2020 PECONIC ESTUARY PARTNERSHIP HABITAT RESTORATION PLAN

Update Completed 2024

Peconic Estuary Partnership
Riverhead County Center, 300 Center Drive, Suite 250S
Riverhead, NY 11901
www.peconicestuary.org

The Peconic Estuary Partnership (PEP) is a unique collaboration among governments, environmental groups, businesses, industries, academic institutions and citizens. It is the mission of the Peconic Estuary Partnership to protect and restore the Peconic Estuary system.

ACKNOWLEDGEMENTS

The preparation of the 2020 Peconic Estuary Partnership Habitat Restoration Plan was possible due to the collaborative efforts of many committed organizations and individuals. The Peconic Estuary Partnership would like to thank the PEP Natural Resources Subcommittee for their contributions and guidance

EPA

Peconic Estuary Partnership

Table of Contents

Introduction

The Peconic Estuary lies between the north and south forks of Long Island, eighty miles east of New York City on the eastern end of Suffolk County. It begins at Brookhaven National Laboratory with the headwaters of the Peconic River, spans the several bays from Flanders to Gardiners, and ends in Block Island Sound between Plum Island and Montauk Point. In 1992, the Peconic Estuary became the 20th estuary in the nation to receive the designation as an "Estuary of National Significance" by the U.S. Environmental Protection Agency (EPA), and the Peconic Estuary Program, a collaborative partnership of local, state, and federal governments, citizens, environmental groups, businesses, industries, and academic institutions, was established. The Program recently changed its name to Peconic Estuary Partnership. The mission of the Peconic Estuary Partnership (PEP) is to protect and restore the Peconic Estuary and its watershed.

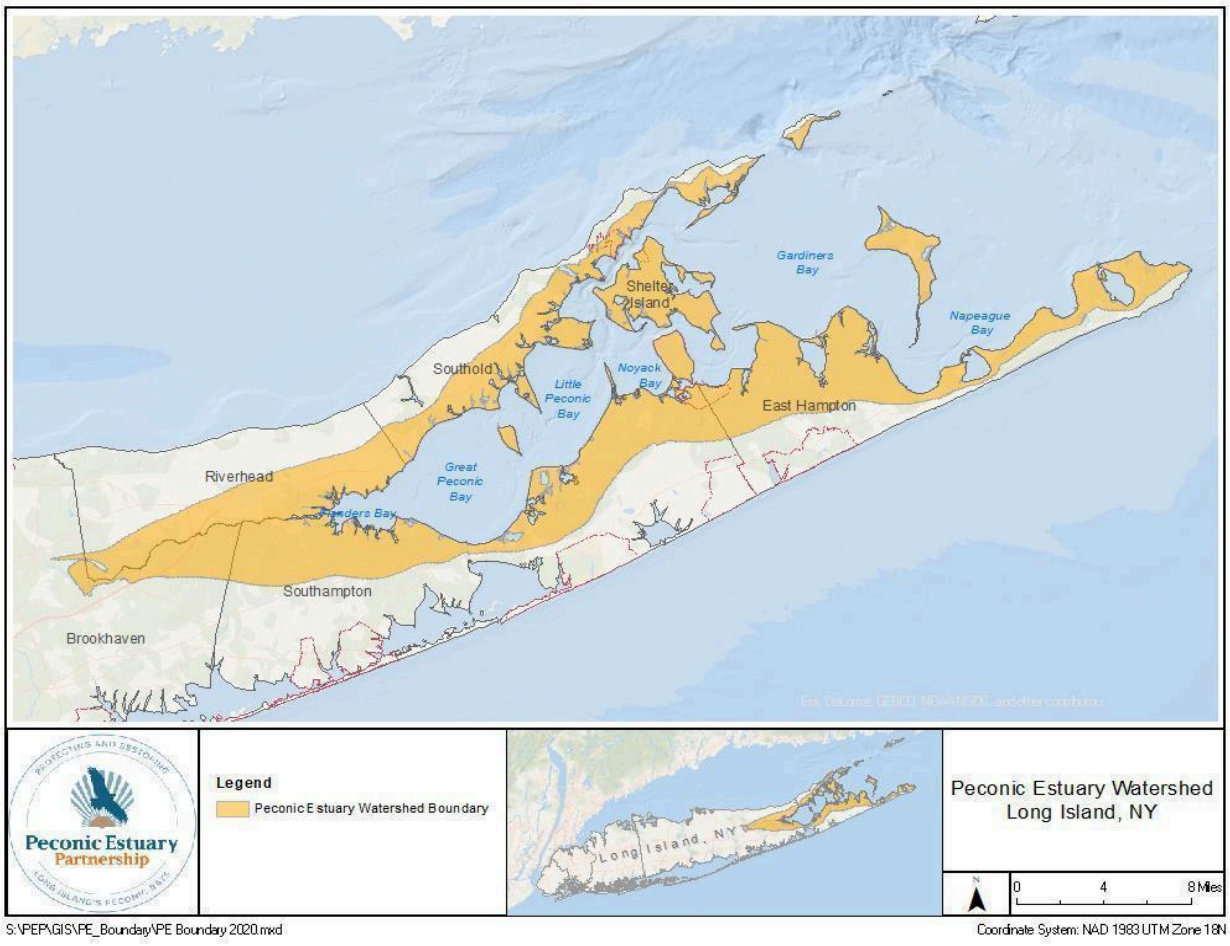

Figure 1: The Peconic Estuary Study Area includes the Peconic Estuary and the surrounding land area that drains into the estuary, also known as the "watershed".

In 1997 the PEP Habitat Restoration Workgroup was formed and charged with identifying important Peconic natural habitats with enhancement or restoration potential and identifying and

prioritizing restoration projects. The end product was the "Habitat Restoration Plan for the Peconic Estuary" dated December 2000. This Habitat Restoration Plan was subsequently updated in 2009 through a collaborative effort by the PEP Natural Resources Subcommittee (NRS), the East End Towns and other stakeholders. In 2017, the NRS once again recognized the need to update the PEP Habitat Restoration Plan. This time, the NRS aimed to identify the primary threats to Peconic Estuary habitats and reach a consensus on the best strategies to address these threats, in addition to identifying priority habitat restoration projects. Additional revisions were made to the list of priority habitat restoration sites in 2020.

The 2020 PEP Habitat Restoration Plan is a comprehensive plan that is a culmination of numerous stakeholder meetings and communications with the East End Towns and partners. It describes the many valuable and unique habitats that exist within the Peconic Estuary watershed, the major threats to these habitats, and habitat restoration progress to-date. The plan then outlines goals, objectives, actions to guide habitat restoration and protection in the Peconic Estuary watershed over the next 10 years. The 2020 Plan also includes a list of priority habitat restoration projects that align with the defined goals/objectives, potential funding sources, and habitat restoration resources.

The overall goal of the 2020 PEP Habitat Restoration Plan is to protect and restore Peconic Estuary habitats to support ecosystem function. While all Peconic Estuary habitats are important to ecosystem function, the following habitats were identified as current priorities for restoration and protection: submerged aquatic vegetation (SAV), tidal wetlands/shorelines and freshwater diadromous fish habitat. The decline of these habitats is of particular concern, given their value as breeding and nursery areas for various wildlife and their importance for coastal resiliency. Nine overarching objectives and various associated management and research actions are outlined in the Habitat Restoration Goals and Objectives section to address the threats to these priority habitats. Additionally, ten measurable targets were developed to gauge and track the success of restoration and protection efforts.

A total of fifty (50) priority habitat restoration projects were approved by the NRS for listing in the 2023 Habitat Restoration Plan, including twenty-six (26) projects re-listed from the 2009 Habitat Restoration Plan, fifteen (15) new projects nominated by the East End municipalities or others partners in 2017, and five (5) new projects nominated in 2019.

Implementation of the 2020 Habitat Restoration Plan will be led by the NRS and will require a collaborative effort among the Peconic Estuary Partnership's many State, County, Local and non-profit partners. Implementation of this plan will help ensure that Peconic Estuary habitats can continue to provide for wildlife, sustainable fisheries and resilient coastal communities.

As part of this update, the PEP NRS reviewed existing projects and added four (4) new sites to the priority habitat restoration project list: Chatfield's Hole Preserve, Two Holes of Water Road, East Hampton NY, Burgland Preserve, North Sea, Southampton NY, coastal plain pond system found at the headwaters of the Peconic River, within and near Otis-pike Preserve and Robert Cushman Murphy County Park, Brookhaven, NY and Cases Creek, Aquebogue, Riverhead, NY. These projects are described herein.

Habitats of the Peconic Estuary

Cited as one of the "Last great places in the Western Hemisphere" by the Nature Conservancy, the Peconic Estuary contains a rich mosaic of natural communities, all of which are important to the ecology and productivity of this ecosystem. More than 100 distinct bays, harbors, embayments, and tributaries make up the Peconic Estuary. The areas surrounding the Estuary are rich with scenic beaches, tidal and freshwater wetlands, creeks, riverine habitat, and extensive woodlands. In total the Peconic Estuary Study Area includes more than 158,000 surface water acres and 112,500 land acres.

There is a larger percentage of undisturbed habitats and a greater diversity of natural communities within the Peconic Estuary Study Area, on a per unit area basis, than anywhere else in the coastal zone of New York State. There are individual habitats in the region that are rarely found elsewhere in New York State or on the east coast of the United States. Additionally, the Estuary is home to over 100 species listed as rare, threatened or endangered globally, nationally, or locally.

Below is a summary of the primary habitats of the Peconic Estuary. Additional information can be found in *Characterization Report of the Living Resources of the Peconic Estuary.*

Deep Open Water Communities

The deep open waters of the Peconic Estuary include most of Flanders, Great Peconic, Little Peconic, Noyack, Southold, and Gardiners Bays; portions of Northwest and Orient Harbors; and Shelter Island Sound. Depths in these bays range from 4 m to 29 m (14 to 95 ft), with the deepest areas occurring around Shelter Island. Flanders Bay, the most western bay, is the shallowest. The average salinity ranges from 27 to 29 practical salinity units (psu), increasing as you move east.

This area supports a variety of species from small plankton to marine mammals. It serves as an important nursery area for a number of finfish, such as bay anchovy, Atlantic silversides, tautog, weakfish, scup, winter flounder, summer flounder, bluefish, butterfish and northern puffer. Many of these species support commercial and recreational fisheries. Invertebrates that live in the deep water zone include calico crab, blue crab, spider crab, horseshoe crab, long-finned squid, channeled and knobbed whelks, slipper shells, blood arks, oyster drills, and jingle shells. This area is also used by a variety of birds for feeding, notably sea ducks such as red-breasted mergansers, scoters, and common eiders.

During the spring and summer months, juvenile sea turtles, harbor porpoises, and bottlenose dolphins may enter the estuary to feed. During the winter, harbor seals are found around several haul-out areas around the eastern Peconic Estuary and Block Island Sound.

Deep Peconic Mud Basin

At the bottom of the Great Peconic Bay lies a giant mud basin, consisting of fine grained, silty organic mud. This habitat supports a diversity of burrowing organisms, including polychaeta worms, mantis shrimp, and brittlestars. When these animals irrigate their burrows, they help to circulate oxygenated water into the oxygen-depleted mud sediments. This community also plays an important role in nitrogen conversion, helping to buffer against excess nitrogen inputs in the

Bay.

Shallow Bays and Embayments

This habitat includes waters in the main bays with a depth of less than three meters (approximately 10 feet) and the portions of tidal creeks, ponds, and large embayments in the Peconic Estuary that remain submerged through the tidal cycle. These shallow-water areas in the estuary are crucial for local populations of breeding fish. Some species of adult finfish move in close to shore to spawn and reproduce (*e.g*., weakfish, winter flounder, and Atlantic silversides), while others spawn in the ocean and the larvae move inshore, metamorphose, and the juveniles feed in the shallow areas until they are large enough to migrate back offshore (*e.g*., bluefish, summer flounder). The shallow water zone also supports the majority of commercially harvested shellfish, including the iconic Peconic Bayscallop and hard clam. Additionally, this habitat is an important feeding area for several birds, including waders, such as herons and egrets, puddle ducks (e.g., black ducks and mallards) and bay ducks (e.g., greater and lesser scaup, canvasbacks and redheads).

Submerged Aquatic Vegetation

The Peconic Estuary Partnership defines submerged aquatic vegetation as beds of rooted vascular plants or macroalgae, both of which require complete immersion for all or most of the day to survive. Submerged aquatic vegetation, particularly eelgrass (*Zostera marina*), is of great ecological importance in shallow environments. Eelgrass beds provide shelter and food for a variety of juvenile finfish and invertebrates, most notably juvenile bay scallops which attach to the eelgrass blades. These rooted plants also help stabilize the underlying substrate and prevent erosion. Eelgrass is limited to areas of high light penetration and typically only grows to depths of six to ten feet. Current eelgrass beds within the Peconic Estuary are found around Shelter Island, to the east along the fringes of Gardiners Bay and within a few small embayments and harbors.

Macroalgae beds are generally considered poorer habitat compared to eelgrass and do not provide the same level of ecosystem services. Since macroalgae are not rooted, they do not stabilize soft bottoms. Rather, they are easily uprooted and can be carried some distance where they foul eelgrass, beaches, and bare bottoms. The macroalgae species that occur in greatest abundance are green fleece, a non-native species, and sea lettuce.

Tidal Wetlands

Tidal wetlands, also known as salt marshes, are vegetated areas around the edge of the estuary that are inundated by seawater brought in by the tides twice daily. The low marsh is dominated by salt marsh cordgrass (*Spartina alterniflora*), a plant that is specially adapted to living in this unique environment. The high marsh, which is only inundated by seawater during the highest spring tides or storm surges, is usually dominated by salt meadow grass (*Spartina patens*), but a variety of other plants may be found in this area too.

Wetlands provide numerous ecosystem services and are some of the most productive habitats on Earth. They are ideal habitats for juvenile fish and shellfish to grow and reproduce. Three quarters of the fish and shellfish we eat rely on the marsh environment at some point during their life. They are also important areas for waterfowl and shorebirds and the diamondback

terrapin, an exclusively estuarine reptile.

Beyond serving as important habitat for a number of species, wetlands help to slow shoreline erosion and provide a critical buffer between estuarine waters and the terrestrial environment. These habitats are capable of filtering a large amount of surface runoff from land, buffering estuarine waters from excess nutrients and contaminants that might be contained in surface runoff. Conversely, wetlands can absorb a large amount of floodwater from the estuary and dampen wave energy, providing protection to coastal communities during large storms.

Tidal Flats

Tidal flats are unvegetated intertidal areas consisting of mud or sand. These areas are often covered by algae. Animals that live in tidal flats include several commercially important bivalves, such as clams, as well as crabs, snails, and worms. One of the most sighted animals on tidal flats in the Peconic is the fiddler crab. These areas may also be used by finfish for spawning and nursery grounds with the adults, larvae, and juveniles moving on and off these unvegetated areas with the tides. These estuary margins are extremely important to birds. Wading birds and raptors feed over the mud and sand flats at high tide.

Sandy Beaches/Dunes/Bluffs

Sandy beaches are found throughout the Peconic Estuary system. Beaches are dynamic environments that are continuously being accreted and eroded by waves, wind, and currents. Dunes or bluffs form on the landward side of some beaches. These geological formations are the main source of sand for the beaches.

The unstable and harsh environment of beaches limits the number of organisms that can live here. However, beaches are home to several rare plants, such as the seabeach knotweed, that are exclusively adapted to these nutrient-poor environments. Many tiny animals live between the sand grains, and a number of species will feed on the beach wrack, the band of dead, washed up vegetation, shells, and other debris found near the high tide line. These environments provide important nesting habitat for two endangered shorebirds, the piping plover and roseate tern. Additionally, horseshoe crabs and diamondback terrapins move onto sandy beaches in the spring and summer, respectively, to breed.

Freshwater Habitats

The freshwater environment is crucial to the Peconic system, because it is the influx of fresh water that makes the system estuarine. A mix of fresh and saltwater is vital for the growth and development of many species, some of which cannot survive in highly saline seawater. The largest source of freshwater to the Estuary is the Peconic River, which runs west to east from the town of Brookhaven to Flanders Bay. However, there are several other small freshwater streams and creeks within the Peconic Estuary watershed.

Other freshwater habitats found within the Peconic Estuary watershed include freshwater wetlands, coastal plain ponds, vernal pools, bogs, fens, and swamps, including the rare coastal plain poor fen and Atlantic white cedar swamp communities. As with salt marshes, these habitats absorb and filter surface runoff, and are, therefore, important for enhancing estuarine water quality.

The freshwater habitats of the Peconic support several warm-water fishes, such as the largemouth bass, bluegill, sunfish, yellow perch, and white perch. The upper reaches of the Peconic River and connected freshwater ponds provide habitat for two New York State threatened fish, the banded sunfish and swamp darter. Additionally, the Peconic River and a few other streams in the region provide critical habitat for local diadromous fish that move between ocean and freshwaters, namely river herring and American eel. Various salamanders, including the state listed endangered tiger salamander, frogs, turtles, and birds, also live in the freshwater habitats of the Peconic.

Upland Forests and Grasslands

There are several characteristic plant communities, which occur in this upland coastal zone around the Peconic Estuary. Soil type, hydrology, and microclimates determine the occurrence of these communities. Forest types include maritime red cedar (found on the long, narrow peninsula of Orient State Park), maritime oak (found on the exposed bluffs of Jessups Neck and Mashomack Preserve), coastal oak-holly (on the Montauk peninsula), and the Long Island Central Pine Barrens. In the Pine Barrens, pitch-pine oak is the dominant plant community. There are also rare dwarf pitch pine plain communities, which include pines and other co-dominant trees no greater than 3 meters in height.

Other significant coastal upland plant communities include remnant maritime grasslands (found in the Peconic Estuary at Conscience Point, Montauk, and the Shinnecock Hills) and maritime heathlands (found at Montauk Mountain). These communities consist of tall grasses and shrubs and are notable for their lack of large trees.

All these plant communities contain numerous insects, birds, and other organisms, which are specifically adapted to them. Many vascular plants and several birds and insects found in the terrestrial zone have been identified as threatened, endangered, or species of special concern, inclusive of the federally endangered northern long eared bat (*Myotis septentrionails)*.

Threats to Peconic Estuary Habitats

Increased population density and development over the last century have negatively impacted the natural habitats and diversity of life in the Peconic Estuary watershed. Physical alterations to the environment such as navigational channel dredging, filling of low-lying areas including wetlands, hardening of the shoreline, and clearing of land for roads and buildings has resulted in fragmentation, alteration and, in some cases, complete destruction of valuable habitat. Additionally, nutrient and toxin pollution, invasive species, climate change, and some boating and fishing activities have further degraded habitats in the Peconic Estuary watershed and reduced the ecosystem services they provide. In this section, an overview of these threats is provided, followed by a discussion of their impacts on key habitats within the Peconic Estuary.

Major Threats to Peconic Estuary Habitats

Development and human activities have resulted in habitat loss, fragmentation, and degradation of habitats within the Peconic watershed, and remaining open space is under increasing development pressure.

Dams have been built on many of the streams emptying into the Peconic, preventing the movement of diadromous fish between freshwater and saltwater for spawning.

Invasive species out-compete with native plants and animals, threatening biodiversity and reducing habitat value. (e.g., *Phragmites*)

The interacting effects of rising seas and sediment deficits threaten to drown tidal wetlands and shoreline habitats, especially if they cannot migrate inland due to natural or man-made barriers.

Nutrient pollution, increasing water temperatures, and human disturbance are contributing to the loss of eelgrass beds within the Peconic Estuary.

<u>Development</u>

Historically, low-lying wetlands were filled for construction or agriculture orwere ditched and drained for mosquito control. Much of the uplands have also historically been cleared for agriculture and more recently for residential developments. The building of roads has fragmented habitats and cut off the flow of water to many tidal wetlands and streams. Although culverts have been installed to reconnect these wetlands, they are often poorly maintained and do not flush properly. Moreover, they often prevent wildlife movement.

Additionally, in the late 1800's and early 1900's, dams were built on nearly all of Long Island's freshwater tributaries for grist mills, cranberry bogs, other industrial uses, and as property line demarcations. These dams cut off historic migratory routes for diadromous fish, namely river herring and American eel, blocking access to hundreds of acres of critical freshwater spawning habitat.

Today, stronger laws are in place to prevent the destruction of high valued habitats, like

wetlands, and much effort has been made by the five East End Towns to preserve open space. However, ever-increasing development pressure along the coast continues to pose threats to Peconic Estuary habitats. In addition to direct impacts, development has many indirect impacts, such as the degradation of water quality, changes to the hydrology, and the invasion of nuisance species.

Navigational Dredging

In the Peconic, dredging has been carried out on most of the inlets and navigation channels in the embayments and surrounding creeks. Dredging is usually done because of the accumulation of sediment that fills in channels and basins, effectively reducing vessel and boat use in these areas, or for other public-use benefits, like the building of marinas. Dredging can have a variety of negative impacts on natural communities. Concerns include direct disturbance to the habitat and living organisms, changes to current patterns, re-suspension of toxic chemicals, and the creation of high turbidity water quality conditions.

However, under certain conditions, dredging may increase tidal flushing and improve water quality. Additionally, dredge material is recognized as a resource material that can be recycled or reused to implement a variety of projects, including ecological restoration.

Shoreline Hardening

Bulkheads, riprap and other structures have been widely used to stabilize waterfront property throughout the estuary. In 2003, almost 29 miles of hardened shorelines and nearly 9 miles of docks were mapped in the Peconic Estuary. A new hardened shoreline GIS mapping study was undertaken in 2019. While the results are still being be ground-truthed and verified, a preliminary estimate indicates a 3 to 4-fold increase in the miles of hardened shoreline since 2003.

These hard structures alter the physical environment of coastal areas by reflecting wave energy and changing shoreline erosion and accretion patterns. They can result in erosion or deposition of sediments up or downstream of the structure, which may result in the destabilization of the shoreline. This may in turn encourage adjacent landowners to install hardening structures along their property. This “domino effect” of replacing natural shoreline with human-made structures can lead to widespread cumulative damage, including the loss of wetlands and beaches as well as the scouring of shallow areas with impacts to eelgrass beds and shallow water benthic communities. The loss of these intertidal and nearshore habitats negatively impacts shellfish, forage and juvenile fish and other species that use these areas for spawning, feeding, or mating (e.g., horseshoe crabs and birds). Hardened shoreline structures may also leach toxic contaminants such as copper, chromium and arsenic that are used to treat lumber, into the surrounding water, further impacting nearshore living resources. Moreover, hardened shorelines will prevent the landward migration of wetlands and eelgrass beds, necessitated by rising seas.

Boating and Fishing Activities

Certain boating and fishing activities can negatively affect Peconic Estuary habitats. Shellfishing for scallops, clams or oysters often occurs in close proximity to eelgrass meadows. The use of rakes, tongs, dredges (including mechanical dredges) to harvest these shellfish can cause direct removal or structural damage to eelgrass, stir up bottom sediments and bury eelgrass or result in

increased water turbidity, thereby decreasing light penetration to eelgrass. Finfish trawls and nets that are dragged along the bottom habitat also have the potential to cause structural damage.

Boats and personal watercraft used in shallow waters where eelgrass occurs can damage existing eelgrass or create conditions unsuitable for healthy growth. Mooring blocks, anchors, and the associated chain tackle can also create scour, removing eelgrass, fragmenting the meadow and degrading habitat quality. Additionally, boat wakes contribute to the erosion of the shoreline and tidal wetland habitat.

