available as part of a regional set of marsh restoration priorities for the Saltmarsh Sparrow. This information is available to view on the ACJV Saltmarsh Sparrow mapper.

Restoration Technique Definitions

The following terms are used repeatedly throughout this document to identify opportunity for different techniques at identified marshes, including in the "attributes" section. ***This information is meant to identify opportunity and potential for these restoration techniques at each site but is not meant to be prescriptive***. A formal site assessment and design is aways necessary to identify specific next steps and restoration strategies within each marsh parcel.

Sediment placement
Placement of material (including sediments from dredging efforts) on the marsh platform. Includes thin-layer placement, thick-layer placement, beneficial use of dredged sediments, formation of hummocks/microtopography, etc.

Repair hydrology - runnelling / channel creation
Modification of marsh platform using shallow channel creation to remove or prevent ground water saturation at the marsh surface that results in marsh vegetation death and marsh subsidence. Excavated peat is reused to create structured microtopography.

Repair hydrology - tidal restriction mitigation
Removal or modification of large-scale tidal restrictions such as road crossings, culverts, bridges, etc. to restore tidal flow.

Repair hydrology - address ditch plugs
Adjustment of ditch plugging on marsh platform to improve hydrology.

Repair hydrology - ditch remediation
Adjustment of human-made ditches on the marsh platform to improve hydrology.

Repair hydrology - berm, embankment, or levee modification
Removal or alteration of berms, stonewalls or embankments to restore hydrology of marsh platform and marsh migration corridor.

Land acquisition / protection for marsh migration
Purchase or easement of land to protect for eventual marsh migration.

Facilitated marsh migration
Active assistance of marsh migration through modification of the environment.

Invasive plant species mitigation (*Phragmites australis*, etc.)
Removal or mitigation of invasive plants.

Living shoreline development
Development of nature-based features to promote shoreline stabilization.

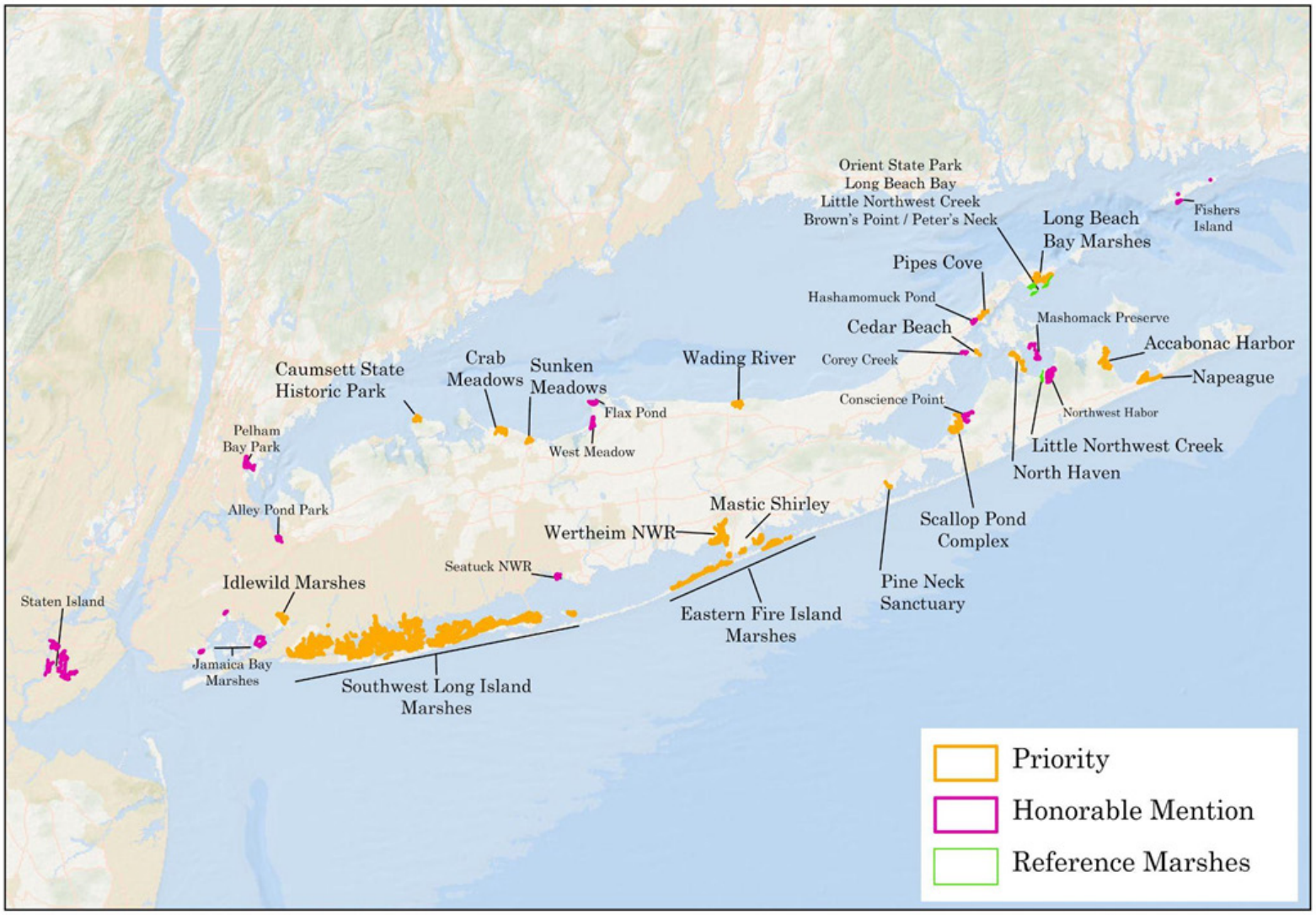
Wildlife herbivory mitigation
Removal or management of wildlife due to overgrazing. Wildlife includes deer, horses, crabs, geese, etc.

Stormwater mitigation
Management of stormwater inputs to reduce water, nutrients, and sediment.

Additional ecological assessment needed
Additional monitoring and site assessment is necessary to determine specific next steps or assess existing restoration efforts at this site.

Priority Marshes

The following marshes have been prioritized for ongoing restoration planning and action to support the Saltmarsh Sparrow in New York. They are listed west to east (left to right) by geographic region: North Shore, New York City & South Shore, and Peconic Estuary.



Wading River Marsh. Steve Papa

North Shore Marshes

Caumsett State Historic Park – 107 acres (43 ha)

Existing Conditions

This marsh is experiencing edge erosion but appears to be unditched and unrestricted. It is included as a priority because of its placement in Long Island Sound where intact tidal marsh is relatively scarce. The marsh is a low marsh system that is degrading in place, converting to mudflat. It is extremely challenging to walk in and sediment starved. Accessing the marsh is a challenge; permission is required to drive the access road however boat access is an option as well. and considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Caumsett State Park. Jonah Saitz/USFWS

Existing Projects

USFWS Southern New England Coastal Program: collected baseline vegetation, elevation, hydrology, and avian data in 2023 and presented it to stakeholders including the state in April 2024, with the intention of initiating restoration.

Existing Sparrow Data

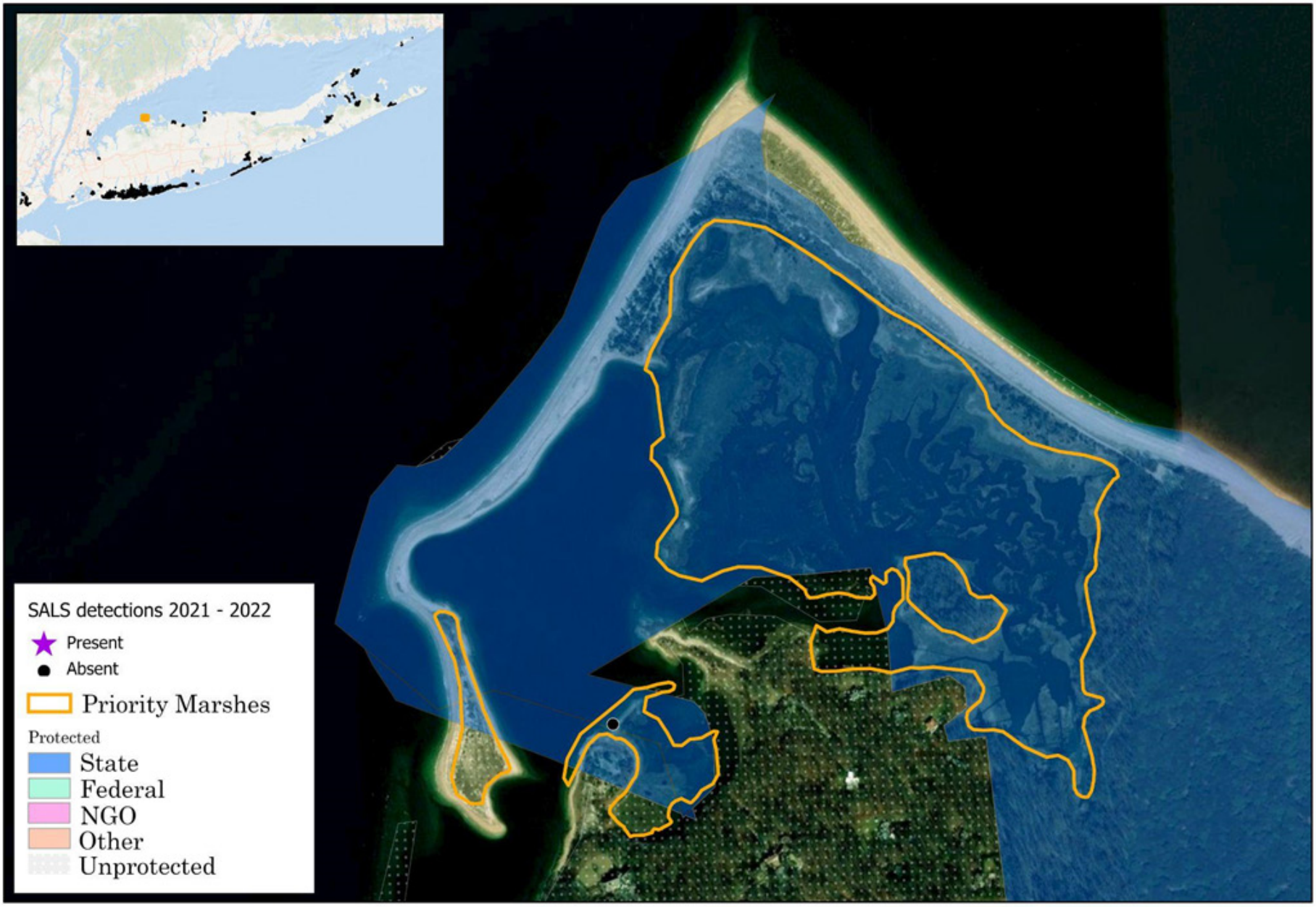
Saltmarsh Sparrow have not been detected at this site despite significant survey effort in recent years (USFWS 2023).

Recommended Management / Next Steps To Management Action

- Assessment for potential sediment placement.
- Jetty on the west side of the site (sometimes seen underwater in imagery) is a potential tidal restriction and should be assessed.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	N
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	N
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	N
Facilitated marsh migration	N
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Caumsett State Historic Park

Crab Meadow Park – 257 acres (104 ha)

Existing Conditions

Crab Meadow Marsh. Jonah Saitz/USFWS

This marsh is heavily ditched; these ditches are quickly expanding, resulting in edge retreat and conversion of high marsh to low marsh. Development exists on the east, west, and north sides and there is limited potential for marsh migration in this area on private lands to the south. There are 3 replicate SET stations in this marsh (installed ~2014, monitored by Brooklyn College). USFWS Southern New England Coastal Program collected vegetation, elevation, hydrology, and avian data in 2023 and is available upon request - contact Sam Apgar (samathna_apgar@fws.gov). The marsh is transitioning from a high marsh to low marsh system and will continue to transition due to increased flooding without intervention. This area is considered a Stewardship Area by the Long Island Sound Study and a Significant Coastal Fish and Wildlife Habitat by the State of New York.

Existing Projects

The Crab Meadow Marsh Watershed Hydrology Study and Stewardship Plan (link here): Funded by NFWF, LIS Futures Fund, with match from the Iroquois Gas Transmission System Community Program. GEI Consultants Inc, PC put together the plan in 2015 which largely consolidated existing information about the watershed, highlighted goals for future work at the site, and initiated data collection (SET, soil cores, aerial assessment of elevation change, piezometer). See plan here.

Audubon NY, USFWS, Town of Huntington: Audubon NY is partnering with USFWS and the Town of Huntington to apply for a Long Island Sound Futures Fund grant for permitting and design funding for Crab Meadow Marsh in May 2024. Contact: Vicky O'Niell (victoria.oneill@audubon.org)

Existing Sparrow Data

Saltmarsh Sparrow present and confirmed breeding in low densities (USFWS 2023).

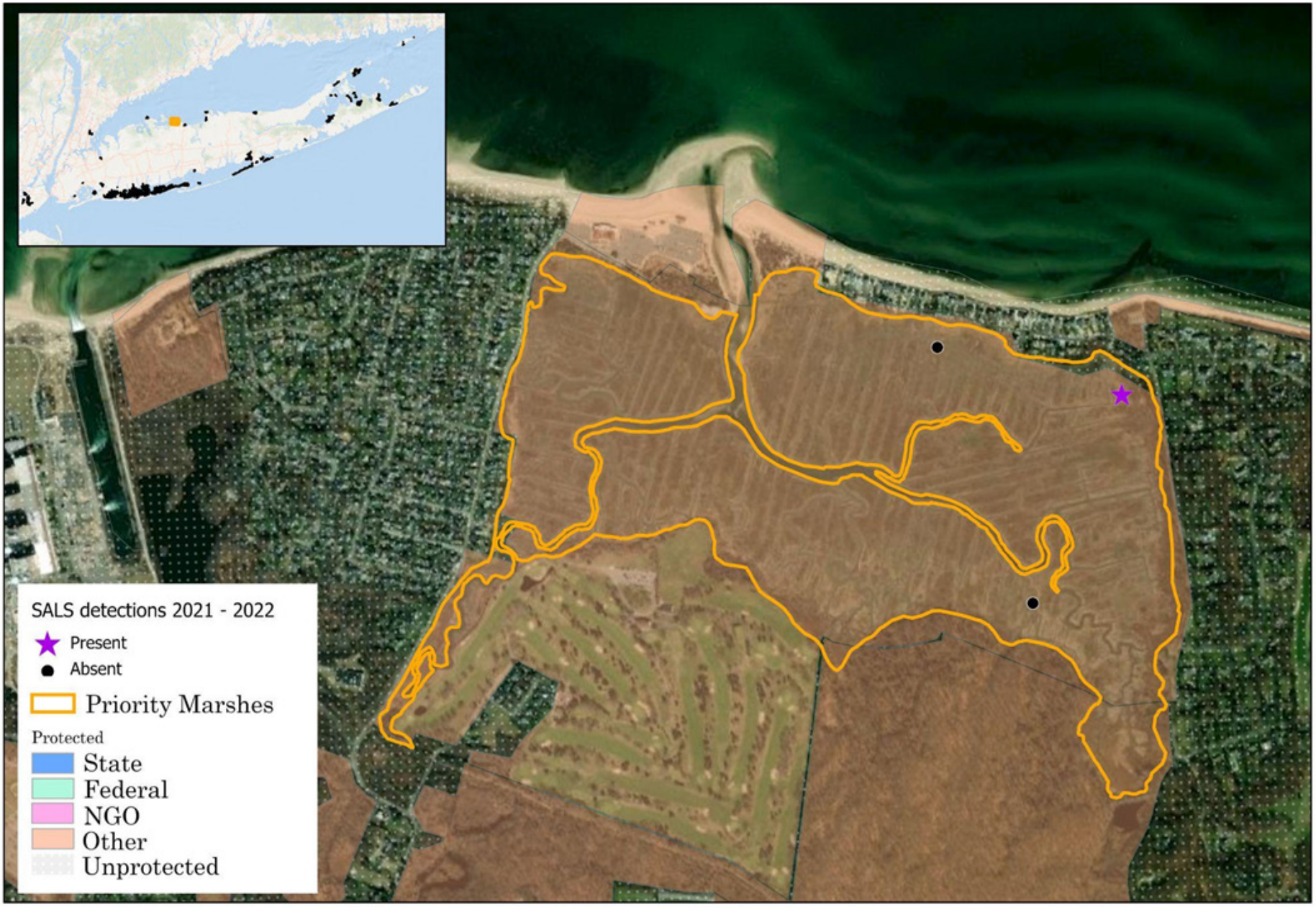
Recommended Management / Next Steps To Management Action

- This marsh needs elevation enhancement to persist long-term. There is a potential dredge source near a power plant to the west; Town of Huntington is strongly interested in using sediment onsite as other disposal options are costly.
- Assess marsh migration potential into the north side of the golf course.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	N
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y

Sun setting over Crab Marsh. Jonah Saitz/USFWS



Crab Meadow Park

Sunken Meadow State Park – 83 acres (34 ha)

Existing Conditions

This marsh experiences edge erosion and has been heavily infiltrated by *Phragmites*. It is also tidally restricted by several road crossings and upstream by culverts and berm. Historically there has been a large amount of elevation change due to fill, rechanneling of stream to make room for parking, etc. New York Parks maintains 6 total SETs (3 in high, 3 in low) in this area.

