Peconic Estuary Partnership

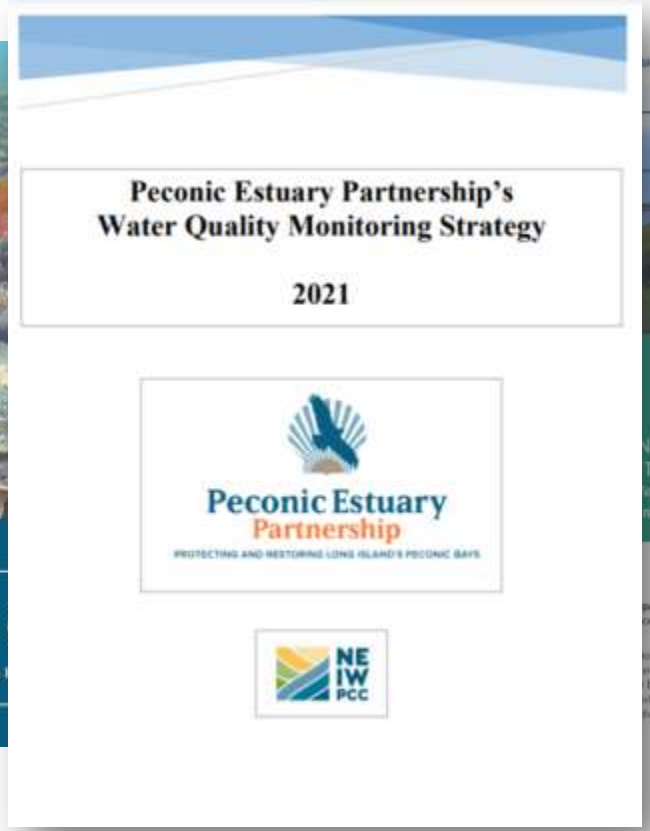
PROTECTING AND RESTORING LONG ISLAND'S PECONIC BAYS

PEP UPDATE

May 2021


CLEAN WATERS
for ecosystem health
and safe recreation

Peconic Estuary Partnership's Water Quality Monitoring Strategy- Tracking CCMP Goals



PEP Technical Advisory Committee Recommendations

Approved by PEP Management and Policy Committees in 2020

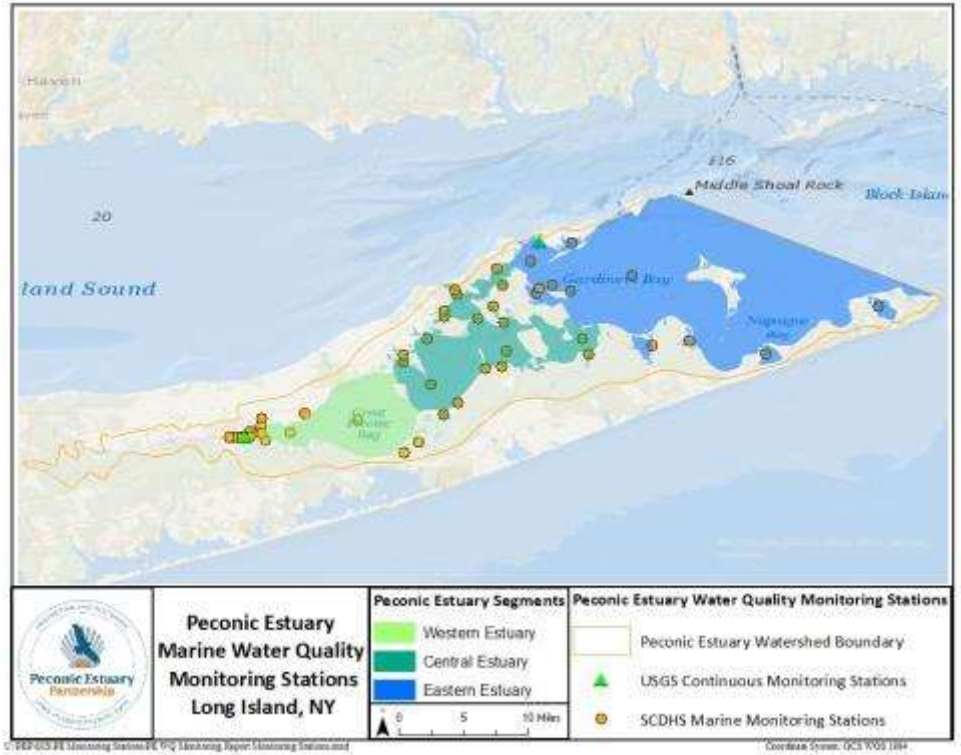
- Adopt provisional targets for water clarity (Secchi disk depth), chl-a concentration, and dissolved oxygen (DO).

  Median Secchi disk depths should be 2 meters (m) or greater during the April 1 through October 31 growing season.

  Median chlorophyll-a concentrations should be no greater than 5.5 ug/l during the April 1 through October 31 growing season.

  Dissolved oxygen concentrations should comply with New York State's acute (never less than 3 mg/l) and chronic (> 4.8 mg/l as daily average in 90% of samples) dissolved oxygen criteria.

- Primarily based on targets proposed in the Suffolk County 2020 Subwatersheds Wastewater Plan.
- Reporting and Management Segments: Eastern, Central and Western Zones.



Committee Recommendations

- As an initial target for pathogens, adopt the Enterococcus threshold currently used by the County and State to determine estuarine/marine swimming beach closures.

- Enterococcus counts at estuarine/marine swimming beaches should not exceed 104 colony forming units per 100 milliliter water sample (104 cfu/100ml).

New standards are currently under State review. Once new standards are in place, target will be updated.

- Track and report water temperature, salinity, pH and harmful algal blooms on an annual basis as the adoption of numerical targets are not currently anticipated for these parameters.

- Report results on an annual basis.

- Use ‘stoplight graphics’ for public-facing documents, collating data by main stem estuary segment.

[2020 Peconic Estuary Water Quality Report]

Peconic Estuary Water Quality Report [webpage]

Peconic Estuary Partnership

2020 Peconic Estuary Water Quality Report

Annual Report on the Status of Our Water

The Peconic Estuary, the expansive network of bays and waterways nestled between the North and South Forks, represents the geographic, ecological and cultural heart of the East End. As a National Estuary Program, the Peconic Estuary Partnership (PEP) developed the 2020 Comprehensive Conservation and Management Plan (CCMP) that identifies four long-term goals. This 2020 Peconic Estuary Annual Water Quality Report tracks whether we are meeting our identified water quality targets to achieve our goals for Peconic Estuary waters. Clean water supports fish, shellfish, and wildlife ecosystem health, provides for safe recreation in and on the water, and seafood that is safe for consumption. This Report will enable PEP to track progress on meeting our CCMP goals for Resilient Communities Prepared for Climate Change, Clean Waters for Ecosystem Health and Safe Recreation, and Healthy Ecosystem with Abundant, Diverse Wildlife over the next decade.