Water Pollution

Nutrients and toxic contaminants enter the Peconic Estuary through a variety of sources, such as sewage treatments plants, on-site waste systems, fertilizers, and stormwater runoff. This can result in the further degradation of Peconic Estuary habitats.

Excess nitrogen or eutrophication has been identified as the most serious threat facing the Peconic Estuary due to its numerous impacts. Excess nitrogen can lead to excessive and harmful algal growth and create hypoxic conditions that kill living organisms. Excess nitrogen also leads to enhanced epiphytic growth on eelgrass blades. Excessive algal and epiphytic growth reduces light penetration to eelgrass and can greatly affect the areas where eelgrass can grow. Further, excess nitrogen can negatively affect the growth of wetland plants, leading to the destabilization and erosion of wetlands.

Toxic contaminants such as heavy metals, pesticides, herbicides, chemicals and solvents are known to affect survivorship and reproductive capabilities of aquatic plants and other living organisms. The Peconic Estuary generally has low levels of toxic contaminants, but the effect of toxic contaminants on vulnerable natural communities, like eelgrass, requires further investigation.

Invasive Species

Invasive species are non-native species that cause harm to the environment, the economy or human health. They come from all around the world and can be introduced into the environment through a variety of ways. The most common way for aquatic species to be introduced is through the ballast water of boats. Invasive species can impact native plant and animal communities around the estuary and are one of the top causes of biodiversity loss. For example, *Phragmites australis* is an invasive species that forms monotypic stands in disturbed tidal wetland areas. While recent evidence suggests that *Phragmites australis* has some habitat value (e.g., fish and bird habitat), these stands have generally decreased the overall habitat value for native species, altered nutrient cycling regimes, and are a fire hazard.

Climate Change

Global climate change is expected to exacerbate the already existing threats to the natural communities of the Peconic Estuary. Rising seas threaten to drown tidal wetlands and eelgrass beds if they cannot migrate landward. Changes in air and water temperatures may lead to species composition shifts and alter the structure of food webs and ecosystems. There is already evidence of a shift in the Peconic Estuary fish populations from cold water adapted species to more warm water adapted species. Additionally, rising water temperatures are contributing to the

decline of eelgrass in the region. Increasingly, acidic oceanic waters could limit the ability of shellfish and other calcifying organisms to build their shells or skeletons. It will be important to reduce the other stressors described above to increase the resiliency of Peconic Estuary natural communities to these climate impacts.

A 2019 Peconic Estuary Climate Vulnerability Assessment identified the following risks. More information is detailed in the full report.

Sea Level Rise - The greatest risk to the Peconic Estuary's management goals posed by SLR is two-fold: SLR will reduce the area of coastal habitats if they are unable to migrate landward, and it will cause saltwater intrusion. These occurrences will affect PEP's ability to protect habitats, water quality, species diversity, groundwater resources, and recreational access. Land preservation will be instrumental in ensuring buffers are available to allow habitat migration and prevent saltwater intrusion.

Increased Storm Frequency and Intensity - More frequent and intense storms will lead to more stormwater entering the Peconic Estuary's surface water and groundwaters and to erosion of the nearshore habitat. All of this will affect PEP's ability to protect habitats and water quality. Adaptation strategies to protect and restore nearshore areas and emphasize soft engineering approaches will be necessary to reduce these risks.

Warmer Atmosphere/Warmer Waters - Higher mean average temperatures will affect species diversity and migration as seasonal patterns shift faster than some species can adapt. Warmer water expands, which leads to additional SLR and can lead to stratification within the water column. Warmer waters may also lead to an increase in HABs. These occurrences will affect PEP's ability to protect habitats, water quality, species and diversity, and recreational access. Water quality controls will be necessary to help mitigate some of the effects of warmer water. Land preservation and conservation will also be necessary to allow habitat migration due to SLR.

Increased Drought - Although overall precipitation rates in the region are expected to increase, more of the precipitation will likely fall in the winter and spring as rain, while the summer and autumn will experience periods of drought. These trends will affect PEP's ability to meet groundwater protection goals and may reduce species diversity in freshwater and brackish systems.

Rising Groundwater - Some groundwater rise may be caused by increased precipitation. Pressure from SLR will also be a factor in groundwater rise, and it has the potential to bring the systems closer even in times of drought. The biggest risk to PEP's water quality goal from rising groundwater is cross contamination of freshwater and saltwater systems which is a risk to a variety of habitats.

Ocean Acidification - This is an area of active research in the region, and some of the full effects of ocean acidification are still being studied. Lower pH poses a high risk to species with shells and exoskeletons, and emerging research shows that high levels of carbonic acid may also harm finfish. Ocean acidification may affect PEP's ability to manage and protect species diversity, water quality, habitats, and sustainable fisheries.

Impacts on Key Peconic Estuary Habitats

While the stressors described above have negatively impacted all Peconic Estuary habitats, the loss and degradation of critical breeding and nursery habitats, specifically eelgrass beds, tidal wetlands, and freshwater diadromous fish habitat is of particular concern.

Impacts on Eelgrass

Once bountiful throughout the Peconic Estuary, eelgrass abundance has significantly declined over the last century. In 1930 it was estimated that there were over 8,700 acres of eelgrass. By 2000, the Peconic eelgrass population had declined by over 80% to only 1,550 acres. As of 2014, less than 1,000 acres of eelgrass remain.

It has been reported that the onset of a wasting disease *(*caused by the slime mold *Labyrinthula zosterae)* in the early 1930's took out approximately 90% of all eelgrass meadows along the entire Atlantic seaboard. In the following decades, there was likely some rebound of eelgrass, but in the 1980's extensive and prolonged brown tide blooms further decimated the eelgrass populations in the Peconic Estuary. Today, nutrient enrichment, algal blooms, water quality, boating and fishing practices, and shoreline stabilization structures are all collectively affecting the health and extent of eelgrass. In addition, rising water temperatures pose a significant threat to eelgrass in our region, as it is already growing near the upper limits of its temperature range. Other climate change impacts, including rising seas and more intense storms further threaten extant eelgrass meadows. With the exception of the Bullhead Bay eelgrass meadow, there are no eelgrass meadows growing west of Shelter Island in the Peconic. Long term monitoring indicates water temperature and light availability are no longer within the optimal range for eelgrass in this section of the estuary.

Impacts on Tidal Wetlands

The most recent tidal wetland trends analysis for the Peconic Estuary indicates a loss of 10.5%, or 363 acres of wetland habitat, between 1974 and 2005. In addition, of the 159 wetlands identified in the Peconic Estuary, 86 were categorized as "at risk" (defined as loss >10%). Of particular concern is the rapid decline of high marsh habitat (-25% between 1974 and 2005), which is utilized by several bird species for nesting, supports a number of rare plants, and provides numerous ecosystem services.

These trends suggest significant wetland drowning is occurring. Wetland drowning is related to the interacting effect of the failure of wetland accretion processes (such as deposition of organic sediments and accumulation of plant biomass) to keep pace with sea-level rise. Hardening of the shoreline, excess nutrients, tidal restrictions, and other land and human-use activities all affect wetland accretion and erosion processes and contribute to the degradation of these habitats. Wetlands can migrate inshore gradually with rising water levels, but the rate at which the sea level is rising is making it difficult for them to migrate inshore fast enough. Additionally, in some cases, natural or man-made barriers (e.g. hardened shoreline structures) will prevent wetlands from migrating inland.

Another significant reason for the loss of native wetland communities in the Peconic is the invasion of *Phragmites australis*. An 88.5% increase in *Phragmites australis* was recorded in the Peconic between 1974 and 2005.

Impacts on Diadromous Fish Habitat

The construction of dams on freshwater tributaries back in the late 1800's and early 1990's cut off historic migratory routes for diadromous fish, which migrate between fresh and ocean waters. Until recently, the Peconic River had six dams along its length that prevented diadromous fish from migrating up and downstream, blocking access to hundreds of acres of important freshwater habitat. This loss of freshwater habitat has contributed to the decline of local diadromous fish species, namely river herring and American eel. River herring, the collective name for two species of fish (Alewife, *Alosa pseudoharengus* and blueback herring, *Alosa aestivalis*), rely on freshwater areas for spawning, with mature adults usually entering freshwater rivers and streams in early spring. The juveniles then grow through the summer in the freshwater environment

before heading back out to the estuary and eventually the ocean. American eel has the opposite life cycle. They begin their life in the middle of the Atlantic Ocean and are transported by ocean currents to coastal habitats, eventually making their way into freshwater rivers and streams. They spend many years (up to 40) in the freshwater environment, growing and maturing, before eventually heading back to the ocean to reproduce and die. The decline of these diadromous fish has negative impacts on the health of the Peconic Estuary ecosystem. The movement of diadromous fish from salt to fresh water is especially important in transferring ocean-derived energy into estuarine, freshwater and upland habitats. River herring and American eel also provide prey for countless species during their annual migration.

Currently, fish passages have been built at four of the 6 dams along the Peconic River: Grangebel in 2010, Edwards Avenue 2016, Woodhull 2022 and Forge Road 2023. The last major barrier on the main stem of the Peconic River is the Upper Mills Dam. At this site, there are two fish impediments - the Upper Mills Dam and a weir that is part of the USGS flood stage station. The Peconic Eetuary Partnership is working with partners to secure funding to finalize fish passage engineering and permits, as well as to construct the passage.

Poorly designed road culverts or other physical structures, also impede access to freshwater habitats for diadromous fish in other areas around the Peconic Estuary. The Peconic Estuary has partnered with several local municipalities to retrofit or construct new culverts to expand access to spawning habitat, inclusive of the Alewife Creek culvert under Noyack Road.

References and Further Information

Anchor QEA, Fine Arts and Sciences, and The Nature Conservancy. 2019. PEP Climate Vulnerability Assessment and Action Plan. https://www.peconicestuary.org/wp-content/uploads/2019/10/Peconic-Estuary-Program-Climate-Vulnerability-Assessment-and-Action-Plan-Final-Report.pdf

Bortman, Marci L. and Nancy Niedowski. 1998. Characterization Report of the Living Resources of the Peconic Estuary: https://www.peconicestuary.org/characterization-report-of-the-living-resources-of-the-peconic-estuary-1998/

Cameron Engineering and Associates, LLP. 2015. Long Island Tidal Wetlands Trends Analysis: http://www.dec.ny.gov/lands/5113.html

Cerrato, Robert M. and Nicole P. Maher. 2007. Benthic Mapping for Habitat Classification in the Peconic Estuary: Phase I Groundtruth Studies: https://www.peconicestuary.org/benthic-mapping-report-phase-i-2007/

Cerrato, Robert M, Roger D. Flood, and Lee C. Holt. 2009. Benthic Mapping for Habitat Classification in the Peconic Estuary: Phase II Ground Truth Studies: https://www.peconicestuary.org/benthic-mapping-report-phase-ii-2009/

Cerrato, Robert M, Roger D. Flood, and Lee C. Holt. 2010. Benthic Mapping for Habitat

Classification in the Peconic Estuary: Phase III Ground Truth Studies: https://www.peconicestuary.org/benthic-mapping-report-phase-iii-2010/

Cerrato, Robert Roger Flood, Michael Frisk, Adrian Jordaan, Tyler Abruzzo, Alison Flanagan, and Michael White. 2017. Integrating Fish Trawl, Water Quality, and Benthic Mapping Data in the Peconic Estuary: https://www.peconicestuary.org/integrating-fish-trawl-water-quality-and-benthic-mapping-data-in-the-peconic-estuary/

NYSDEC. 2014. Nitrogen Pollution and Adverse Impacts on Resilient Tidal Marshes: http://www.dec.ny.gov/docs/water_pdf/impairmarshland.pdf

NYS Seagrass Task Force. 2009. Final Report of the New York State Seagrass Task Force – Recommendation to the New York Stave Governor and Legislator: http://www.dec.ny.gov/docs/fish_marine_pdf/finalseagrassreport.pdf

Peconic Estuary Program. 2015. Peconic Estuary Program Ecosystem Status Report: https://www.peconicestuary.org/2015-pep-ecosystem-status-report/

Pickerell, Chris. and Steve Schott. 2017. Peconic Estuary Program 2016 Long Term Eelgrass Monitoring Program: https://www.peconicestuary.org/2016-pepltemp-report-final-report/

Stephenson, Laura B. 2010. Eelgrass Management Plan for the Peconic Estuary: https://www.peconicestuary.org/wp-content/uploads/2017/06/EelgrassManagementPlanforthePec.pdf

Tiner, Ralph W., Herbert C. Bergquist, Denise Siraco, and Bobbi Jo McClain. 2003. An Inventory of Submerged Aquatic Vegetation and Hardened Shorelines for the Peconic Estuary, New York: https://www.peconicestuary.org/peconic-estuary-an-inventory-of-submerged-aquatic-vegetation-and-hardened-shorelines-for-the-peconic-estuary-ny-2003/

Young, Byron. 2018. Long Island Alewife Restoration Efforts with Emphasis on the Peconic River – 2010 to 2017: https://www.peconicestuary.org/2017-alewife-spawning-report

Habitat Restoration and Protection Progress to Date

The first iteration of the PEP Habitat Restoration Plan in 2000 included seventy-two habitat restoration sites. By the 2009 update of the Habitat Restoration Plan, fifteen of these habitat restoration projects had been completed. Completed projects included two beach restoration projects, two shorebird habitat restoration projects, seven wetland restoration projects, one *Phragmites* control project, one grassland restoration project, and two water- quality improvement projects.

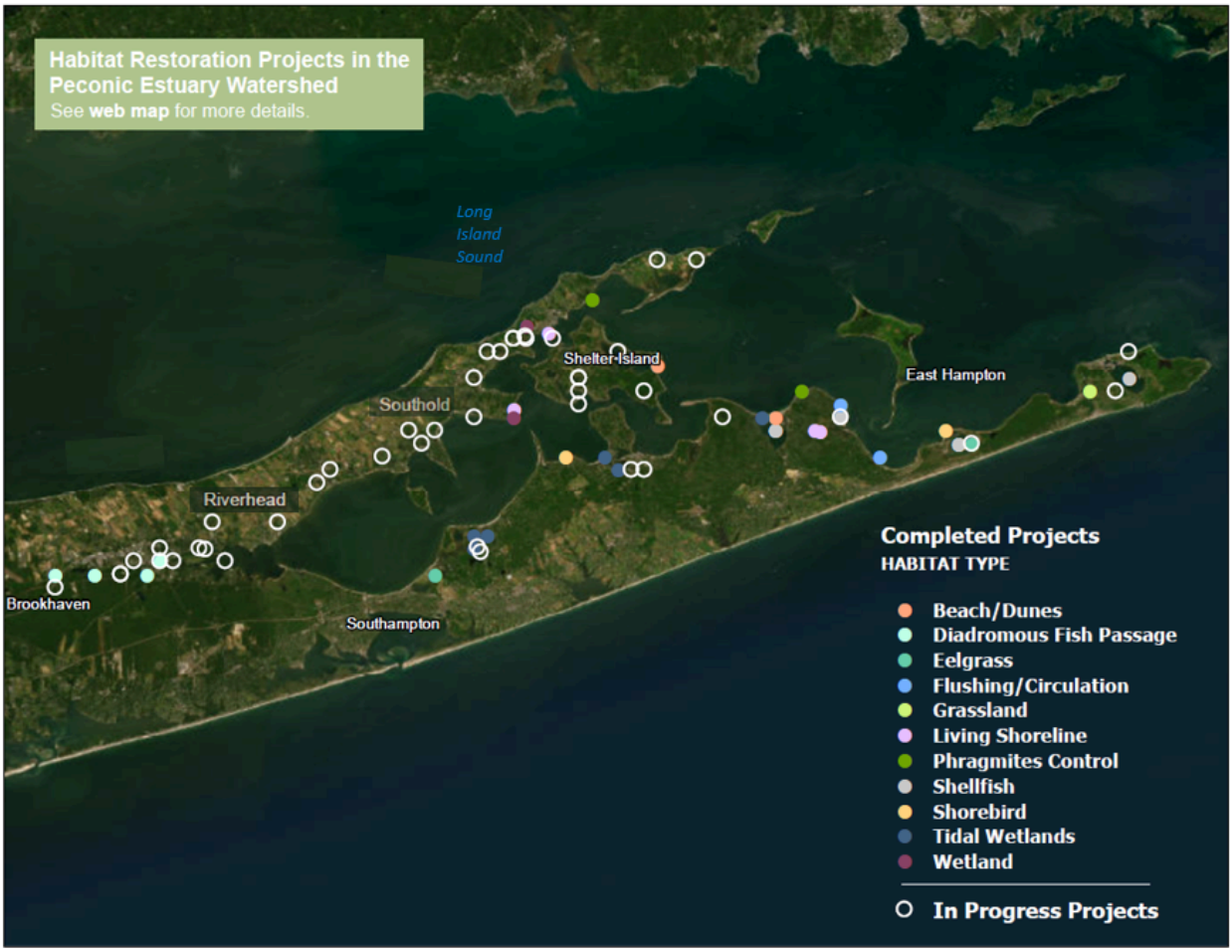

Figure 3: Map of In Progress and Completed Habitat Restoration Projects in the Peconic Estuary Study Area. View interactive web-map here.

As of 2024, 120 projects have been incorporated into the PEP Habitat Plan. Twenty-one projects have not been initiated, eleven projects are within the planning and design phase, three projects are within the engineering and permitting phase, four projects are partially completed, eight projects have been initiated but are no longer viable, and seventy-three projects have been completed (Figure 2).

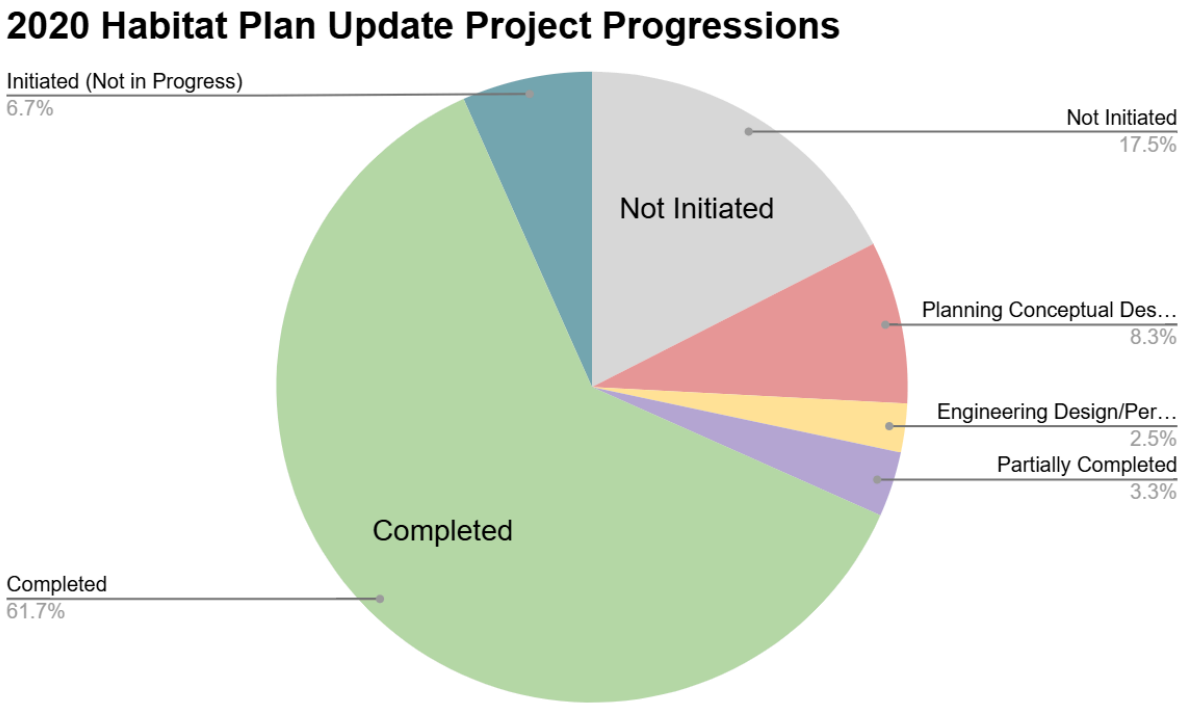

Figure 2: Status of PEP Habitat Restoration Plan Projects as of November 2024

Status Definitions

Not Initiated: Project planning, design, or permitting services have not yet been initiated.

Planning/Conceptual Design: A conceptual design is being developed or other planning services (e.g., baseline surveys or monitoring) are underway.

Engineering Design/Permitting: Engineering design is being developed or project permits are a waiting approval.

Construction: Permits have been secured, and physical on-the-ground construction/restoration will commence as soon as funds are in place or is currently occurring.

Partially Completed: Physical on-the-ground construction/restoration has been partially, but not entirely completed.

Completed: Physical on-the-ground construction/restoration is complete.

Initiated, No Longer in Progress: Project planning, design, or permitting services were once initiated, but work is no longer occurring. This may be due to a lack of resources, a change in priorities, or because full-scale restoration was determined not to be feasible.

S

Since 2009, the Peconic Estuary Partnership has made the most progress on diadromous fish habitat restoration. In addition to the two (2) completed projects, which together restore 60 acres of freshwater diadromous fish habitat, another two (2) projects have been partially completed, and three (3) other projects are in progress.

In contrast, eelgrass restoration has been the least successful. Eelgrass restoration has been attempted at multiple sites within the Peconic Estuary with limited success and the resource has continued to decline, indicating that a new strategy is required. The Program office has convened a Subaquatic Vegetation task force to review existing data, and identify other avenues for restoration. Additionally, the Peconic Estuary Partnership has joined Seagrass.net, in order to standardize data collection and collaborate with partners around the world.

No wetland restoration projects from the 2009 plan have been completed yet, but several projects are in progress. Of the 33 *Phragmites* control projects listed in the 2009 Plan, one (1) project was completed, one (1) was partially completed, and four (4) are in progress. However, twenty-two (22) projects were never initiated and another five (5) were initiated but are no longer in progress. This likely reflects the fact that *Phragmites* is hard to eradicate and that these projects are labor intensive, expensive, and often require continued maintenance.

As of June 2020, two additional habitat restoration projects have been completed and additional progress has been made on several ongoing projects. A Completed Habitat Restoration Project Inventory can be found in Appendix C and a tracking table for projects listed in the PEP 2020 Habitat Restoration Plan can be found in Appendix D.

The largest barrier to completing habitat restoration projects has been a lack of funding and resources. Habitat restoration projects take a significant amount of time and money to complete; many steps are required, from planning and engineering design to permitting and implementation. Many municipalities did not have funds to undertake habitat restoration projects, as most habitat restoration grant programs require anywhere from 25-50% of local match. The high cost of habitat restoration projects and the time and effort needed to apply for funding sources and attain permits highlighted the need for the PEP to provide assistance in advance to local governments to scope out site specific habitat restoration project plans. PEP has committed to funding conceptual habitat designs for priority projects. These conceptual plans have been used to successfully apply for grants for engineering design and implementation funds. In July 2016, several local municipalities passed referendums which allowed for up to 20% of Community Preservation Funds to be used for water quality improvement projects, inclusive of habitat restoration. This funding source has allowed several of the Towns to fund and/or complete habitat restoration projects, such as the bulkhead removal at Round Pond or fish passage.

In addition to pursuing habitat restoration projects, preserving land from future development has been a high priority in the Peconic watershed. Benefits to land protection include preserving unique species and natural communities, controlling nutrient and pollution loads to the Estuary, and increasing recreational opportunities within the watershed. Lands may also be targeted for public preservation to advance habitat restoration opportunities and to allow for the natural inland migration of wetland habitats. Since 2006, over 2,750 acres of land has been protected in

the Peconic Estuary watershed. The most significant source of funding for land protection is the Community Preservation Fund (CPF), administered by the five East End towns. This funding is supplemented by County and State governments, and not-for-profit organizations.