Existing Projects

Audubon New York: Partnering with Save the Sound for *Phragmites* removal, runnelling, and eventual sediment placement. Restoration 30% design is complete, 60% design is underway specifically for the Saltmarsh Sparrow (NAWCA/NFWF). Funding still needed for implementation and monitoring. Best contact: Best contact: Katie Friedman (kfriedman@savethesound.org), Vicky O'Neill (victoria.oneill@audubon.org)

Save the Sound: Partnered with NY State Parks on a low marsh restoration completed in Sunken Meadow creek restored ~2 acres (2018) in the priority area on the map below and another 2 acres (1 acre 2015, 1 acre 2016) to the east of the map below.. Best contact: Katie Friedman (kfriedman@savethesound.org))

Existing Sparrow Data

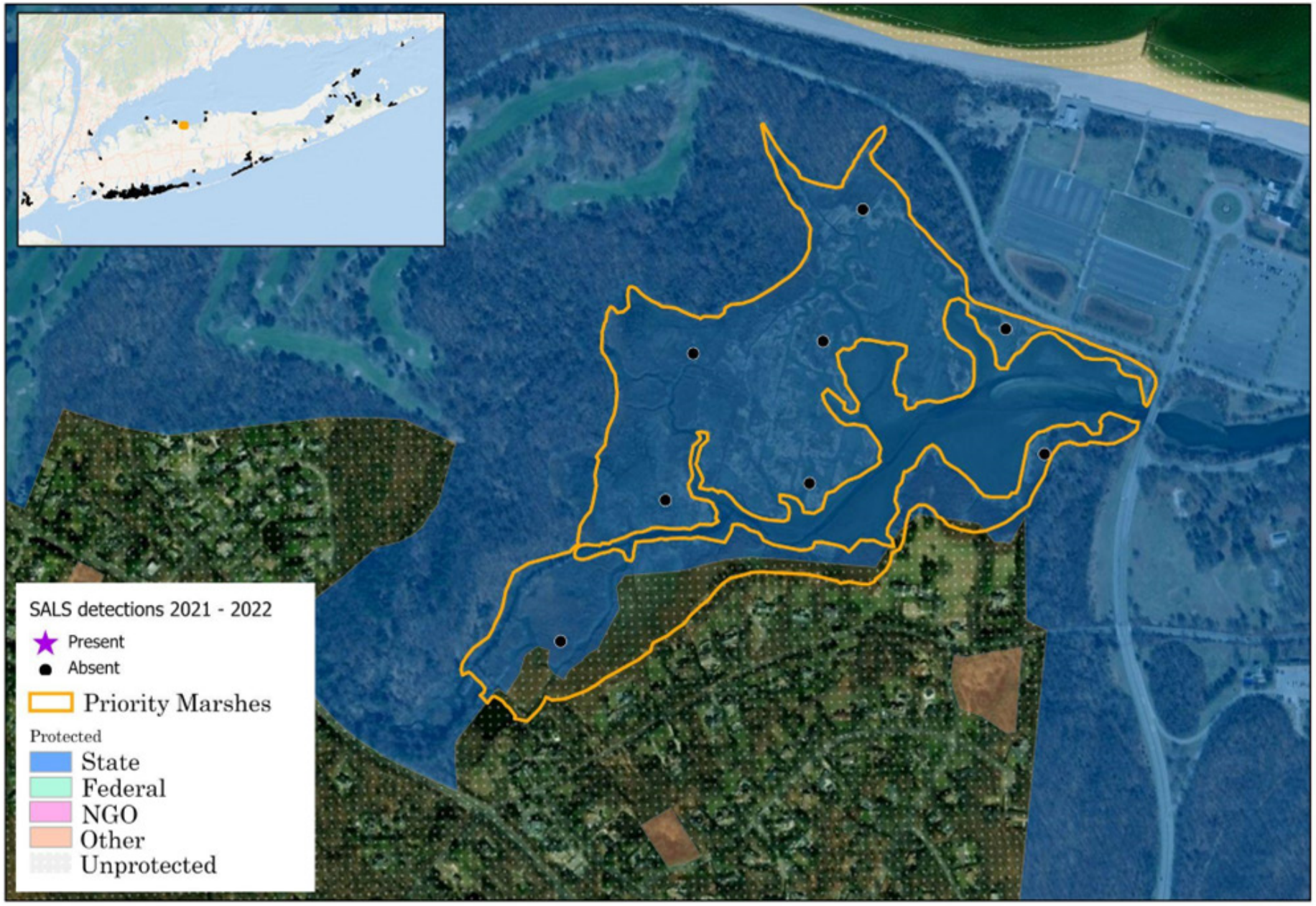
Saltmarsh Sparrow not detected at this site.

Recommended Management / Next Steps To Management Action

- It is likely that elevation enhancement will be necessary at this site.
- Marsh migration potential on the southern section of the site. Assessment of parking lots is necessary to identify specific next steps.
- Future action could include removal of berm upstream of marsh (southwest of parcel).

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Sunken Meadow State Park

Wading River – 175 acres (71 ha)

Existing Conditions

Wading River marsh. Steve Papa

This marsh is majority-owned by The Nature Conservancy but includes Town of Riverhead, Suffolk County, and private land ownership. This area is the top priority site on Long Island Sound for Saltmarsh Sparrows. The marsh is situated to the east of a nuclear power plant that was built but never went into full operation. The state of NY is in the process of acquiring the undeveloped land and marsh to the southeast of the plant. When this undeveloped parcel is combined with marsh east of the plant this area (~1,000 acres) will be one of the larger undeveloped tracts of land on the north shore of Long Island and has potential for larger-scale marsh migration. However, there is a reasonably steep slope up to the forest which may limit migration potential. Clapper rails have also been documented at this site. This area is considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Existing Projects

No existing projects at this site.

Existing Sparrow Data

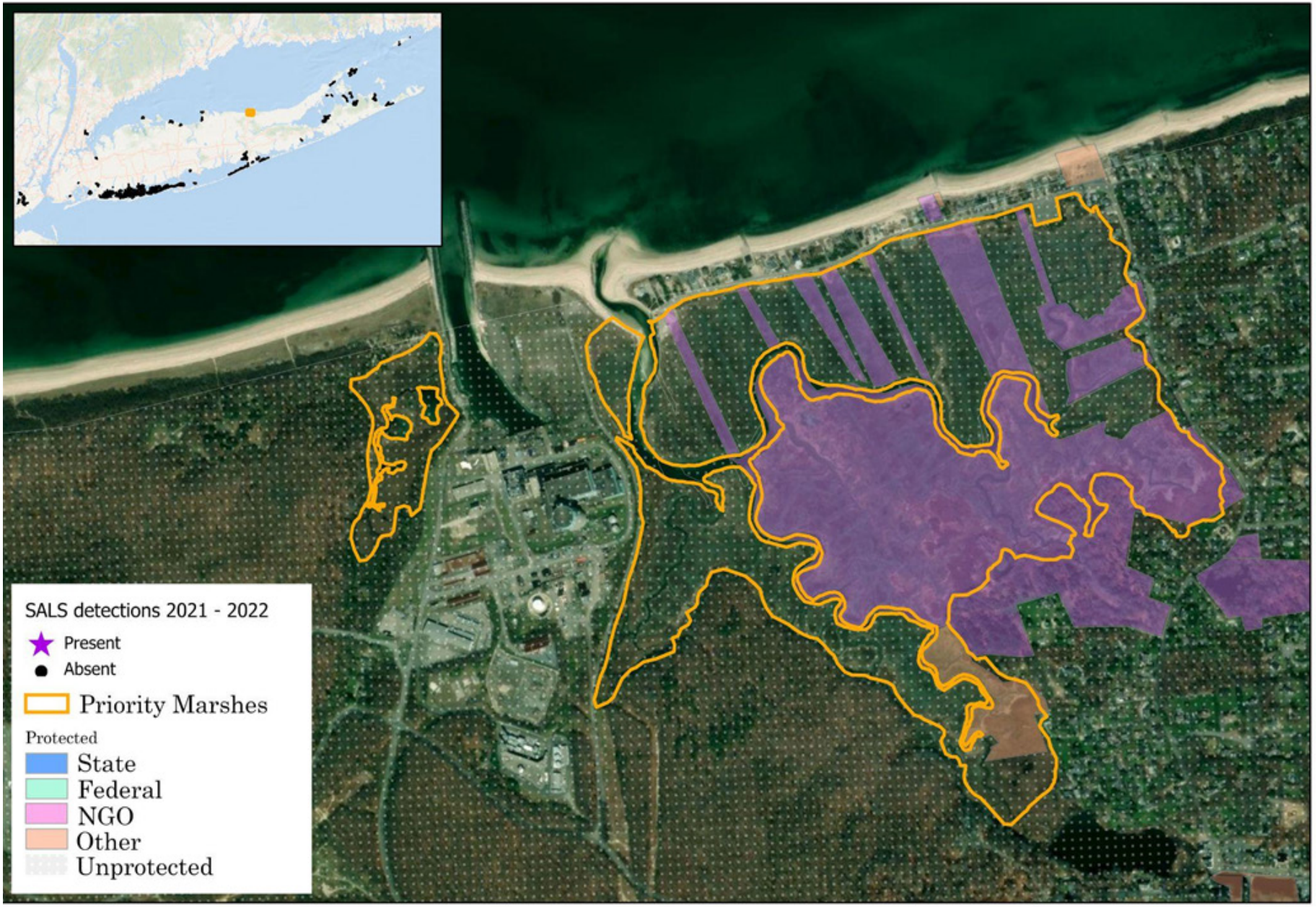
Saltmarsh Sparrow present and confirmed breeding at low densities at this site (USFWS 2023).

Recommended Management / Next Steps To Management Action

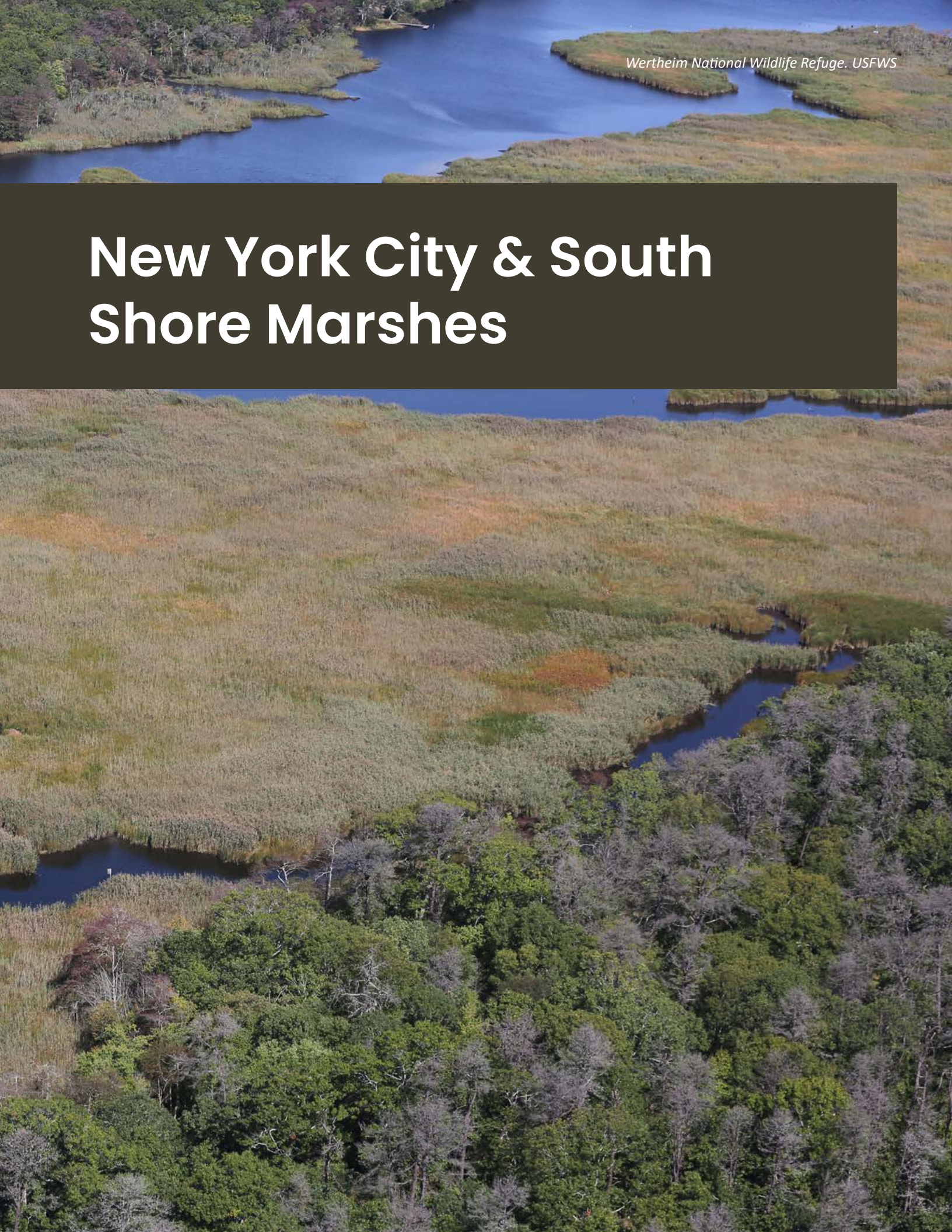
- Restoration of tidal flow to marsh in western parcel.
- Assessment for elevation enhancement of eastern parcel.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Wading River



Wertheim National Wildlife Refuge. USFWS

New York City & South Shore Marshes

Idlewild Marsh – 200 acres (81 ha)

Existing Conditions

Saltmarsh Sparrow (left) and Seaside Sparrow (right) are intensely studied at Idlewild Marsh. Alison Kocek

These marshes are of mixed ownership and are high-profile within the state due to the proximity to New York City (NYC) and John F. Kennedy International Airport. Sediment supply is very limited in these marshes and there is no room for marsh migration, however there are existing populations of Saltmarsh Sparrows and Seaside Sparrows here that have been intensively studied. It maintains the highest abundance of Saltmarsh Sparrows in the NYC area and many individuals have adapted to nest in the more abundant low marsh grasses (tall *Spartina alterniflora*; Kocek et al. 2022). This site has subsided greatly in recent times, and as a result much of the high marsh is fragmented. The western marsh segment maintains a higher overall elevation (0.5 m higher) than the eastern marsh segment due to the tidal restriction of Brookville Blvd but suffers from water lingering on the marsh. There is also a very high predator density (raccoons and rats) in these marsh parcels. Despite these challenges, Idlewild marsh is the best opportunity for marsh restoration to benefit the Saltmarsh Sparrow in Jamaica Bay. There are 3 SETs here.