Monitoring The Estuary

The Suffolk County Department of Health Services (SCDHS) has carried out periodic water quality sampling in the Peconic Estuary since 1977. In 2012, the Peconic Estuary Partnership partnered with the United States Geological Survey (USGS) to install two Continuous Water Quality Monitoring stations in the Peconic Estuary, one in Orient Harbor and another at the mouth of the Peconic River in Riverhead. Together, the SCDHS and USGS monitoring systems provide temporal and spatial sampling of the water quality conditions within the estuary. The data presented in the Annual Water Quality Report is collected at these monitoring stations. For the purposes of reporting and management, the estuary has been segmented into 3 sections: Western, Central, and Eastern Estuary- segment delineation correlates with the New York State Department of Environmental Conservation (NYSDEC) Priority Waterbodies List boundaries. The SCDHS conducts Bathing Beach water quality monitoring at 28 beaches in the watershed- locations are mapped on page 3.

2020 at a Glance

PEP has set targets for Water Clarity, Chlorophyll-a, Dissolved Oxygen and Pathogens. A summary of if the PEP is meeting targets in the Estuary segments in 2020 is presented below. Detail on pages 2-4 and on the PEP website.

WATER CLARITY & CHLOROPHYLL-A

- Western Estuary ✗
- Central Estuary ✓
- Eastern Estuary ✓

DISSOLVED OXYGEN

- Western Station ✗
- Eastern Estuary ✓

PATHOGENS

6 of 28 bathing beaches exceeded the criteria regarding acceptable levels of *Enterococci* adopted by the NYS Health Department at least one time.

The Stop Light Graphic

Stay the Course Target met. Continue to monitor and report annually on parameter. Continue planned projects.

Caution Small-magnitude and/or short duration failures to meet target. Review monitoring data. Begin/ continue Technical Advisory Committee and Management Conference development of specific management recommendations.

Alert Target not met. Continue to implement or develop management actions to get back on track.

Water Clarity & Chlorophyll-a

Increased algae blooms correlate with higher chlorophyll-a levels and lower water clarity leading to lower light availability. The duration of time and magnitude of exceedance of water clarity and chlorophyll-a targets are assessed together to track progress toward water quality goals. Learn more on the PEP website.

WATER CLARITY

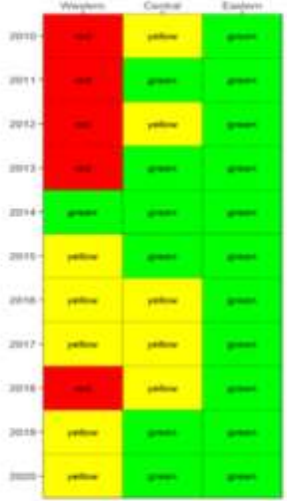
Higher water clarity means that more sunlight can reach submerged aquatic vegetation (SAV), such as eelgrass, which need sufficient sunlight in order to grow and survive. SAV provides important habitat for fish, shellfish and invertebrates. Reduced water clarity can be caused by algal blooms, eroded sediments from runoff, or disturbed bottom sediments from wind or human activities. Water clarity is measured by the depth at which a Secchi disk is visible from the water's surface at SCDHS marine monitoring stations in the Peconic Estuary. A Secchi disk is a white and black disk that is lowered down into the water - the depth at which the disk is no longer visible is taken as a measure of the how clear the water is. Higher water clarity is signified by greater Secchi disk depths. **The PEP's target for water clarity:** Median Secchi disk depths should be 2 meters (m)/ 6.5 feet (ft) or greater during the April 1 through October 31 growing season.

CHLOROPHYLL-A

The concentration of chlorophyll-a, the pigments in plants that absorb sunlight and facilitate photosynthesis, in the water is an indicator of the amount of algae in the water. Chlorophyll-a measurements can be used as an indirect indicator of algal presence and growth and interfered nutrient levels. Chlorophyll-a samples are collected at SCDHS marine monitoring stations in the Peconic Estuary. **The PEP's target for chlorophyll-a:** Median chlorophyll-a concentrations should be no greater than 5.5 ug/L during the April 1 through October 31 growing season.

One of the most serious issues affecting water quality in the Peconic Estuary is excess nitrogen loading, which can cause harmful algae blooms, low dissolved oxygen, low light availability, and degraded aquatic habitats. The Report tracks water clarity, chlorophyll-a and dissolved oxygen to measure the impacts of nutrient pollution and our progress.

Stop Light Graphic of Combined Water Clarity and Chlorophyll-a at Peconic Estuary SCDHS Stations by Estuary Segment
2010-2020

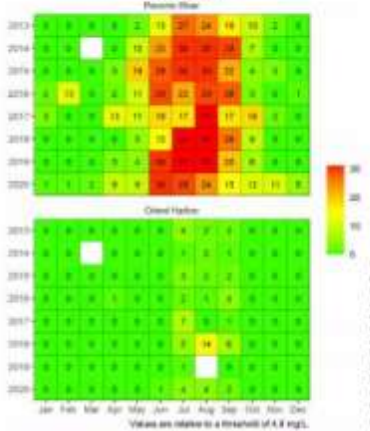


The Stop Light Graphic reflects the combined outcomes for chlorophyll-a and water clarity based on analysis of exceedance duration and magnitude of targets for each parameter. Water clarity and Secchi disk depth median values during the growing season at SCDHS stations were averaged within the Estuary segment. Tracking the attainment outcomes provides the framework from which Estuary management actions can be developed and initiated. For each year and segment, a color-coded management action is assigned.

Dissolved Oxygen

Dissolved Oxygen (DO) in the water column is necessary for fish and other aquatic organisms to live. Concentrations can be impacted by the amount of algae that is in the water column, the associated photosynthesis and decomposition rates, natural variations in temperature, and wave action and mixing. DO concentrations indicate the amount of oxygen available for aquatic organisms in the Peconic Estuary. DO concentrations are measured every 6 minutes at the two USGS Continuous Water Quality Monitoring stations in the Peconic Estuary (Riverhead & Orient Harbor). **The PEP's target for DO:** DO concentrations should comply with New York State's acute (never less than 3 mg/L) and chronic (> 4.8 mg/L as daily average in 90% of measurements) DO criteria.

Stop Light Graphic of Maximum Sequential Days Monthly Below DO Concentration Target at Peconic Estuary USGS Stations
2013-2020



The Stop Light Graphic reflects the sequential number of days with a 24 Hour mean measurement below 4.8 mg/L at Peconic River and Orient Harbor Stations. For each month and station, a color-coded management action is assigned.