The Peconic Estuary Partnership is working with the Stony Brook University Geospatial Institute and the New York State Department of Environmental Conservation to update theCritical Lands Protection Strategy (CLPS), which will identify lands still available for development and land protection priorities, taking into account climate change and rising seas. This Habitat Plan will be amended to include the updated CLPS upon completion.

Habitat Restoration Goals and Objectives

The overall goal of the Peconic Estuary Partnership Habitat Restoration Plan, and its updates, is to protect and restore Peconic Estuary habitats to support ecosystem function. While all habitats within the Peconic Estuary watershed are important to ecosystem function, submerged aquatic vegetation (SAV), tidal wetlands/shorelines, and freshwater diadromous fish habitat have been identified as current priorities for restoration and protection. As noted in the Threats Section, the decline of these habitats is of particular concern, given their value as important breeding and nursery areas for various wildlife. Additionally, in the face of climate change, it will become increasingly important to maintain resilient and high-valued shoreline and nearshore habitats.

There is a recognized need to be more strategic and focused in habitat restoration efforts within the Peconic Estuary moving forward, particularly given limited resources. Habitat restoration efforts in the Peconic Estuary are expected to focus on restoring or recreating priority habitats types that have declined. Projects should be well thought out and should address the underlying cause of decline to ensure a high likelihood of success. Additionally, it will be important to consider the life expectancy of projects under future conditions (e.g. climate change and sea level rise).

GOAL:

Protect and restore Peconic Estuary habitats to support ecosystem function

Priority Habitats:

SAV, Diadromous Fish Habitat, Tidal Wetlands

*Additional habitats that are shown to be key breeding, foraging, or nursery habitats for species of significant ecological importance to the Peconic Estuary watershed, may also be considered a priority if agreed to by the Natural Resources Subcommittee.

Guiding Principles for Habitat Restoration:

Restore/recreate habitat types that have declined (not necessarily restoring to a particular moment in history)

Understand and address underlying cause of decline

Restore "restoration ready" habitats where likelihood of success is high

Take into account climate change and sea level rise

Nine overarching objectives and various associated management and research actions have been developed to address the threats to priority Peconic Estuary habitats. These objectives and actions are meant to guide restoration and protection efforts within the Peconic Estuary watershed over the next decade.

Objective 1: Protect and maintain existing eelgrass beds

Eelgrass in the Peconic Estuary faces numerous threats and has continued to decline in recent decades. Every effort should be made to protect the eelgrass beds that remain in the Peconic Estuary and reduce human disturbances.

> **Action 1**: Promote the use of best management practices for eelgrass conservation (e.g., low impact boating and shellfishing, conservation moorings)

Objective 2: Support research and understanding of eelgrass needs (e.g. light and temperature) and use research to determine potential restoration and enhancement opportunities

To date, eelgrass restoration attempts in the Peconic Estuary have had limited success. Before additional eelgrass restoration projects are undertaken in the Peconic Estuary, it is important to increase our understanding of the causal factors of eelgrass decline and eelgrass needs.

> **Action 1**: Determine the causal factors of eelgrass decline through development of bio-optical and temperature tolerance model

> **Action 2**: Use bio-optical modeling project results, long-term eelgrass monitoring, and other relevant research to determine restoration potential of eelgrass and suitable restoration/enhancement sites

Objective 3: Support water quality goals that will increase habitat suitability for eelgrass

Reducing nutrient loads to the Peconic Estuary and improving water clarity is necessary to support healthy eelgrass growth. Improving water quality in the Estuary should increase the habitat available for eelgrass.

> **Action 1**: Support monitoring and research that will aid in the development of robust water quality goals/standards.

> **Action 2**: Support habitat restoration and protection efforts that will have positive impacts on water quality

Objective 4: Maintain existing high value wetland areas, restore degraded areas, and improve wetland habitat using best management practices and adaptive management

Protecting and restoring tidal wetland habitat will help to combat the loss of this critical habitat in the Peconic Estuary over the last several decades and will have numerous benefits for wildlife and people.

> **Action 1**: Complete design and construction of ongoing tidal wetland projects

Action 2: Support new tidal wetland projects that aim to restore/recreate lost marsh habitat, remove barriers to tidal flow and sediment supply, and control invasive species and increase native wetland plant communities

Action 3: Support the development and use of tools to prioritize wetland restoration projects based on the potential for climate change/sea level rise adaptation, ecosystem benefits, and other relevant research (e.g. Long Island Tidal Wetland Trend Analysis)

Objective 5: Enhance the resiliency and value of coastal habitats by encouraging living shorelines over hardened shorelines

With the threat of rising seas and climate change, increased need/demand for shoreline protection structures is expected. The construction of living shorelines as an alternative to hardened shorelines will have numerous positive impacts, including habitat creation, erosion control, and resiliency to sea level rise.

Action 1: Identify and support pilot living shoreline projects

Action 2: Use pilot projects to refine approach/methods and to educate the public on the benefits of living shorelines

Objective 6: Continue to restore and enhance viable diadromous fish habitat in the Peconic Estuary watershed

Restoring diadromous fish habitat and river/stream connectivity in the Peconic Estuary watershed will promote the recovery of local diadromous fish species and improve biodiversity in the Peconic Estuary.

Action 1: Complete design and construction of ongoing habitat connectivity projects on the Peconic River

Action 2: Identify and support the design and construction of fish passage/habitat connectivity projects in other areas of the Peconic Watershed

Objective 7: **Preserve remaining high-value undeveloped lands and areas that will allow for the natural inland migration of critical wetland habitats as sea level rises**

Continuing to preserve open space will help protect Peconic Estuary habitats from additional development impacts. Additionally, preserving upland areas adjacent to wetlands will help prevent the loss of wetland habitats to rising seas.

Action 1: Disseminate the updated PEP Critical Lands Protection Strategy, which takes into account sea level rise, to State, County, Town and Non-Profit Partners for implementation

Action 2: Work with partners to identify developed shoreline areas that should be targeted for protection and conversion back to a natural state

Objective 8: Develop and support projects that engage the public in the restoration and stewardship of Peconic Estuary habitats

Engaging the public in habitat restoration projects is necessary to increase the public's understanding of the importance of Peconic Estuary habitats, and to bolster support for habitat restoration and protection efforts.

Action 1: Use habitat restoration projects for outreach events

Action 2: Involve citizen scientists in pre and post-project monitoring

Objective 9: Support research and monitoring that will help guide and evaluate the success of habitat restoration projects

Research and monitoring of Peconic Estuary habitats is necessary to increase our understanding of the causes of habitat decline. Post-restoration monitoring is needed to ensure habitat restoration efforts have the intended benefits and to allow for adaptive management.

Action 1: Conduct aerial surveys to track changes in eelgrass extent every 3-5 years, continue to support the Long-term Eelgrass Monitoring Program and explore additional monitoring technologies to evaluate the health of eelgrass habitat

Action 2: Support studies that will continue to enhance our understanding of SAV habitat in the Peconic Estuary, including studies of the groundwater influence on the health of eelgrass meadows, both negative (nitrogen, pesticide and herbicide input) and positive (modifying water temperatures) impacts, studies on eelgrass traits/population genetics and resiliency to environmental stressors, and studies on the value and restoration potential of SAV habitats other than eelgrass

Action 3: Quantify the amount of hardened vs. natural and living shoreline in the Peconic Estuary within the next 2 years and track thereafter every 3-5 years

Action 4: Develop a wetland monitoring program to track changes in marsh extent and condition overtime and monitor the success of wetland restoration projects

Action 5: Develop an alewife monitoring plan for the Peconic to track the success of fish passage projects and population status

Ten measurable targets have also been developed to gauge and track the success of restoration and protection efforts. These targets were developed through stakeholder input and represent the expected outcomes from the implementation of the above objectives and actions. Restored acreage goals for tidal wetlands/shorelines and diadromous fish habitat are based on the

approximate number of acres that would be restored if all ongoing and current identified priority projects listed in this plan (*see next section*) were completed. Progress toward these goals will be tracked by the PEP State Coordinator and Natural Resources Subcommittee.

Measurable targets (10-year targets)

SAV Targets:

- Increase in eelgrass shoot density and extent in existing beds
- Overall net increase in extent of Peconic eelgrass beds

Wetland/Shoreline Targets

- Restore 250 acres of tidal wetland habitat
- Net increase in native high marsh habitat and total native marsh habitat from 2005 level
- Net decrease in acres of invasive Phragmites from 2005 level
- No net increase in hardened shorelines (includes breakwaters, bulkheads/seawalls, groins, jetties, piers, and revetments) from next measurement

Diadromous Fish Habitat Targets:

- Restore 242 acres of diadromous fish habitat on the Peconic River
- Restore an additional 60 acres of diadromous fish habitat within other areas of the Peconic watershed
- Increase in the alewife population in the Peconic River from current level

Land Protection Targets:

- Acres of protected land (*specific target to be determined based on updated CLPS and partner input*)

Priority Habitat Restoration Projects

The Peconic Estuary Partnership has worked with the East End municipalities, non-profit partners, and other stakeholders to identify priority habitat restoration sites and projects that align with the above Habitat Restoration Goals and Objectives. The Peconic Estuary Partnership solicited input on the projects from the 2020 Habitat Restoration Plan and new potential projects. Twenty-six projects have been re-listed from the 2009 Habitat Restoration Plan, that are either in progress or remain priorities. Since 2009, twenty-four projects have been added to the habitat plan, for a new total of 50 active projects.

For a complete list of habitat restoration projects from the 2009 Plan, see Appendix A. For a complete list of additional plans post-2009, see Appendix B, Appendix C, and Appendix D.

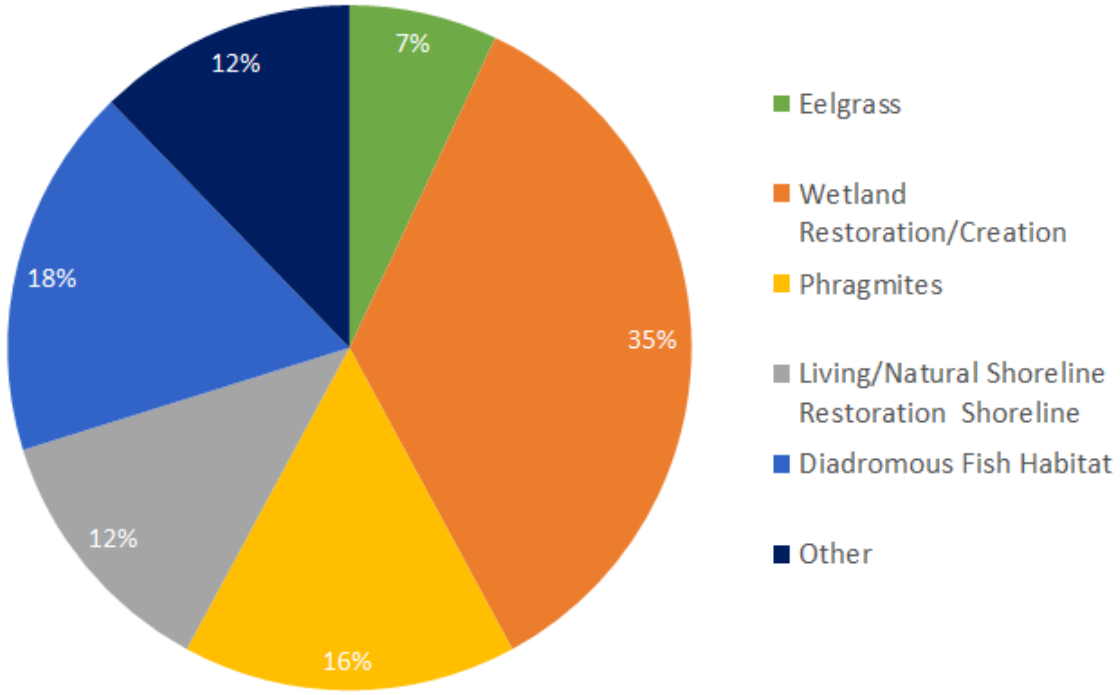

Figure 4: Active Habitat Restoration Projects listed in the 2020 Habitat Plan Update by Habitat Type

Projects were classified into three tiers, described below:

1. Priority habitat, good/proven methods, and supported by landowners/stakeholders
2. Priority habitat, but some concerns with the methods OR additional baseline info is needed OR still need to get support of landowners/stakeholders.
3. Not a high priority habitat but still aligns with overall habitat restoration goals described

in this plan. Phragmites control projects that do not include a wetland restoration component are also included in this tier.

PEP will actively work with its partners to secure funding or advance projects in Tiers 1 and 2. PEP will assist with Tier 3 projects in the forms of letters of support and expertise. Twenty (20) projects were classified as Tier 1, fifteen (15) projects as Tier 2, and eleven (11) projects as Tier 3.

This Habitat Restoration Plan Project list is meant to be adaptable. The priority project list will be reviewed every two years, and projects may be added, modified, or removed as appropriate. Project priorities may be adjusted based on funding opportunities that become available.

A brief description of the priority projects included in the 2020 Habitat Restoration Plan is provided below. An implementation tracking table for projects listed in the 2023 Plan can be found in Appendix D.

Southold Projects

Re-Listed from 2009 Plan

Arshamomaque Preserve Phragmites Control

Priority Tier: 3

This project involves the removal of 20 acres of invasive *Phragmites* and restoration of the habitat to its natural state within the Arshamomaque Preserve using accepted best management practices.

Budds Pond Wetland Restoration

Priority Tier: 2

Suffolk County owns an open space parcel on Route 25 and Budd's Pond in Southold adjacent to the Willow Point subdivision off Bay Home Road and an open space parcel within the Willow Point subdivision where the Town has drainage issues. A portion of the County parcel on Route 25 was filled with dredge materials in the past. This project would restore the elevations and marsh areas to historic or surrounding marsh elevations. Further information is needed on project plans and benefits.

Downs Farm Preserve and Downs Creek Phragmites Eradication

Priority Tier: 3

These properties consist of a 50-acre Southold Town nature preserve and an adjacent 18-acre Town owned creek. The northern section of Downs Creek and adjacent areas on Downs Farm Preserve are choked with invasive *Phragmites*. The approximate area of the *Phragmites* infestation on the Town properties is 5 acres. Project would entail removal of the *Phragmites* and restoration to native vegetation. The removal coupled with the long-term control of Phragmites will promote the re-establishment of native vegetation and important waterfowl and wading bird habitat. There are additional privately-owned areas along Downs Creek that also have some *Phragmites* issues. One of these properties is covered by a Peconic Land Trust easement. It may

be possible to involve these private landowners in the project.

Fleets Neck Wetland Restoration

Priority Tier: 2

Located at the end of East Road and owned by Southold Town the site is approximately a half acre. The project would remove prior placed dredge material and require excavation and re-grading to historic or surrounding marsh elevations. Further information is needed on project plans and benefits.

Husing Pond Phragmites Eradication

Priority Tier: 3

Husing Pond Preserve is a 21-acre preserve owned by The Nature Conservancy consisting mostly of a freshwater pond and surrounding marsh area. Most of the perimeter of the pond and a section of the marsh area are choked with invasive *Phragmites*. The approximate area of the *Phragmites* infestation on the preserve is 4 acres. There is an additional 1-acre area of *Phragmites* on adjacent privately-owned properties and a small Town of Southold owned property that could also be included in the project. Project would be removal of the *Phragmites* and restoration to native vegetation. The removal coupled with the long-term control of *Phragmites* will promote the re-establishment of native vegetation and important waterfowl and wading bird habitat.

Narrow River Phragmites Control and Wetland Restoration

Priority Tier: 1

Narrow River is a tributary of the Peconic Bay and flows south from the Town's Whitcom Marsh Preserve under Route 25 and along the eastern side of Narrow River Rd in Orient, NY. NY State owns most of the properties on the east side of Narrow River Rd and the Town and County own farmland development rights on both sides of the road that includes tributaries to Narrow River. An earthen dam was constructed after the 1938 hurricane to prevent tidal flooding of the lands north of the dam. The western-most section of the dam blocked the tidal flow from Narrow River to the large meadow area north of the dam known as Broad Meadows and Whitcom Marsh Preserve north of Route 25. The dam was modified overtime to include culverts, but these culverts are no longer functioning as originally designed and allow very little water to drain to the south. Additionally, the wetlands north of the earthen dam and culvert to Whitcom Marsh Preserve, which were historically used for duck hunting, are currently choked with *Phragmites*. Remediation of the culvert and earthen dam will improve the tidal exchange throughout the extent of the river and increase the salinity of the river. These actions will help to eradicate the *Phragmites* and will promote the re-establishment of native vegetation and important waterfowl and wading bird habitat. The potential extent of the restoration area is 80 acres.

Nassau Point Wetland Restoration

Priority Tier: 3

This 13-acre property, owned by the Cutchogue-New Suffolk Park District, is a filled historic wetland. The proposed project would remove prior placed dredge material/fill, excavate, and re-grade to historic/surrounding marsh elevations. Revegetation with salt marsh species will be accomplished with both proactive plantings and natural recruitment. Dredge material will either

be removed from the site or redeposited on site along Nassau Point Rd similar to the method used for the Cassidy Preserve marsh restoration project completed in Greenport which proved to be successful and cost effective.

Paul Stoutenburgh Preserve Phragmites Control and Wetland Restoration

Priority Tier: 2

This project involves the removal of 6 acres of invasive *Phragmites* and restoration to native vegetation within the larger Paul Stoutenburgh Preserve (*formerly* Arshamomaque Pond Preserve). The Town repaired a collapsed culvert that was preventing tidal flow into one of the areas infested with *Phragmites*. This area is now tidal again but still in a state of flux so it isn't clear how successful this action was yet. The overall project includes other areas not connected to the area where the culvert was repaired as well as other possible techniques for dealing with the area where the culvert was repaired. Currently accepted removal and restoration practices will be used.

Pipe's Cove Phragmites Control

Priority Tier: 3

This project involves the removal of 12 acres of invasive *Phragmites* and restoration of the habitat to its natural state at Pipe's Cove using accepted best management practices.

Re-Listed from 2020 Plan

Arshamomaque Preserve Diadromous Fish Passage

Priority Tier: 2

Assess connectivity between Pipes Cove/Peconic Bay and Arshamomaque Pond north of Main Road to determine if the pond provides or has the potential to provide spawning habitat for river herring. Fish passage restoration should be pursued if warranted.

Cedar Beach Wetland and SAV Restoration

Priority Tier: 2

The Cedar Beach Creek Habitat Restoration Demonstration Project will restore local essential ecosystem functions in a degraded marsh system. It will create numerous marsh islands from the beneficial reuse of clean dredge material, planting of submerged aquatic vegetation (*Ruppia maritima*), and oysters (*Crassostrea virginica*) into a complex marsh, beach, and open water mosaic. Cedar Beach Creek is productive for marine finfish, shellfish, and other wildlife and contributes significantly to the biological productivity of Noyack Bay. Permitting for this project by the NYSDEC has not been updated yet.

Corey Creek Wetland Restoration

Priority Tier: 3

There are two areas totaling 17 acres adjacent to Corey Creek that were filled with dredge material from past dredging of the creek. The proposed project will remove prior placed dredge material/fill, excavate, and re-grade to historic/surrounding marsh elevations. Revegetation with salt marsh species will be accomplished with both proactive plantings and natural recruitment. Dredge material will either be removed from the site or redeposited on site in adjacent upland areas similar to the method used for the Cassidy Preserve marsh restoration project completed in

Greenport which proved to be successful and cost effective. Eleven parcels in the project area are included on the Town's CPF list for potential easement or fee title acquisition for open space and/or wetlands protection purposes. Most of these parcels are contiguous with Corey Creek Park which is owned jointly by the Town and County.

Eugenes Creek Wetland Restoration

Priority Tier: 3

The section of Eugenes Creek north of Eugenes Rd includes an 8-acre area of land filled with dredge material from past dredging of the creek. The proposed project will remove prior placed dredge material/fill, excavate, and re-grade to historic/surrounding marsh elevations. Revegetation with salt marsh species will be accomplished with both proactive plantings and natural recruitment. Dredge material will either be removed from the site or redeposited on site in adjacent upland areas similar to the method used for the Cassidy Preserve marsh restoration project completed in Greenport which proved to be successful and cost effective. Seven parcels in and near the project area are included in the Town's CPF list for potential easement or fee title acquisition for open space and/or wetlands protection purposes.

James Creek Wetland and SAV Restoration

Priority Tier: 2

Marsh islands within James Creek have shown a significant deterioration over the past decade. This project will involve the beneficial reuse of clean dredge material to restore marsh islands as well as planting of submerged aquatic vegetation into a complex marsh and open water mosaic. The project will use methods currently proposed for the Cedar Beach Creek Habitat Restoration Demonstration Project and/or methods used for the restoration of marsh islands in Jamaica Bay over the past decade. The project will lead to meaningful enhancement of the local marine environment through restoration of essential ecosystem functions in a degraded marsh system.

Terry/Edwards Preserve Wetland Restoration

Priority Tier: 2

The Peconic Land Trust is seeking to restore, protect, and enhance the wetlands and woodlands on two adjacent preserves, totaling 30.5 acres, that are owned by the Trust, and located in Orient, New York. This project combines two previous projects from the 2009 Plan (TGA Wetland Restoration and Edwards Preserve Wetland Restoration). The project involves the reestablishment of water flow into the wetland emergent marsh. This will help control the spread of invasive species like *Phragmites australis* and reestablish a healthy wetlands environment for numerous waterfowl, water birds, and other wetland dependent wildlife.

Town and Jockey Creeks Wetland Restoration

Priority Tier: 2

Marsh islands at the mouth of Town and Jockey Creeks have degraded significantly over the past 20 years. This area was formerly a Piping Plover nesting area but with the islands now completely submerged at high tide it no longer provides a viable nesting habitat for this species. Interior areas of the creeks are also experiencing erosion due to the loss of the protection from the tidal action of the open bay the islands formerly provided. This project will involve the

beneficial reuse of clean dredge material to restore the marsh islands, including creating some viable Piping Plover nesting habitat, as well as planting of appropriate vegetation. The project will use methods currently proposed for the Cedar Beach Creek Habitat Restoration Demonstration Project and/or methods used for the restoration of marsh islands in Jamaica Bay over the past decade. The project will lead to meaningful enhancement of the local marine environment through restoration of essential ecosystem functions in a degraded marsh system and provide a viable Piping Plover nesting habitat. The islands are included on the Town's CPF list for potential easement or fee title acquisition for wetlands habitat protection purposes.

Widow's Hole Preserve Living Shoreline/Wetland Restoration Phase II

Priority Tier: 1

Phase I of the shoreline restoration work at the Peconic Land Trust's (PLT) Widows Hole Preserve in Greenport, NY was completed in July 2019. With the satisfactory completion of this initial work, PLT and Cornell Cooperative Extension of Suffolk County (CCE), have identified potential improvements of the Widows Hole shoreline that would tie into the shoreline restoration efforts completed to date. Proposed activities for the Phase II restoration work include the 1) excavation of a total of 810 square ft of invasive *Phragmites* from two areas, 2) American beachgrass planting (875 square ft), which will connect to the restored dune area from Phase I, 3) *Spartina* plantings (7,300 square ff) along the intertidal shoreline connecting two extant stands of Spartina and the new stand installed in Phase 1 to create a mostly continuous fringe along the preserve's shoreline, and 4) installation of a 225 linear feet cobble- gravel band, like was used in Phase I, to reinforce the seaward edge of the restoration area against wave-generated erosion. Five years of post-project monitoring will be conducted to evaluate the success of these restoration efforts, and the project will include an adaptive management plan, so that enhancements can be made if necessary. This project will further improve the resilience and ecological value of the shoreline at the preserve.