Existing Projects

NYC Parks: 1 acre sediment recently placed in the northeastern section of the Idlewild complex at Huxley St. in early 2023, with subsequent planting of marsh vegetation completed in June 2023 by Audubon New York. Marsh access is difficult because the marsh is sinking and waterlogged, driving conversion of high marsh to low marsh. Additional support is needed for implementation of sediment placement for more acreage and long-term monitoring. Best contact: Chris Haight (Christopher.Haight@parks.nyc.gov)

NYC Parks: Sediment placement is being planned on the western section of the Idlewild complex within the section Saltmarsh Sparrows most densely breed in. The project aims to break ground in winter 2025/2026. Best contact: Chris Haight (Christopher.Haight@parks.nyc.gov)

Existing Sparrow Data

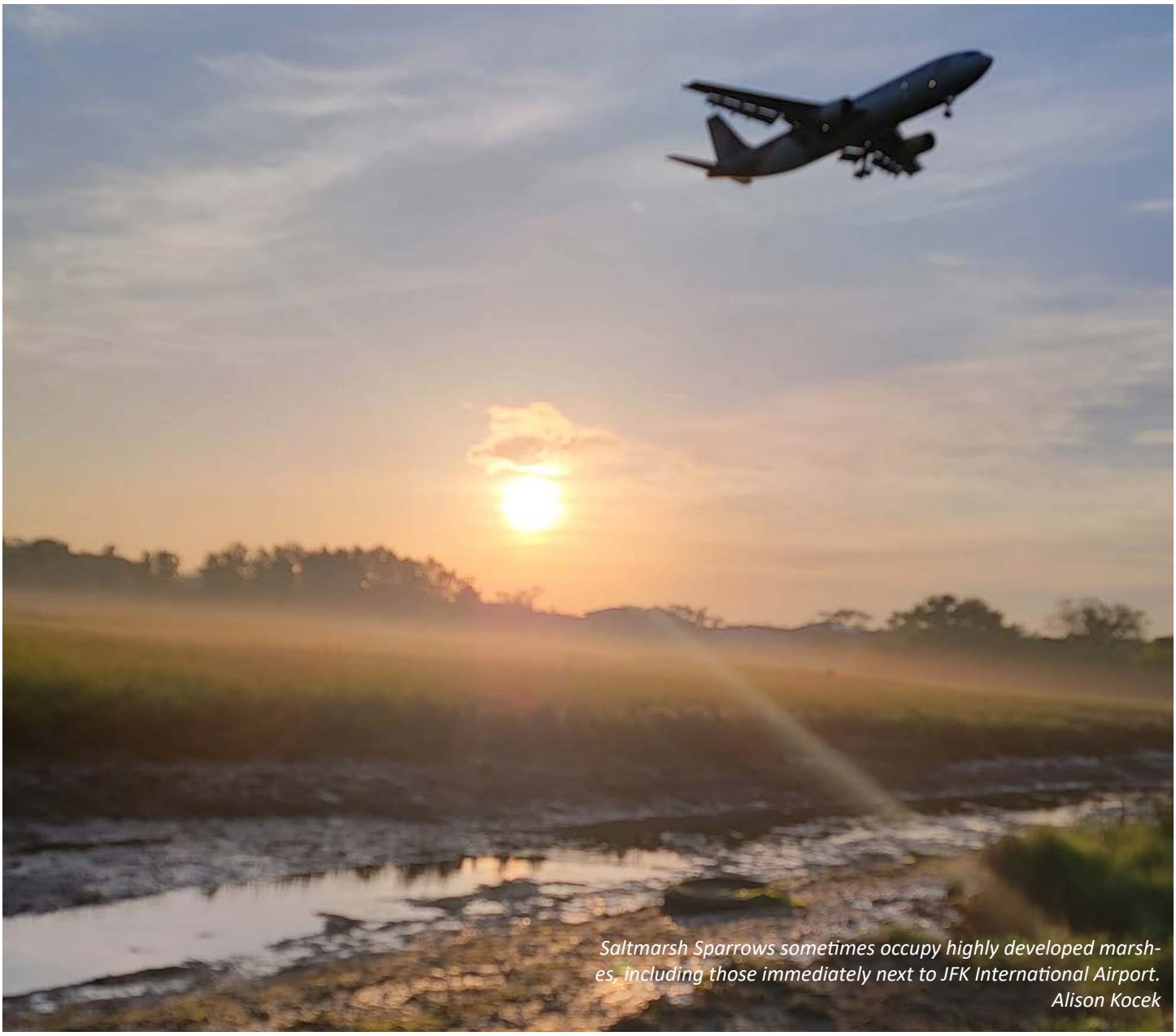
Saltmarsh Sparrow detected and confirmed breeding at this site (2012-2019). USFWS will begin nest searching and rapid assessment procedures in 2024 (no productivity data collected since 2019) to guide sediment placement plans and serve as a pre-restoration comparison.

Recommended Management / Next Steps To Management Action

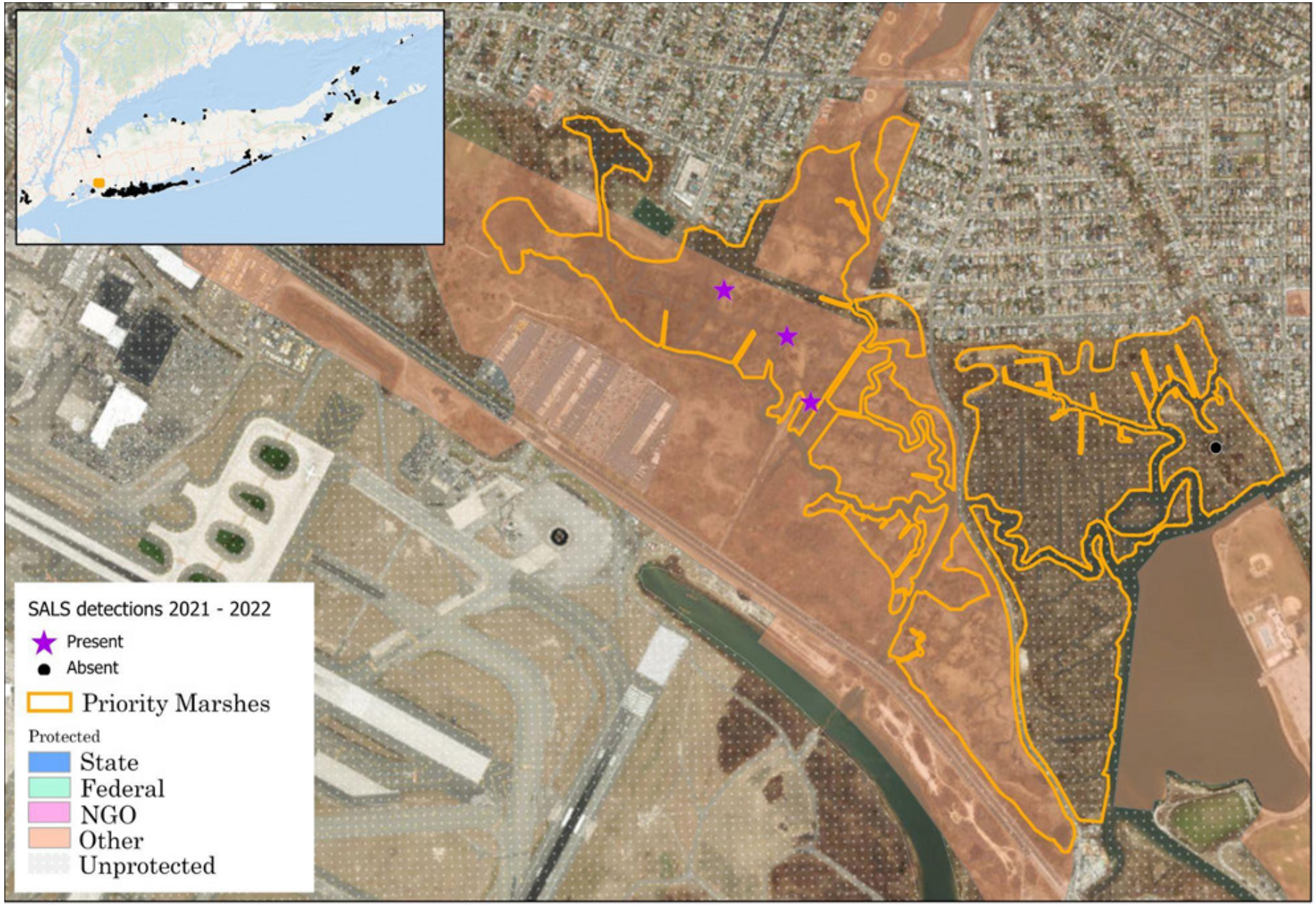
- Elevation enhancement is the most important aspect of maintaining these marshes long-term.
- Standing water is an issue on the western marsh section but increasing tidal flow to this section of the marsh would likely be detrimental to Saltmarsh Sparrow reproduction.
- Predator management could be considered to help increase Saltmarsh Sparrow reproduction.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	N
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	N
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Saltmarsh Sparrows sometimes occupy highly developed marshes, including those immediately next to JFK International Airport.
Alison Kocek



Idlewild Marsh

0.35 Miles

0.4 Kilometers

Southwest Long Island – 10,655 acres (4,312 ha)

Existing Conditions

This large marsh complex is perhaps the most important area of marsh in New York for the Saltmarsh Sparrow. These marshes are heavily ditched, and most of the acreage is marsh islands which are sediment-starved with minimal room for marsh migration long-term. There are several channels that are regularly dredged and potential sources of sediment, but there is a competing need for sand to maintain nearby beaches. TNC maintains replicate SET stations on Lawrence Marsh and North Green Sedge. Since 2013, the overall marsh platform elevations have not been keeping pace with SLR from the current tidal epoch. (Maher and Starke 2023). This area is considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Floral accents in a salt marsh on Cinder Island Alison Kocek.

Within this large marsh complex we suggest a focus on North Cinder Island, Cinder Island, North Green Sedge Island, Smith Island, High Meadow Island, Alder Island, Lawrence Island, Captree Island, Cedar Island, Gilgo Island, Thatch Island, and East Fire Island (see map) because these areas all have current high marsh and existing Saltmarsh Sparrow populations that could be managed for additional acreage. Several dredge spoil islands exist in the area from channel ditching locally (overseen by Nassau and Suffolk counties) that are higher in elevation, but human use of these islands is high. While the Long Island Sound Study supports large funding opportunities for the north shore and numerous funding opportunities exist on the east end / north fork, there is not a similar magnitude of funding available for south shore marshes like those in Southwest Long Island.

Existing Projects

Town of Hempstead/State of NY: Smith marsh (south end), High Meadow, Alder Island: projects are planned but NY DEC permitting is pending. Dredge comes from Jones Inlet which is regularly dredged. Funding is still needed for implementation and monitoring (previous source fell through due to permit timing). Best contact: Cassidy Freudenberg (cassfre@hempsteadny.gov) and Tara Schneider-Moran (tarasch@hempsteadny.gov)

Town of Hempstead: Current project measuring / predicting tidal inundation into the future in the entire Hempstead Bay. Data collection is still underway, but a preliminary report is available. No additional funding is needed for this project. Best contact: Cassidy Freudenberg (cassfre@hempsteadny.gov) and Tara Schneider (tarasch@hempsteadny.gov)

Nassau County (through contractor): Post Hurricane Sandy, there has been a large investment in sewage treatment; estimated completion date is 2024. The Long Island Nitrogen Action Plan seeks to reduce nitrogen levels on Long Island and contains a potentially substantial

source of mitigation funding for continuing marsh restoration as appropriate. Best contact to learn more: Dan Fucci (dfucci@nassaucountyny.gov)

Nassau County (through the Western Bays Resiliency Initiative): This is the biggest water quality restoration project in this area:https://www.bayparkconveyance.org/ which will mitigate decades of nitrogen pollution in the western bays through improving nitrogen removal from wastewater at Bay Park Sewage Treatment Plant, converting the other treatment plants in the area to pump stations and connecting them to Bay Park, and then sending all of that better treated wastewater to an ocean outfall. Best contact: BayParkConveyance@gmail.com

Existing Sparrow Data

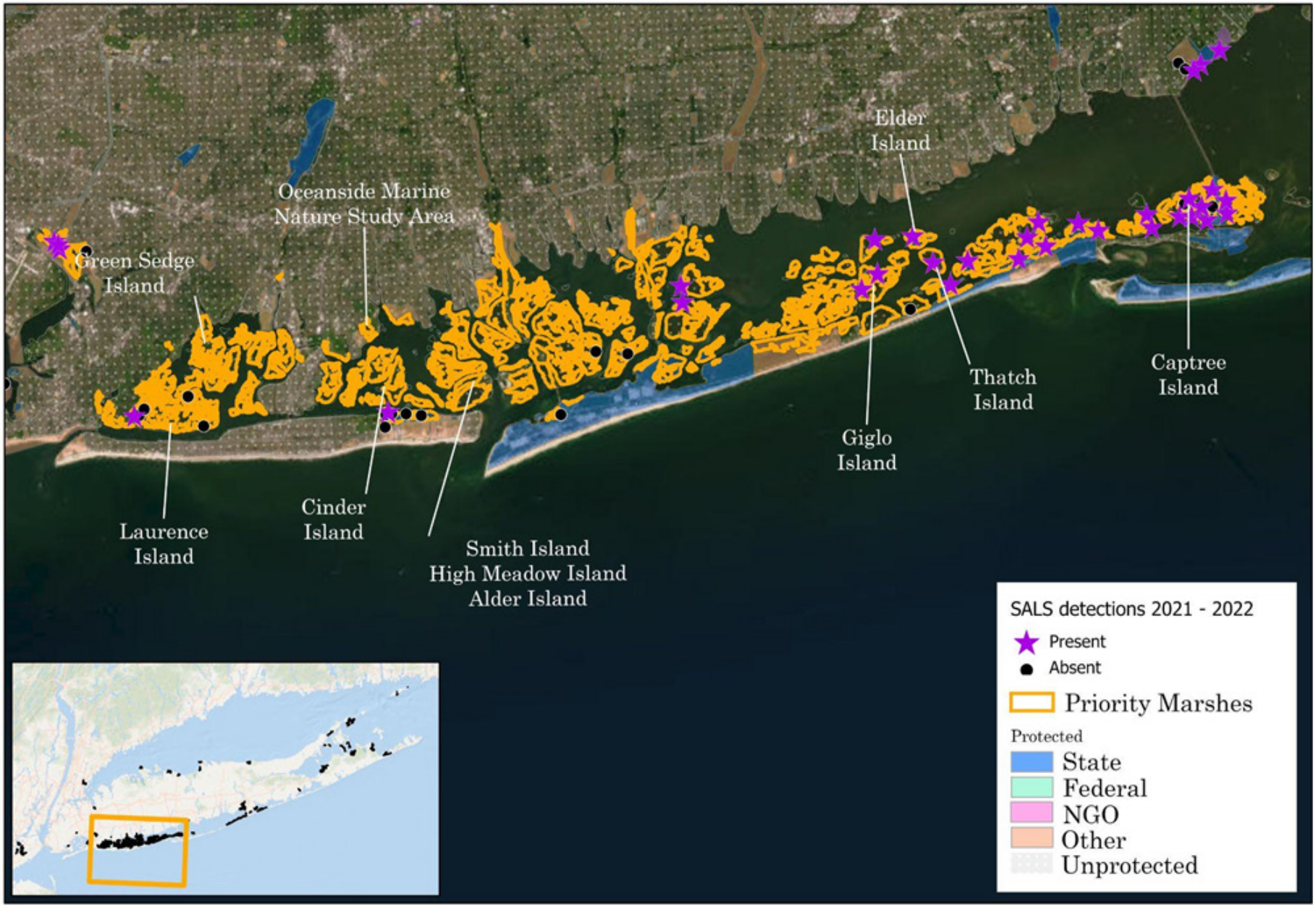
Saltmarsh Sparrow present and confirmed breeding at North Cinder Island, North Green Sedge Island, and Ocean Marine Nature Study Area. North Cinder Island has the current highest known concentration of sparrows for the area. An assessment of all the marsh islands was recently completed through a Back Bay study (US Army Corps of Engineers; USACE). The Biodiversity Research Institute found high levels of mercury in Saltmarsh Sparrows at North Cinder Island and North Green Sedge Island in 2008-2017 (Lane et al. 2020). USFWS will likely perform rapid assessment for Saltmarsh Sparrow presence and breeding at some marsh islands in 2024.