Pathogens

Pathogens are viruses, bacteria, fungi, and protozoans that cause diseases in humans, other animals or plants. It is difficult to directly measure the concentration of specific pathogens in sea water due to the variable nature of their occurrence. Instead, the potential for the presence of human pathogens in the water is measured using bacterial indicator species. Fecal indicator bacteria, total and fecal coliform bacteria, originate in the intestines of warm-blooded animals. Their presence in the water indicates that the waste of a warm-blooded animal, which may include pathogens, has entered the water. A type of fecal indicator bacteria that is monitored at the Suffolk County bathing beaches in the Peconic Estuary is *Enterococcus* bacteria.

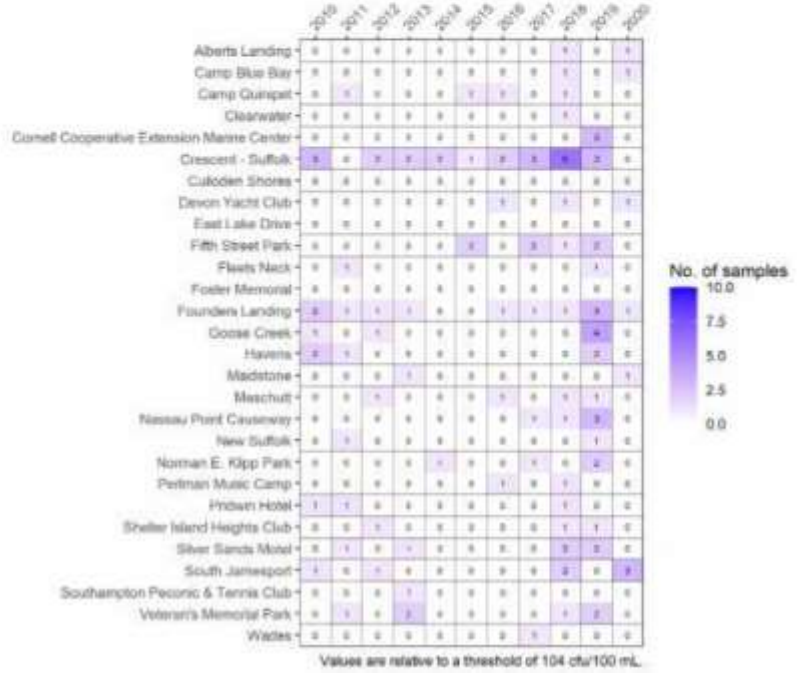
The PEP's target for pathogens: *Enterococcus* counts at estuarine/marine swimming beaches should not exceed 104 colony forming units per 100 milliliter water sample (104 cfu/100mL).

6 of 28 bathing beaches exceeded the criteria regarding acceptable levels of *Enterococci* adopted by the NYS Health Department (104 cfu/100mL) at least one time in 2020. The Suffolk County Bathing beaches in the Peconic Estuary are overall very clean, note the beaches represented in the Report are only those beaches that are monitored by the SCDHS as part of the Bathing Beach Monitoring Program. The Suffolk County bathing beaches in the watershed are Tier 2 and Tier 3 beaches- meaning the beaches have a moderate to low relative risk associated with their use.

Note: Monitoring of Coliform bacteria and classification of shellfish growing areas is conducted by the NYSDEC, Division of Marine Resources Shellfish Sanitation Unit to routinely monitor the presence of pathogens. NYSDEC classifies shellfish growing areas as certified (open) or uncertified (closed) based on the results of the surveys- that information is not represented in this Report. The NYSDEC Public Shellfish Mapper can be viewed for this information.

Pathogen Exposure Risk at Suffolk County Bathing Beaches in the Peconic Estuary

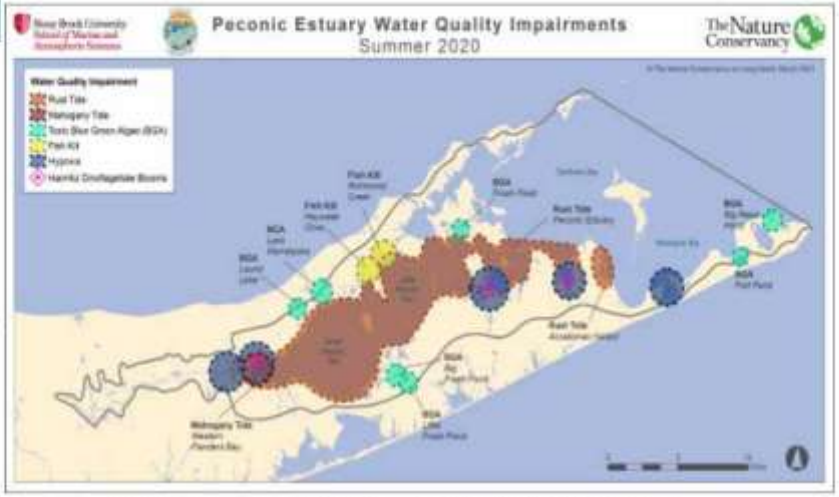
Number of Samples that Exceeded *Enterococcus* Counts of 104 cfu/100 mL within 24 Hours at Bathing Beaches 2010 -2020



Harmful Algal Blooms

A Harmful Algal Bloom (HAB) is a small subset of algal species – including diatom, dinoflagellate and cyanobacterial blooms – that produce toxins and/or grow excessively to high cell concentrations, harming humans, other animals and the environment. Seasonal HAB monitoring is conducted by with several partners- Suffolk County, NYSDEC and The Gobler Lab at SUNY Stony Brook University. The PEP has committed to tracking and reporting on harmful algal blooms on an annual basis as the adoption of numerical targets are not currently anticipated for this parameter. See Long Island Water Quality Impairments, Summer 2020 map, which illustrates where HABs were recorded during the season as tracked by our partners.

The areas labeled Rust Tide on the map signify that the phytoplankton species *Cochlodinium polykrikoides* was present in significant numbers. The areas labeled Mahogany Tide signify that the phytoplankton species *Prorocentrum minimum* was present in significant numbers. The areas labeled Toxic Blue Green Algae on the map signify that the microscopic organisms *Cyanobacteria sp.* were present in significant numbers.



The boundaries in this map are approximate. It should not be assumed that each occurrence covers 100% of the area delineated.

HABs and Risks

Rust Tide- A HAB observed in marine waters. Rust tide poses no effect on humans. A severe rust tide may harm fish and shellfish because it produces a hydrogen peroxide-like compound that can damage gill tissue. Juvenile fish and shellfish seem especially susceptible to gill damage from rust tide blooms. A harmful secondary effect of is reduced DO levels in the water as the HAB cells die, sink to the bottom and are consumed by bacteria which may take up available oxygen.