<u>Southampton Projects</u>

Re-Listed from 2009 Plan

Iron Point Wetland Restoration (Not Viable)

Priority Tier: 2

The marshes at Iron Point were much larger historically. The western portions of the Iron Point marshes were either completely filled creating upland or were surrounded by earthen berms and used as dredge spoil sites. Currently, the western and northern margin of the existing Iron Point marsh is dominated by invasive *Phragmites australis*. The central portion of the existing marsh features a large marsh pond/panne and the eastern portion of the marsh is comprised of native high and intertidal marsh vegetation. The native marsh is maintained by tidal exchange with the Peconic River through a gap in the earthen berm and ditches that enters the northeastern tip of the marsh and runs along its southern and northern margins nearly to the salt panne. Additional berm gaps and excavated marsh channels are needed to increase tidal flooding and salinity to increase native marsh area within this marsh complex. This will restore and enhance habitat for wading birds, finfish, black duck and other waterfowl.

Ligonee Brook Diadromous Fish Passage Restoration

Priority Tier: 2

This project involves the restoration of freshwater flow and freshwater wetlands through culvert remediation/replacement, in order to enhance historic alewife runs and American eel passage within Ligonee Brook, which connects Long Pond to Sag Harbor Cove. PEP funded a Conceptual Habitat Restoration Design, which was completed in 2013. This study determined that Ligonee Brook does not include any barriers that prohibit fish from reaching Long Pond under ideal flow conditions; however, the study noted that several crossings severely limit natural stream continuity and should be improved or replaced once their service life has been exceeded. One of recommendations from the conceptual design was done by the Friends of Long Pond Greenbelt in 2014. Two culverts under the Old Rail Road Crossing were removed and a small pedestrian bridge was installed. Currently Friends of Long Pond Greenbelt is pursuing Suffolk County funding for culvert remediation at the Bridgehampton-Sag Harbor Turnpike crossing. Culvert remediation will hopefully happen during Suffolk County's planned remediation of CR 79- Bridgehampton-Sag Harbor Turnpike. *Note: this channel is often dry, flowing only during seasonally wet periods.

Re-Listed from 2020 Plan

Peconic River Shoreline and Wetland Restoration

Priority Tier: 1

This project sought to restore the southerly shoreline and wetlands along the Peconic River between Peconic Avenue and Cross River Drive in the Hamlet of Riverside. The Town and County own approximately one-fourth of the shoreline properties in this section, while the rest is privately owned. Historically this area was part of a natural estuarine and riverine system with tidal and freshwater wetlands, but today is degraded as a result of development and land use activities. Much of the shoreline in this area consist of berms, impoundments and dredge spoil fill that create an unnatural embankment along the shoreline, which has adversely impacted the water quality in this area and led to the colonization by invasive plants. The Flanders, Riverside and Northampton Civic Association (FRNCA) in collaboration with the Town and County, have been awarded a $50,000 New York State Environmental Justice Community Impact Grant that will fund the preparation of a plan for passive recreational use of the County property. While this project initially called for the removal of shoreline dredge spoil and non-indigenous plants and the restoration of the shoreline within 75 feet of the River edge, it was determined that the project could not be accomplished without significant funding and would likely result in disturbance that would adversely impact the surrounding area. The Town has requested a change in the scope of work, in order to expand upon the Town's efforts to connect the community to the Peconic River, by extending the recently constructed Riverside Maritime Trail Park.

East Hampton Projects

Re-Listed from 2009 Plan

Alewife Brook Alewife Access and Habitat Enhancement

Priority Tier: 1

Alewife Brook, Alewife Pond and Scoy Pond (freshwater) are linked to Northwest Harbor. The system should be assessed to determine if it could benefit from improved access to Scoy Pond. A new culvert at Alewife Brook Road and clearing and control of Phragmites would likely allow substantial growth of the system's river herring run. The potential restoration area is 15 acres.

Re-Listed from 2020 Plan

Napeague Harbor Hydrodynamic and Water Circulation Study

Priority Tier: 2

Conduct hydrodynamic and water circulation studies necessary to evaluate if restoring the east inlet of Napeague Harbor to its historic condition would provide sufficient improvements in water circulation and ecological conditions in the harbor and reduce erosion on the Lazy Point and Promised Land shorelines. The evaluation would encompass the Gardiners Bay shoreline roughly from Goff Point to Promised Land as well as all of Napeague Harbor. A PEP sponsored conceptual habitat restoration design, entitled Napeague Harbor Water Circulation Enhancement was completed in 2013 and determined that Napeague Harbor can likely only support a single inlet. It recommended that, to adequately address whether restoration of the east inlet is justified and present the town with the information necessary to best determine a future course of action, the study would need to include the following field investigations and modeling: 1) Bathymetry of the entire harbor and the nearshore waters of Promised Land, 2) Installation of acoustic doppler current profilers (ADCP's) at the west inlet and inside the harbor adjacent to the east inlet's past locations, 3) Installation of a wave gauge in nearshore waters of Gardiner's Bay, 4) Sediment sampling and grain size analysis to calibrate littoral sediment transport modeling, 5)Hydrodynamic modeling of Napeague inlet using DELFT 3D or an equivalent model, 6) Modeling of water chemistry parameters under different inlet hydrodynamic scenarios using DELFT3D WAQ numeric water quality model or equivalent model.

A study was completed that demonstrated one channel could be supported. The Town is discussing changing the channel from the west to the east channel in collaboration with the Trustees, State, and Federal Regulators.

Pussy's Pond Phragmites Control and Shoreline Restoration

Priority Tier: 3

Pussy's Pond lies at the head of Accabonac Harbor, which is known for its beautiful salt marsh habitat and abundant shellfish, fish and birds. A previous PEP funded subwatershed management plan for Accabonac Harbor documented the Pussy's Pond site as a high priority site threatened by water quality. Additionally, the site has been invaded by *Phragmites* and the eastern bank is vulnerable to erosion and runoff. To address these issues, a *Phragmites* management plan and living shoreline project was designed and implemented on the eastern bank of Pussy's Pond. Non-herbicide methods for invasive species management were researched and the first round of treatment with salt applications was completed. Need for further treatments/alternative methods will be determined in 2017. The project also includes the installation of coir fascine, native

plantings, and the creation of bioswales. On the western bank of Pussy Pond approximately 125 linear feet, or a 2,200 square ft. area of *phragmites australis* shoots, roots, and rhizomes were excavated using a hydraulic excavator and trucked off-site for disposal. The excavated area was replaced with native sand and the natural slope and edge of the pond bank was restored. Native plantings on the western bank of Pussy Pond are still needed. Additional project maintenance may also be needed. Benefits include, deterrence of nuisance waterfowl, increase in riparian habitat, filtration of runoff pollutants, and a demonstration of best waterfront practices.

Phragmites removal was completed on the west and the north sides of the pond. The Cornell Cooperative Extension has installed a PRB on the west side to filter the stormwater runoff into the pond. Plantings have also been completed, and the northeast side will have plantings completed in the spring. The bridge is also in the process of being repaired.

Restoring Natural Hydrology to Accabonac Harbor

Priority Tier: 1

The Long Island Tidal Wetlands Trends Analysis indicates Accabonac Harbor in East Hampton experienced high marsh loss (-46.5 acres) between 1974 and 2005. Of particular concern is the conversion of high marsh to intertidal marsh. The saltmarsh in Accabonac Harbor may be experiencing several hydrological disruptions. Evaluation of these disruptions to determine appropriate restoration actions is needed: 1) The bridge on Old Stone Highway that connects Pussy's Pond to the harbor and the small culvert system under Springs Fireplace Road should be evaluated to determine if right-sizing those crossings would provide ecological, climate resilience, transportation and public safety benefits by more adequately connecting the waters of Accabonac Harbor to its upper reaches. Preliminary assessments of these tidal crossings have been completed by The Nature Conservancy. 2) Removal of the plywood ditch plugs that were installed in the southern reaches of Accabonac Harbor in the 1990s and the sandbag ditch plugs that were installed in the mid-section of Accabonac Harbor in 2007 should be considered. These ditch plug treatments are now recognized to be ill-advised based on the current state of the science. Removal of these ditch plugs should help the marsh better keep pace with sea level rise. Removing the plywood ditch plugs in the southern part of the harbor will also allow greater salinity to reach the upper edges of the marsh and this may force the extensive Phragmites stands there to retreat yielding habitat space to the native marsh grasses on the outside of those plugs. Removing the sandbag ditch plugs in the middle marsh will also alleviate the erosion that is happening around the edges of the sandbag walls. 3) In Accabonac Harbor, citizen scientists gathered valuable weekly mosquito breeding data over the 2018 and 2019 summer seasons. In addition to pinpointing the locations of active mosquito breeding hotspots in the marsh, this data has identified areas of improperly impounded water on the marsh surface, which is likely a negative consequence of past linear mosquito ditching. This data should be explored to determine if these areas are persistent rather than ephemeral features on the marsh surface, and if the marsh would benefit from increased drainage through minimally invasive shallow creek or tunnel excavation. This restoration approach strives to return the natural rise and fall of the tides to the marsh platform and thereby restore healthy native marsh vegetation, as well as reduce the number of mosquito breeding hotspots targeted by vector control agencies.

The Peconic Estuary Partnership has facilitated a contract executed in 2023 between Suffolk County and members of the regional restoration group SMARTeams to expand conceptual designs for wetland restoration across public parcels of the harbor in addition to permitting for

shovel ready designs. This contract will build upon work and designs contracted through The Nature Conservancy in 2022.

Shelter Island Projects

Re-Listed from 2009 Plan

Turkems Rest (*formerly Sposato Property*) **Invasive Management**

Priority Tier: 3

This town-owned property is 6 acres in size. The parcel is bordered by Fresh Pond on the North and by South Midway Road on the South. Approximately 40% of the property is tidal wetland consisting of invasive *Phragmites* with patches of *Spartina* grass. The remaining portion is upland woods and consists mainly of wild cherry, oak and black locust trees. The property provides a diversity of habitat, has fragile salt and brackish water wetlands, frontage on Fresh Pond, presents sensitive archaeological issues and the town plans to keep it undeveloped. However, the property would greatly benefit from removal of the invasive species--both the *Phragmites* and any bittersweet, mile-a-minute or other vines that are encroaching.

Re-Listed from 2020 Plan

Fresh Pond Diadromous Fish Passage

Priority Tier: 2

The connectivity between West Neck Harbor and Fresh Pond should be assessed to determine if the pond has the potential for spawning habitat for river herring. Fish passage restoration should be pursued if warranted.

Sanctuary Pond Diadromous Fish Passage

Priority Tier: 2

The connectivity between Sanctuary Pond and Bass Creek should be assessed to determine the potential for river herring spawning habitat. Fish passage restoration should be pursued if warranted.

Shelter Island Marsh Island Restoration

Priority Tier: 1

There has been a rapid loss of Shelter Island's marsh islands in numerous creeks, including Dickerson Creek, Gardiner Creek and Hay Beach Pond. Additionally, the Long Island Wetlands Trends Analysis indicated Shelter Island has lost 45% of its overall marsh area from 1974 to 2005 and 20 wetland complexes were classified as "at risk" (>10% marsh loss). There is a need to assess the areas with large marsh loss and then develop restoration strategies, where appropriate.

This project will be implemented as the Shelter Island Wetland Assessment and Concept Plans. PEP will be utilizing NYSEPF FY24 funds for financial support to carry out this project.

Riverhead Projects

Re-Listed from 2009 Plan

East Creek Phragmites Control

Priority Tier: 3

This site is located on Peconic Bay Blvd at Town Beach boat ramp area. Entire open space parcel is about 38 acres, 1-2 is freshwater wetlands. Culvert under Peconic Bay Blvd appears to have collapsed. Phragmites has invaded the freshwater areas to the north and some of the tidal areas. Drainage improvement (culverts) would yield considerable flushing capacity.

Meeting House Creek (MH-2 Main Road) Wetland Construction/Restoration

Priority Tier: 1

This site is located at a large wetland area that forms the headwaters to Meetinghouse Creek in Riverhead, New York. The property is owned by the Town of Riverhead. The wetland vegetation is dominated by Phragmites. The drainage area consists of 5.6 acres, of which 60% is impervious surface from Main Road, a high traffic highway, and the southern end of Church Lane. A 0.6 acre constructed wetland is proposed to prevent an existing wetland from sedimentation. An existing outlet structure will be retrofitted to direct flow to the proposed wetland. Flows exceeding this rain event will transverse an emergency spillway to the existing wetland. Benefits of the project include having an area to treat the water quality volume, improved wetland biodiversity and an opportunity for public education and educational signage. This project is currently in progress and was secured with BIL funds.

Peconic River Invasive Species Control

Priority Tier: 3

Riverhead has identified that the following sites could benefit from invasive species removal or control: Peconic Edwards Avenue, Peconic Upper Mills, Peconic Seep, Peconic Upper Sawmill, and Warner Duck Farm. The primary invasive species of concern are Phragmites and Japanese knotweed.

Upper Mills Diadromous Fish Passage Restoration (Peconic River, Phase II)

Priority Tier: 1

The Upper Mills Dam is approximately 2.9 miles from the mouth of the Peconic River in Flanders Bay. It is an earthen embankment with an asphalt/concrete road on top and two parallel spillways. The dam is currently owned by PSEG but is maintained by the Town of Riverhead. Additionally, USGS maintains a concrete weir two-hundred and fifty (250) feet downstream of the dam in order to measure the stage and discharge of the Peconic River. Both the dam and weir impede diadromous fish passage to critical freshwater spawning and maturation habitat. Dam removal should be considered at Upper Mills. If this is not feasible, a permanent fish passage structure is needed at the Upper Mills Dam. PEP is also working with USGS on a fish passage solution at the USGS weir. This project will restore 40 acres of critical diadromous fish habitat and is part of an overall effort to restore over 300 acres of diadromous fish habitat on the Peconic River.

Estuary-wide Projects

The Natural Resources Subcommittee has determined that due to the ecological significance of the Diamondback Terrapin, Horseshoe Crab, and River Otter to the Peconic Estuary, estuary-wide habitat restoration/protection strategies should be developed for these species.

Diamondback Terrapin Habitat Restoration/Protection Strategy

Priority Tier: 1

Diamondback terrapins (*Malaciemys terrapin*) are found in brackish waters of coastal salt marshes, tidal creeks, estuaries, bays, and coves, and come ashore to nest. Because they depend primarily upon mollusks and crustaceans for food, they are considered an excellent indicator for the health of New York's estuarine habitats. The diamondback terrapin was identified as a "Species of Greatest Conservation Need" in 2015 by the New York State Wildlife Action Plan, due to documented threats such habitat loss, nest predation and capture. The New York State Department of Environmental Conservation officially ended centuries of commercial harvest of the diamondback terrapin in 2018. However, additional conservation efforts are still needed. Increased monitoring is needed to determine where diamondback terrapins are nesting in the Peconic Estuary, to inform appropriate shoreline and salt marsh protection and restoration efforts. Following additional monitoring, an estuary-wide habitat protection and restoration strategy will be developed for the Diamondback Terrapin (Phase I). PEP will then work with local governments, the state, academic and environmental partners to implement the strategy (Phase II). PEP is in contract with the Cornell Cooperative Extension to begin work on this project as of 2022.

Horseshoe Crab Habitat Restoration/Protection Strategy

Priority Tier: 1

Horseshoe crabs live in the subtidal portions of the Peconic Bays and utilize sandy beaches around the Estuary for spawning, in May and June. Their eggs are a very important food source for shorebirds and fish. Adult horseshoe crabs are harvested for use as bait in the eel, conch, and killifish fisheries. Their unique blood is also used by the biomedical industry to produce Limulus Amoebocyte Lysate (LAL). NYSDEC and Cornell Cooperative Extension Marine Program annually monitor spawning horseshoe crabs at various beaches throughout Long Island, but monitoring should be expanded to gain a better understanding of their abundance and distribution in the Peconic Estuary. The New York horseshoe crab population has been declining in recent years. An estuary-wide strategy to protect and restore horseshoe crab spawning habitat will be developed based on monitoring results (Phase I). The strategy will include the identification of spawning sites of significance and locations suitable for establishment of spawner sanctuaries. PEP will then work with local governments, the state, academic and environmental partners to implement the strategy (Phase II). PEP is in contract with Seatuck Environmental Association to carry out this project.

River Otter Habitat Restoration/Protection Strategy

Priority Tier: 1

River otters can be considered an indicator species of overall estuary health and habitat

connectivity. Historically, the North American river otter (*Lontra canadensis*) could be found in all watersheds of New York. Declines were attributed to unregulated harvest, habitat destruction, and water pollution. In the 1900's, conservation laws, along with reintroduction programs enabled remnant populations to expand and recolonize former habitat. The Peconic Estuary's freshwater rivers, streams, wetlands, and ponds provide important habitat for river otter. Limited surveys of river otter latrine sites have shown that the otter population in the Peconic Estuary and across Long Island has been growing and expanding over the last decade. Expanded monitoring of the Estuary's river otter population is needed, and an estuary-wide strategy should be developed to protect, mitigate and restore habitat connectivity and linkages for river otter (Phase I). The evaluation needs to consider the size, shape, proximity, and spatial arrangement of existing and potential future otter habitat, in order to identify the implications of fragmentation on the future sustainability of otter populations. The study must identify needed animal movement and dispersal corridors, and opportunities for restoring connections between high quality habitats. Recommendations for remediation need to include, among others, building of road underpasses and overpasses, culvert modification, land preservation, restoration or re-creation of otter corridors, and design of less fragmenting roads. Following the development of a habitat restoration and protection strategy for the river otter, PEP will work with local governments, the state, academic and environmental partners to implement the strategy (Phase II). PEP is in contract with Seatuck Environmental Association to carry out this project.

New Projects

Burgland Preserve Restoration

Priority Tier: 2

Berglund and Lesster 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. These preserves also provide the opportunity to invest in infrastructure needed to create water access with public education content for the surrounding communities.

Restoration of this area will enhance ecosystem services such as coastal flood resilience and create healthy (low and high) marsh habitat for wildlife such as the endangered saltmarsh sparrow, known to have breeding populations on the east end of long island. Marsh collapse and loss of habitat will only worsen in the face of sea level rise and prioritization now is necessary to save this habitat.

Cases Creek Restoration/Maintenance Plan

Priority Tier:2

Cases Creek is a tidal tributary of the Peconic Estuary that has been severely impacted by shoreline development including hardening (bulkheading, rock revetment, etc.) to the west of the creek and this has exacerbated sand transport that threatens tidal exchange. Bulkheading at the channel entrance has further altered any natural ability of the inlet to migrate over time and tidal flow to the creek is currently severely restricted. Cases Creek supports a protected marsh and coastal habitat to the north of Peconic Bay Boulevard as well as many estuarine species (blue crabs, oysters, etc.). Ensuring permanent tidal flow to Flanders Bay will protect this ecosystem

from low salinity, eutrophication, and other water quality issues that may threaten this habitat. A maintenance plan coordinated among PEP, the Town of Riverhead, Suffolk County, and the adjacent HOA would ensure that tidal exchange is maintained between Cases Creek and Flanders Bay and with the potential for a living shoreline will ensure the long-term support of the saltmarsh and estuarine ecosystem.

Chatfield's Hole Preserve Restoration

Priority Tier:2

Chatfield's Hole is a coastal plain pond. New York State Natural Heritage Program has identified rare plants, animals, amphibians, the threatened redback salamander (*Plethodon cinereus*), and a portion of which provides breeding habitat for several vernal pond species. Ongoing stormwater and road runoff has deposited sediment, including recycled asphalt material, in the wooded wetland buffer area and in the pond itself changing the dynamics of fluctuating water levels that is necessary to support the unusual plant community found at the site. The extent of material and thickness of deposits are unknown. In years of severe drought, the pond is reduced to a very small pool of water in the lowest part of the main pond and many of its rare fauna and flora perish. The management of this coastal plain pond, maintenance of a natural hydrologic regime and good water quality are the most critical issues facing Chatfield's Hole. This is an important coastal pond requiring updated flora and fauna list, hydrological and geological studies to understand the pond dynamics and maintenance. Restoration of this location will require a plan focusing on site assessment, planning, and implementation.

Peconic Estuary Watershed Coastal Plain Ponds Restoration/Protection Strategy

Priority Tier: 1

Coastal ponds in NY State are found in the coastal plain region of Long Island and have limited range, this habitat is threatened by introductions of exotic species, alterations to hydrology and water quality, commercial and residential development, recreational overuse, and by herbicide use. Identification, inventory, and assessment of coastal plain ponds in the Peconic Estuary Watershed is necessary for understanding, prioritizing, and protecting this natural resource that we are currently at-risk of losing. Better understanding of NY State Coastal Pond habitat's extent within the watershed will allow resource managers to thoughtfully design a strategic plan for future restoration and protection. PEP is specifically interested in the coastal plain pond system found at the headwaters of the Peconic River, within and near Otis-pike Preserve and Robert Cushman Murphy County Park.

<u>Peconic-Wide Eelgrass Monitoring</u>

PEP has partnered with UMCES, NYSDEC, and the SBU Geospatial Center to develop a long-term eelgrass monitoring network strategy. PEP looks to incorporate a comparable methodology to that of SeagrassNET. The network will consist of standardized, state-wide and regional monitoring protocols. From this monitoring effort, entities within the Peconic Estuary can adequately design and implement management strategies for localized eelgrass habitats. These efforts are currently in progress, and updates will be provided to PEP's Natural Resources SubCommittee. Mapping data and reports will also be incorporated into PEP GIS Database and the PEP Data Hub , respectively. Eelgrass projects that have been previously aforementioned in habitat plans, will be incorporated into this larger network, and are listed as follows:

East Hampton

Re-Listed from 2020 Plan

Napeague Harbor Eelgrass Restoration

Priority Tier: 1

Napeague Harbor supports some current eelgrass beds. Eelgrass restoration attempts have been conducted over a number of years in this harbor by Cornell Cooperative Extension of Suffolk County, in an attempt to expand the resource. However, only a few very small patches of eelgrass persisted more than a year. Future restoration work at this site will investigate possible connections between groundwater seepage and the presence of eelgrass in Napeague Harbor. As of current, this site has been deemed an ideal location for the installation of conservation moorings. Buoys were deployed and signage was created in order to deter shellfishers from disturbing the area. This location, along with other eelgrass sites in the Peconics, will be incorporated into a larger, estuary-wide, eelgrass monitoring network. As of 2023, PEP has allocated funds for this endeavor, as well as funding for other appropriately sited areas for conservation mooring installation throughout the estuary.