Recommended Management / Next Steps To Management Action

- Elevation enhancement is necessary for any marsh island to persist. A comprehensive assessment of all marsh islands is necessary to further identify restoration opportunities.
- Collaboration with NY DOT to maintain islands that also support causeways.
- Lawrence Marsh needs hydrological assessment, but has potential for smaller-scale restoration work (e.g. runnelling, ditch remediation).
- Hydrologic assessment for potential elevation enhancement – local dredge source is available in the Town of Babylon.
- Protection of Thatch and Elder Islands from kite surfing activity May – September.
- Berm modification could be possible in marshes adjacent to existing infrastructure.
- Protection of marshes from helicopter 'touch and go training' is also needed, particularly marshes in Babylon Township.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	N
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	Y
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Southwest Long Island

5.5 Miles

6.5 Kilometers

Eastern Fire Island Marshes (distinct from East Fire Island) – 943 acres (365 ha)

This barrier beach island is managed by the US National Park Service as Fire Island National Seashore as well as several local municipalities. The portion of the barrier island between the NPS' Smith Point visitor's center and Watch Hill is federally owned (Fire Island National Seashore; western polygon in map) and is designated as a federal wilderness area (Otis Pike Federal Wilderness Area). East of the wilderness area includes Suffolk County's Smith Point County Park and Great Gun Park in Brookhaven. Elevation of this barrier island is declining rapidly due to lack of sediment supply, although the ocean beach is an engineered beach kept at fairly high elevations to protect the engineered dune from storm damages. There are SETs placed throughout Watch Hill, Hospital Point, and Great Gun.

Existing Conditions

Wilderness area: Extensive mosquito ditching exists within the wilderness area, however this area received an infusion of sediment and resulting elevation gain during Hurricane Sandy (2012), and SETs located in this area show elevation gain over time, making this area a lower priority for restoration in the short term, but an important area for sparrows. Watch Hill Marina (run by National Park Service) has been recently dredged. There is an additional small dredge project planned near the entrance to the marina which will be placed upland in a picnic area. The inlet created during Hurricane Sandy closed in 2023.

Smith Point County Park / Great Gun: These marshes are heavily ditched and unmaintained. Some ditches were plugged to put water on the marsh to create some ponds on the surface of the marsh, but this is now resulting in expanding ponds and pannes and internal marsh loss. Piping Plovers nest on the ocean side, and portions of the ocean beach are closed to off-road vehicles due to piping plovers during the summer months. Regular dredging at Moriches inlet results in sediment deposition on the ocean/beach side of Smith Point County Park as part of the Corps' Fire Island Inlet to Montauk Point Coastal Storm Risk Management Project. This area is considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Existing Projects

NPS: Received IRA and Keystone Initiative funds to develop designs and implement restoration action at Colonel Island, which is immediately next to (but not part of) the wilderness area. Support is still needed for short and long-term monitoring. Best contact: Jordan Raphael (jordan_raphael@nps.gov)

USACE is evaluating efforts to improve marsh so it provides additional coastal storm risk management benefits. In the past USACE created sand flats near Pattersquash Island and cleared vegetation on the barrier island in this area as mitigation for the Fire Island Inlet to Montauk Point Project, referred to as a Coastal Process Feature by USACE.

Existing Sparrow Data

Saltmarsh Sparrows detected at this site (SHARP 2021/2022; SHARP 2023) but breeding has not been confirmed.

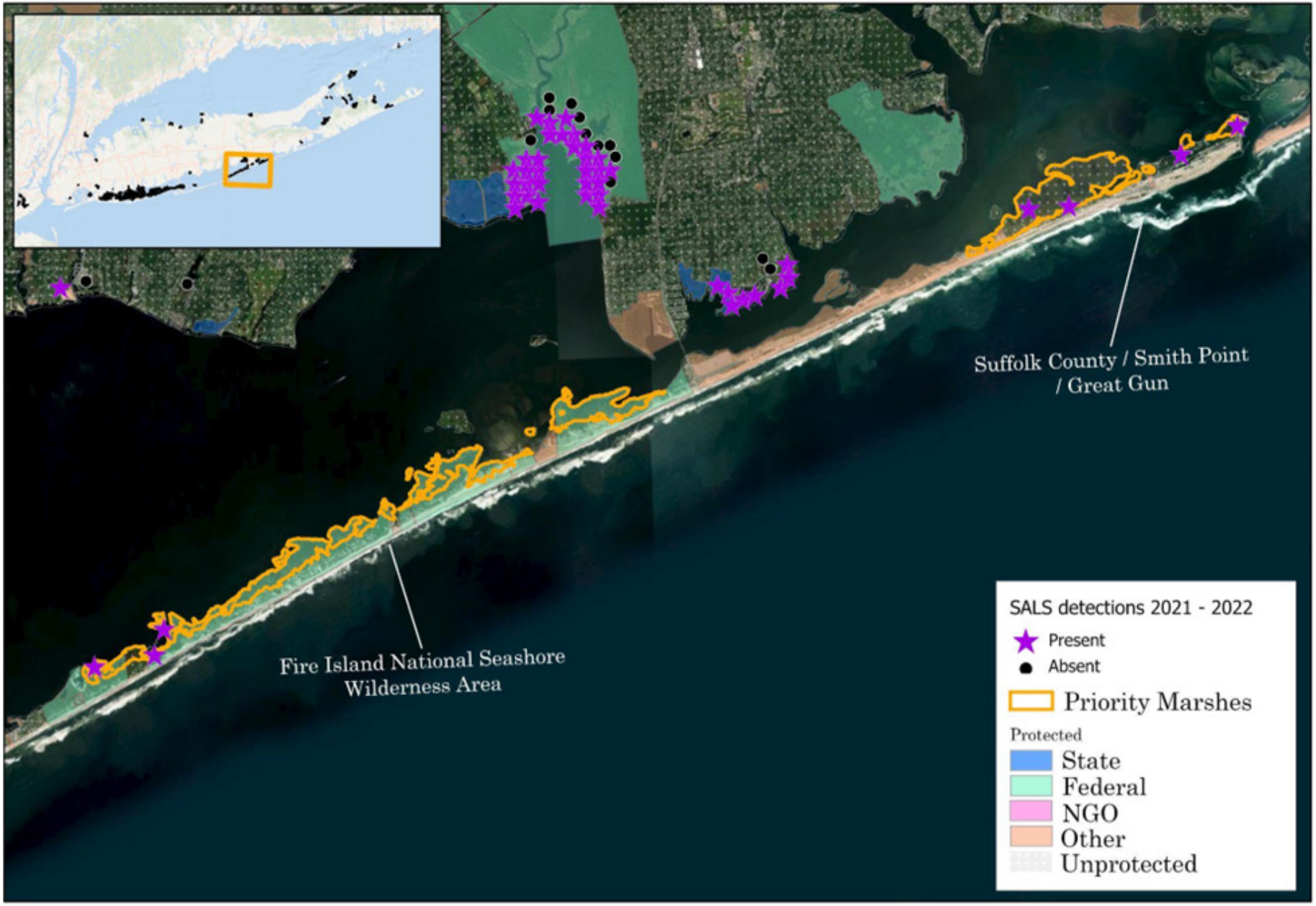
Recommended Management / Next Steps To Management Action

- All areas: Elevation enhancement is the most important aspect of maintaining these marshes long-term, particularly in the bay area. A full assessment of marshes is necessary to identify the best marsh islands for elevation enhancement.
- Smith Point County Park: Revegetation of 3 sand overwash zones.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	N
Repair hydrology - tidal restriction mitigation	N
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	N
Repair hydrology - berm, embankment, or levee modification	N
Land acquisition / protection for marsh migration	N
Facilitated marsh migration	N
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y

Jim Lynch and Kelsey Taylor collecting surface elevation table (SET) data from Fire Island National Seashore. NPS



Eastern Fire Island Marshes

2.5 Miles

3 Kilometers

Fireplace Neck (Wertheim NWR and Fireplace Neck State Park) – 758 acres (307 ha)

Existing Conditions

Heavily ditched marsh with mixed State (Fireplace Neck Tidal Wetland Area) and Federal (Wertheim NWR) ownership. Mott Lane divides the state-owned portion, with no tidal exchange between the 2 sections. Extensively ditched, suspect agricultural practices including berms; there is some evidence for past use as grazing and salt hay farming. Surface Elevation Tables (SETs) are located at the Wellington Preserve at Wertheim, controls located at Smith Point. *Phragmites* dominates the marsh in northern parcels of federally owned land. Open Marsh Water Management that included the installation of more than 100 ditch plugs occurred here. This effort occurred in the late 1980s - 1990s. Many of these ditch plugs were removed during the 2015-2018 restoration effort but plugs and marine grade plywood are still present in some areas. Some hydrological monitoring occurred in 2022 on the west side of Wertheim NWR to inform modeling for future actions.

Existing Projects

State of NY: Fireplace Neck hydrological restoration through rechanneling (runnelling), ditch plug removal and additions, recently completed by the state (ended early 2023). Support for long-term monitoring is still needed. Best contact: Alexa Fournier (alexa.fournier@dec.ny.gov)

USFWS: Restoration work occurred at USFWS' Wertheim NWR (2015-2018). The project involved ditch remediation using peat fill and coir logs, excavation of new channels and removal of ditch plugs to further improve hydrology. Herbicide treatment of *Phragmites* stands occurred during 2014 and 2015. Post-restoration monitoring is complete. Further adaptive management proposed for 2023. Best contact: Terra Willi (Terra_willi@fws.gov)

USFWS: Data has been collected for hydrological modeling to inform future restoration actions at this site. Work is slated to be done by USFWS staff. Support needed through hydrological modeling capacity. Best contact: Terra Willi (Terra_willi@fws.gov)

Suffolk County Division of Vector Control/USFWS: Integrated Marsh Management project involved reconfiguring the tidal flow network by creating new hydrologic features (tidal channels and pools) and filling in old grid ditches with peat removed during the pool and channel installation process. This effort was completed in 2004 and 2005 and has informed current projects (see below). Best contact: Camilo Salazar (camilo.salazar@suffolkcountyny.gov), Tom Iwanejko (Tom.Iwanejko@suffolkcountyny.gov)

Existing Sparrow Data

Saltmarsh Sparrow present and confirmed breeding at this site. USFWS will likely mist-net at this site in summer 2024.

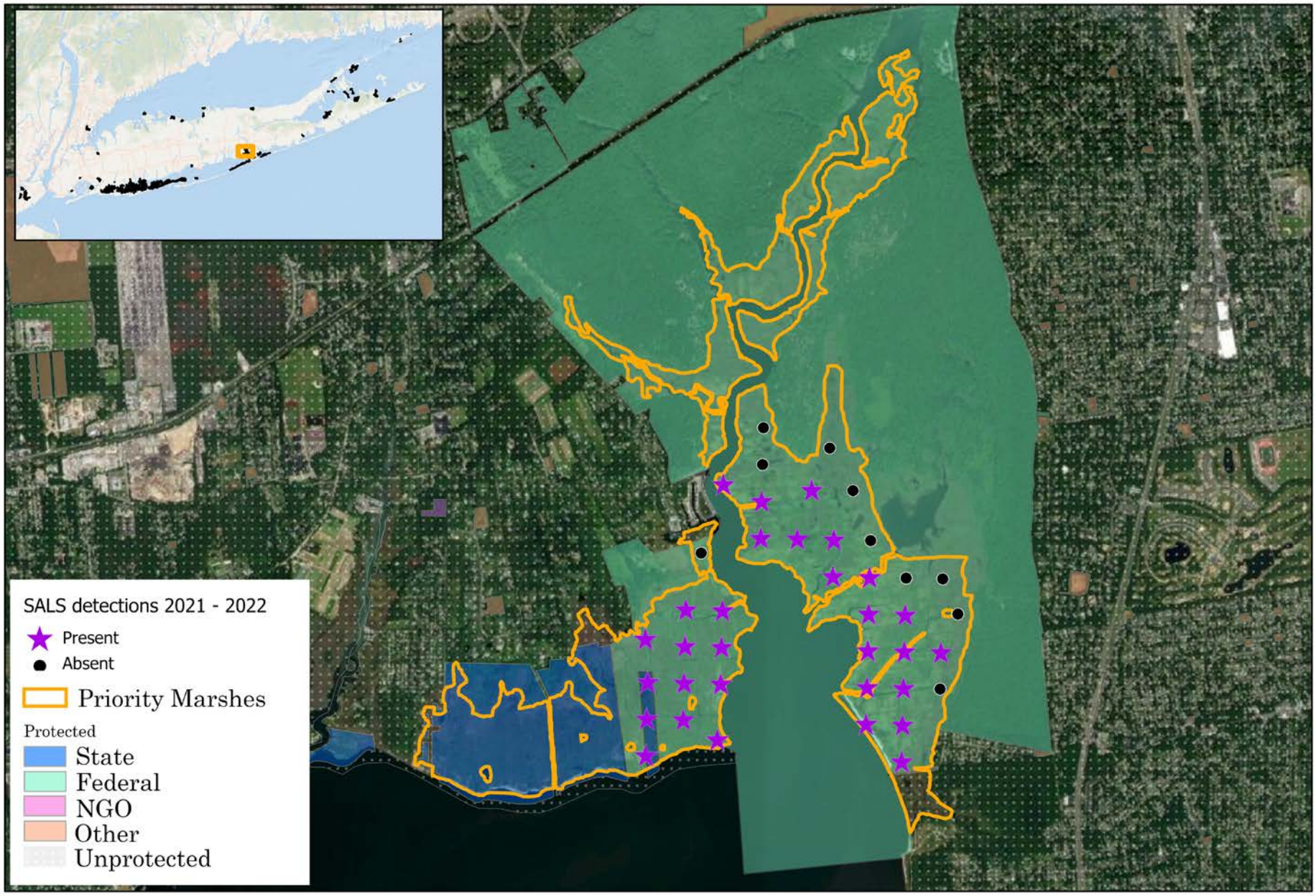
Recommended Management / Next Steps To Management Action

- Long-term monitoring for existing restoration sites.
- Additional restoration work to install runnels, remove ditch plugs (as appropriate), and removal of remnant agriculture features (e.g. berms to promote marsh migration)
- Sediment placement could be an option if impoundments were removed within the marsh parcel.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	Y
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y

Aerial view of Wertheim National Wildlife Refuge. USFWS



Wertheim NWR and Fireplace Neck Tidal Wetlands Area

Mastic and Shirley – 278 acres (113 ha)

Existing Conditions

This priority area includes several marshes on Long Island under various ownership and management including Town of Brookhaven, Mastic Beach, the William Floyd Estate, and Smith Point North (distinct from Smith Point County Park).

Glossy Ibis can be found in the marshes of Mastic Beach. PhotoJeff, Creative Commons

Mastic Beach: Mastic Beach, Town of Brookhaven, and Suffolk County have a managed coastal retreat program that will buy out land along coastal areas from private landowners due to sea-level rise, making room for marsh migration. Existing projects:

William Floyd Estate: This property is federally owned and managed by the Fire Island National Seashore. The marsh is heavily ditched. There is evidence of Dichlorodiphenyltrichloroethane (DDT) in 3 man-made ponds; there is a concern is that with sea level rise and natural movement of the marsh the ponds will breach and release DDT into the marsh and surrounding water bodies. Additionally, marsh is quickly migrating into the surrounding oak hickory / black gum forest, creating ghost forests. Data collected between 2014 and 2021 documented a quick transition from forest to ghost forest (pers comm. J Raphael, 2022).

Smith Point North: Marsh is ditched with internal ponding and a good potential candidate for elevation enhancement. There are 3 replicate SETs here.