Mahogany Tide- A HAB observed in marine waters. Mahogany tide poses no effect on humans and no direct threat to fish and invertebrates. The main concern is that it can bloom for long periods of time and in dense enough concentrations to harm seagrasses by blocking out the sunlight they need to survive. The secondary effect of reduced DO levels in the water is an additional concern.

Toxic Blue Green Algae- A HAB seen in marine and freshwaters. Many cyanobacteria blooms produce neurotoxins or hepatotoxins that can harm, or even kill zooplankton, fish, shellfish, marine mammals, humans and pets. Toxic blue green algae blooms have caused hypoxia (DO below 2-3mg/L) and anoxia (DO at 0mg/L)), contributing to fish kills, foul odors and contact dermatitis in humans after recreational contact.

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Non-point Source Pollution Management Project

PEP and Village of Sag Harbor.

Status: Rain gardens were installed in 6/26/20. Educational sign was installed 9/23/20.

- The Village of Sag Harbor implemented a water quality improvement project at Havens Beach to remove pollution from stormwater.
- Two rain gardens were built to treat stormwater that would have otherwise flowed directly into Sag Harbor Bay. Rain gardens are comprised of native plants planted in a small depression or on a slope and is designed to temporarily hold and allow the rainwater from roofs, driveways, patios and lawns to soak into the ground.
- This project will reduce the amount of nitrogen pollutant to Sag Harbor Bay and improve the overall health of the Peconic Estuary.

Photo Credit: Cassandra Castano, Nelson Pope and Voorhis

Quality Assurance Project Plan Development for Supplemental Water Quality Sediment Data Collection

PEP and Tetra Tech, Inc.

Status: The final Quality Assurance Management Plan and QAPP is complete and available for use by Peconic Estuary Protection Committee members.

- Developed a NYSDEC and EPA approved Quality Assurance Management Plan (QAMP) and QAPP template;
- Help the PEPC members and partners assess the current baseline in water quality, and effectiveness of water quality improvement interventions over time.
- Identify and prioritize subwatersheds in the Peconic Estuary that should be targeted for water quality improvement activities; ensure water bodies are properly listed on the NYS Impaired Waters list.

Expansion and Monitoring of the Town of Southold Living Shoreline

PEP and Cornell Cooperative Extension

Status: Work is underway. Expected project completion in August 2021.

The EPA approved a grant extension on funding until 9/30/2021.

Figure 2. Location of proposed living shoreline project on Southold Town Trustee land near Suffolk County Marine Environmental Learning Center.

- Check out the project page on the PEP website.
- Expansion to an existing Town of Southold Living Shoreline Demonstration Project.
- Goal is to establish a larger project area and the addition of monitoring services at the project site.
- Enable the quantification of nitrogen uptake of ribbed mussels to investigate role in living shoreline and bioextraction.

Nitrogen Load Reduction Assessment Project

PEP and Anchor QEA, LLC.

Status: Project is ongoing. Expected completion September 2021.

The EPA approved a grant extension on funding until 9/30/2021.

- Objective is to compile and assess the cost per pound of nitrogen reduction to groundwater for various nitrogen reduction best management practices (BMPs) currently being employed throughout the country.
- The project will provide a decision-making tool to guide cost effective management scenarios to reduce nitrogen on a subwatershed basis in the Peconic Estuary.
- Project presentation at February TAC meeting.

New USGS Continuous Tide-Warning Station

PEP and USGS

Status: Station installed fall 2020. Funding for addition of WQ Monitoring equipment through Suffolk County Capital Budget has been approved and bonded. Developing Joint Funding Agreement.

- The USGS, in cooperation with the PEP and NYSDEC, established a third station on Shelter Island Sound at the South Ferry dock on Shelter Island- tide-warning base station. This additional station will provide tide-warning capabilities and the option to add on water quality monitoring parameters.

Peconic Estuary Solute Transport Model

PEP and United States Geologic Survey

Status: Final Model Development phase and scenario finalization. Anticipated completion spring 2021.

Next project meeting scheduled for May 5th 2021.

Link to PE Solute Transport Model Webpage

Objective: This Solute Transport Model will be a tool to estimate time-varying nitrogen loading rates to the Peconic Estuary

Specifically, the objectives of the investigation are to:

1) develop data sets representing current and historic land uses relevant to nitrogen loading in coastal watersheds

2) estimate current estuarine loading rates and nutrient concentrations in the aquifer, and

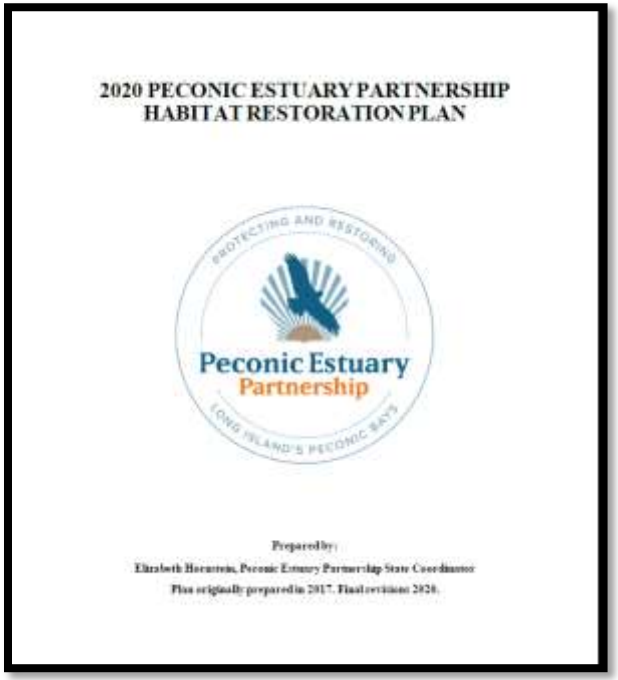
3) use these current-condition models to simulate the response to possible wastewater-management actions.


HEALTHY
ECOSYSTEM
with abundant,
diverse wildlife


RESILIENT
COMMUNITIES
prepared for
climate change

2020 Habitat Restoration Plan

- Approved by EPA
- 5 new projects added to the plan and 2 projects updated. 46 total projects in the Plan.
- Interactive GIS Map of Habitat Restoration Projects to be updated soon
  https://www.peconicestuary.org/news-and-blogs/maps-gis/habitat-restoration/
- Implementation supports Objective H in the 2020 CCMP (Actions 29, 30, 31, 33 and 34)


2020 PECONIC ESTUARY PARTNERSHIP
HABITAT RESTORATION PLAN

PROTECTING AND RESTORING
Peconic Estuary Partnership
LONG ISLAND'S PECONIC BAYS

Prepared by:
Elizabeth Hornstein, Peconic Estuary Partnership State Coordinator
Plan originally prepared in 2017. Final revisions 2020.