Shelter Island

Re-Listed from 2009 Plan

Coecles Harbor Eelgrass Restoration

Priority Tier: 2

Coecles Harbor is one of the last remaining harbors in eastern Long Island that still has eelgrass. Understanding the health of the eelgrass meadow in Coecles Harbor is important for managing this habitat in the Peconic Estuary and it was recently added to the PEP Long-term Eelgrass Monitoring Program in 2017. Information gathered should help guide strategies to promote the health of eelgrass in Coecles Harbor through conservation and enhancement actions. Recent evidence revealed significant overlap of moorings within the eelgrass meadow and the deteriorating impact it has on this habitat. Practices to reduce the physical impact of activities that occur in Coecles Harbor should be promoted, including best boating practices and investigating the application of conservation moorings

Habitat Restoration Funding Opportunities

Atlantic Coastal Fish Habitat Partnership http://www.atlanticfishhabitat.org/

Environmental Protection Agency

- Wetland Program Development Grants https://www.epa.gov/wetlands/wetland-program-development-grants
- NEP Coastal Watersheds Grant Program https://estuaries.org/initiatives/watershedgrants/

National Fish and Wildlife Foundation

- Five Star and Urban Waters Restoration Grant Program https://www.nfwf.org/programs/five-star-and-urban-waters-restoration-grant-program
- National Coastal Resilience Fund https://www.nfwf.org/programs/national-coastal-resilience-fund
- Resilient Communities Program https://www.nfwf.org/programs/resilient-communities-program

National Ocean and Atmospheric Administration

- Coastal Ecosystem Resiliency Grant Program https://www.coast.noaa.gov/resilience-grant/
- Coastal and Marine Habitat Restoration Grant Program http://www.habitat.noaa.gov/funding/coastalrestoration.html

New York State

- Water Quality Improvement Project Program http://www.dec.ny.gov/pubs/4774.html
- Local Waterfront Revitalization Program https://www.dos.ny.gov/opd/programs/lwrp.html
- Green Innovation Grant Program https://www.efc.ny.gov/GIGP
- Climate Smart Communities Program https://climatesmart.ny.gov/support/
- Trees for Tribs Grant Program https://www.dec.ny.gov/animals/113412.html

Suffolk County

- Suffolk County Water Quality Improvement and Protection Program http://suffolkcountyny.gov/Departments/EconomicDevelopmentandPlanning/PlanningandEnvironment/WaterQualityImprovement.aspx

Town Community Preservation Funds

- Southampton http://www.southamptontownny.gov/188/Community-Preservation-Fund
- East Hampton https://www.easthamptonconservators.com/community-preservation-fund.shtml

U.S. Fish and Wildlife Service

- National Fish Passage Program https://www.fws.gov/fisheries/whatwedo/nfpp/nfpp.html
- National Coastal Wetlands Conservation Grant Program https://www.fws.gov/coastal/CoastalGrants/
- North American Wetlands Conservation Acts Grants Program https://www.fws.gov/birds/grants/north-american-wetland-conservation-act.ph

Habitat Restoration and Protection Resources

iMapInvasives, New York's Online Invasive Species Database and Mapping System
http://www.nyimapinvasives.org/

Long Island Tidal Wetlands Trends Analysis http://www.dec.ny.gov/lands/5113.html

MAPTITE: Marsh Analysis and Planning Tool Incorporating Tides and Elevations
https://tidesandcurrents.noaa.gov/maptite.html

NYSDEC Natural Heritage Program http://www.dec.ny.gov/animals/29338.html

NYSDEC Seagrass Management https://www.dec.ny.gov/lands/110813.html

NYSDEC Stream Crossing Guidance https://www.dec.ny.gov/permits/49060.html and Best Management Practices https://www.dec.ny.gov/permits/49066.html

NOAA Habitat Blueprint Living Shorelines https://www.habitatblueprint.noaa.gov/living-shorelines/

North American Aquatic Connectivity Collaborative Climate-Friendly Stream Crossings Toolkit
https://streamcontinuity.org/resources/crossings_toolkit/index.htm

PEP Climate Vulnerability Assessment and Action Plan https://www.peconicestuary.org/wp-content/uploads/2019/10/Peconic-Estuary-Program-Climate-Vulnerability-Assessment-and-Action-Plan-Final-Report.pdf

PEP Informational Maps https://www.peconicestuary.org/news-and-blogs/maps-gis/

PEP Monitoring Programs https://www.peconicestuary.org/protect-the-peconic/monitoring-programs/

Seatuck River Revival Project Map and Diadromous Fish Restoration Strategy
https://www.seatuck.org/index.php/river-revival-project

SLAMM: Sea Level Affecting Marshes Model http://warrenpinnacle.com/prof/SLAMM/

The Nature Conservancy Road, Stream and Tidal Crossing Prioritization Tool for Suffolk County
https://tnc.maps.arcgis.com/apps/webappviewer/index.html?id=db144f948c4d4512b3f2c4b3267d50a3

Tidal Wetlands Guidance Document: Living Shoreline Techniques in the Marine District of New York State http://www.dec.ny.gov/docs/fish_marine_pdf/dmrlivingshoreguide.pdf

U.S. Fish and Wildlife Service Fish Passage Engineering Design Criteria, 2017
https://www.fws.gov/northeast/fisheries/pdf/USFWS_R5_2017_Fish_Passage_Engineering_Design_Criteria.pdf

Appendix A- PEP 2009 Habitat Restoration Plan: Implementation Tracking Table (Dec 2017)

HABITAT TYPE	SITE NAME	STATUS						Re-Listed in 2020 Plan	DETAILS
		Not Initiated	Planning Stage	In-Progress	Partially Completed	Completed	No Longer In Progress		
Southold									
Diadromous Fish Passage	Silver Lake/Moore's Drain Alewife Access			x				Yes	PEP funded a conceptual design with 2009 NEP funds. The Conceptual Habitat Restoration Design was completed in 2013. No diadromous fish passage project was recommended; however, the scope of the project changed to pursue the other general wildlife recommendations of the Conceptual Habitat Design, one on Southold Town property and one on Village of Greenport property. The Town is moving forward with the recommendation on its property, which was to day light Moore's Drain at Skipper Horton Park. Southold Town received a NYS DOS LWRP grant in 2016 that includes funding for this project. The permit for this project has been secured. Construction is expected to take place in 2019.
Eelgrass	Hallock's Bay Eelgrass Sanctuary						x	No	This project is no longer in progress. There is no longer eelgrass here.
Phragmites Control	Arshamomaque Pond Preserve (Paul Stoutenburgh Preserve) Phragmites Eradication				x			Yes	This site is now called Paul Stoutenburgh Preserve. The Town repaired a collapsed culvert that was preventing tidal flow into one of the areas infested with Phragmites. This area is now tidal again but still in a state of flux so it isn't clear how successful this action was yet. The overall project includes other areas not connected to the area where the culvert was repaired as well as other possible techniques for dealing with the area where the culvert was repaired. Currently accepted removal and restoration practices will be used. PEP has requested 2017 SC Capital funding for design ($20,000) and construction ($80,000).
Phragmites Control	Arshamomaque Preserve Phragmites Eradication		x					Yes	Southold Town plans to use funding from a 2016 NYS DOS LWRP Grant to map and assess the Phragmites infestation and potentially implement some control measures at this site.
Phragmites Control	Cedar Beach Phragmites Eradication	x						No	
Phragmites Control	Downs Farm Preserve and Downs Creek Phragmites Eradication	x						Yes	
Phragmites Control	Husing Pond Phragmites Eradication	x						Yes	
Phragmites Control	Lake Marion Phragmites Eradication					x		No	Project completed in 2014-added to PEP Completed Habitat Restoration Project Inventory.
Phragmites Control	Narrow River Phragmites Eradication		x					Yes	PEP is currently funding a conceptual habitat restoration design for this site with 2010 NEP funds. An RFP was released in 2016 and the contractor has been selected.
Phragmites Control	Pipes Cove Phragmites Eradication		x					Yes	Southold Town plans to use funding from a 2016 NYS DOS LWRP Grant to map and assess the Phragmites infestation and potentially implement some control measures at this site.
Shellfish	Southold Shellfish Spawner Sanctuary Network	x						No	
Wetland	Budds Pond Wetland Restoration	x						Yes	
Wetland	Fleet's Neck Wetland Restoration	x						Yes	
Wetland	Nassau Point Wetland Restoration	x						Yes	Although this project has not been initiated it remains a priority for Southold Town.
Wetland	TGA Easement Wetland Restoration	x						No	This project has been combined with a similar restoration project at the adjacent Edwards Preserve in a new habitat site nomination.
Southampton									
Diadromous Fish Passage	Ligonee Brook Diadromous Fish Passage Restoration				x			Yes	PEP funded a conceptual design with 2009 NEP funds. The Conceptual Habitat Restoration Design was completed in 2013. One of the Conceptual Design recommendations was completed by the Friends of Long Pond Greenbelt in 2014- Two culverts under the Old Rail Road Crossing were removed and a small pedestrian bridge was installed. Currently Friends of Long Pond Greenbelt is pursuing Suffolk County funding for culvert remediation at the Bridgehampton-Sag Harbor Turnpike crossing. Culvert remediation will hopefully happen during Suffolk County's planned remediation of CR 79- Bridgehampton-Sag Harbor Turnpike.
Diadromous Fish Passage	North Sea/Alewife Creek Diadromous Fish Passage Enhancement				x			Yes	Baffles were placed in North Sea Road box culvert to raise water levels but problem still exist with this culvert. There are also issues with the culvert under Noyack Road. Estimated cost for planning and construction is $1.5 Million

Diadromous Fish Passage	Woodhulls Pond/Wildwood Lake Diadromous Fish Passage Restoration			x				Yes	Funding for the construction of the dam ($278,964) was awarded to Suffolk County Parks/PEP through a NYSDEC Water Quality Improvement Project (WQIP) Grant. Permits for the project have been submitted and are awaiting approval.
Grassland	Shinnecock Grassland Restoration				x			No	No restoration has occurred since 2009.
Wetland	Davis Creek Wetland Restoration						x	No	Conceptual design for this project was outlined in "Ecological Restoration and Enhancement Potential of Southampton Town-Owned Tidal Wetlands", Pickerell 1995, completed for the Town of Southampton. However, the project site is no longer viewed as a conservation priority, due to potential for adverse impacts to prime diamond backed terrapin terrestrial nesting habitat.
Wetland	Iron Point Wetland Restoration		x					Yes	PEP is currently funding a conceptual habitat restoration design for this site with 2010 NEP funds. An RFP was released in 2016 and the contractor has been selected.
East Hampton									
Diadromous Fish Passage	Alewife Brook Alewife Access and Habitat Enhancement						x	Yes	In 2013 a box culvert modification was purchased and meant to be installed at Alewife Brook Road to allow fish passage into Scoy Pond but was never installed because it was deemed too large. Although this project is not currently in progress, restoration at this site remains a priority.
Diadromous Fish Passage	Lake Montauk Alewife Access and Habitat Enhancement		x					Yes	PEP is currently funding a conceptual habitat restoration design for this site with 2010 10 NEP funds. An RFP was released in 2016 and the contractor has been selected.
Eelgrass	Lake Montauk Eelgrass Restoration						x	No	Restoration was attempted at this site, but full-scale restoration was determined not to be feasible.
Eelgrass	Napeague Eelgrass Restoration					x		No	Added to the PEP Completed Habitat Restoration Project Inventory.
Eelgrass	Three Mile Harbor Eelgrass Restoration						x	No	Restoration was attempted at this site, but full-scale restoration was determined not to be feasible.
Flushing/ Circulation	Fresh Pond Circulation Enhancement					x		No	Completed January 2010- added to the PEP Completed Habitat Restoration Project Inventory.
Flushing/ Circulation	Napeague Harbor Circulation Enhancement						x	No	PEP funded conceptual design with 2008 NEP funds. The Conceptual Habitat Restoration Design was completed in 2013. Conceptual design recommendations were not pursued.
Grassland	Culloden Grassland Restoration						x	No	Partial restoration was completed in 2000, but project is no longer in progress or a priority.
Phragmites Control	Accabonac Harbor Phragmites Eradication						x	No	Project is no longer a priority.
Phragmites Control	Barnes Meadow Phragmites Eradication	x						No	Project is no longer a priority
Phragmites Control	Fort Pond Phragmites Eradication						x	No	Project is no longer a priority
Phragmites Control	Fresh Pond Phragmites Eradication	x						No	Project is no longer a priority
Phragmites Control	Lake Montauk Phragmites Eradication						x	No	Project is no longer a priority
Phragmites Control	Little Northwest Creek Phragmites Eradication						x	No	Project is no longer a priority
Phragmites Control	Napaegue Phragmites Eradication	x						No	Project is no longer a priority
Phragmites Control	Northwest Creek Phragmites Eradication	x						No	Project is no longer a priority
Phragmites Control	Three Mile Harbor Phragmites Eradication						x	No	Project is no longer a priority
Shellfish	Lake Montauk Hard Clam/American Oyster Enhancement/Restoration					x		No	Restoration work is completed/ongoing. Added to the PEP Completed Habitat Restoration Project Inventory.
Shellfish	Accabonac Creek Hard Clam/American Oyster Enhancement/Restoration					x		No	Restoration work is completed/ongoing. Added to the PEP Completed Habitat Restoration Project Inventory.
Shellfish	Napeague Harbor Bay Scallop Restoration					x		No	This six-year project (2008-2013) was partially funded by Suffolk County 1/4% Fund. The Shellfish Hatchery and Town Trustees have continued the scallop restoration work, expanding into other harbors. Added to PEP Completed Habitat Restoration Project Inventory.
Shellfish	Napeague Harbor Hard Clam/American Oyster Enhancement/Restoration					x		No	Funded by New York State Department of State (NYSDOS) Local Waterfront Revitalization Program and Town Trustees. The restoration work is ongoing, expanding into other harbors. Added to PEP Completed Habitat Restoration Project Inventory.

Shellfish	Three Mile Harbor Bay Scallop Restoration					x		No	This six-year project (2008-2013) was partially funded by Suffolk County 1/4% Fund. The Shellfish Hatchery and Town Trustees have continued the scallop restoration work, expanding into other harbors. Added to PEP Completed Habitat Restoration Project Inventory.
Shellfish	Three Mile Harbor Hard Clam/American Oyster Enhancement/Restoration					x		No	Funded by New York State Department of State (NYSDOS) Local Waterfront Revitalization Program and Town Trustees. The restoration work is ongoing, expanding into other harbors. Added to PEP Completed Habitat Restoration Project Inventory.
Wetland	Accabonac Harbor Wetland Restoration						x	No	Project is no longer a priority.
Wetland	Lake Montauk Wetland Restoration						x	No	Project is no longer a priority
Wetland	Fort Pond Wetland Restoration						x	No	Project is no longer a priority
Shelter Island									
Beach/Dune	Shell Beach Revegetation						x	Yes	PEP funded conceptual design with 2009 NEP funds. The Conceptual Habitat Restoration Design was completed in 2013. Conceptual Design has not been implemented even though restoration project was a requirement of a permit for a different project.
Eelgrass	Coecles Harbor Eelgrass Revegetation	x						Yes	
Phragmites Control	Sposato Property (Turkems Rest) - Phragmites Removal	x						Yes	Culvert replacement work is needed at Midway Road to restore/improve flow, prior to pursuing invasive species removal. Culvert replacement is currently planned for the fall of 2017.
Riverhead									
Diadromous Fish Passage	Edwards Ave Diadromous Fish Passage Restoration (Peconic River, Phase IV)					x		No	Completed June 2016-added to PEP Completed Habitat Restoration Project Inventory.
Diadromous Fish Passage	Forge Rd/Peconic Lake Diadromous Fish Passage Restoration (Peconic River, Phase III)			x				Yes	Town of Brookhaven will be replacing the structurally damaged Forge Road Dam and constructing a fish passage based on the PEP funded Conceptual Habitat Restoration Design for Forge Road Dam completed in 2013. This project is in the engineering design/permitting phase.
Diadromous Fish Passage	Grangebel Park Diadromous Fish Passage Restoration (Peconic River, Phase I)					x		No	Completed Feb 2010- added to PEP Completed Habitat Restoration Project Inventory.
Diadromous Fish Passage	Upper Mills Diadromous Fish Passage Restoration (Peconic River, Phase II)			x				Yes	Suffolk County Capital funding was secured for Engineering Design and Permitting. Contract was selected and services are underway.
Phragmites Control	Bay Woods Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Broad Cove Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Browns Point Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	East Creek Phragmites Eradication	x						Yes	
Phragmites Control	Gravel Pit (Dog Ponds) Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Grumman Phragmites Eradication	x						No	
Phragmites Control	Linns Pond Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Peconic Edwards Phragmites Eradication	x						Yes	
Phragmites Control	Peconic Seep Phragmites Eradication	x						Yes	
Phragmites Control	Reeves Creek Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Terry Creek Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Tidal Peconic Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Tidal Sawmill Creek Phragmites Eradication	x						No	Project is no longer a priority.
Phragmites Control	Upper Sawmill Creek Phragmites Eradication	x						Yes	

Phragmites Control	Warner Duck Farm Phragmites Eradication	x						Yes	
Riverine	Peconic Upper Mills Riverine Restoration	x						Yes	
Wetland	Indian Island Tidal Wetland Restoration			x				Yes	$1,406,666 allocated for this project - Includes $1,050,666 NYSDEC WQIP AHR ($788,000 award & $262,666 match), $300,000 SC 1/4%, $56,000 FY00 NYSDEC WQIP/AHR. Final construction drawings are in development.

Other:

Bullhead Bay Eelgrass Sanctuary - Established by Southampton Town Trustees in Dec 2009- added to PEP Completed Habitat Restoration Project Inventory- Completed

Staundinger's Pond Alewife Access/Habitat Enhancement - Included as part of ACFHP $30,000 grant for Alewife Brook/Scoy Pond. A rock weir was installed in Northwest Creek to allow fish passage into Staudinger's Pond but was unsuccessful and removed. Project is no longer in progress.

Edwards Preserve Restoration- The Peconic Land Trust is seeking to restore, protect, and enhance the wetlands and woodlands at this preserve. This project has been combined with a similar restoration effort at Terry Preserve.

Widows Hole Preserve Restoration-Peconic Land Trust, property owner, will perform invasive species management and salt marsh and coastal grass restoration. Project will be funded with 2011 NEP Funds ($150,000). Will be re-listed in 2017 Plan.

Meetinghouse Creek Wetland Restoration- In planning stage. PEP is funding conceptual design with 2010 NEP funds. An RFP was released in 2016 and the contractor has been selected. Will be re-listed in 2017 Plan.

Appendix B

2017 Habitat Restoration Site Nominations

Habitat Type	Site Name & Location	Project Description	Project Site Size	Ownership	Funding/Resources	Additional Info	Contact (Name, Org., Phone, Email)	Included in Plan
Southold								
Wetland	Corey Creek (Main Bayview Rd and Corey Creek)	Remove prior placed dredged material, excavate, and re-grade to historic marsh elevations. Dredge material will either be removed from site or redeposited in adjacent upland areas, similar to method used for the Cassidy Preserve marsh restoration project completed in Greenport.	17 acres	Private & Public - Town owns underwater lands of Corey Creek	Town willing to assist with planning and design	Eleven parcels in the project area are included on the Town's CPF list for potential easement or fee title acquisition for open space and/or wetlands protection purposes. Most of these parcels are contiguous with Corey Creek Park which is owned jointly by the Town and County.	John Sepenoski, Town of Southold, 631-765- 9540, johnsep@town.southold.ny.us	Yes
Wetland	Eugenes Creek (Eugenes Rd, Cutchogue)	Remove prior placed dredge material, excavate, and regrade to historic marsh elevations. Dredge material will either be removed from site or redeposited in adjacent upland areas, similar to method used for the Cassidy Preserve marsh restoration project completed in Greenport.	8 acres	Private, including one parcel owned by Mattituck School District	Town willing to assist with planning and design	Seven parcels in and near the project area are included in the Town's CPF list for potential easement or fee title acquisition for open space and/or wetlands protection purposes.	John Sepenoski, Town of Southold, 631-765- 9540, johnsep@town.southold.ny.us	Yes
Wetland/ SAV	James Creek (Between Ole Jule Ln and Bay Ave, Mattituck)	Beneficial reuse of clean dredge material to restore marsh islands and planting of submerged aquatic vegetation into a complex marsh and open water mosaic. Project will use methods currently proposed for Cedar Beach Creek Habitat Demonstration Project and/or method for the restoration of marsh islands in Jamaica Bay over the past decade.		Public - County underwater lands and marsh of James Creek; Town - underwater lands of James Creek; Private - One parcel almost completely surrounded by dredged channel, adjacent to County property.	Town willing to assist with planning and design		John Sepenoski, Town of Southold, 631-765- 9540, johnsep@town.southold.ny.us	Yes
Wetland	Town & Jockey Creeks (Pine Neck Rd., Southold)	Beneficial reuse of clean dredge material to restore the marsh islands, including creating viable nesting habitat for Piping Plover, and planting of appropriate vegetation. Project will use methods currently proposed for Cedar Beach Creek Habitat Demonstration Project and/or method for the restoration of marsh islands in Jamaica Bay over the past decade.		Public- Town underwater lands of Town & Jockey Creeks; Private- both of the former islands.	Town is willing to assist with work related to planning and design	Islands are included on the Town's CPF list for potential easement or fee acquisition for wetlands habitat protection purposes.	John Sepenoski, Town of Southold,631-765- 9540, johnsep@town.southold.ny.us	Yes
Wetland	Terry/Edwards Preserve (36960 Main Road, Orient)	Reconfigure double dike design allowing for water flow into emergent marsh. Reestablish a healthy wetlands environment and control spread of Phragmites.	30.5 acres	Property owned by Peconic Land Trust; Easement- Southold; Dike owned by DEC/Maintained by PLT	Design/Tech. Assistance available through Cornell Cooperative (Chris Pickerell) and Peconic Land Trust is willing to help with on-going fundraising.	Land is protected in perpetuity as a result of Land Trust purchase.	Holly Sanford/Tim Caufield, Peconic Land Trust, 631-283-3195, hsanford@peconiclandtrust.org	Yes