Existing Projects

NPS: Received IRA funds to develop designs for minimally invasive restoration work on William Floyd Estate. Funding exists to support the design and implementation and pre-restoration monitoring (through the USFWS Coastal Program). Support is still needed for short and long-term monitoring. Best contact: Jordan Raphael (jordan_raphael@nps.gov)

Suffolk County: Partnered with TNC with NFWF and FEMA funds supporting Gardiner County Park, Smith Point North, Timber Point, and West Sayville restorations including reduction of larvicide mosquito control. Also used runnels to remove standing water from the marsh platform and installed fishponds to control mosquitoes, and coir logs for ditch remediation. Project has been implemented (finished March 2023). Best contact: Tom Iwanejko (Tom.Iwanejko@suffolkcountyny.gov)

Existing Sparrow Data

Saltmarsh Sparrow present throughout Mastic Beach; surveys have not been completed at the William Floyd Estate or Smith Point North. Mist-netting will likely be done at Mastic Beach by USFWS in 2024 and point counts will be completed at the William Floyd Estate.

Recommended Management / Next Steps To Management Action

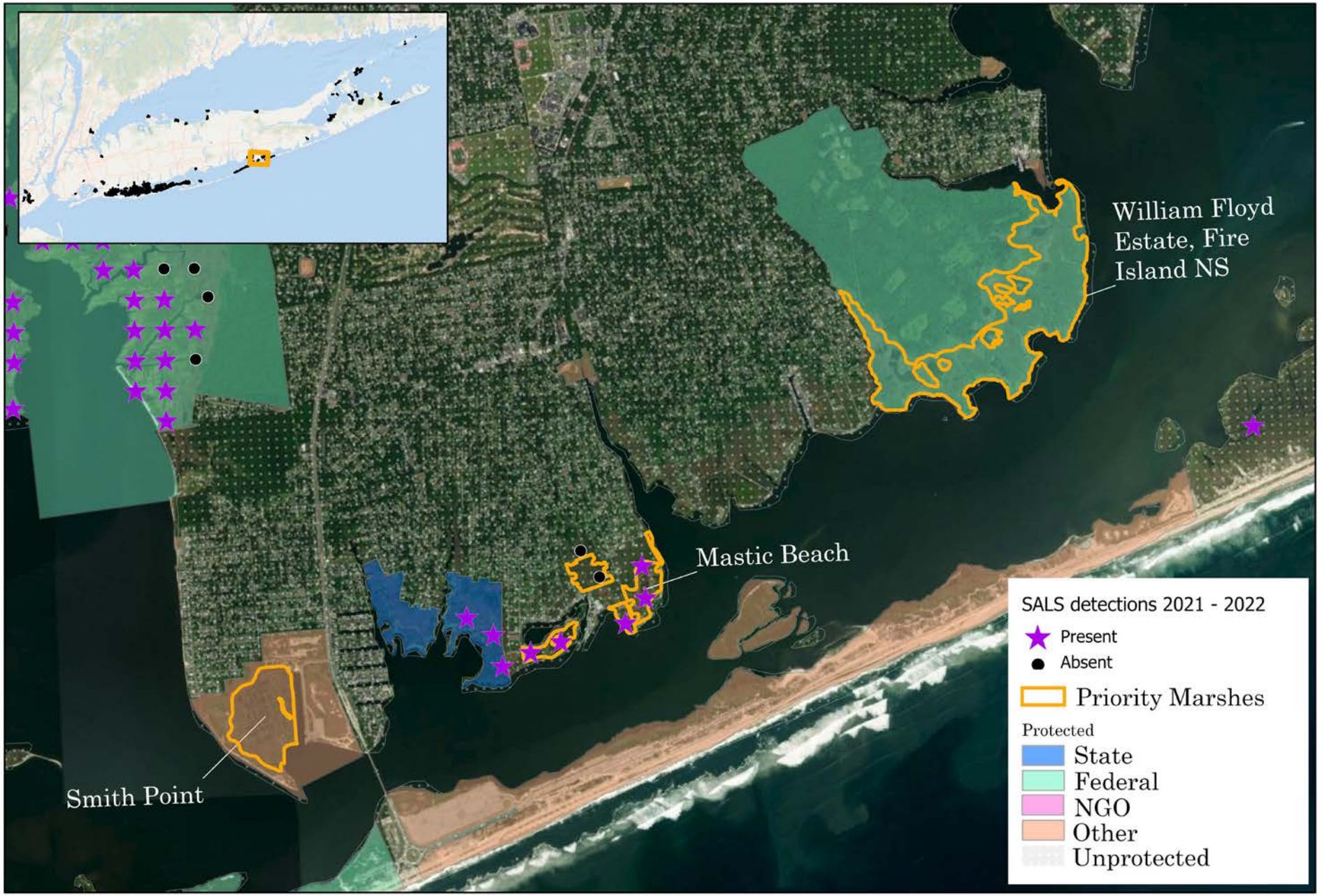
- Mastic Beach: hydrological assessment to investigate waterlogged characteristics of the marsh and potential for elevation enhancement.
- William Floyd Estate: This area is currently protected and there is ample room for marsh

migration, but a hydrological, elevation, and bird population assessment is necessary to determine specific next steps. Pond-breaching potential should be explored to understand the risk of releasing of DDT into system as marsh migration continues to occur. Direct elevation enhancement is an option here, but there is no known sediment supply.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	N
Repair hydrology - tidal restriction mitigation	N
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	N
Repair hydrology - berm, embankment, or levee modification	N
Land acquisition / protection for marsh migration	N
Facilitated marsh migration	N
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y

Shhhhhhhh...babies are sleeping. Alison Kocek



Mastic and Shirley

Pine Neck Sanctuary – 34 acres (14 ha)

Existing Conditions

The majority of this marsh is co-owned by TNC and Town of Southampton. Grid ditched marsh and has standing water but still supports Clapper Rails and Saltmarsh Sparrows. There are 6 SET stations in this marsh which were originally placed in high marsh. Of the 6 stations (installed in 2010), 3 were initially placed in low marsh and 3 were initially placed in high marsh which has since been transitioning to low marsh habitat. All of this marsh is becoming more and more water- logged over time. There is potential for marsh migration space and the adjoining forest is already in protected status. There are also signs of historical agricultural use throughout the marsh (e.g. old fence posts, etc.). *Phragmites* occurs around the terrestrial border as well as on a small island along some of the ditches in the middle of the parcel. A small ghost forest exists where marsh is migrating into forest. This marsh is a top restoration priority for TNC on Long Island.

Existing Projects

No existing projects at this site.

Existing Sparrow Data

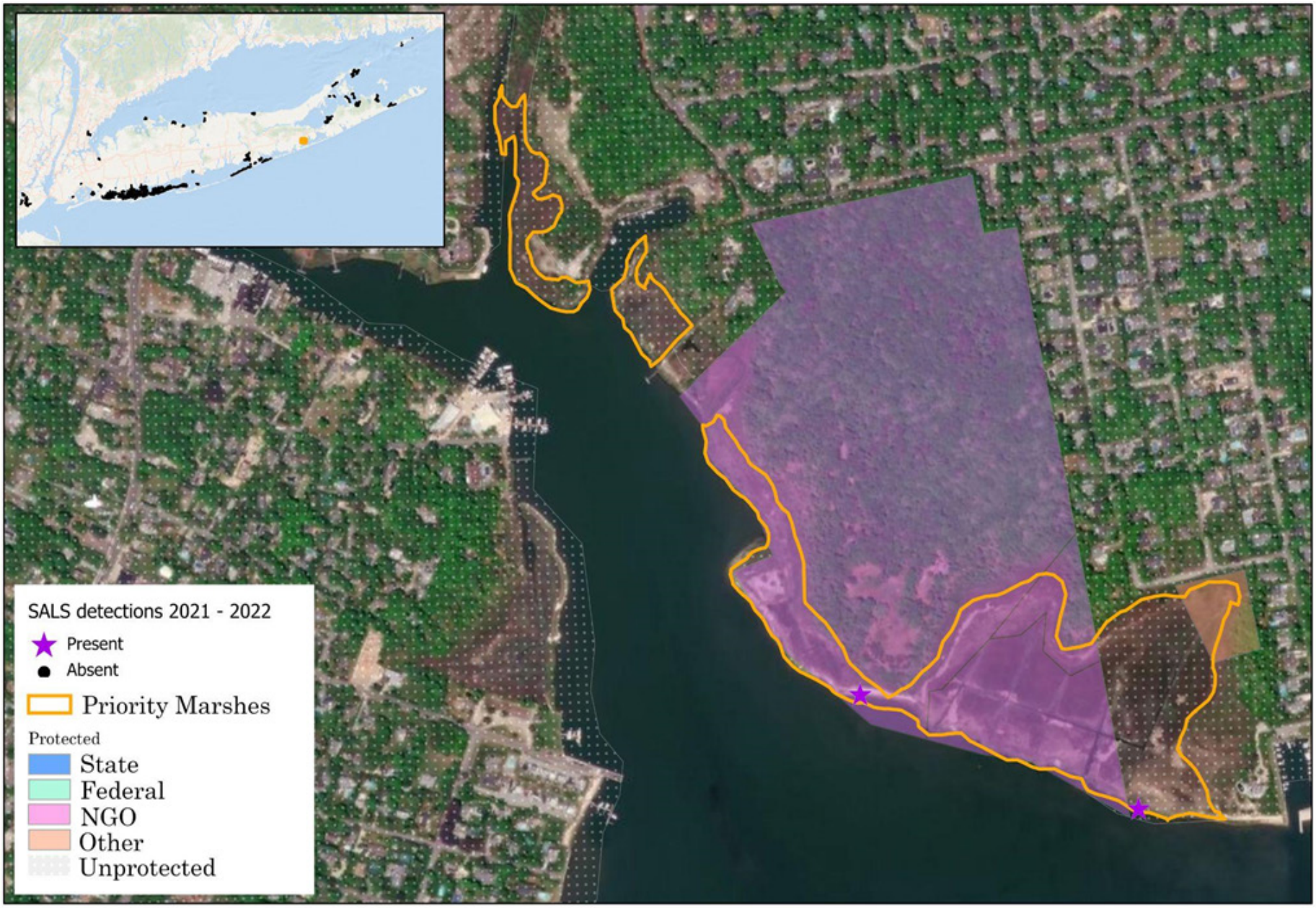
Saltmarsh sparrow detected and confirmed breeding at this site (USFWS 2023).

Recommended Management / Next Steps To Management Action

- Standing water is a problem at this site; assess for potential for hydrological repair including runnelling and/or ditch remediation
- Sediment placement could be a longer-term strategy to maintain marsh, but repairing the marsh platform is a higher priority and may prevent the need for sediment placement in the future.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Pine Neck Sanctuary

Peconic Marshes

Egret in a marsh. Ray Hennessy

Scallop Pond Complex (formerly West Neck creek) – 294 acres (119 ha)

Existing Conditions

This marsh is jointly owned by The Nature Conservancy, Town of Southampton, and the Peconic Land Trust. A subsection of this complex is known as "Big Woods" and is within TNC ownership. The site is heavily ditched with some internal ponding on the southern end of the marsh, however it is surrounded by protected land. This marsh is identified as a priority for restoration by the Peconic Estuary Partnership with the description: "Peconic Land Trust's Berglund and Lester Preserves are made up of ~45 acres of tidal wetlands. These wetlands are experiencing marsh subsidence, a phenomenon that has been linked to a series of hydrological issues connected to legacy farming features and mosquito ditches found within marshes across the northeast. These preserves are located directly adjacent to an additional ~226 acre mosaic of publicly owned and conserved lands, creating continuous tidal wetlands.

Existing Projects

There are no existing projects at this site.

Existing Sparrow Data

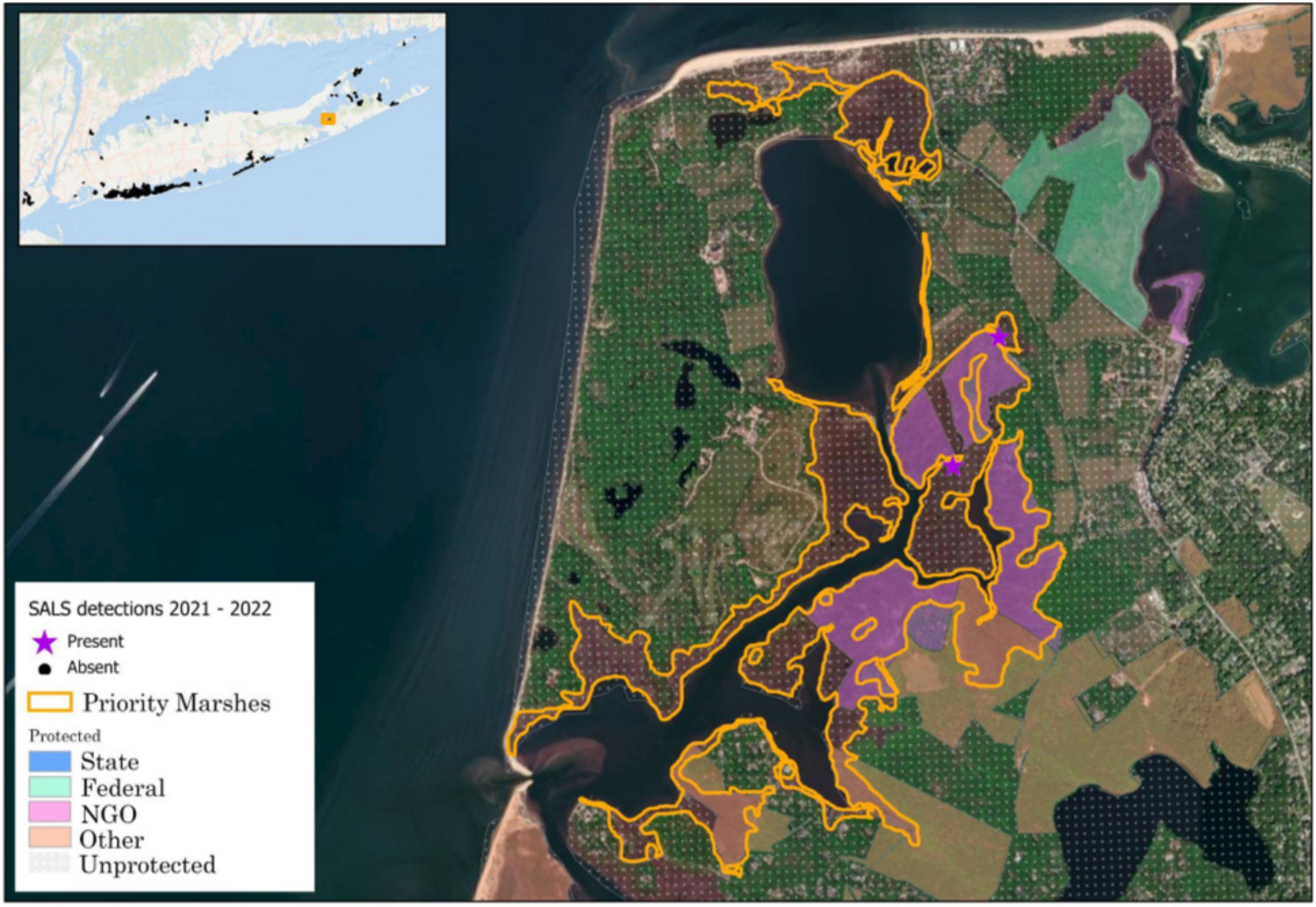
Saltmarsh Sparrows present and confirmed breeding at this site (SHARP 2021/2022; SHARP 2023). USFWS plans to survey further in 2024.

Recommended Management / Next Steps To Management Action

- Protection of surrounding areas to facilitate marsh migration.
- Assessment for potential ditch remediation.
- Privately owned area has tidal restriction affecting the site.