Prioritization of PEP Habitat Restoration Projects

- The HRP classifies projects into three tiers:

Tier 1: Priority habitat (wetland, SAV, diadromous fish), good/proven methods, and supported by landowners/stakeholders

Tier 2: Priority habitat, but some concerns with the methods OR additional baseline info is needed OR still need to get support of owners/stakeholders.

Tier 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.

- NRS and TAC members ranked Tier 1 and Tier 2 projects

Prioritization of PEP Habitat Restoration Projects

Existing Prioritization Tools & Ecological Criteria

- 2019 Critical Lands Protection Strategy *(wetland/shoreline projects)*
- Salt Marsh Sparrow Prioritization Tool (*wetlands*)
- New USGS Wetland Synthesis Products (*wetlands*)
- TNC Road Stream and Tidal Crossing Prioritization Tool (*fish passage and wetland-tidal exchange)*
- Restoration Size *(all)*
- Eelgrass Bio-optical and Habitat Suitability Model *(seagrass)*

In-Progress Projects

The following in-progress projects should continue to be prioritized:

- **Widow's Hole Living Shoreline Phase II –** *seeking funding for construction*
- **Narrow River Wetland Restoration –** *seeking funding for engineering designs/construction*
- **Meetinghouse Creek Wetland Creation/Restoration (**important for stormwater management**) –** *engineering designs/permitting*
- **Lake Montauk Alewife Access –** *working with partners to move forward with engineering designs/permitting*
- **Peconic River Fish Passage Projects** – *engineering designs/permitting/construction*
- Alewife Creek Habitat Enhancement – *permitting*
- Peconic River Shoreline/Wetland Restoration – *planning/design*

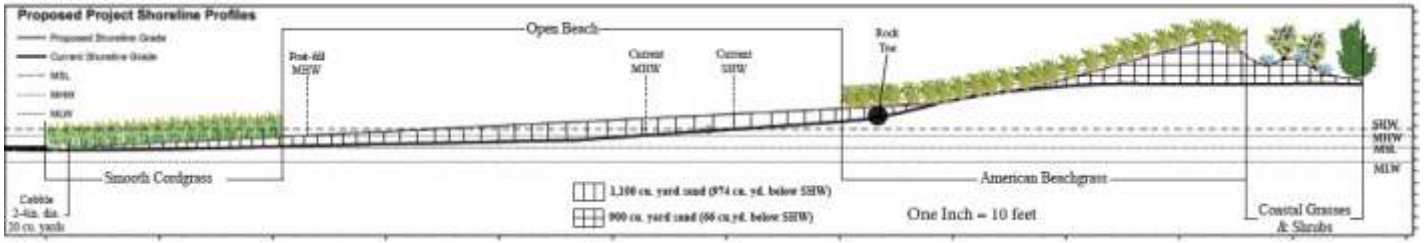
Living Shoreline Pilot Project- Greenport

PEP, Peconic Land Trust and Cornell Cooperative Extension (CCE)

Status: Phase I completed August 2019, monitoring of living shoreline is ongoing.

Seeking funding for Phase II ($150K) which would extend the living shoreline to the entire property.

Click here for the [Widow's Hole Preserve Story Map.]



Narrow Road Wetland Restoration

PEP, NYSDEC, Town of Southold, Ducks Unlimited, and The Nature Conservancy

Status: Completed Conceptual Habitat Restoration Design in 2019. Working with partners to secure grant funding for engineering designs and construction for Phase I of the project.

- 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. 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 area north of the dam known as Broad Meadows and Whitcom Marsh Preserve north of Route 25.
- Remediation of the culvert and earthen dam is needed to improve the tidal exchange throughout the extent of the river and increase the salinity to promote the re-establishment of native vegetation and important waterfowl and wading bird habitat.

Click here for the Narrow River Road Wetland Restoration Conceptual Design Plan.

Meetinghouse Creek Main Road Wetland Construction/ Restoration

PEP and Town of Riverhead

Status: Completed Conceptual Habitat Restoration Design in 2019. Contracting with Interfluve/Land Use Ecological Services for Engineering Design and Permitting. Stakeholder Kick-off meeting held in March. QAPP under development.

- This site is located at a large wetland area that forms the headwaters to Meetinghouse Creek in Riverhead, NY. Meetinghouse Creek is listed as an impaired waterbody on the NYSDEC Priority Waterbodies List. The wetland vegetation at this site is dominated by *Phragmites*.
- The conceptual design recommendation is to construct a 1.2-acre stormwater wetland to treat stormwater runoff in the 5.6 acre contributing watershed. This will improve water quality in the downstream wetland and surface waters. Additionally, it will greatly increase the ecological quality of the habitat and improve plant and wildlife diversity.

Click here for the Meetinghouse Creek Wetland Restoration/ Construction Conceptual Design Plan.

Lake Montauk Alewife Access and Habitat Enhancement

PEP, Suffolk County Parks, CCOM, East Hampton

Status: Completed Conceptual Habitat Restoration Design in 2019. Coordinating with partners to move forward projects. SC Capital funding secured for Big Reed culvert portion of the project.

Funding needed for Stepping Stones Pond: $100K for engineering, $250K for construction.

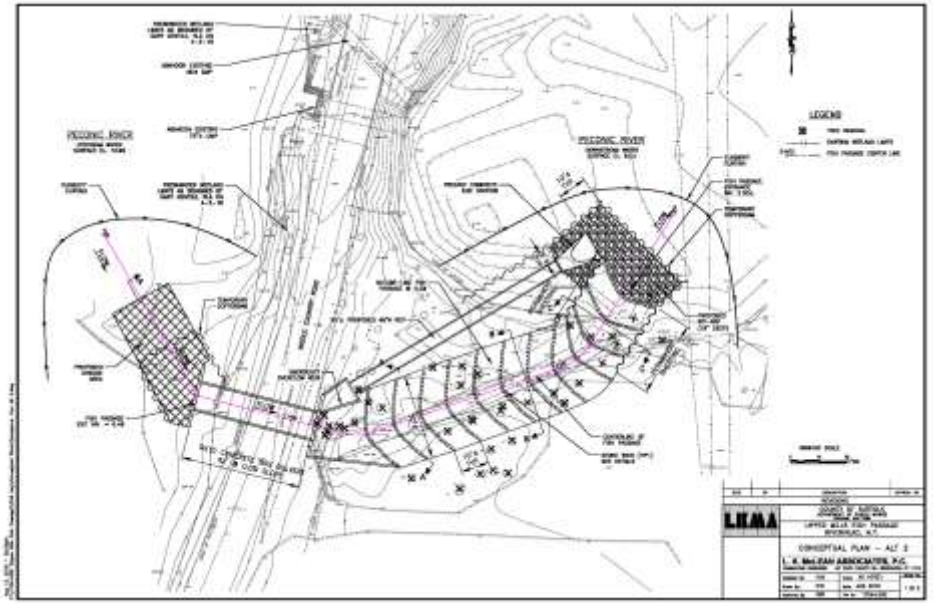
Click here for the Lake Montauk Alewife Access and Habitat Enhancement Conceptual Design Plan.