Wetland/ SAV	Cedar Beach Creek, Southold	The Cedar Beach Creek Habitat Restoration Demonstration Project will restore local essential ecosystem functions in a degraded marsh system. It will create numerous marsh islands from the beneficial reuse of clean dredge material, planting of submerged aquatic vegetation (Ruppia maritima), and oysters (Crassostrea virginica) into a complex 65 acre marsh, beach, and open water mosaic. This project will establish and enhance three critical marine habitats in the Peconic Estuary. Additionally, creating elevations on the islands that are at the upper limit of the current intertidal low marsh range will ensure that the initial marsh elevation is as high as it can be to outpace sea level rise. This project is a cooperative effort between Suffolk County Parks, the Southold Town Trustees, the Peconic Estuary Program and Cornell Cooperative Extension.	24.2 within a 65 acre area (19.5 salt marsh, 1.7 seagrass meadow , and 3 open water)		Funding for this project has been secured from the US Army Corps of Engineers. Cornell Cooperative is the lead on this project. Partners include Suffolk County Parks, the Southold Town Trustees, and the Peconic Estuary Program.	The creek is productive for marine finfish, shellfish, and other wildlife and contributes significantly to the biological productivity of Noyack Bay. The creek serves as a nursery and feeding area for many estuarine fish species including scup, summer flounder, bluefish, and winter flounder. Soft clams, hard clams and razor clams are found most years, supporting a recreational shellfishery of town-level significance. Diamondback terrapin breed in the fringing wetlands. The creek serves as a feeding area for a variety of birds and waterfowl. Beach- nesting birds are found along the barrier beach including piping plover and least tern.	Stephen Schott, CCE, (631) 852-8660 x26, ss337@cornell.edu	Yes
Diadromous Fish	Arshamomaque Pond, Southold	Assess connectivity between Arshamomaque Pond and Pipes Cove/Peconic Bay to determine if the pond provides or has the potential to provide spawning habitat for river herring.					Enrico Nardone, Seatuck Environmental Association, 631-581-6908, egnardone@seatuck.org	Yes
Southampton								
Living Shoreline - Pond	Round Pond Shore Restoration (Middle Line Highway, Sag Harbor)	Remove bulkhead, restore shoreline habitat, and update storm drainage.		Village of Sag Harbor, Town of Southampton	Friends of the Long Pond Greenbelt has commissioned a survey of the site and a wetland delineation map. Can possibly provide volunteer labor and seek contributions of native plants. Some initial plan designs are available.	10 years ago the Town of Southampton developed a plan to remove the bulkhead and restore the shoreline. It received NYSDEC approval but was never implemented. Since then, a parcel to the south of the bulkhead, now known as Kennedy Park, has been purchased by Southampton's Community Preservation Fund and returned to its natural state. On the Sag Harbor side of the road, the property is owned by Oakland Cemetery and remains in a natural state.	Dai Dayton, President-Friends of Long Pond Greenbelt, 631-745-0689, DaiDayton@aol.com	Yes
Shoreline/ Wetland	Peconic River Shoreline and Wetland Restoration (North side of Flanders Road, South side of Peconic River)	Historically the southerly shoreline along the Peconic River between Peconic Avenue and Cross River Drive was part of a natural estuarine and riverine system with tidal and freshwater wetlands, but today are degraded as a result of development and land use activities, including the deposition of large amounts of river dredge spoil. This project seeks to restore the historic wetlands and shoreline, which will provide habitat for wading birds, fish, ducks, and other waterfowl.	12.5 acres	Public - Suffolk County (6 parcels totaling 14.1 acres); Town of Southampton (3 parcels totaling 22.5 acres). An Inter-Municipal Agreement between the Town and County for the County property is pending.	Shoreline Restoration Plan is being funded through NY Environmental Justice Grant ($50,000). An additional $25,000 needed for wetland restoration planning/design. Construction will be financed through a Fairshare Mitigation Fund. Other sources of funding include the Town's Community Preservation Fund.	Shoreline Restoration Plan will serve as a prototype for the restoration of the entire Peconic River shoreline in the Riverside community. The wetland restoration would be similar to the Iron Point Wetland restoration project, consisting of the re-establishment and enhancement of 12.5 acres of wetland, thereby restoring tidal flow to formerly connected interior wetlands and ponds. Design criteria will need to consider the feasibility for the inclusion of a permeable reactive barrier.	David Wilcox, Director of Town Planning, Town of Southampton, 631-702-1801; dwilcox@southamptonny.gov	Yes

East Hampton								
Phragmites	Accabonac Harbor - Western Pussy's Pond Phragmites Removal	Phragmites Removal- excavated and removed a plot of the invasive species Phragmites australis from the western bank of Pussy's Pond. Approximately 125 linear feet, or a 2,200 square ft. area of Phragmites australis shoots, roots, and rhizomes were excavated using a hydraulic excavator and trucked off-Site for disposal. Excavated area was replacement with native sand and the natural slope and edge the pond bank was restored. Re-vegetation with native plants needed.	<1 acre	Public	$20,000, Funding being provided by New York State grant. Already in progress.	Requesting help with expansion/maintenance.	Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	Yes
Phragmites	Accabonac Harbor - Eastern Pussy's Pond Phragmites Removal	Alternative methods for invasive species management were researched and implemented on the eastern bank of Pussy's Pond. Native plant conditions were inspected at the Site and non-herbicide options for treatment were researched, contractor designed a Phragmites australis management plan, native plants growing in the area were protected using flagging and wrapping, Phragmites australis pilot treatment areas were identified for rock salt and saline spray applications, and treatment was applied to subplots. Need for further treatment or alternative methods will be determined in 2017.	<1 acre	Public	$10,000, Funding being provided by New York State grant. Already in progress.	Requesting help with expansion/maintenance.	Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	Yes
Shellfish	Accabonac Harbor Bay Scallop Restoration	Establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops.	300 acres		$25,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No
Shellfish	Hog Creek Bay Scallop Restoration	Establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops.	36 acres		$25,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No
Shellfish	Hog Creek Hard Clam/Eastern Oyster Enhancement/ Restoration Project	Several million seed of each species would be grown through a season by the East Hampton Town Shellfish Hatchery. Spawns and larval/early juvenile rearing would begin in late winter in the hatchery, followed by additional grow-out phases in Three Mile Harbor nursery and Napeague Harbor field grow out systems. In the fall, seed would be apportioned by harbor and seeded to natural beds. A portion of the clam crop would be held over the winter and seeded to the wild the following fall,	36 acres		$50,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available,	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No

Shellfish	Lake Montauk Bay Scallop Restoration	Establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops.	1000 acres		$25,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No
Shellfish	Napeague Harbor Bay Scallop Restoration	Establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops.	1000 acres		$25,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No
Shellfish	Northwest Creek Bay Scallop Restoration	Establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops.	16 acres		$25,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No
Shellfish	Northwest Creek Hard Clam/Eastern Oyster Enhancement/ Restoration Project	Several million seed of each species would be grown through a season by staff of the East Hampton Town Shellfish Hatchery. Spawns and larval/early juvenile rearing would begin in late winter in the hatchery, followed by additional grow-out phases in Three Mile Harbor nursery and Napeague Harbor field grow out systems. In the fall, seed would be apportioned by harbor and seeded to natural beds. A portion of the clam crop would be held over the winter and seeded to the wild the following fall after an additional season of growth.	16 acres		$50,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No
Shellfish	Three Mile Harbor Bay Scallop Restoration	Establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops.	1000 acres		$25,000 per year. Project planned and carried out by Shellfish Hatchery in cooperation with East Hampton Town Trustees and Town Board. Grant matching funds may be available from the Town and Trustees.	This is a component of a large, comprehensive town-wide shellfish restoration project encompassing Accabonac Harbor, Hog Creek, Lake Montauk, Napeague Harbor, Northwest Creek, and Three Mile Harbor.	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901, jdunne@ehamptonny.gov	No

Kelp	Accobonac Harbor Kelp Grow Out	Proposed kelp grow-out area to enhance water quality.	< 1 acre		$50,000 - $100,000	Moderate quantities of seaweed serve as essential food sources for marine animals and provide nursery habitat for juvenile crabs and fish. Sustainable foraging practice will be conducted by harvesting only a third of each bed of seaweed and leaving spore-producing parts behind to allow continued reproduction. Harvested seaweeds can be used for a variety of purposes such as a food source, cosmetics, crop fertilizer, etc..	Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	No
Kelp	Lake Montauk Kelp Grow Out	Proposed kelp grow-out area to enhance water quality.	< 1 acre		$50,000 - $100,000	Moderate quantities of seaweed serve as essential food sources for marine animals and provide nursery habitat for juvenile crabs and fish. Sustainable foraging practice will be conducted by harvesting only a third of each bed of seaweed and leaving spore-producing parts behind to allow continued reproduction. Harvested seaweeds can be used for a variety of purposes such as a food source, cosmetics, crop fertilizer, etc..	Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	No
Wetland	Accobonac Harbor Open Marsh Management	An alternative to spraying insecticides is using Open Marsh Water Management. These techniques include filling in some of the ditches and creating new tidal creeks and ponds, which allow small fish and other mosquito predators back into the marsh. The goal of this proposed project is to determine the need and effectiveness of mosquito control ditches in Accabonac Harbor, to conduct an assessment of water quality, benthic habitats, and aquatic organisms as a baseline, and determine the effect of plugging mosquito ditches and reducing wide-spread insecticide spraying in the area.	>30 Acres		?		Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	Yes
Living Shoreline	Accabonac Harbor - Eastern Pussy's Pond Shoreline Restoration	A shoreline stabilization design and layout plan was completed in the Spring 2016. A 200 linear foot stretch of coir fascine was installed along the eastern bank of the Pond in July 2016. The wetland area interior of the coir fascine will be planted with native wetland plants in the Spring of 2017 to restore the shoreline to its natural state. Benefits include; deterrence of nuisance waterfowl, increase in riparian habitat, filtration of runoff pollutants, and a demonstration of best waterfront practices.	< 1 acre	Public	~$50,000, Work is already underway. Being funded by a New York State Grant.		Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	Yes

Wetland	Lake Montauk Wetland Construction (Ditch Plains, Montauk)	Provide wetland restoration and water quality improvements within the Lake by reconstructing the wetlands in Ditch Plains to engineered wetlands planted with native species to provide for vegetative pathogen removal of waters seeping from the Ditch Plains area.	< 6 acres	Public	$300,000. Conceptual Design/Feasibility Study - completed through the Lake Montauk Watershed Management Plan in 2014	The Ditch Plains neighborhood is a potential significant source of pathogens to the Lake. This area is known for poorly draining soils, shallow depth to groundwater, and high development density all of which contribute to increased runoff and potential failure of septic systems during storm events. Effective improvements for this area are limited. Additional feasibility analysis should be conducted to determine connectivity of the existing stormwater system and options for stormwater improvements in this area; however, preliminary investigations suggest that a constructed wetland would be beneficial for pathogen treatment.	Kimberly Shaw, Town of East Hampton Natural Resources, 631-324-0496, kshaw@ehamptonny.gov	No
Eelgrass	Napeague Harbor Eelgrass Restoration	Assess connections between groundwater seepage and the presence of eelgrass in Napeague Harbor. Determine potential for enhancement of this eelgrass meadow.					Stephen Schott, CCE, (631) 852-8660 x26, ss337@cornell.edu	Yes
Shelter Island								
Beach/ Wetland	Second Causeway (Ram Island Road Between Little Ram Island and Big Ram Island)	The northerly side of the Second Causeway (adjacent to Peconic Bay) suffered serious damage during Hurricane Sandy. Much sand and vegetation was lost. Some spoil has been added, but it needs revegetation to avoid further erosion.		Public- Town of Shelter Island	The town is working on increasing the spoil to raise the causeway elevation and has placed rocks to prevent vehicles from causing further erosion.	South side of this causeway was revegetated in 1999, this project will focus on North side.	Jay Card, Town of Shelter Island, 631-749- 1090, jcard@shelterislandtown.us	No
Beach/ Wetland	Reel Point Preserve, Peconic Land Trust (4 Club Drive, Shelter Island, NY)	First Coastal Consulting (FCC) and Lockwood Kessler & Bartlett, Inc. (LKB) have completed a Comprehensive Shoreline Management Plan for the Peconic Land Trust (PLT) and the Town of Shelter Island (SI) for the Reel Point Preserve (RPP) located at Reel Point within the Town of Shelter Island, NY. The purpose of this Comprehensive Shoreline Management Plan is to provide a preliminary understanding of the dynamics of the region and the threat levels associated with the property's location. This report examines the potential alternatives to provide protection and stabilization to the property and recommends a living shoreline consisting of segmented emergent breakwaters, inlet backpassing/beach nourishment & dune restoration and planting of native vegetation as the preferred alternative to provide stabilization to the region. As an intermediate, and for the purposes of this nomination, we are looking to implement dune restoration and beach nourishment (as outlined in Section 5.1 of the Plan).		Peconic Land Trust	Design/Technical Assistance: LKB Engineering, First Coastal Corporation, Town of Shelter Island, Peconic Land Trust		Matthew Swain, Peconic Land Trust, 631-283- 3195, mswain@peconiclandtrust.org	No

Wetland	Shelter Island Marsh Island Restoration (Dickerson Creek, Gardiner Creek, Hay Beach Pond)	There has been a rapid loss of Shelter Island's marsh islands in numerous creeks, including Dickerson Creek, Gardiner Creek and Hay Beach Pond. Additionally, the Long Island Wetlands Trends Analysis indicated Shelter Island has lost 45% of its overall marsh area from 1974 to 2005 and 20 wetland complexes were classified as "at risk" (>10% marsh loss). There is a need to assess the areas with large marsh loss and then develop restoration strategies, where appropriate.		Public - Town of Shelter Island			Jay Card, Town of Shelter Island, 631-749- 1090, jcard@shelterislandtown.us	Yes
Diadromous Fish	Sanctuary Pond Fish Passage (Mashomack Preserve, Shelter Island)	Assess connectivity between Sanctuary Pond and Bass Creek to determine potential for river herring spawning habitat.		The Nature Conservancy		This large freshwater pond lies within The Nature Conservancy's Mashomack Preserve.	Enrico Nardone, Seatuck Environmental Association, 631-581-6908, egnardone@seatuck.org	Yes
Diadromous Fish	Fresh Pond Fish Passage (north of S. Midway Rd., Shelter Island)	Assess connectivity between West Neck Harbor and Fresh Pond to determine if the pond has the potential for spawning habitat for river herring.				Shelter Island plans to replace the culvert under Midway Road, that connects Dickerson Creek to the Wetland area south of Fresh Pond in the fall.	Enrico Nardone, Seatuck Environmental Association, 631-581-6908, egnardone@seatuck.org	Yes

2019 Habitat Restoration Site Nominations

Habitat Type	Project Name & Location	Project Description	Project Site Size	Ownership	Funding/Resources	Additional Info	Contact (Name, Org., Phone, Email)	Included in Plan
Southold								
Living Shoreline/ Wetland	Widow's Hole Preserve Living Shoreline and Wetland Restoration Phase II (4th St & Clark St., Greenport)	Phase I of the shoreline restoration work at the Peconic Land Trust's (PLT) Widows Hole Preserve in Greenport, NY was completed in July 2019. Phase II work would expand and tie into these restoration efforts. Proposed activities include the 1) excavation of a total of 810 square ft. of invasive Phragmites from two areas, 2) American beachgrass planting (875 square ft.), which will connect to the restored dune area from Phase I, 3) Spartina plantings (7,300 square ft.) along the intertidal shoreline connecting two extant stands of Spartina and the new stand installed in Phase 1 to create a mostly continuous fringe along the preserve's shoreline, and 4) installation of a 225 linear feet cobble- gravel band, like was used in Phase I, to reinforce the seaward edge of the restoration area against wave-generated erosion.	< 1 acre	Peconic Land Trust	Estimated cost: $150,000.00. Landowner can provide labor and equipment	Five years of post-project monitoring will be conducted to evaluate the success of these restoration efforts, and the project will include an adaptive management plan, so that enhancements can be made if necessary. This project will further improve the resilience and ecological value of the shoreline at the preserve.	Jessie Marcus, Peconic Land Trust, 631-283-3195 ext. 30, jmarcus@peconiclandtrust.org or Stephen Schott, CCE, (631) 852-8660 x26, ss337@cornell.edu	Yes
Southampton								
Beach/ Shoreline	Horseshoe Crab Habitat Restoration/ Protection Strategy (estuary-wide)	Conduct estuary wide assessment of horseshoe crab (Limulus polyphemus) populations. Identify current spawning sites of significance and locations suitable for establishment of spawner sanctuaries. Assess whether current horseshoe crab harvesting regulations need to be updated and/or whether harvesting needs to be prohibited, locally or regionally, in light of declining populations.	TBD	Public	Planning cost: Staff time. Implementation cost: TBD. Town could provide planning, funding, and technical assistance	As a keystone species, horseshoe crabs play a critical role in the ecological health of an estuary. The female horseshoe crab can lay more than 100,000 eggs during the course of a spawning season. These eggs are a critical food source for declining shorebird populations, including, but not limited to, the federally threatened red knot.	Martin E. Shea, 631-287-5710, MShea@southamptontownny.gov	Yes, incorporated into an estuary-wide project
Riverine/ Wetland	River Otter Habitat Restoration/ Protection Strategy (estuary-wide)	Develop an estuary wide strategy for the protecting, mitigating and restoring habitat connectivity and linkages for North American river otter (Lontra canadensis). The evaluation needs to consider the size, shape, proximity, and spatial arrangement of existing and potential future otter habitat, in order to identify the implications of fragmentation on the future sustainability of otter populations. The study must identify needed animal movement and dispersal corridors, and opportunities for restoring connections between high quality habitats. Recommendations for remediation need to include, among others, removal of roads, building of road underpasses and overpasses, culvert modification, land preservation, restoration or re-creation of otter corridors, and design of less fragmenting roads.	TBD	Public	Planning cost: Staff time. Implementation cost: TBD. Town could assist with planning, design, funding, and implementation	River otter were hunted and trapped extensively for their fur during the 19th and 20th centuries and were largely extirpated from Long Island for decades. Preliminary river otter surveys indicate that populations have not reached a sustainable threshold, within the Peconic Estuary. Completion of a river otter study will identify critically needed linkages and barriers to expansion of home ranges and safe passage.	Martin E. Shea, 631-287-5710, MShea@southamptontownny.gov	Yes, incorporated into an estuary-wide project
Wetland/ Beach	Diamondback Terrapin Habitat Restoration/ Protection Strategy (Long Beach/Sag Harbor Cove and estuary-wide)	Restoration of quality nest habitat, through selective vegetation management, at the Town owned 16.3 acre Long Beach site is nominated for inclusion in the Habitat Restoration component of the updated Peconic Estuary Program Comprehensive Conservation Management Plan, to aid in conservation of this declining species and to help sustain and enhance terrapin populations.	TBD	Public	Planning cost: Staff time. Implementation cost: TBD. Town could assist with pilot project planning and implementation	Diamondback terrapin (Malaciemys terrapin) have been identified as a "Species of Greatest Conservation Need" by the 2015 New York State Wildlife Action Plan, due to documented threats such habitat loss, nest predation and capture. The New York State Department of Environmental Conservation officially ended centuries of commercial harvest of the diamondback terrapin in 2018.	Martin E. Shea, 631-287-5710, MShea@southamptontownny.gov	Yes, incorporated into an estuary-wide project

Migration Corridor	Shinnecock Canal Finfish Movement and Migration Corridors (Hampton Bays)	Barriers to fish movement and migration, which reduce migratory success rates need to be removed or modified to prevent interference and reduce the likelihood of major fish kills. The feasibility of removing and/or modifying the locks and tidal gates at the Shinnecock Canal, including structural retrofitting and keeping the locks open for longer periods, need to be evaluated in the interest of allowing for improved fish passage and flushing. Alternatively, the option of fish ladder installation could be explored.		Public	Cost TBD. Town could provide planning, design, funding, and labor.	Restoration of fish movement corridors at the Shinnecock Canal has also been included as a habitat restoration goal in the draft Long Island South Shore Estuary Reserve Comprehensive Plan update.	Martin E. Shea, 631-287-5710, MShea@southamptontownny.gov	No
East Hampton								
Embayment/ Shoreline	Napeague Harbor Hydrodynamic and Water Circulation Study (Amagansett)	Conduct hydrodynamic and water circulation studies necessary to evaluate if restoring the east inlet of Napeague Harbor to its historic condition would provide sufficient improvements in water circulation and ecological conditions in the harbor and reduce erosion on the Lazy Point and Promised Land shorelines. The evaluation would encompass the Gardiners Bay shoreline roughly from Goff Point to Promised Land as well as all of Napeague Harbor. The study would need to include the following field investigations and modeling: 1) Bathymetry of the entire harbor and the nearshore waters of Promised Land, 2) Installation of acoustic doppler current profilers (ADCP's) at the west inlet and inside the harbor adjacent to the east inlet's past locations, 3) Installation of a wave gauge in nearshore waters of Gardiner's Bay, 4) Sediment sampling and grain size analysis to calibrate littoral sediment transport modeling, 5) Hydrodynamic modeling of Napeague inlet using DELFT 3D or an equivalent model, 6) Modeling of water chemistry parameters under different inlet hydrodynamic scenarios using DELFT3D WAQ numeric water quality model or equivalent model.		Public	Estimated cost: $250,000. The East Hampton Town Trustees and East Hampton Town (Natural Resources and Harbormasters Departments) will likely be able to provide labor and equipment (boats, operators, monitoring, technical assistance etc.) as well as modest financial contribution to the study	A PEP sponsored conceptual habitat restoration design, entitled Napeague Harbor Water Circulation Enhancement was completed in 2013 and determined that Napeague Harbor can likely only support a single inlet. The proposed evaluation is based on the recommendation in the conceptual design plan report. As elaborated in the conceptual habitat restoration design document referenced above, the ultimate restoration of historical circulation patterns in Napeague Harbor could result in water quality and habitat improvements for finfish, shellfish and eel grass and reduction of flow through the west inlet could result in reduced shoreline erosion on the north side of Lazy Point and Promised Land.	Francis Bock, Clerk East Hampton Town Trustees, 631-267-8688, info@trustees.easthamptonny.gov	Yes
Wetland	Restoring Natural Hydrology to Accabonac Harbor (Springs)	Evaluate hydrological disruptions to the saltmarsh, to determine appropriate restoration actions: 1) Evaluate the bridge on Old Stone Highway that connects Pussy's Pond to the harbor and the small culvert system under Springs Fireplace Road to determine if right-sizing those crossings would provide ecological, climate resilience, and transportation benefits by more adequately connecting the waters of Accabonac Harbor to its upper reaches. 2) Consider removal of the plywood ditch plugs that were installed in the southern reaches of Accabonac Harbor in the 1990s and the sandbag ditch plugs that were installed in the mid-section of Accabonac Harbor in 2007. This should help the marsh better keep pace with sea level rise, increase salinity to the upper marsh, reduce invasive Phragmites, and alleviate erosion. 3) Citizen scientists gathered valuable mosquito breeding that pinpointed the locations of active mosquito breeding hotspots in the marsh and identified areas of improperly impounded water on the marsh surface. Explore this data to determine if the marsh would benefit from increased drainage through shallow creek or runnel excavation. This approach strives to return the natural rise and fall of the tides to the marsh platform, restore healthy native marsh vegetation, and reduce the number of mosquito breeding hotspots targeted by vector control agencies.	TBD	Public	$35,000 for site studies and Conceptual Design Plan; Engineering design and construction costs TBD	The Long Island Tidal Wetlands Trends Analysis indicates Accabonac Harbor in East Hampton experienced high marsh loss (-46.5 acres) between 1974 and 2005. Of particular concern is the conversion of high marsh to intertidal marsh.	Nicole Maher, The Nature Conservancy, nmaher@TNC.ORG	Yes, modified existing Accabonac Harbor Marsh Project

Brookhaven								
Diadromous Fish	Forge Rd Diadromous Fish Passage - Education and Research (Peconic River)	Following installation of the Forge Rd fish passage on the Peconic River, it is essential to assess and count how many fish move up or down river. An underwater video camera placed within the fish passage would record fish migration that can be analyzed later. An underwater video camera is a non-destructive method of fish sampling that would not interfere with fish migration. The video camera is compact (less than 3 inches in size), can be removed when not being used, and would require minimal disturbance to habitat to install. The video feed would be recorded on a monitor, secured in a lock-up box next to the fish passage. Fish counting software would analyze the video to determine fish species, size and movement. Fish migration would be recorded seasonally/annually to examine temporal variation in fish numbers and when combined with data from Little River it would inform resource managers about the health of the Peconic River ecosystem. Four educational signs will be installed at the fish passage to inform the public about: 1) the species found in and 2) importance of diadromous fish to the Peconic River, 3) the layout and type of fish passage used on-site, and 4) why we need to conserve and protect the Peconic Estuary.		Public	$15,528 needed for monitoring and education components. The Town of Brookhaven will contribute staff time to deploying/retrieving the underwater video camera and analyzing the video footage.	Funding for fish passage design and construction at Forge Rd has been secured. A permanent fish passage structure at the Forge Road Dam will re-open the expansive Peconic Lake to diadromous fish species, restoring 107 acres of critical spawning and maturation habitat,	Alan Duckworth, Town of Brookhaven, aduckworth@brookhavenny.gov, 631 451 6427	Yes, added to Forge Rd Fish Passage project

2023/2024 Habitat Restoration Site Nominations (Adopted in 2020 Habitat Plan Update as of November 2024)