Attributes

Sediment placement	N
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Scallop Pond Complex

Cedar Beach – 25 acres (10 ha)

Existing Conditions

This marsh is sediment-starved and slowly being inundated by sea-level rise. The northern parcel is severely tidally restricted by the bisecting Cedar Beach Road. A habitat restoration plan developed by the Peconic Estuary Partnership exists for these marshes (PEP, 2020). PEP monitors 3 SET stations in this marsh parcel. The National Atmospheric Deposition Program monitoring station is also located nearby. and considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Saltmarsh Sparrow. Ray Hennessy

Existing Projects

Cornell Cooperative Extension: marsh island restoration project is underway, but is stalled in USACE permitting. This project will restore 5 acres of habitat. Support is still needed for implementation and long-term monitoring. Best contact: Steve Shot (ss337@cornell.edu)

Existing Sparrow Data

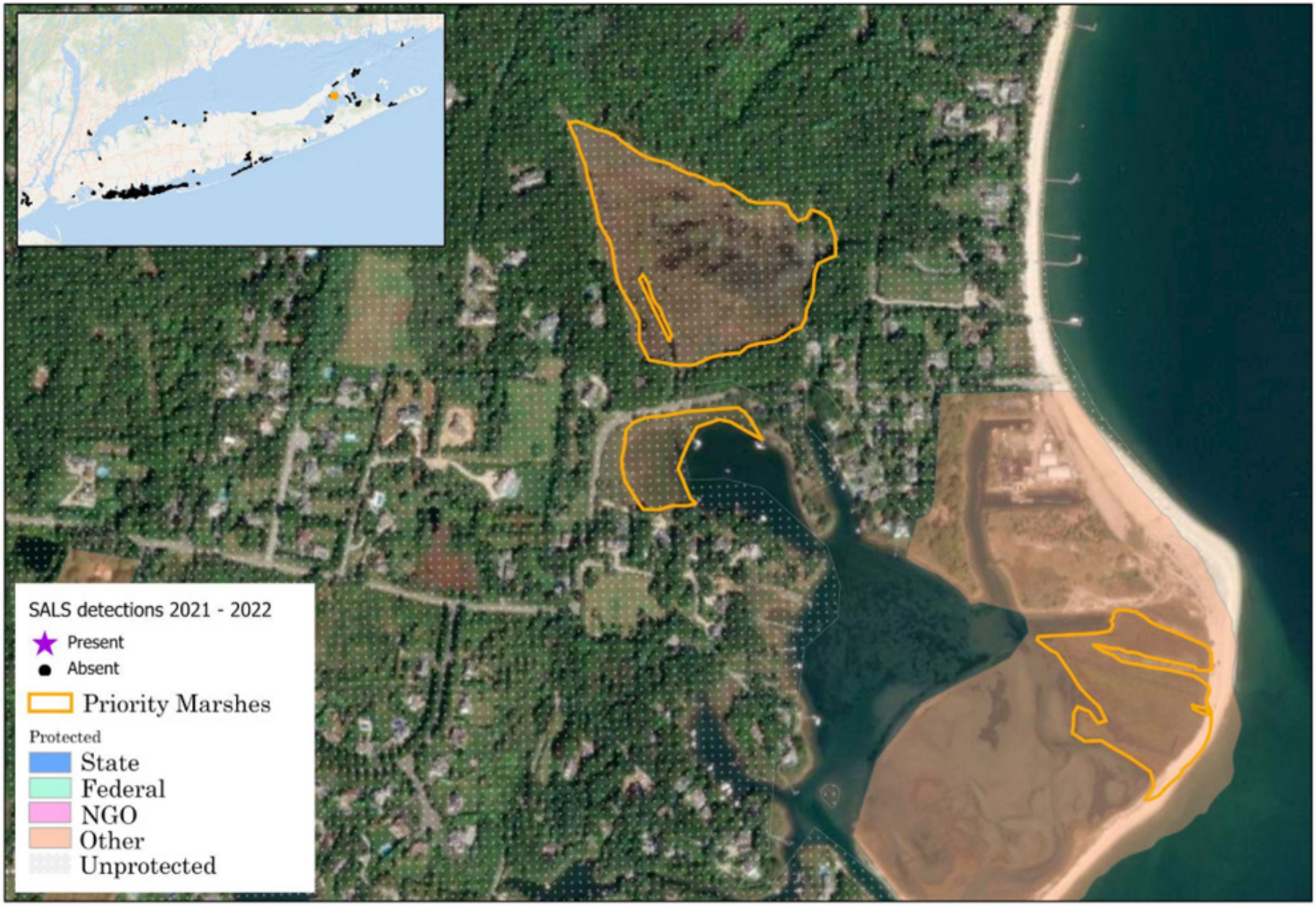
Saltmarsh sparrow detected at this site (eBird 2024); breeding has not been confirmed.

Recommended Management / Next Steps To Management Action

- Hydrological assessment needed for potential elevation enhancement.
- Restoration of tidal flow to northern parcel.
- Acquisition of private parcels to facilitate marsh migration to the north.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	N
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y


SALS detections 2021 - 2022
Present
Absent
Priority Marshes
Protected
State
Federal
NGO
Other
Unprotected
0.2
Miles
0.25
Kilometers

Cedar Beach

Pipes Cove – 56 acres (23 ha)

Existing Conditions

This marsh is jointly owned by the Village of Greenport and Suffolk County. Several patches of high marsh exist in this parcel. This marsh has been identified as a priority for the Peconic Estuary Partnership (PEP, 2020). This parcel is partially owned by the Town of Southold and privately owned. This marsh is bisected by the Long Island Railroad (LIRR) and is likely tidally restricted. This area is considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Removing invasive Phragmites could make this a more suitable marsh for Saltmarsh Sparrows. Chesapeake Bay Program

Existing Projects

There are no marsh restoration projects currently underway at this site.

Existing Sparrow Data

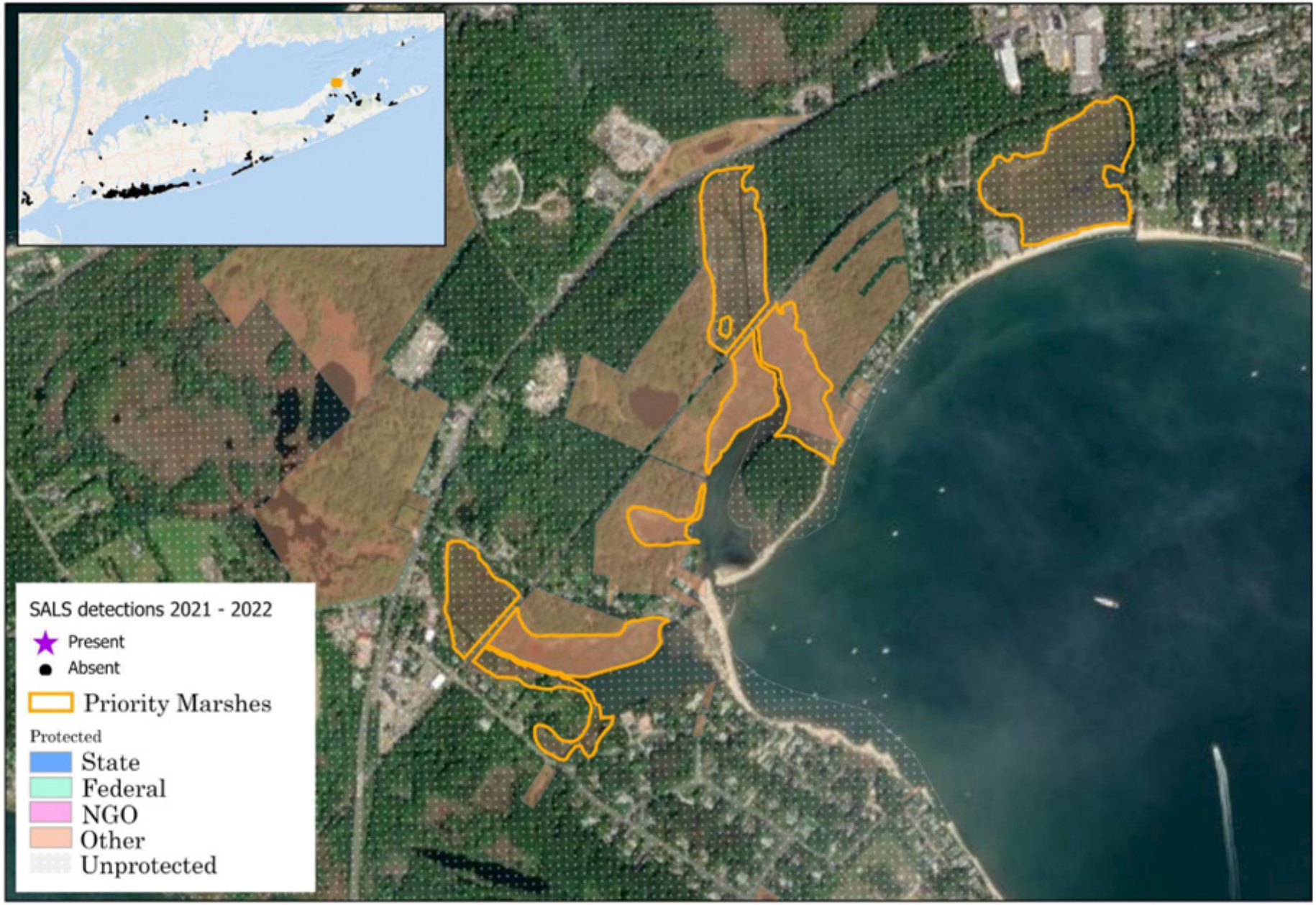
Saltmarsh Sparrows not detected at this site.

Recommended Management / Next Steps To Management Action

- *Phragmites* mitigation and removal.
- Facilitated marsh migration.
- LIRR has at least 3 culverts restricting tidal flow to marshes.
- Hydrological assessment needed for potential runnelling, ditch remediation, and/or embankment removal

Attributes

Sediment placement	N
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y


SALS detections 2021 - 2022
Present
Absent
Priority Marshes
Protected
State
Federal
NGO
Other
Unprotected
0.35
Miles
0.4
Kilometers

Pipes Cove

North Haven Marshes – 98 acres (40 ha)

Existing Conditions

This priority area includes several marsh parcels with room for marsh migration around them. There is some ditching and internal ponding, but all parcels have substantial high marsh which could be managed to increase high marsh acreage over time. This parcel is largely owned by the Village of North Haven.

Repairing culverts will increase tidal flow in the North Haven marshes. Susan Adamowicz

Existing Projects

There are no marsh restoration projects currently underway at this site.

Existing Sparrow Data

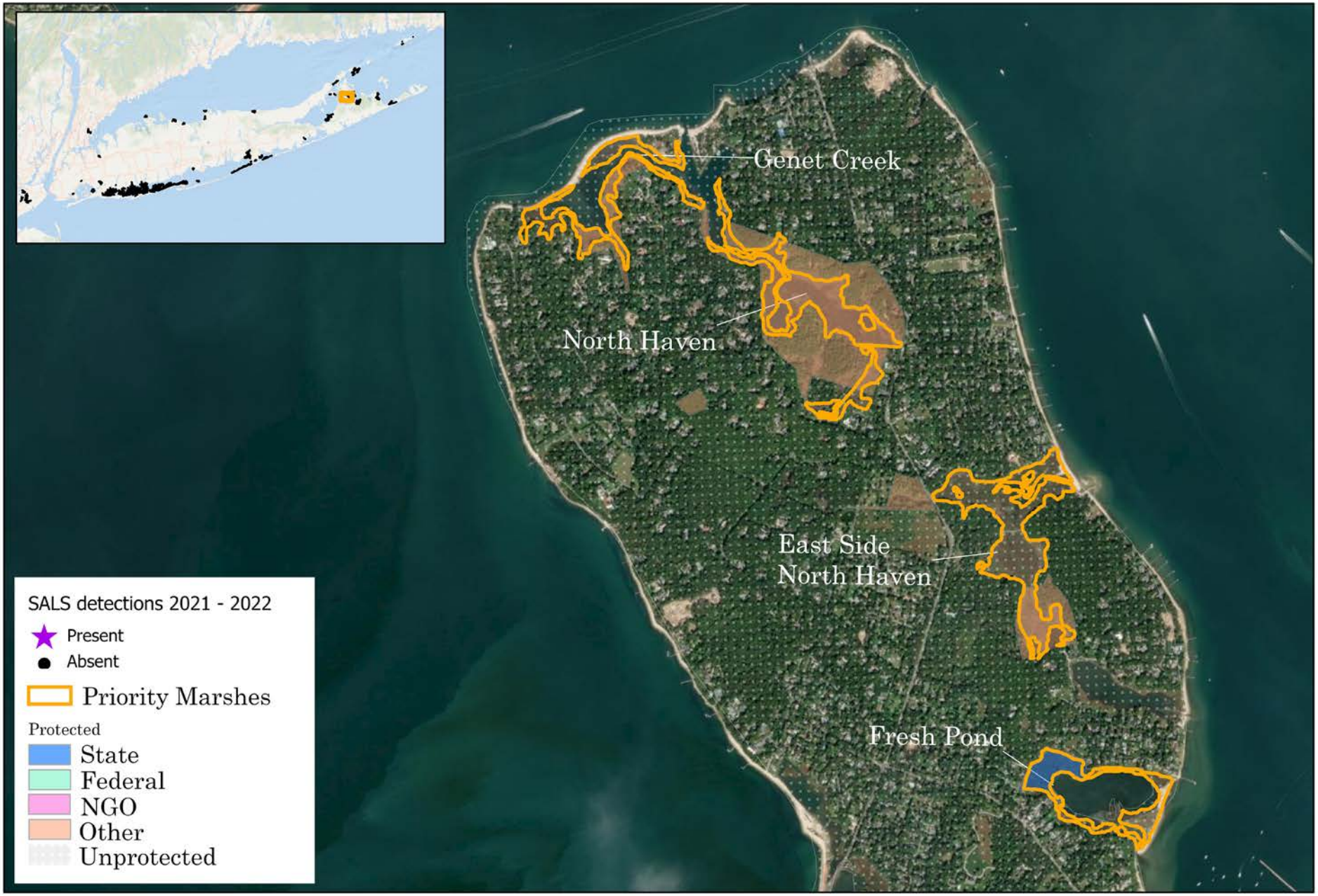
Saltmarsh Sparrows not detected at this site.

Recommended Management / Next Steps To Management Action

- Protection of surrounding areas to facilitate marsh migration.
- Assessment for ditch remediation.
- Widen culvert to increase tidal flow in Genet Creek.
- Assess Fresh Pond (privately owned) and East Side North Haven (privately owned but in conservation easement) for tidal restriction

Attributes

Sediment placement	N
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	N
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	Y
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



North Haven Marshes

Long Beach Bay Marshes – 210 acres (85 ha)

Existing Conditions

This collection of marsh parcels includes both Priority and Reference marshes. Broad Meadow / Narrow River marshes (state owned and managed by NY DEC) and the Whitcom Marsh Preserve (Owned by Town of Southold) are both considered Priority marshes, however the southern parcels (part of Orient Beach State Park) included are Reference marshes and can be used as a local reference site for any restoration that may occur here. Both priority marsh parcels are ditched and experience some tidal restriction due to a combination of dikes, road crossings, and undersized culverts. This marsh is identified as a priority for restoration by the Peconic Estuary Partnership (PEP, 2020). This area is also considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Existing Projects

Ducks Unlimited: Partnering with PEP and NYC Parks, supported by NAWCA grant to restore specifically for Saltmarsh Sparrow habitat at Narrow River / Broad Meadows (currently dense and expansive stand of *Phragmites*). This project will restore tidal flow north of the dyke using a self-regulating tide gate and implementation is fully funded. Best contact: Jim Feaga (jfeaga@ducks.org)