- Project goals are to restore connectivity for diadromous fish species between Lake Montauk and Big Reed Pond by replacing an undersized culvert, and between Lake Montauk and Stepping Stones Pond by replacing an undersized, impassable culverts under Old West Lake Drive.
- Suffolk County Capital funds have been secured to replace the culvert that leads to Big Reed Pond and PEP staff will be working with Suffolk County parks to complete the permitting and construction.
- PEP staff are also working with partners to secure funding to complete engineering design plan and construction of the culvert leading to Stepping Stones Pond.

Upper Mills Dam Fish Passage

PEP, Suffolk County, NYSDEC, Town of Riverhead, USGS, PSEG/LIPA

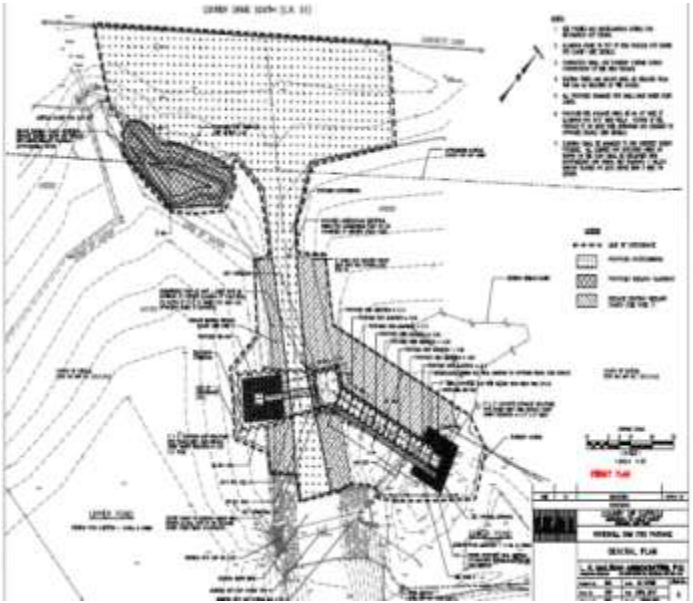
Status: Contracting with L.K. McLean Associates for engineering and permitting. Design alternative selected at April 9th, 2019 stakeholder meeting. Engineering designs have been finalized and are being reviewed by PSEG/LIPA and then will be submitted to DEC for permitting. Anticipated completion August 2022.



Woodhull Dam Fish Passage

PEP, Suffolk County, NYSDEC, Town of Southampton, USFWS

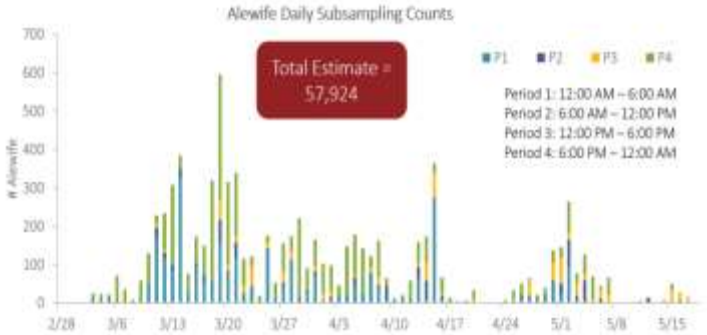
Status: Construction funds secured ($279K NYSDEC WQIP, $330K SCWQPRP, $193K SC Capital Funds, $50K from USFWS, $260K from Town of Southampton). Project will be put out to bid end of May. Fish passage expected to be constructed prior to Spring 2022 alewife migration season.

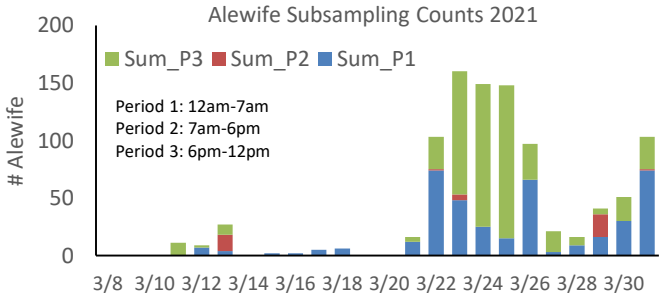


Spring 2021 Alewife Monitoring

PEP, Suffolk County Community College, NYSDEC, Hofstra University, Town of Riverhead, CCE, Seatuck

- Video camera installed at Grangebel fishway on Peconic River for the third year in a row.
- Kellie McCartin, Suffolk County Community College Professor, and seven students are assisting with the alewife video monitoring and analysis
  - **5,500+ fish estimated to have passed through camera March 2021**
- Worked with Peter Daniel of Hofstra University to tag 270 fish; antennae installed below and above camera to track fish movements.
- Working with NYSDEC to collect fish samples for paired otolith and scale age analysis
- Report on 2019 and 2020 monitoring results is in development. Results have been presented to the NRS, the Long Island Diadromous Fish Workgroup and at various conferences.





New Projects

The following projects that have not yet been initiated should be prioritized:

- **Paul Stoutenburgh Wetland Restoration** – *moving forward, RFP for planning and design to be put out in 2020*
- **Accabonac Harbor Wetland Restoration –** *moving forward, stakeholder meeting scheduled for April 22nd*
- **Horseshoe Crab Protection and Restoration Strategy** – *moving forward*
- Shelter Island Wetland Restoration
- Napeauge Harbor Hydrodynamic Study

Paul Stoutenburgh Preserve Habitat Restoration

PEP, Town of Southold, Suffolk County, The Nature Conservancy

Status: Suffolk County Capital Budget funding ($100K) for project approved by SC Legislature on 3/16/21. An RFP for Engineering Design and Permitting will be advertised soon.