Habitat Type	Project Name & Location	Project Description	Project Site Size	Ownership	Funding/Resources	Additional Info	Contact (Name, Org., Phone, Email)	Included in Plan
East Hampton								
Coastal Plain Pond	Chatfield's Hole Preserve Restoration	Chatfield's Hole is a coastal plain pond in which NYSNHP has identified rare plants, animals, amphibians, threatened redback salamander (*Plethodon cinereus*), and a portion of which provides breeding habitat for several vernal pond species. Road runoff may be impacting water quality and the material deposited in the pond may be changing the dynamics of fluctuating water levels that is necessary to support the unusual plant community found at the site. Ongoing road runoff has deposited sediment, including recycled asphalt material, in the wooded wetland buffer area and in the pond itself. Unknown extent of material and unknown thickness of deposits. In years of severe drought, the pond is reduced to a very small pool of water in the lowest part of the main pond and many of its rare fauna and flora perish. The management of this coastal plain pond, maintenance of a natural hydrologic regime and good water quality are the most critical issues facing Chatfield's Hole. This is an important coastal pond requiring updated flora and fauna list, hydrological and geological studies to understand the pond dynamics and maintenance. This is an excellent site for introducing students to pond ecology and ecological succession in freshwater wetlands.	46.1 acres	Public	Planning cost: Staff time. Implementation cost: TBD. Town could assist with planning, design, funding, implementation and a solution to the stormwater and assist the associated debris which is degrading the pond.	Coastal ponds in NY State are found in coastal plain region and have limited range, this habitat is threatened by introductions of exotic species, alterations to hydrology and water quality, commercial and residential development, recreational overuse, and by herbicide use. Chatfield's Hole was the site of a 'Field Naturalist' program. This program introduced students to the Coastal ponds, their vital role this habitat plays in the ecosystem, ecology and rare flora and fauna that are unique to this habitat. Research in Chatfield's Hole will fill information gaps about coastal pond systems, document differences between other types of ponds in the coastal plain area, examine the influence of elevation, distance from the coast and other variables.	Mike Bottini, Seatuck Environmental Association, 631-267-5228, mbottini@seatuck.org	Yes
Southampton								
Tidal wetland	Burgland Preserve Restoration	Berglund and Lesster 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. There is potential for partnerships that address landscape level effects creating landscape level impact. These preserves also provide the opportunity to invest in infrastructure needed to create water access with public education content for the surrounding communities.	45 acres	Peconic Land Trust		Restoration of this area will enhance ecosystem services such as coastal flood resilience and create healthy (low and high) marsh habitat for wildlife such as the endangered saltmarsh sparrow, known to have breeding populations on the east end of long island. Marsh collapse and loss of habitat will only worsen in the face of sea level rise and prioritization now is necessary to save this habitat.	Matt Swain, Peconic Land Trust, 631-283-3195, MSwain@peconiclandtrust.org	Yes
Riverhead								
Tidal tributary	Cases Creek Tidal Flow Restoration/Maintenance Plan	Cases Creek is a tidal tributary of the Peconic Estuary. Shoreline development including hardening (bulkheading, rock revetment, etc.) to the west of the creek has exacerbated sand transport that threatens tidal exchange. Bulkheading at the channel entrance has further altered any natural ability of the inlet to migrate over time. Tidal flow to the creek is currently severely restricted. As Cases Creek supports protected marsh and coastal habitat to the north of Peconic Bay Boulevard as well as many estuarine species (blue crabs, oysters, etc.), ensuring permanent tidal flow to Flanders Bay will protect this ecosystem from low salinity, eutrophication, and other water quality issues that may threaten this habitat. A maintenance plan for this	30 acres	Cases Creek: Town of Riverhead Beach: Town of Riverhead/Private (above MHW) Marsh/protected lands North of Peconic Bay	Planning cost: Staff time. Implementation cost: TBD. The Town of Riverhead, Suffolk County, and the adjacent HOA could assist with planning, design, funding, and implementation.	There has been an effort to have the channel of Case's Creek dredged by the Town of Riverhead through Suffolk County. However, due to the failure between Suffolk County and the HOA to the west to reach an agreement over the distribution of dredge spoils, no progress has been made on this project. This area would benefit from a proactive long-term management plan to ensure continuous tidal exchange between the Cases Creek and Flanders Bay. A maintenance plan for Cases Creek	Pete Topping, Peconic Baykeeper, 631-653-4804, pete@peconicbaykeeper.org	Yes

		creek including the potential for a living shoreline approach to the stabilization of dredge spoils could help ensure the long-term support of this ecosystem. Cases creek is a tidal tributary of the Peconic Estuary with an outlet into Flanders Bay. While the creek has been heavily modified near its southern inlet by shoreline bulkheading and groins running perpendicular to the bay shoreline, areas to the north of Peconic Bay Boulevard support protected tidal wetlands including saltmarsh habitat with abundant spartina transitioning to coastal forests characterized by eastern red cedar and oak. Although present, invasive phragmites are relatively sparse in this habitat but may become more prevalent if salinity levels are allowed to decrease. Lateral sand transport to the channel from the area west of the inlet currently limits natural tidal flow to the creek. This is likely exacerbated by the prevalence of shoreline development and hardening adjacent to the inlet. A winter site visit to the creek showed an abundance of oysters growing along the bulkheads, ribbed mussels, and grass shrimp. Video footage provided by an adjacent homeowner showed juvenile Atlantic menhaden (bunker) schooling in the creek during the warmer months. Although unconfirmed, this creek would also support ideal habitat for juvenile American eels.		Boulevard: Suffolk County & Town of Riverhead		coordinated between PEP, the Town of Riverhead, Suffolk County, and the adjacent HOA would ensure that tidal exchange is maintained between Cases Creek and Flanders Bay to support saltmarsh and estuarine ecosystems.		
Brookhaven								
Coastal Plain Pond	Peconic Estuary Watershed Coastal Plain Ponds Restoration/Protection Strategy	Identification, inventory, and assessment of coastal plain ponds in the Peconic Estuary Watershed is necessary for understanding, prioritizing, and protecting this natural resource that we are currently at-risk of losing. Better understanding this habitat's extent within the watershed will allow resource managers to thoughtfully design a strategic plan for future restoration and protection. PEP is specifically interested in the coastal plain pond system found at the headwaters of the Peconic River, within and near Otis-pike Preserve and Robert Cushman Murphy County Park.			Cost TBD. Town, Peconic Land Trust could provide planning, design, funding, and labor.	Identification of coastal plain ponds will include the documentation of location of these sites and more intensive surveys of known sites. Assessment of the natural community at these sites will provide a more comprehensive documentation of this habitat. Coastal Plain Ponds Research will fill information gaps about these ponds and pond systems. The Peconic River System coastal pond system will provide rare coastal plain pondshore habitat for professional scientists with opportunities to conduct important biological experiments and inventories.	PEP Program Office, Peconic Estuary Partnership, 631.852.5806, info@peconicestuary.org	Yes

Appendix C - Peconic Estuary Partnership Completed Habitat Restoration Project Inventory

Habitat Type	*Site & Location*	*Action*	*Maintenance*	*Size (acres)*	*Cost/Funding*	*Year Initiated*	*tus (end date)*	*Contact Person*
Beach/Dunes								
Beach/Dunes	Gerard Drive, East Hampton	Bare-root beach grass planting into sand adjacent to existing growth on upper beach. Transplants dug from local stock. Success based on plant establishment. Establishment successful.	String fence through first summer	0.25	<$500 Town	Spring 1996	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496; Accabonac Harbor Protection Committee (631) 324-3627
Beach/Dunes	Louse Point, East Hampton	Bare-root beach grass planting into sand adjacent to existing growth on upper beach. Transplants dug from local stock. Success based on plant establishment- successful.	String fence through first summer	0.25	<$500 Town	1996	Prior to 2000	Kim Shaw, EHTNRD, (631) 324-0496
Beach/Dunes	Gin Beach, East Hampton	Bare-root beach grass planting into sand adjacent to existing growth on upper beach. Transplants dug from local stock. Success based on plant establishment- successful.	String fence through first summer	0.1	<$500 Town	1997	Prior to 2000	Kim Shaw, EHTNRD, (631) 324-0496
Beach/Dunes	New Suffolk, Southold	Bare-root beach grass planting into sand adjacent to existing growth on upper beach. Transplants from nursery stock. Success based on plant establishment- mostly successful.	String fence through first summer	0.1	<$500 PEP	1997	Prior to 2000	Chris Pickerell, CCE, (631) 852-8660
Beach/Dunes	Mattituck Park District, Southold	Bare-root beach grass planting into sand adjacent to existing growth on upper beach. Transplants from nursery stock. Success based on plant establishment- only partially successful.	None	0.1	<$500 PEP	Spring 1997	Prior to 2000	Chris Pickerell, CCE, (631) 852-8660
Beach/Dunes	Robins Island Landing, Southold	Bare-root beach grass planting into newly deposited sand on upper beach in and around large stone. Transplants from nursery stock. Success based on plant establishment- mostly successful.	Permanent snow fence	0.5	Private	1997	Prior to 2000	Peter Trexler, Belvedere Property Management (BPM) (631) 734-5134
Beach/Dunes	Second Causeway, Shelter Island	Bare-root beach grass planting into newly deposited sand (over large rocks) on upper beach. Transplants from nursery stock. Success based on plant establishment- successful.	String fence through first summer	1		1999	Prior to 2000	Town of Shelter Island
Beach/Dunes	Sammi's Beach, East Hampton 41.0310, -72.1922	This barrier beach peninsula, previously a dredge material site, was graded down and replanted with beach grasses. Road was removed and replanted. Generally successful as least terns and piping plovers returned.			$300,000 (State, Town, County)	1999	2003 (planting complete)	Kim Shaw, EHTNRD, (631) 324-0496
Beach/Dunes	Reel Point, Shelter Island	Eroding beach affected by vehicle use was replanted with beach grass. Snow fencing installed. Owned by Peconic Land Trust.		8	Private	2000	Prior to 2009	Peconic Land Trust (631) 283-3195
Beach/Dune	Shell Beach Revegetation, Shelter Island	Shoreline stabilization, invasive species removal and management, as well as native revegetation at this location	Invasive species management			Prior to 2012	Complete	Town of Southold & PEP
Diadromous Fish								
Diadromous Fish	Edwards Avenue Dam, Peconic River, Phase IV, Riverhead 40.9051, -72.7432	NYSDEC owned Edwards Avenue Dam. The construction of an Alaska Steep Pass/American eel pass project replaces a failing concrete dam with a new concrete structure and steel sheeting spillway. The new spillway structure, which meets 100-year flood protection requirements, has raised water levels behind the dam to levels not seen for nearly a decade when the former Edwards Avenue Dam and its wooden plank board flood control structure began failing.	Maintenance of Alaska Steep Pass/American Eel Pass	35 acres of river habitat restored	$967,500 to construct New York Works Program-NYSDEC		June 2016	NYSDEC-Heidi O'Riordan (631) 444-0281; NYSDEC/PEP State Coordinator-Elizabeth Hornstein (631) 444-0871. Partners include Riverhead, USFWS, NOAA, PEP, NYSDEC, Suffolk County, Peconic River Fish Restoration Commission.
Diadromous Fish	Grangebel Park, Peconic River, Phase I, Riverhead 40.9159, -72.6632	Structural repairs made to the North Spillway. South Spillway channel/stream bed was re-graded and narrowed and a permanent rock ramp/riffle was installed. Success (utilization by alewife and American eels) to be determined during Spring 2010 migration.	Rock ramp debris removal may be necessary; annual video monitoring of diadromous fish run	24 acres & 1.5 miles of River habitat restored	$1million (studies, design, repairs, rock ramp). Multiple sources-contacts can provide listing.	Planning initiated in 2000	Feb 2010	NYSDEC-Heidi O'Riordan (631) 444-0281; NYSDEC/PEP State Coordinator- Elizabeth Hornstein (631) 444-0871. Partners include Riverhead, Brookhaven, USFWS, NOAA, PEP, NYSDEC, Suffolk County, American Rivers, Fish America Foundation, CWRP, Peconic River Fish Restoration Commission, Spectra Energy, National Grid.

Diadromous Fish	Byron Young Fish Pass (Woodhull Dam), Riverhead	Installation of a Denil pass and step pool fish passage. Inclusion of an eel pass attached to the side of the step pool.	Debris removal and maintenance of fish pass structure; annual video monitoring of diadromous fish run	95 acres of accessible spawning and maturation habitat			2022	NYSDEC-Heidi O'Riordan (631) 444-0281; NYSDEC/PEP State Coordinator-Barry Volson (631) 444-0871. Partners include Riverhead, USFWS, NOAA, PEP, NYSDEC, Suffolk County, Peconic River Fish Restoration Commission.
Diadromous Fish/Wildlife Passage	Silver Lake/Moore's Drain Aquatic/Wildlife Passage, Southold	This project was originally a diadromous fish passage restoration project however recommendations from the conceptual design were for no diadromous fish passage, instead a plan to daylight Moore's Drain at Skipper Horton Park and management of this unique habitat was adopted.	Sediment and debris removal	300 acres of largely protected land		2009	2022	NYS DOS LWRP, Town of Southold, PEP
Diadromous Fish	North Sea Diadromous Fish Pass Enhancement, Southampton	New box culvert installation; sediment and debris removal	Sediment and debris removal				2024	NYSDEC-Heidi O'Riordan (631) 444-0281; Partners include Southampton, USFWS, NOAA, PEP, NYSDEC, Suffolk County, Peconic River Fish Restoration Commission.
Diadromous Fish	Forge Rd/Peconic Lake Diadromous Fish Passage Restoration (Peconic River, Phase III)	Replacement of the structurally damaged Forge Road Dam with an Alaskan steeppass with internal baffles and an eel passage attached to the outside of the steeppass	Debris removal and maintenance; annual video monitoring of diadromous fish run	107 acres of critical spawning and maturation habitat & 300 acres of diadromous fish habitat 4.3 miles of river habitat restored		2013	2023	NYSDEC-Heidi O'Riordan (631) 444-0281; NYSDEC/PEP State Coordinator-Barry Volson (631) 444-0871. Partners include Brookhaven, Riverhead, USFWS, NOAA, PEP, NYSDEC, Suffolk County, Peconic River Fish Restoration Commission.
Diadromous Fish	Lake Montauk Alewife Access and Habitat Enhancement, Big Reed Pond	Structural improvement of the existing culvert to improve aquatic connectivity between Lake Montauk and Little Reed/Big Reed Pond.	Structural redesign of an existing culvert for fish passage & phragmites removal				2024	NYSDEC-Heidi O'Riordan (631) 444-0281; Partners include East Hampton, USFWS, NOAA, PEP, NYSDEC, Suffolk County, Peconic River Fish Restoration Commission.

Eelgrass								
Eelgrass	Accabonac Harbor, East Hampton	Bundled bare-root shoots attached to metal staples and wooden stakes. Transplants collected from Northwest Harbor and Lake Montauk. Planted into unvegetated coarse and fine sediments. Unsuccessful	Regular observation, Marked with PVC tubes	0.1	<$2,000 PEP	Jun-94	Prior to 2000	Kim Shaw EHTNRD, (631) 324-0496, Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Little Northwest Creek, East Hampton	Bundled bare-root shoots attached to metal staples and wooden stakes. Transplants collected from Northwest Harbor. Planted into unvegetated coarse and fine sediments. Unsuccessful.	Observation, Marked with PVC tubes	0.1	<$2,000 PEP	Jun-94	Prior to 2000	Kim Shaw, EHTNRD, (631) 324-0496, Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Napeague Harbor, East Hampton	20 cm diameter intact sods transplanted to the perimeter and open areas in the center of an existing bed along the eastern shoreline and an open sandy flat near the south end of the Harbor. All transplants from Napeague. Success based on eelgrass presence the following year. Mostly successful (~75%) (eastern shore). Unsuccessful (sandy flat).	Regular observation, Mapped with GPS, Perimeter of bed and planting sites marked with PVC tubes	0.1	<$2,000 PEP	June and Sept 1997-1998	Prior to 2000	Kim Shaw, EHTNRD, (631) 324-0496, Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Three Mile Harbor, East Hampton	Bundled bare-root shoots attached to metal staples and wooden stakes. Transplants collected from Northwest Harbor and Lake Montauk. Planted into unvegetated coarse and fine sediments. Partially successful (~30%).	Regular observation, Marked with PVC tubes	0.1	<$2,000 PEP	Jun-94	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496; Chris Pickerell, CCE (631) 852-8660
Eelgrass	Three Mile Harbor, East Hampton	20 cm diameter intact sods transferred to the perimeter of an existing bed. Transplants from Napeague.	Observation of sod establishment	0.1	<$2,000 PEP	Oct-99	2000	Kim Shaw, EHTNRD (516) 324-0496; Chris Pickerell. CCE (516) 852-8660
Eelgrass	Northwest Creek, East Hampton	Unsuccessful.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Noyak Creek, Southampton	Unsuccessful.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Paynes Creek, Southampton	Unsuccessful.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Upper Sag Harbor Cove, Southampton	Unsuccessful.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Bullhead Bay, Southampton	Unsuccessful. Small annual population exists.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Sage Harbor Cove, Southampton	Unsuccessful.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Cutchogue, Southold	Unsuccessful.		0.1				Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Bullhead Bay Eelgrass Sanctuary, Southampton 40.9105, -72.4457	This western most eelgrass bed in the Peconic Estuary is highly stressed and disturbed. Southampton Town Trustees designated it as an eelgrass sanctuary, a type of Shellfish Management Zone, to prohibit shellfishing within its boundaries. Edges marked and delineated.	Monitored under PEP Long Term Eelgrass Monitoring Program. Trustees maintain markings.		No Cost		Established Dec 2009	Southampton Town Trustees 631.287.5717
Eelgrass	Sag Harbor, Havens Beach 41.00178, -72.27835	Healthy eelgrass shoots were harvested from local sites. Volunteers helped "weave" the eelgrass shoots into burlap planting discs. These discs were then planted at three restoration sites. Unsuccessful. At one site there was evidence someone clammed through the restoration plot.		0.02	$5,000, CCE		2013	Chris Pickerell, CCE, (631) 852-8660 Partners: Town of East Hampton Trustees.

Eelgrass	Greenport Harbor Jetty 41.10342, -72.34752	Healthy eelgrass shoots were harvested from local sites. Volunteers helped "weave" the eelgrass shoots into burlap planting discs. These discs were then planted at the restoration site. Limit success- the Greenport restoration at the jetty was impacted by Hurricane Sandy and most of the transplants were lost. A small test plot using plugs of eelgrass, taken from the existing meadow at the site, survived Sandy and has continued to expand from the initial 1 square meter. It has more than doubled in size and density since being planted.	Site continues to be monitored a few times a year.	0.03	$10,000, Town of Southold		2012	Chris Pickerell, CCE, (631) 852-8660
Eelgrass	Napeague Eelgrass Restoration 41.0071, -72.0482	Mostly unsuccessful. The Napeague Harbor restorations attempts were conducted over a number of years, with all but a few, very small patches of eelgrass persisting more than a year.						Chris Pickerell, CCE, (631) 852-8660 Partners: Town of East Hampton.
Freshwater Wetlands								
Wetlands	Robins Island, Southold	A groundwater-fed freshwater pond completely filled with Phragmites was excavated to original depth and diameter. Fill including Phragmites biomass was buried nearby in a lined pit. Following excavation, native emergent species (nursery stock) were planted throughout the shoreline. Success based on establishment of proper hydrology and shoreline vegetation and elimination of common reed. Successful.	Checked regularly for new Phragmites growth. New growth removed	1		Summer 1996	Fall 1996	Peter Trexler, BPM, (631) 734-5134
Grassland								
Grassland	Orient Point County Park, Southold	Clearing or woody overgrowth in a former farm field using a bulldozer, discing with a tractor, followed by seeding with native warm season grasses. Seed from nursery stock. Success based seeding success of warm season grasses and control of forbes and woody growth. Mostly successful.	Annual mowing plus removal of forbes and new woody growth	50	53700 USEPA + in-kind	Spring & Summer 1998, 1999, 2000	2000	New York State Department of Environmental Conservation (NYSDEC) (631) 444-0469
Grassland	Maratooka Grassland, Mattituck, Southold	Clearing of woody overgrowth with a bulldozer, land preparation including discing and seeding with switchgrass. Hand seeded. Organ grinder. Seed from nursery stock. Success based seeding success of warm season grasses and control of forbes and woody growth. Mostly successful.	first mowing Sept.(high) after July 15 Every 3yrs.	1	$4720 seed $450 mowing $25/yr Wildlife Habitat Incentive Program (WHIP)	Jun-99	2000	USDA, Natural Resources Conservation Service (NRCS) (631) 727-2315
Grassland	Fort Hill Cemetery Grassland, East Hampton 41.0458, -71.9497	Replanting of native grassland grasses in disturbed part of historic cemetery. Re-vegetation successful.	Maintained by East Hampton Parks Dept.		Town	1991	Prior to 2009	Kim Shaw, EHTNRD (631) 324-0496
Phragmites								
Phragmites	Hog Creek Phragmites, East Hampton, 41.0494, -72.1652	Small patches of invasive Phragmites were cut. Native species have returned. Successful.		<1		1998	Prior to 2009	Kim Shaw, EHTNRD (631) 324-0496
Phragmites	Lake Marion Phragmites Eradication Southold 41.1260, -72.3334	The lake was chemically treated. Project was initiated in 2006 with a petition by locals to do something about the phragmites problem. Lori Luscher, a local resident, wrote a grant request to the NY State Department of Environmental Conservation to clean up the lake, and initiated a fundraising campaign to provide matching funds. A pond/lake specialist, Tim Miller Assoc, was hired to help eradicate the phragmites. Native plantings occurred in spring 2012. https://jezebelproductions.org/the-marion-lake-story/	Trimming once a season, usually in Spring or Fall. An annual donation ($200 per household) is collected from the residents for maintenance.	5 acres	$325,000, ($100,000 grant from NY State, the rest from community donations)	2006	2014	Lori Luscher, Save Marion Lake Committee, 631- 495-8579