Existing Sparrow Data

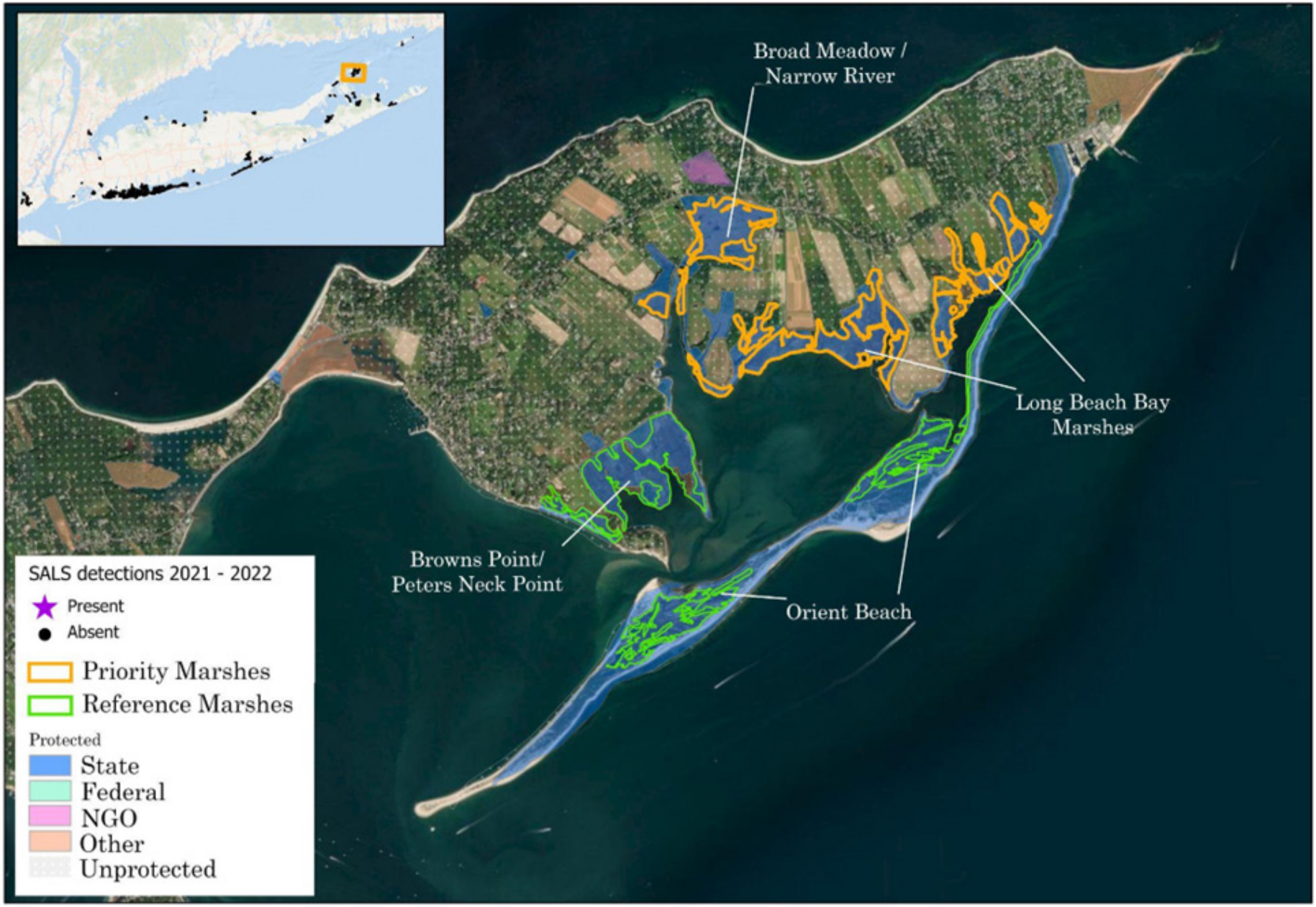
Saltmarsh Sparrows has not been confirmed at this site. USFWS plans to conduct point counts at Brown's Point / Peter's Neck Point and Orient Beach State Park marsh in summer 2024.

Recommended Management / Next Steps To Management Action

- Restore tidal flow to priority marsh parcels.
- Culvert replacement/enlargement on Narrow River Rd is necessary to facilitate migration for reference marshes.
- Runnelling may be appropriate after tidal restriction removal
- Assess parcel southeast of Narrow River for ditch remediation
- Facilitated marsh migration is part of the Narrow River project (see above) and could also improve tidal flow to surrounding retired agricultural parcels as appropriate.

Attributes

Sediment placement	N
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	N
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Long Beach Bay Marshes

1 Miles

1 Kilometers

Accabonac Harbor – 269 acres (109 ha)

Existing Conditions

Herbivory by Sesarma crabs can often hinder plant growth in tidal marshes. ©Donguk HAN, Creative Commons

These marshes are ditched with some internal ponding, and some agricultural berms are present from past marsh management. Some ditches were subsequently plugged with plywood (1990s) and sandbags (2007). Several large patches of high marsh exist in these parcels. There are also signs of historical marsh migration. These marshes are largely surrounded by development, but there is some potential for marsh migration in surrounding lands, with mixed ownership by the town, state, county, The Nature Conservancy, and the Peconic Land Trust. There is a local dredge operation in the inlet through Suffolk County; current practice is to place dredge material on shoreline to minimize erosion of the beach. There are 3 tidal restrictions affecting upper portions of this marsh. This marsh is identified as a priority for restoration by the Peconic Estuary Partnership (PEP, 2020). There are 3 SET stations at this site. The Accabonac Protection Committee is an active local group that carries out a variety of conservation fundraising and implementation of restoration projects in the area (accabonacprotection@gmail.com). This marsh is a top restoration priority for TNC on Long Island and considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Existing Projects

PEP: working with TNC, Suffolk County, town of East Hampton, and SMARTeams have developed conceptual designs for a portion of the marsh complex, and are seeking permitting for single channel hydrology (runnelling and ditch remediation) and facilitated marsh migration. Funding is still needed for implementation and monitoring for this project. Best contact: Jade Blennau (jade.blennau@stonybrook.edu)

Existing Sparrow Data

Saltmarsh Sparrows present and successfully breeding in portions of this site. Rapid assessment is planned for portions of Accabonac Harbor by USFWS in 2024.

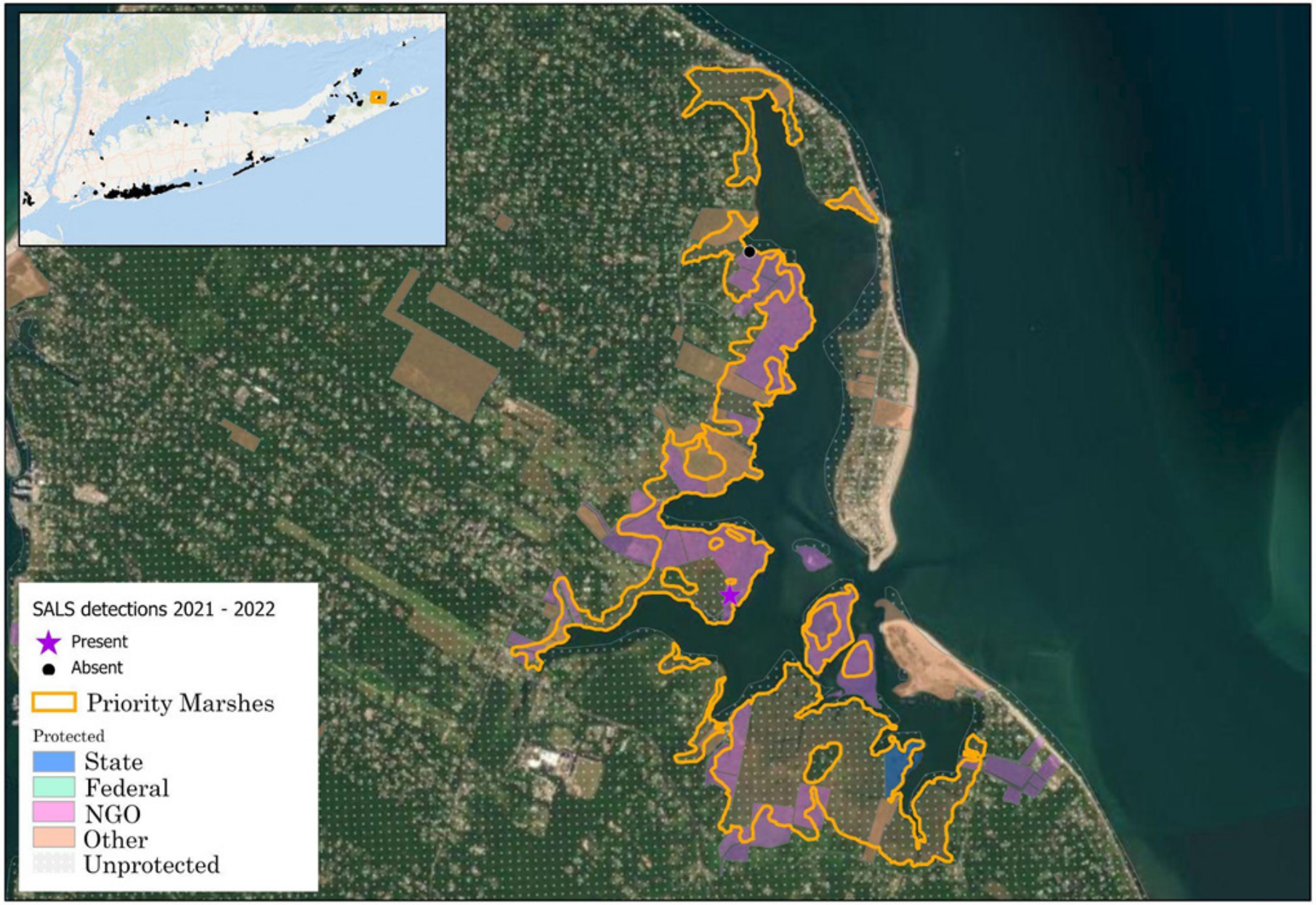
Recommended Management / Next Steps To Management Action

- Hydrological assessment for remaining parcels of the marsh complex.
- Assessment for potential elevation enhancement.
- Undevelopment of housing lots to prepare for sea level rise and marsh migration.
- Remediation of agricultural berms from 1600s/1700s preventing marsh migration and producing additional mosquitos.
- Assess Sesarma crab burrows for activity.

Attributes

Sediment placement	Y
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	Y
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	Y
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	Y
Stormwater mitigation	Y
Additional ecological assessment needed	Y

Fiddler crabs (Uca spp.) can be found in many New York marshes. Alison Kocek



Accabonac Harbor

Napeague Meadows – 279 acres (113 ha)

Existing Conditions

This state-park-owned marsh is heavily ditched and bisected by Napeague Meadow Road which affects tidal flow to the marsh. There are 4 culverts underneath this road; these have been assessed as undersized and eventually need resizing; 2 additionally lower-priority culverts also affect tidal flow to this area. There are several high-quality high marsh areas, with numerous elevated areas of microtopography, however there are also several stands of *Phragmites*. This marsh is identified as a priority for restoration by the Peconic Estuary Partnership (PEP, 2020). This area is also considered a Significant Coastal Fish and Wildlife Habitat by the state of New York.

Existing Projects

East Hampton Trustees: Ongoing discussions are occurring around the hydrology and the need for potential alteration of hydrology in this area. PEP has been asked to participate in this growing discussion. Best contact: Brian Frank (bfrank@ehamptonny.gov)

Suffolk County: reestablished mosquito control ditches in early 2000s throughout this marsh, especially east of Napeague Meadow Rd. Best contact: Tom Iwanejko (Tom.Iwanejko@suffolkcountyny.gov)

Existing Sparrow Data

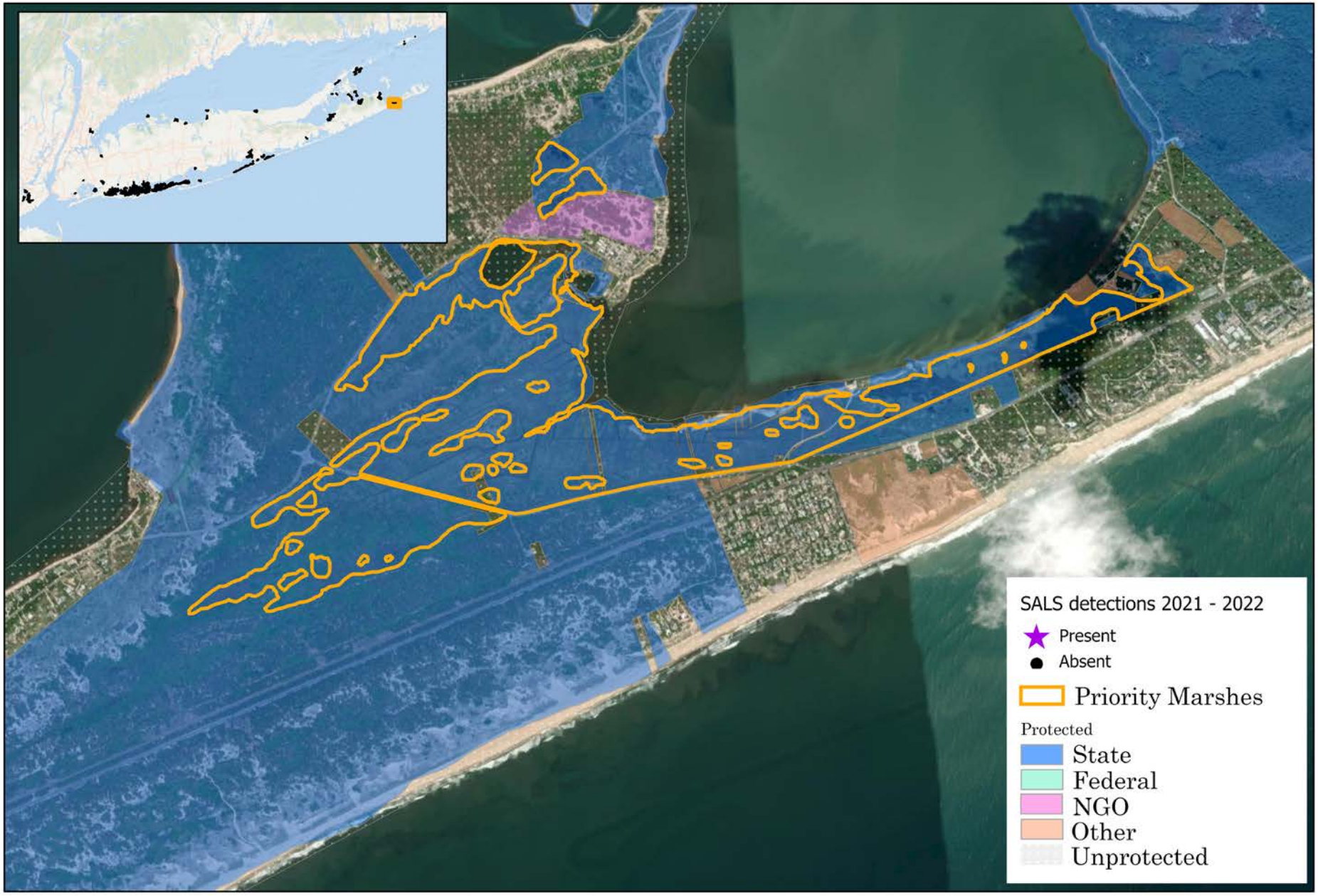
Saltmarsh Sparrow has been detected at this site (numerous eBird records within the past 3 years). USFWS plans to conduct rapid assessment monitoring here in 2024.

Recommended Management / Next Steps To Management Action

- Restoration of tidal flow through culvert maintenance/replacement.
- Assessment for *Phragmites* control and ditch remediation.

Attributes

Sediment placement	N
Repair hydrology - runnelling / channel creation	Y
Repair hydrology - tidal restriction mitigation	Y
Repair hydrology - address ditch plugs	N
Repair hydrology - ditch remediation	Y
Repair hydrology - berm, embankment, or levee modification	Y
Land acquisition / protection for marsh migration	N
Facilitated marsh migration	Y
Invasive plant species mitigation (*Phragmites australis*, etc.)	Y
Living shoreline development	N
Wildlife herbivory mitigation	N
Stormwater mitigation	Y
Additional ecological assessment needed	Y



Napeague Meadows

Reference Marshes

These marshes appear to be relatively stable and having no obvious impairments that suggest the need for restoration action any time soon. and can act as reference marshes for restoration efforts in the state. Long-term preservation of these areas and the open space around them to facilitate long-term marsh migration is important, but no immediate restoration action is suggested for them.

Brown's Point / Peter's Neck – 103 acres (42 ha)
Orient Beach – 51 acres (20 ha)
Little Northwest Creek – 57 acres (23 ha)
Long Beach Bay marshes (southern parcels) – 47 acres (19 ha)

A juvenile Saltmarsh Sparrow strikes a pose. Ray Hennessy

Honorable Mention

The following marshes were identified by the partner group as important to keep in mind and further assess for future work, but not within the highest priorities for the state through the lens of Saltmarsh Sparrow conservation.