- Paul Stoutenburgh Preserve is a Town owned 52 acre nature preserve on the west side of Arshamomaque Pond with an adjacent 7 acre County preserve. Several areas along the shoreline and interior have pockets of invasive *Phragmites australis* resulting in low quality wetlands. Invasive mile-a-minute weed has become established and is rapidly increasing in areas adjacent to tidal and fresh water wetland areas.
- Habitat restoration is recommended and is anticipated to involve the removal of the invasive species using currently accepted removal and restoration practices, and changes to drainage infrastructure in the area to make conditions less suitable for invasive vegetation.
- The goal of the project is to improve the freshwater and tidal wetland habitat and to promote the re-establishment of native vegetation and important waterfowl, shorebird, wading bird and migratory bird habitat.

Accabonac Marsh Restoration Project

PEP, The Nature Conservancy, Suffolk County, Town of East Hampton, Accabonac Protection Committee, NYSDEC, USFWS

Status: Stakeholder Kick-off Meeting held April 22, 2021. Gathering current data to present to USFWS SMARTeams. **Seeking funds ($50K) for conceptual design planning.**

- The Long Island Tidal Wetlands Trends Analysis indicates Accabonac Harbor in East Hampton experienced high marsh loss (-46.5 acres) between 1974 and 2005.
- The marsh is experiencing several hydrological disruptions. Restoration work is needed to help the marsh better keep pace with sea level rise, promote healthy native marsh vegetation and reduce the number of mosquito breeding hotspots targeted by vector control agencies.
- The proposed scope includes three parts: 1) Upgrade undersized culverts to restore connectivity, 2) Remove prior placed plywood and sandbag ditch plugs (now considered ill-advised), and 3) Increase marsh drainage through minimally invasive shallow creek or runnel excavation.

Horseshoe Crab Restoration and Protection Strategy

- NRS Meeting held March 24th, 2021 focused on horseshoe crabs
- NYSDEC, CCE and Seatuck presented on horseshoe crab monitoring and conservation efforts and a participated in a panel discussion on potential strategies to protect and restore horseshoe crab habitat.
  - The impact of hardened shorelines was discussed and noted to be a critical concern
- A workgroup will be formed to move forward with the development of a strategy.
- The next NRS meeting will be held jointly with the TAC on November 17th and will focus on shorelines.

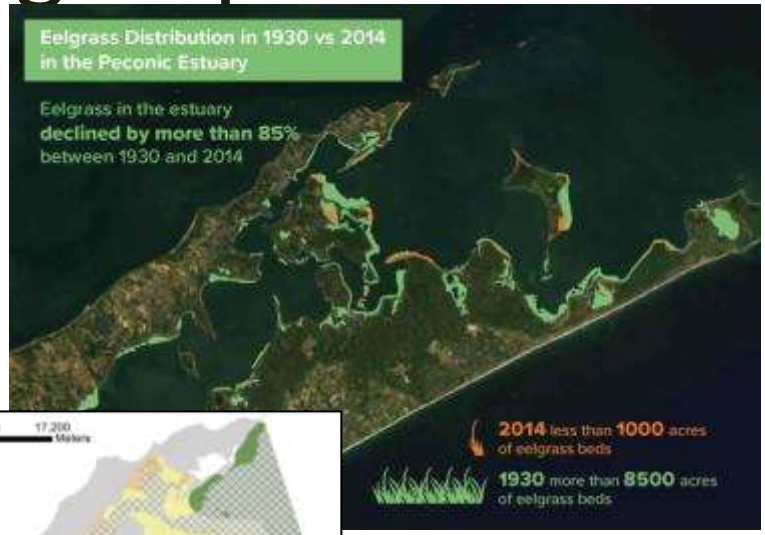

Horseshoe Crab
Photo by Luke Ormand

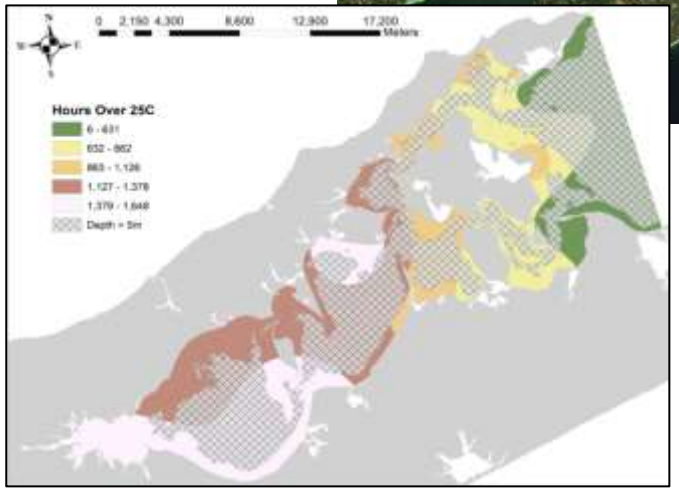
Seagrass Workgroup

First meeting held April 1st to discuss next steps for restoration and protection

- Use Seagrass bio-optical model to identify potential restoration areas and inform future management
  - Bottom temperature, distance to hardened shorelines and wind direction seem to be controlling eelgrass distribution
  - GIS tool for stakeholders is being developed
- Explore locations of groundwater as potential restoration sites (*cool water refugia*)
- Additional water quality monitoring and analysis (temp, light, TSS)
- Conduct test plantings with seeds with functional genotypes from southern eelgrass populations
- Promote natural/living shorelines
- Outreach to local communities/development of management plans

➢ **Funding needed to support research and restoration projects**





Peconic Estuary Ecosystem Study

PEP, NYSDEC and SUNY Stony Brook

Status: Advertised for a Post-Doctoral position through SUNY Stony Brook- applications being reviewed. Expected completion spring 2023.

Supports Action 23 in the 2020 CCMP

- Analyze spatial and temporal trends in the Peconic Estuary finfish trawl survey dataset, and develop risk metrics from ecological relationships for the Peconic Estuary that examine whether local and regional environmental changes have increased the vulnerability of individual finfish and mobile invertebrate species, community assemblages, and ecosystem processes.
- ECOSIM is a quantitative modeling framework that can represent all major ecosystem functional groups and can be used to identify and assess structural changes in the ecosystem in response to environmental change.
- The proposed study will identify vulnerable species, critical habitats, and ecosystem properties within the Peconic Estuary.
- This information has direct application to decisions affecting the use, management, and conservation of the natural resources in the bay.

Critical Lands Protection Strategy Update and Climate Ready Assessment Services for PEP and Shinnecock Indian Nation

PEP, Anchor QEA and The Nature Conservancy

Status: Completed 2019. Final reports available on PEP website here.

Developed The Critical Lands Protection Strategy Criteria and Ranking Tool!

Next Steps: Virtual municipal training workshop held in January- recording available.

ArcGIS files available to municipalities.