Phragmites	Pussy's Pond Phragmites Control and Shoreline Restoration, East Hampton, 41.02, -72.16	Pussy's Pond lies at the head of Accabonac Harbor and is threatened by poor water quality, invasive Phragmites and erosion issues. A Phragmites management plan and living shoreline project was designed and implemented on the eastern bank of Pussy's Pond. Non-herbicide methods for invasive species management were researched and implemented. The project also included the installation of coir fascine, native plantings, and the creation of bioswales. On the western bank of Pussy Pond approximately 125 linear feet, or a 2,200 square ft. area of phragmites australis shoots, roots, and rhizomes were excavated using a hydraulic excavator and trucked off-site for disposal. The excavated area was replaced with native sand and the natural slope and edge the pond bank was restored and planted with natives.	Some project maintenance will be required.	< 1 acre	$80,000	2016	2017	Kim Shaw, EHTNRD (631) 324-0496
Shellfish								
Shellfish	Hard Clam/Oyster Restoration in Accabonac Harbor, Hog Creek, Three Mile Harbor, Northwest Creek, Napeague Harbor and Lake Montauk.	Several million seed of each species are grown each season by staff of the East Hampton Town Shellfish Hatchery. Spawns and larval/early juvenile rearing begin in late winter in the hatchery, followed by additional grow-out phases in Three Mile Harbor nursery and Napeague Harbor field grow-out systems. In the fall, seed is apportioned by harbor and seeded to natural beds. A portion of the clam crop is held over the winter and seeded to the wild the following fall after an additional season of growth.	Ongoing		$50,000 per year per harbor	2009	Ongoing	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901
Shellfish	Bay Scallop Restoration Napeague Harbor, Three Mile Harbor, and Hog Creek	The Shellfish Hatchery and the Town Trustees completed a Six-Year Bay Scallop Restoration Project (2008-2013) in Napeague Harbor, Three Mile Harbor, and Hog Creek, partially funded by Suffolk County. The goal is to establish bay scallop spawner sanctuaries in an effort to provide dense concentrations of reproductively mature adult scallops with the goal of reestablishing self-sustaining populations.	Ongoing		$25,000 per year per harbor	2008	2013/ Ongoing	John (Barley) Dunne, East Hampton Shellfish Hatchery, 631-668-4601 ext. 7901
Shorebird								
Shorebird	Mill Creek Enhancement Project, Southampton	Located on Pine Neck Lane in Noyac. This relatively small project expanded shorebird breeding habitat by removing vegetation and filling ruts caused by vehicle traffic on the beach. Native beach grasses were planted. Driving on the beach is now prohibited. Considered a successful project.		<1			Prior to 2009	Jon Semlear-President of Southampton Town Trustees (631) 287-5717
Shorebird	Hick's Island, East Hampton 41.0165, -72.0605	Material from dredging the mouth of Napeague Harbor was placed on Hick's Island. Vegetation was as cut and removed. Successful in restoring roseate tern and piping plover breeding habitat.		10	$20,000 (re-veg) $600,000 (dredge)		Prior to 2009	Kim Shaw, EHTNRD (631) 324-0496
Tidal Wetlands								
Tidal Wetlands	Pussys Pond, Springs, East Hampton	Phase 1 - Partial excavation of Phragmites-dominated soils on the shore of a brackish tidal pond. The shoreline was re-graded to intertidal elevation and planted with native transplants of Cordgrass and Salt hay grass. Phase II - Complete excavation of Phragmites-dominated soils and backfilled with clean fill. Seeded with local native seeds. Success based on establishment of native vegetation and elimination of common reed. Partially Successful.	Seasonal removal of Phragmites shoots originating from buried rhizome fragments	0.5	$5,000 Waterfowl USA	1994	Prior to 2000	Bob Miller Waterfowl USA, Chris Pickerell, CCE (631) 852-8660
Tidal Wetlands	Accabonac Harbor, East Hampton	Removal of asphalt and concrete debris from an intertidal shoreline. Success based on establishment of native vegetation- TBA.	None	0.1	<$500 Town	1997	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496
Tidal Wetlands	Accabonac Harbor OMWM*, East Hampton	Open marsh water management (OMWM) for restoration of natural hydrology and Coliform bacteria reduction. Selected mosquito ditches were plugged using plywood and sandbags. Ditch selection based size and Coliform levels in repeated water samples. Success based dam stability, reduction in Coliform loading to the Harbor and conditional opening of the area to shellfishing. Successful.	Replace sandbags where necessary	50	Accabonac Harbor Protection Committee, East Hampton Trustees, USFWS	1994	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496

Tidal Wetlands	Northwest Creek OMWM, East Hampton	OMWM for restoration of natural hydrology and Coliform bacteria reduction. Selected mosquito ditches were plugged using combination of plywood and sandbags. Ditch selection based size and Coliform levels in repeated water samples. Success based dam stability, reduction in Coliform loading to the Harbor and conditional opening of the area to shellfishing. Partially successful.	Replace sandbags where necessary	50	EH Trustees, USFWS	1994	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496
Tidal Wetlands	Three Mile Harbor Drive, East Hampton	Planting bare-root cordgrass into a highly disturbed roadway cut into the marsh. Transplants gleaned from local stock in Three Mile Harbor. Success based on plant establishment. Very successful.	Permanently fenced to vehicular traffic	0.25	<$500	Apr-96	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496
Tidal Wetlands	Gerard Point, East Hampton	Planting nursery propagated cordgrass into open areas in and adjacent to the existing marsh. Success based on plant establishment. Successful.	Fenced	0.25	$750 East End Institute	Jul-99	Prior to 2000	Kim Shaw, EHTNRD (631) 324-0496
Tidal Wetlands	Cassidy Preserve, Hashamomuck Pond, Southold	Excavation and re-grading of hydraulic dredge spoil, creation of intertidal pools and replacement of common reed with smooth cordgrass. Success based on proper elevations, maintenance of water in pools and elimination of common reed. Successful.	Portions were re-graded to inhibit common reed re-colonization	5	$30,000 USEPA	Jun-99	Prior to 2000	Chris Pickerell, CCE (631) 852-8660, John Halsey, President Peconic Land Trust (631) 283-3195
Tidal Wetlands	Downs Creek, Cutchogue	Removal of concrete and other debris within an intertidal marsh to allow for natural re-vegetation and prevent future dumping. Success based on natural re-vegetation of the site by cordgrass. Successful.	Signage	0.1	Private	1996	Prior to 2000	Russ McCall
Tidal Wetlands	Long Beach Bay, Orient Southold	Culvert replacement and enlargement to increase salinity behind a dike at multiple points. OMWM for water quality improvement. Reductions in storm water inputs to surface waters.	Salinity and tidal elevation monitoring. Repair of leaky dams	200+	$253,000 USFWS	1999	Prior to 2000	Chris Pickerell, CCE (631) 852-8660
Tidal Wetlands	Fish Cover Bridge, North Sea Harbor, Southampton	Planting of cordgrass to mitigate new bridge construction. Plantings included nursery propagated peat pots. Success based on establishment of cordgrass. Successful.		0.1		1995	Prior to 2000	Gary Gentile, New York State Department of Transportation (631) 952-6219
Tidal Wetlands	Otter Pond, Sag Harbor	Planting of native marsh grasses to prevent erosion and improve aesthetics. Propagules included nursery stock. Success based on establishment of grasses. Partially successful.		0.1	Private	1997	Prior to 2000	Village of Sag Harbor
Tidal Wetlands	Broad Cove, Aquebogue, Riverhead	Restoration of intertidal marsh through cordgrass plantings, restoration of a tidal creek and opening of manmade tidal salt ponds to tidal flow. Success based on establishment of grasses, stability of new creek and increased flushing of tidal ponds. Sandbar plantings mostly unsuccessful, creek restoration successful, flushing successful.	Minimal fencing, regular photographs	5	Private	1994	Prior to 2000	Chris Pickerell, CCE (631) 852-8660
Tidal Wetlands	Chase Creek, Shelter Island	Planting of cordgrass to mitigate bridge improvements. Plants included nursery propagated peat pots. Success based on establishment of cordgrass. Successful.		0.1		1996	Prior to 2000	Gary Gentile, New York State Department of Transportation (631) 952-6219
Tidal Wetlands	Sag Harbor Cove/Paynes Creek, Southampton	Located on Long Beach Road in Noyac. A dike was breached at this historic dredged material disposal site to re-introduce tidal flow. Dredged materials were removed off-site and plantings of native wetland vegetation completed. Project is considered a success as a native wetland was re-established and is now actively utilized by shore birds.		>5			Prior to 2009	Marty Shea, Southampton Town (631) 287-5710, Partners: Southampton Town Board, Southampton Town Trustees
Tidal Wetlands	Upper Sag Harbor Cove Wetlands, Southampton	An area of this wetland which was damaged by vehicles was re-vegetated with *Spartina* . Re-vegetation was successful.		<1			Prior to 2009	President Southampton Town Trustees (631) 287-5717
Tidal Wetlands	Paynes Creek Enhancement Project, Southampton	Re-vegetation occurred naturally and human induced efforts were not necessary.			No Cost		Completed Naturally Prior to 2009	Marty Shea, Southampton Town (631) 287-5710
Tidal Wetlands	North Sea Wetlands, Southampton	An impervious paved walk at the Conscience Point Complex was removed and replaced with crushed shell. Native plants were planted and vehicle access restricted. Signage was installed.		<5			Prior to 2009	Marty Shea, Southampton Town (631) 287-5710, Partners: Southampton Historical Society, Southampton Town Board & Trustees

Tidal Wetlands	Fish Cove Wetland Enhancement, Southampton	Several years of washed up marine debris has accumulated on the marsh. The Southampton Baymen's Association and other volunteers removed an enormous amount of flotsam which was transported by boat to Southampton Town Highway vehicles and trucked to the recycling center. Successful.	Future maintenance/debris removal may be required (every 3 years)		Volunteer Time		Prior to 2009	President Southampton Town Trustees (631) 287- 5717, Partners: Southampton Town Board, Southampton Town Trustees
Tidal Wetlands	North Sea/Alewife Creek Wetlands, Southampton	Abutting landowner was required by Southampton Town to undertake restoration and re-planting efforts.					Prior to 2009	Marty Shea, Southampton Town (631) 287-5710
Tidal Wetlands	Three Mile Harbor Wetlands, East Hampton 41.0299, -72.2043	Disturbed/trampled areas were re-planted with native salt marsh vegetation. Success based on establishment of vegetation. Successful.		<2	$150,000	1997	Prior to 2009	Kim Shaw, EHTNRD (631) 324-0496
Tidal Wetlands	Widow's Hole Preserve Living Shoreline and Wetland Restoration, Greenport, 41.095, -72.363	Widow's Hole Preserve was previously used as a petroleum produced storage facility which resulted in the alternation and degradation of the shoreline at this preserve. To restore lost salt marsh and the upland, 2,000 cubic yards of clean, sand fill were added to regrade the shoreline and create a coastal dune, 160 linear feet of a cobble-gravel band was installed along the eroded upland edge of the shoreline, and several thousand American beachgrass and smooth cordgrass were planted. These additions to the Widows Hole shoreline have significantly increased its resilience to erosion, as well as improving the habitat value and aesthetics of the preserve. This project will serve as a demonstration living shoreline site.	5 years of post-project monitoring. Re-plantings if needed.	0.4 acres	$150,000	2016	2019	Matthew Swain, Peconic Land Trust, (631) 283- 3195 x36, mswain@peconiclandtrust.org; Stephen Schott, CCE, (631) 852-8660 x26, ss337@cornell.edu
Living Shoreline	Round Pond Shore Shoreline Restoration, Southampton	Remove bulkhead, restore shoreline habitat, and storm drainage					Completed	Dai Dayton, President-Friends of Long Pond Greenbelt, 631-745-0689, DaiDayton@aol.com, Village of Sag Harbor, Town of Southampton
Living Shoreline/Wetland	Indian Island Wetland Restoration, Riverhead	This project seeks to excavate approximately 6,400 cubic yards of previously placed dredge materials from the site, install tidal channels and restore the area to a productive salt marsh ecosystem. The main tidal channel will need to pass through an existing active park roadway (Creek Road), requiring the placement of a bridge and road crossing. The restored marsh system will be established based on similar local reference high and low marsh elevations; with particular focus to allow for marsh migration and vegetation shifts in response to sea level rise.					2024 Completed	Town of Riverhead, PEP, Suffolk County
Water Quality								
Flushing/ Circulation	Accabonac Harbor Flushing, East Hampton, 41.0364, -72.1364	A large box culvert was installed to replace an existing smaller culvert under Gerard Dive at a causeway. The disturbed area was re-planted with native vegetation. The larger culvert is believed to increased tidal circulation which has benefited the nearby tidal wetland vegetation.	Maintenance dredging of the channel is performed	50	Over $500,000	2004	2005	Kim Shaw, EHTNRD (631) 324-0496
Flushing/ Circulation	Fresh Pond Circulation, East Hampton, 41.9956, -72.1129	A 650 foot long, 40 foot wide and 2 foot below mean low water channel was dredged. Approximately 2,140 cubic yards of material was removed and placed on the beach southeast of the channel. The new channel is expected to help increase tidal flushing and benefit habitat and resources.	Maintenance dredging of the inlet may be required		$18,450	2010	2010	East Hampton Trustees (631) 267-8668

Water Quality	Oyster Pond Water Quality, East Hampton 41.0719, -71.8919	Leaking oil tank was replaced and sewage pump station installed. Both were successful in removing source of contamination			$100,000+	2000	Prior to 2009	Kim Shaw, EHTNRD (631) 324-0496

Appendix D- PEP 2020 Habitat Restoration Plan Project Updates & Implementation Tracking Table (November 2024)

HABITAT TYPE	SITE NAME	STATUS							FUNDING/STATUS DETAILS
		Not Initiated	Planning Stage	Engineering /Permitting	Construction	Partially Completed	Completed	No longer in progress	
Southold									
Diadromous Fish	Arshamomaque Preserve Diadromous Fish Passage	x							Cost TBD. No funds secured at this time.
Phragmites Control	Arshamomaque Preserve Phragmites Eradication		x						Southold Town plans to use funding from a 2016 NYS DOS LWRP Grant to map and assess the Phragmites infestation and potentially implement some control measures at this site.
Wetland	Budds Pond Wetland Restoration	x							Cost TBD. No funds secured at this time.
Wetland/SAV	Cedar Beach Wetland and SAV Restoration						x		Cost: $828,782. This demonstration Project involves a cooperative effort between Army Corp, Suffolk County Parks, the Southold Town Trustees, the Peconic Estuary Program and Cornell Cooperative Extension
Wetland	Corey Creek Wetland Restoration	x							$50,000 potentially available from SC Capital funding for planning/design. Acquisition of parcels within the project area is needed before restoration can move forward.
Phragmites Control	Downs Farm Preserve and Downs Creek Phragmites Eradication	x							Cost TBD. No funds secured at this time.
Wetland	Eugenes Creek Wetland Restoration	x							Estimated cost: $25,000-50,000 for planning. No funds secured at this time. Acquisition of parcels within the project area is needed before restoration can move forward.
Wetland	Fleet's Neck Wetland Restoration	x							Cost TBD. No funds secured at this time.
Phragmites Control	Husing Pond Phragmites Eradication	x							Cost TBD. No funds secured at this time.
Wetland/SAV	James Creek Wetland and SAV Restoration	x							Estimated cost: $25,000-50,000 for planning. No funds secured at this time.
Wetland/ Phragmites Control	Narrow River Phragmites Eradication			x					PEP funded a conceptual habitat restoration design for this site with 2010 NEP funds and the designs were completed in 2019. PEP secured $100,000 of §320 funds for engineering designs and construction. This project is a collaboration of PEP with partners NYSDEC, Ducks Unlimited and the Town of Southold.Currently the project is awaiting the land use agreement between NYSDEC and the Town of Southold.
Wetland	Nassau Point Wetland Restoration	x							Estimated cost: $25,000-50,000 for planning. No funds secured at this time.
Phragmites Control	Pipes Cove Phragmites Eradication		x						Southold Town plans to use funding from a 2016 NYS DOS LWRP Grant to map and assess the Phragmites infestation and potentially implement some control measures at this site.
Wetland/ Phragmites Control	Paul Stoutenburgh Preserve Phragmites Control and Wetland Restoration		x						PEP secured $100,000 of SC Capital funding for planning and design. This project is co-led by PEP and Suffolk County in partnership with the Town of Southold, Southold Trustees and NYSDEC. Culverts, and hydrologic analysis and assessment are being carried out for conceptual designs, engineering plans and permits. Currently there is a completed hydrology assessment of the Paul Stoutenburgh Preserve. Tidal wetland restoration will continue at this site.
Stream/Aquatic Passage	Silver Lake/Moore's Drain Alewife Access					x			Southold Town received a NYS DOS LWRP grant in 2016 that includes funding for this project. Permits have been secured and construction is expected to occur soon.
Wetland	Terry/Edwards Preserve Wetland Restoration		x						The scope of the project has changed since the original 2017 nomination. Peconic Land Trust is proposing to install a tide gate and is working on design plans.
Wetland	Town and Jockey Creeks Wetland Restoration	x							Estimated cost: $25,000-50,000 for planning. No funds secured at this time. Acquisition of parcels within the project area is needed before restoration can move forward.
Living Shoreline/ Wetland	Widow's Hole Preserve Living Shoreline and Wetland Restoration Phase I						x		Cost: $150,000. PEP funded the construction of this project with 2011 NEP Funds, partnering with Peconic Land Trust and Cornell Cooperative

									Extension of Suffolk County.
Living Shoreline/ Wetland	Widow's Hole Preserve Living Shoreline and Wetland Restoration Phase II		x						Estimated Cost: $150,000. Peconic Land Trust and Cornell Cooperative Extension of Suffolk County are seeking grants funds to carry out the project.
Southampton									
Wetland	Iron Point Wetland Restoration							x	PEP secured $100,000 of §320 funds and funded a conceptual habitat restoration design for this site with 2010 NEP funds and was completed in 2019. Deemed no viable by Southampton Town.
Diadromous Fish	Ligonee Brook Diadromous Fish Passage Restoration					x			PEP funded a conceptual design with 2009 NEP funds. One of the recommendations from the conceptual design was completed by the Friends of Long Pond Greenbelt in 2014. Currently Friends of Long Pond Greenbelt is pursuing Suffolk County funding for culvert remediation at the Bridgehampton-Sag Harbor Turnpike crossing.
Diadromous Fish	Noyack Rd & North Sea Rd culvert Alewife Creek Diadromous Fish Passage Enhancement						x		Southampton received a Climate Smart Communities Program Grant ($420, 000 in addition to Community Preservation Fund (CPF, $610,000) to upgrade the culvert at Noyack Rd, (Total Cost $1,020,000). Construction has begun and slated to be completed by 2024 Alewife run. Additional funding is needed to make improvements at the North Sea Rd. culvert.
Shoreline/Wetland	Peconic River Shoreline and Wetland Restoration						x		The Flanders, Riverside and Northampton Civic Association (FRNCA) has been awarded *two* $50,000 New York State Environmental Justice Grants to develop project plans for a passive recreational-use park and shoreline restoration along the river. Implementation funding is still needed. Funds are also needed for the wetland restoration portion of the project - estimated cost for planning is $25,000.
Living Shoreline-Pond	Round Pond Shore Restoration						x		Funds for this project have been secured through the Southampton Community Preservation Fund (Estimated Cost: $187,000)
Diadromous Fish	Woodhull Dam/Wildwood Lake Diadromous Fish Passage Restoration						x		Cost $1.1M. Construction was completed in 2022 and renamed to Byron Young Fish Passage after retired NYSDEC Fish Biologist Byron Young, for his tireless years of dedicated work for diadromous fish and fish passage on Long Island. of decision to fish passage and diadromous Engineering designs and permitting were funded through Suffolk County Capital Funds, construction funds were secured from NYSDEC WQIP Grant, USFWS, Suffolk County WQPRP Grants, and Suffolk County Capital funds.
East Hampton									
Diadromous Fish	Alewife Brook Alewife Access and Habitat Enhancement					x			A new culvert was installed at alewife brook by the East Hampton Town Highway Department in 2019 but further evaluation is needed to determine if the new culvert allows for alewife passage or if further improvements are needed.
Diadromous Fish	Lake Montauk Alewife Access and Habitat Enhancement						x		PEP funded a conceptual habitat restoration design for this site with 2010 10 NEP funds. Suffolk County Capital funds have been secured to replace the culvert leading to Big Reed Pond (Estimated cost: $50,000). PEP is no longer moving forward with engineering designs and construction of the Stepping Stones Pond culvert replacement at this moment. PEP completed Conceptual Habitat Restoration Design of Lake Montauk in 2019. Currently, 60% Plans for Big Reed Pond culvert replacement have been completed, NYSDEC permits have been submitted and the project is slated to be completed before the 2024 Alewife run. Culvert at Big Reed Pond was successfully installed in March 2024. This project is now completed.
Eelgrass	Napeague Eelgrass Restoration		x						Project is being funded and led by Cornell Cooperative Extension of Suffolk County.
Embayment/ Shoreline	Napeague Harbor Hydrodynamic and Water Circulation Study	x							PEP funded conceptual design with 2008 NEP funds. Estimated cost for recommended hydrodynamic studies: $250,000. PEP facilitated meeting for the EH Trusteed, June 2023, to discuss with partners and professionals of coast, next steps needed to be taken to get a feasibility study to proceed with this project. Four steps were identified at the meeting, 1) hydrodynamic

									feasibility study, 2)engineering and permitting, 3) construction and 4) maintenance of opening. Trustees are studying the synopsis of the meeting facilitated by PEP and PEP is awaiting their decision .
Phragmites Control/ Living Shoreline	Pussy's Pond Phragmites Control and Shoreline Restoration						x		Cost: $80,000. Funding provided by a NYS grant.
Wetland	Restoring Natural Hydrology to Accabonac Harbor		x						Estimated cost for planning: $35,000.
Shelter Island									
Eelgrass	Coecles Harbor Eelgrass Revegetation		x						NYSDEC was awarded funding to carry out a conservation mooring pilot project in Coecles Harbor but could not get buy-in from local stakeholders. PEP and NYSDEC are reassessing plans for eelgrass protection/restoration at this site.
Diadromous Fish	Fresh Pond Diadromous Fish Passage	x							Cost TBD. No funds secured at this time.
Diadromous Fish	Sanctuary Pond Diadromous Fish Passage	x							Cost TBD. No funds secured at this time.
Beach/Dune	Shell Beach Revegetation						x		PEP funded conceptual design with 2009 NEP funds but Shelter Island has not yet completed the revegetation work recommended in the conceptual design.
Wetland	Shelter Island Marsh Island Restoration	x							Estimated cost for planning: $50,000. No funds secured at this time.
Phragmites Control	Turkems Rest Invasive Management	x							Cost TBD. No funds secured at this time.
Riverhead									
Phragmites Control	East Creek Phragmites Control	x							Cost TBD. No funds secured at this time.
Wetland	Indian Island Tidal Wetland Restoration						x		$1,406,666 allocated for construction: $1,050,666 NYSDEC WQIP AHR ($788,000 award & $262,666 match), $300,000 SC 1/4%, and $56,000 FY00 NYSDEC WQIP AHR. This project is completed as of Fall 2024.
Wetland	Meeting House Creek (MH-2 Main Road) Wetland Construction/Restoration			x					PEP funded conceptual design with 2010 NEP funds. $208,999 of 2018/2019 NEP funds allocated for engineering designs and permitting. Conceptual design for Meetinghouse Creek stormwater wetland development was completed in 2019. Currently, engineering plans are completed and awaiting permits.
Phragmites Control	Peconic River Invasive Species Control	x							Cost TBD. No funds secured at this time.
Diadromous Fish	Upper Mills Diadromous Fish Passage Restoration (Peconic River, Phase II)			x					Suffolk County Capital funding ($129,000) was secured for engineering designs and permitting. Funds needed for construction. Estimated construction cost: $2.1M. A Land Use Agreement among LIPA, SC and Riverhead is being developed. PEP is applying to the BIL FY24 NFPP for funding for the construction of the fish passage and monitoring of the weir.
Brookhaven									
Diadromous Fish	Forge Rd/Peconic Lake Diadromous Fish Passage Restoration (Peconic River, Phase III)						x		Cost: $970,000. Fish passage construction funds secured by the Town of Brookhaven by a NYSDEC WQIP grant. Fish passage was completed in 2023. Additional $15,528 needed for monitoring and education components.
Estuary Wide									
Wetland/Beach	Diamondback Terrapin Habitat Restoration/Protection Strategy		x						Existing PEP Staff will work with the NRS to accomplish Phase I (strategy development). Cost for Phase II (strategy implementation) TBD.
Beach/Shoreline	Horseshoe Crab Habitat Restoration/Protection Strategy		x						Existing PEP Staff will work with the NRS to accomplish Phase I (strategy development). Cost for Phase II (strategy implementation) TBD.
Riverine/Wetland	River Otter Habitat Restoration/Protection Strategy		x						Existing PEP Staff will work with the NRS to accomplish Phase I (strategy development). Cost for Phase II (strategy implementation) TBD.