Jamaica Bay – 426 acres (173 ha)

Existing Conditions

These marshes are of mixed ownership and are high-profile within the state due to the proximity to New York City and John F. Kennedy International Airport. Sediment supply is very limited in the area and there is no room for marsh migration, however there are existing populations of Saltmarsh Sparrows here that have been intensively studied. There is a high density of predators in this area (raccoons and rats). Outside of Idlewild marsh (listed as a Priority marsh above), the following are the best opportunities for marsh restoration to benefit the Saltmarsh Sparrow in Jamaica Bay:

- **JoCo Marsh**: Part of Gateway National Recreation Area. Highest elevation marsh in Jamaica Bay system. Difficult to work on because of proximity to John F. Kennedy International Airport and it contains a large Laughing Gull colony. The marsh has some ditching but it is not pervasive. Includes Gateway National Recreation Area. Saltmarsh Sparrow and Seaside Sparrow present but breeding is not confirmed. There are 6 total (2 sets of 3) SETs at this site.
- **Spring Creek**: Mixed ownership by New York City Parks (north section) and National Parks Service (south section). *Phragmites* is pervasive at the site (especially National Parks' side south of Belt Parkway), but good potential for sparrows if looking for marshes near New York City, especially north of Belt Parkway where *Spartina patens* and *Spartia alterniflora* marsh exists. Access is difficult without a kayak to most intact portions of marsh. Planned restoration here (see below). Spring Creek south is a SERPA site; assessment of contamination at this site is necessary before any restoration can occur. There are 3 SETs here.
- **Four Sparrow Marsh**: Predominantly high marsh with low marsh interspersed. Saltmarsh Sparrows known to breed here 2012-2015 and a single bird nested in 2019. Sparrows were using majority tall form *S. alterniflora* to nest in despite high marsh present. Very small site, highly impacted, major stormwater input from Belt Parkway. Large amounts of fill in the interior of the site, large marine debris frequently comes ashore in this marsh (e.g. dock systems, etc). There has been a feral cat colony in the past. Lowest nest success site of any NY site (Kocek et al 2022). Restoration work to restore high marsh damaged during Belt Parkway bridge construction to occur in 2024 (see below).

Existing Projects

NPS: Living shoreline work in progress in West Pond. Construction completed in 2021. Best contact: Patti Rafferty (patricia_rafferty@nps.gov)

USACE: The 2022 federal budget includes planning for 64 acres of marsh habitat restoration (Stony Creek, Duck Point, Elders Center, Pumpkin Patch West, Pumpkin Patch East). Stony Creek is in the planning stage with anticipated implementation in 2025 and includes a low and high marsh restoration through sediment placement. Best contact: Patti Rafferty (patricia_rafferty@nps.gov)

NYC Parks: partnering with USACE at Spring Creek North to move tidal channels, place sediment, remove fill, and mitigate stands of *Phragmites*. Design is nearly complete and permits are in process; additional funding is needed. Best contact: Clara Holmes (clara.holmes@parks.nyc.gov)

NPS: partnering with USACE at Spring Creek South for sediment placement and fill removal planned, date unsure. Design is complete for this project, additionally funding needed for implementation and monitoring. Best contact: Patti Rafferty (patricia_rafferty@nps.gov)

NYC Parks: Four Sparrow Marsh (just west of Spring Creek) sediment placement to restore high marsh, implementation will begin fall/winter 2024. Project is designed and permitted, additional funding needed for monitoring. Best contact: Chris Haight (Christopher.Haight@parks.nyc.gov)

Existing Sparrow Data

- **JoCo**: Saltmarsh Sparrows detected at this site, breeding has not been confirmed.
- **Spring Creek**: No sparrows have been detected at this site.
- **Four Sparrow Marsh**: Saltmarsh Sparrows detected and confirmed breeding at this site. Nest survival studied 2012-2016, 2019.

Recommended Management / Next Steps To Management Action

- Site assessments of hydrology and elevation are necessary to determine restoration next steps, but sediment placement is likely the only way to maintain elevation on marsh islands due to lack of migration space.
- Invasive species removal (*Phragmites*) to open up space for marsh migration.
- Predator control to reduce predator pressures on nesting birds.

Staten Island – 708 acres (286 ha)

Existing Conditions

This collection of marsh parcels has mixed ownership. There is a high density of predators (raccoons, foxes) in the area, and it also has a history of oil spills and other contaminants (PCB, mercury). There has been significant restoration work completed in past decades to make this area habitable for wildlife. There is some potential for marsh expansion through land acquisition, which is a rare opportunity near New York City.

- **Sawmill Creek**: Owned by NYC Parks. A focal area within Staten Island that is majority high marsh and has the highest potential for restoration to support sparrows on Staten Island. Both Saltmarsh Sparrow and Seaside Sparrow present and breeding success monitored at this site 2012-2016 (Kocek et al. 2022). NYC Parks monitoring 3 SET stations to the west of the railroad tracks at Sawmill Creek. Many phases of restoration have occurred here and continue through wetland mitigation bank credits (see below).
- **William T. Davis Wildlife Refuge**: This refuge is part of Freshkills Park and is owned by NYC Parks. Saltmarsh Sparrows are likely present at this site but have not been confirmed. Due to its large marsh area, this site has high potential but needs much more ecological assessment to determine the potential for supporting saltmarsh sparrows.
- **Meredith Woods**: This marsh is owned by NYC Parks. Saltmarsh Sparrows are present at this site but breeding has not been confirmed. This site is small but contains large patches of high marsh habitat. This site needs more ecological assessment to determine the potential for supporting saltmarsh sparrows.
- **Old Place Creek**: Mixed ownership by NYC Parks (west) and NYS DEC (east). Saltmarsh

Sparrows are present but breeding has not been confirmed. This site contains remnant high marsh patches but needs more ecological assessment to determine the potential for supporting saltmarsh sparrows.

- **Great Kills**: Part of Gateway National Recreation Area. Little high marsh present but Saltmarsh Sparrows have been observed at this site, primarily during migration season. Restoration planned to re-create tidal marsh, including a high marsh component (see below).

Existing Projects

NYC Parks: Multi-phase project in Sawmill Creek (east of railroad tracks) to restore marsh interior through creek recreation, *Phragmites* removal, and contaminant removal, generating mitigation credits through the Economic Development Corporation of NYC. Phase 1 is complete, future phases will include similar work in different sections of Sawmill Creek. Support is still needed for XYZ. Best contact: Chris Haight (Christopher.Haight@parks.nyc.gov)

NPS: Partnering with NYC DEP to restore *Phragmites* stand nearby in Oakwood Beach (in the Great Kills section near wastewater treatment plant). Designs are 75% complete and implementation is funded. The end goal is to remove *Phragmites* and provide clean fill to re-create tidal marsh, including a high marsh component, through hydrological restoration. Best contact: Patti Rafferty (patricia_rafferty@nps.gov)

Existing Sparrow Data

- **Sawmill Creek:** Nest survival heavily studied 2012-2015. Saltmarsh Sparrows confirmed breeding.
- **William T. Davis Wildlife Refuge:** Saltmarsh Sparrow presence and breeding not confirmed.
- **Meredith Woods:** Saltmarsh Sparrow presence confirmed in 2014 during the breeding season but no confirmed sightings since then and breeding is not confirmed.
- **Old Place Creek:** Saltmarsh Sparrow presence confirmed but breeding is not confirmed.
- **Great Kills:** Saltmarsh Sparrow presence confirmed but not during breeding season. Breeding not confirmed.
-

Recommended Management / Next Steps To Management Action

- Predators are the biggest barrier to sparrow success in these marshes. Predator removal should be considered as part of a management plan for this area.
- Fill piles still exist in these marshes which will eventually need to be removed (see berm modification/removal)
- Increasing tidal marsh area through fill removal and land acquisition is possible.

Many bird species, such as black-crowned night- herons (pictured above), use tidal marshes as foraging grounds. Alison Kocek

Flax Pond – 67 acres (27 ha)

Existing Conditions

Flax Pond is a 146.2-acre State owned property consisting of tidal wetland, tidal pond, beach, and coastal forest upland habitat located in the Village of Old Field. The pond has experienced shoaling between the jetties at the inlet over the years that has resulted in reduced water quality and a loss of tidal marsh habitat. The pond is a Long Island Sound Stewardship Area (Stony Brook Harbor - Long Island Sound Study), is a NYS Tidal Wetland Area (Flax Pond Tidal Wetland Area - NYS Dept. of Environmental Conservation), and it houses the Stony Brook Flax Pond Marine Laboratory | SoMAS. SETs are located at this site.

Existing Projects

NYSDEC: currently in contract with Dewberry to complete a data collection, environmental review, design, and permitting project for the jetty area at Flax Pond. A 100% design is expected by early 2025. The primary objective of the present study is to provide the design bases that support the redesign and reconstruction the Flax Pond inlet jetties and the dredged channel that (1) allows the inlet to remain open with little to no maintenance dredging, (2) restores a healthy exchange of water between Flax Pond and LIS, and (3) minimizes sedimentation and prevents further loss of tidal wetlands and ecosystem diversity, which should result in an increased tidal range and prism similar to the values found in the 1970's. Support is still needed for implementation and monitoring. Best contact: Alexa Fourneier (alexa.fournier@dec.ny.gov)

Existing Sparrow Data

No Saltmarsh Sparrows present or breeding at this site in recent years.

Recommended Management / Next Steps To Management Action

- Increase tidal flow.
- Investigate potential for sediment placement.
- Improve / modify jetty and remove shoaling.
- Continue land acquisition around the marsh parcel for marsh migration and stormwater control.
- Address invasive plant species including *Phragmites* and perennial pepperweed are two species of concern in the marsh.
- Explore the utility of nature-based features to promote shoreline stabilization.

Stony Brook Harbor. Long Island Sound Study

Alley Pond Park - 54 acres (22 ha)

Existing Conditions

The second largest tidal marsh wetland in Queens. Owned by NYC Parks and stretches under Northern Blvd. This marsh is fairly degraded and bordered by the Cross Island Pkwy on the west but there is a long history of marsh restoration at this site including fill removal and planting at several parts of the park both north and south of Northern Boulevard to create both low and high marsh habitat.

Existing Projects

NYC DEP: Completed an invasive species and fill removal project that created 8 acres of low marsh (*Spartina alterniflora*) dominated habitat in 2010 and another 2 acres in 2019 at the northern portion of the park to help absorb stormwater runoff. Best contact: Alexa Fourneier (alexa.fournier@dec.ny.gov)

NYC DEP: An experimental water quality project was completed ~2020 that is adjacent to a berm in the northeast portion of the park (see below). Best contact: Alexa Fourneier (alexa.fournier@dec.ny.gov)

NYC Parks: Partnering with NYDEC, created a living shoreline with oyster castles and sediment placement to restore shoreline edge. Castles were installed in 2021, sediment placement occurred and will be finished by May 2023 with planting planned for June 2023. Additional funding needed to add acreage for sediment placement. Best contact: Jamie Ong (Jamie.ong@parks.nyc.gov)

NYC Parks: Initiating a berm removal adjacent to high marsh/phrag mix in the northeastern portion of the park to improve marsh hydrology. Early conceptual design complete and permits are underway that include high marsh habitat, funding still needed for implementation. Best contact: Jamie Ong (Jamie.ong@parks.nyc.gov)

Existing Sparrow Data

No Saltmarsh Sparrows present or breeding at this site in recent years.

Recommended Management / Next Steps To Management Action

- Continue fill removal and high marsh creation.
- Investigate potential for sediment placement.

Pelham Bay Park – 176 acres (71 ha)

Existing Conditions

NYC Parks' largest property. Includes large intact portions of marsh bordering the Hutchinson Pkwy on the west, a golf course on the north, railroad tracks on the east, and an offramp on the south but the siteline into the marsh is somewhat protected by a small band of forested habitat. Saltmarsh Sparrows have been observed in low densities at this site but have not been confirmed breeding. The channels within the marsh are wide and deep and the southeast portion of the marsh has inundation issues. Ditching is present throughout the marsh. Patches of high marsh habitat persist throughout the site. The marsh has a wide patch of *Phragmites* on the north bordering the golf course. SETs are located at this site.

Existing Projects

NYC Parks: Restoration work is planned including possible ditch remediation especially on the southeast part of the marsh. Best contact: Chris Haight (Christopher.Haight@parks.nyc.gov)

Existing Sparrow Data

Saltmarsh Sparrows present but breeding at this site has not been confirmed in recent years.

Recommended Management / Next Steps To Management Action

- Ditch remediation and possible runneling to get water off the marsh.
- Investigate tidal flow issues in the southeastern portion of the marsh.
- Investigate potential for sediment placement.
- Invasive species management to increase intact marsh area.

Additional Honorable Mention Sites

Northwest Harbor – 225 acres (91 ha)
West Meadow – 94 acres (38 ha)
Seatuck NWR - 81 acres (33 ha)
Mashomack Preserve – 73 acres (30 ha)
Fisher's Island – 42 acres (17 ha)
Hashamomuck Pond – 29 acres (12 ha)
Corey Creek County Park – 23 acres (9 ha)

Best Practices For Marsh Management For Saltmarsh Sparrow

Any management actions should follow best practices to not irreparably harm existing Saltmarsh Any management actions should follow best practices to not irreparably harm existing Saltmarsh Sparrow habitat. Necessary precautions include:

- Consulting local land managers and owners before any monitoring or management action is planned.
- Initially limit management impact to a small portion of the high marsh (e.g. <25%).
- Conduct all management action outside the window of active Saltmarsh Sparrow breeding season (avoid May – September annually).

Monitoring

Any habitat restoration efforts should be monitored both pre-construction (2+ years before implementation) and post-construction (up to 10 years after implementation is complete) to measure change and determine whether vegetation goals and elevations have been met. This monitoring will ideally include an array of ecological metrics specific to tidal marshes in Maine and will be integral to build upon the existing knowledge base for salt marsh restoration in this area. The ACJV, SHARP, and Ducks Unlimited recently released recommendations for monitoring saltmarsh sparrows at restoration sites which includes a decision tree for deciding timelines, level and type of monitoring, and spatial distribution of data collection locations.

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Fledgling sparrows in capable hands Alison Kocek

Contact & Citation Information

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References

Atlantic Coast Joint Venture. 2020. The Saltmarsh Sparrow Habitat Prioritization Tool. Available at: https://fws.maps.arcgis.com/apps/MapSeries/index.html?appid=1bc5b29be4ac43d8949b2941d2ce5174

Field, CR, Ruskin, KJ, Benvenuti, B, Borowske, A, Cohen, JB, Garey, L, Hodgman, TP, Kern, R, King, E, Kocek, AR, Kovach, AI, O'Brien, KM, Olsen, BJ, Pau, N, Roberts, SG, Shelly, E, Shriver, WG, Walsh, J, and CS Elphick. 2018. Quantifying the importance of geographic replication and representativeness when estimating demographic rates, using a coastal species as a case study. Ecography 41:971-981.

Hartley, MJ and AJ Weldon, eds. 2020. Saltmarsh Sparrow Conservation Plan. Atlantic Coast Joint Venture. Available at: acjv.org/documents/SALS_plan_final.pdf

Kocek, AR, Elphick, CS, Hodgman, TP, Kovach, AI, Olsen, BJ, Ruskin, KJ, Shriver, WG, and JB Cohen. 2022. Imperiled sparrows can exhibit high nest survival despite atypical nest site selection in urban saltmarshes. Avian Conservation & Ecology 17:42.

Lane, O, Adams, EM, Pau, N, O'Brien, KM, Regan, K, Farina, M, Schneider-Moran, T, and J Zarudsky. 2020. Long-term monitoring of mercury in adult saltmarsh sparrows breeding in Maine, Massachusetts and New York, USA 2000-2017. Ecotoxicology. https://doi.org/10.1007/s10646-020-02180-w

Peconic Estuary Partnership, 2020. Peconic Estuary Partnership Habitat Restoration Plan. Available at: https://www.peconicestuary.org/wp-content/uploads/2021/04/PEP-2020-Habitat-Restoration-Plan-FINAL.pdf.

Wiest, WA, Correll, MD, Marcot, BJ Olsen, BJ, Elphick, CS, Hodgman, TP, Gunterspergen, GR, and WG Shriver. 2019. Estimates of tidal marsh bird densities using Bayesian networks. Journal of Wildlife Management 3:109-120.