Supports Action 23 in the 2020 CCMP

Figure 13: Undeveloped Priorization with protected

Report includes:

1)Updated Critical Lands Protection Strategy (CLPS).

2)Assessment of climate change vulnerabilities for both the Peconic Estuary Program and Shinnecock Indian Nation.


STRONG
PARTNERSHIPS
and engagement

Education and Outreach Highlights

2020 CAC Meetings	Time	Topic	Partner/Guest Speaker	Zoom Registrations	Attendees
Thursday, May 14th	2:00pm-4:00pm	Native Plant Gardening for Better Water Quality	Long Island Native Plant Initiative, Group for the East End	262	127
Friday, June 5th	2:00pm-4:00pm	Long Island Diamondback Terrapin Monitoring Workshop	Seatuck Environmental Association, Hofstra University	167	108
Wednesday, August 26th	2:00pm-4:00pm	Suffolk County Septic Improvement Program Workshop	Suffolk County	77	49
Friday, September 25th	10:00am-11:00am	Estuary Day – PEP's work and how to get involved with PEP	Long Island Sound Study, South Shore Estuary Reserve	41	24

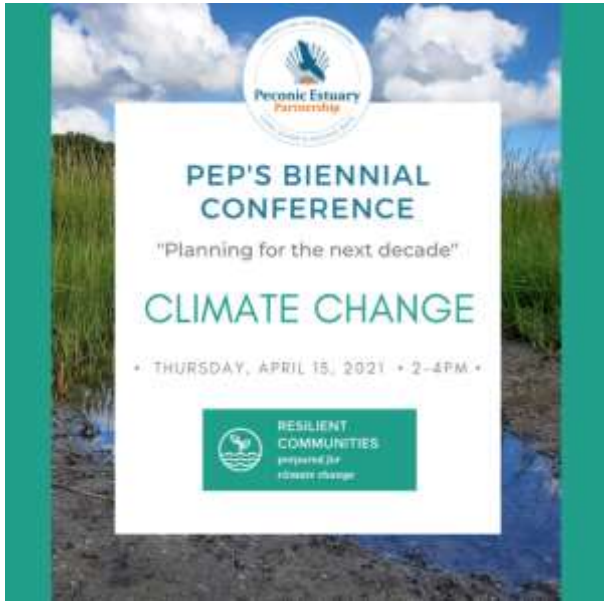
- **The CAC Meetings in 2020 had an increase in the average number of attendees at 77 compared to 2019 average attendance at 27.**

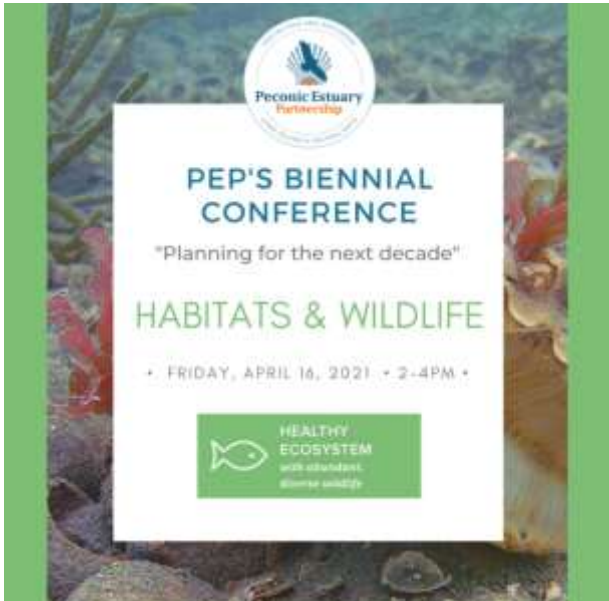
All four CAC meetings were held virtually via Zoom. This new transition has allowed PEP to continue to interact with the public while proving to be beneficial and in some ways more effective. We have strengthened existing and created new partner relationships, and have seen growth in our ability to reach an increased number of public individuals.

Education and Outreach Highlights

https://www.peconicestuary.org/news-and-events/peps-biennial-conference-2021/

Water Quality: 123 tuned in / 152 registered
Climate Change: 108 tuned in / 134 registered
Habitats & Wildlife: 104 tuned in / 141 registered





Education and Outreach Highlights

https://vimeo.com/533689678

Partners share why PEP's new management plan will guide crucial work towards a brighter future as we all work together. Our partnership is our greatest tool to help us achieve our mission of protecting and restoring the Peconic Estuary and its watershed.

Steve Bellone, Suffolk County Executive

Alison Branco, **Ph.D.,** Director of Coastal Programs, The Nature Conservancy, New York

Katie Petronis, Deputy Commissioner of Natural Resources, NYSDEC

Mike Bottini, Wildlife Biologist, Seatuck Environmental Association

John Pavacic, Former Executive Director, Central Pine Barrens Commission

Matthew Sclafani, Ph.D., Cornell Cooperative Extension of Suffolk County & PEP Technical Advisory Committee Chair

Jim Gilmore, Director, Division of Marine Resources, NYSDEC

Byron Young, Retired Fisheries Biologist, NYSDEC

Fred Thiele, New York State Assemblyman

Aisha Sexton-Sims, Ph.D., Chief, State Revolving Fund Program Section, Water Division, Region 2 U.S. EPA & Former PEP Management Committee Chair

Pete Lopez, Former Regional Administrator, Region 2 U.S. EPA

Peter Van Scoyoc, East Hampton Town Supervisor

John Bouvier, Southampton Town Councilman

Ed Romaine, Brookhaven Town Supervisor

Javier Laureano, Ph.D., Director, Water Division, Region 2 U.S. EPA & PEP Policy Committee Chair

Al Krupski, Suffolk County Legislator, District 1

Bridget Fleming, Suffolk County Legislator, District 2

Education and Outreach Highlights

- PEP is developing a **Wildlife Monitoring Network** for Long Island. The goal of the Wildlife Monitoring Network is to create a brand and central website where all LI wildlife monitoring projects are housed together (links to surveys). This makes it easy for partners to collaborate and avoid overlap, and for the public to become aware of the multiple citizen science programs they can participate in. **With this brand and central website, this should increase citizen participation, data collection, and partner collaboration.**

- PEP and Seatuck Environmental Association will co-sponsor the Wildlife Monitoring Network outreach initiative.

- Currently, PEP is working with Seatuck to develop the brand and website. (Website creation stage in process). A third meeting will be scheduled to showcase the developed site before launch. This website will be advertised in conjunction with a Long Island Bioblitz event among the three estuary programs and Seatuck.

- **To access the survey collection form to submit a survey, contact Lauren Scheer LS893@cornell.edu**

Wildlife Monitoring Network
LONG ISLAND