



# PECONIC ESTUARY PARTNERSHIP: Expanding the Mosquito Sampling Citizen Science Program



Jade Blennau  
January 2026

Marine Conservation Policy MA Capstone

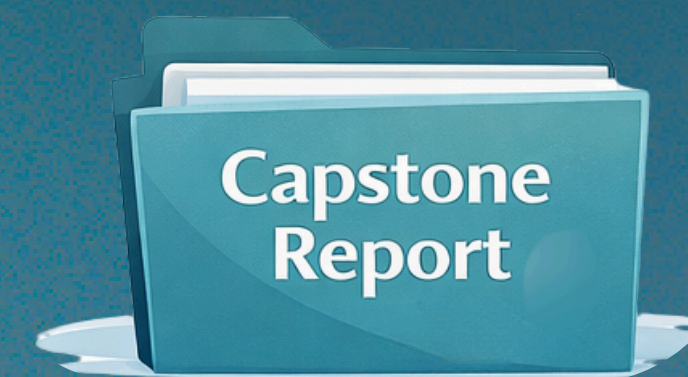




# Overview

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1. Capstone Internship Focus
2. Program Background & Success
3. Replicating the Program
4. Capstone Deliverables
5. Next Steps
6. Acknowledgments
7. References





# 1. Capstone Internship Focus

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## ***Peconic Estuary Partnership (PEP)***

- One of 28 National Estuary Programs
- Estuary of national significance
- Non-regulatory
- Focused on community & data-driven watershed management



**STRONG PARTNERSHIPS**  
*and engagement*



**RESILIENT COMMUNITIES**  
*prepared for climate change*

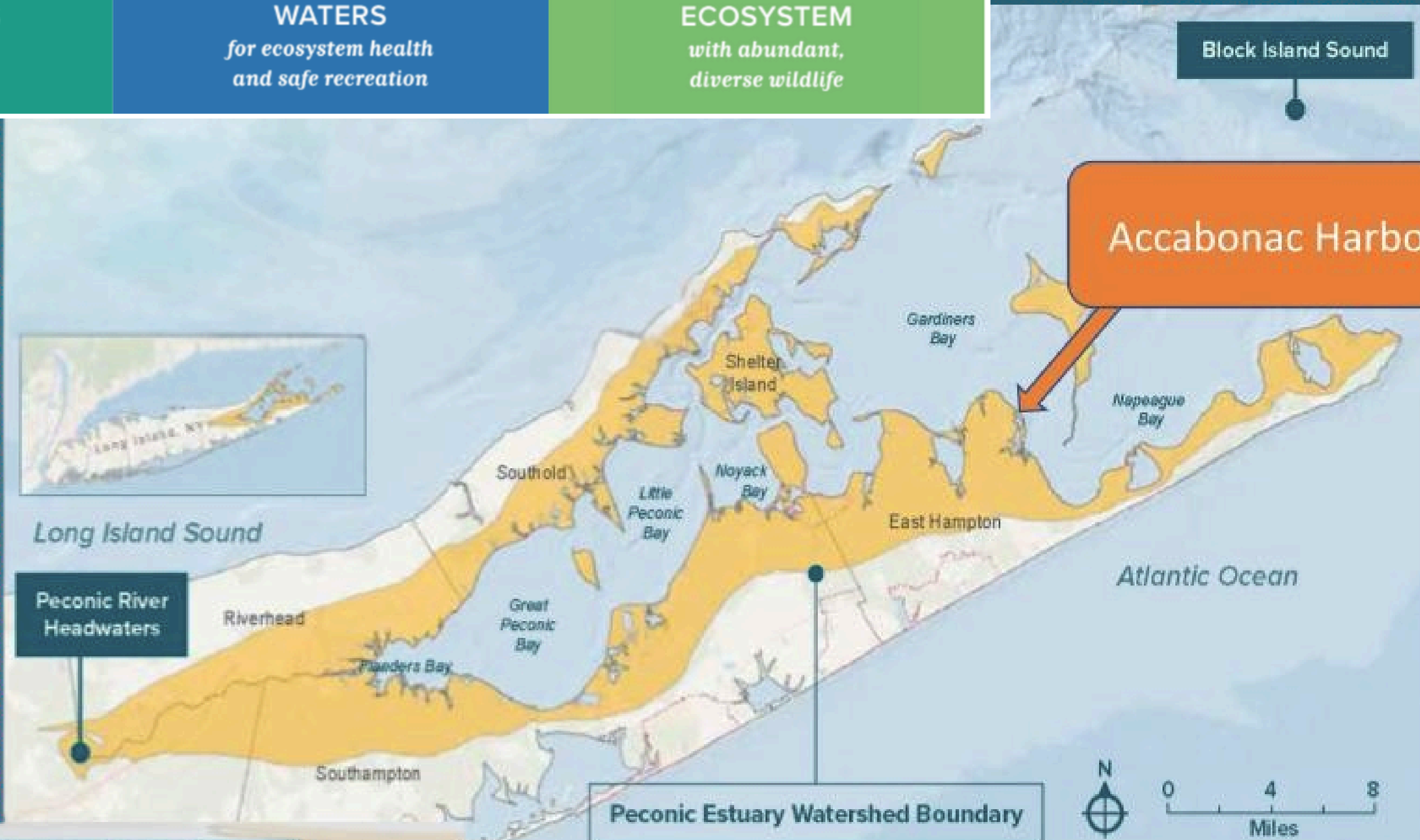


**CLEAN WATERS**  
*for ecosystem health and safe recreation*



**HEALTHY ECOSYSTEM**  
*with abundant, diverse wildlife*

# The Mosquito Sampling Program touches on all goals.

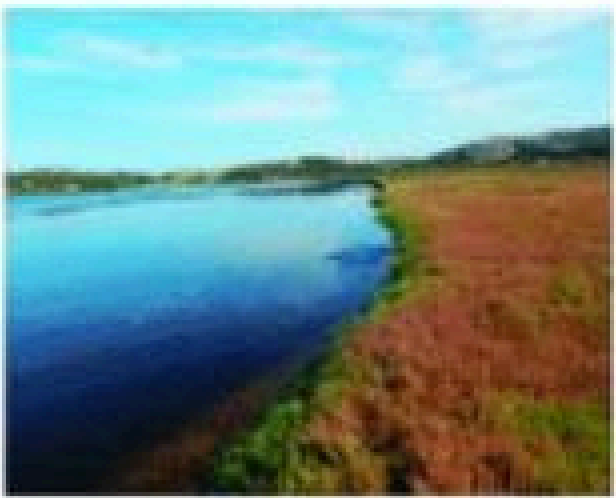
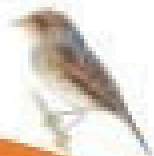


**Peconic Estuary and Watershed: By the Numbers**

- More than **100** distinct bays, harbors, embayments, and tributaries
- **158,000** surface water acres and **112,500** land acres

Walter, D.A., Masterson, J.P., Finkelstein, J.S., Monti, Jack, Jr., Misut, P.E., and Fioren, M.N., 2020, Simulation of Groundwater Flow in the Regional Aquifer System of Long Island, New York, for Pumping and Recharge Conditions in 2005-2015: U.S. Geological Survey Scientific Investigations Report 2020-5090

# Salt Marsh System Ecosystem services



**Water quality regulation -**  
including purification, pollution improvement, disease regulation

**Wave attenuation-**  
coastal erosion protection

**Nutrient cycling**

**Coastal defence- Flood reduction**

**Waterbird habitat-**  
bird watching

**Cultural importance –**  
spiritual, cultural heritage value

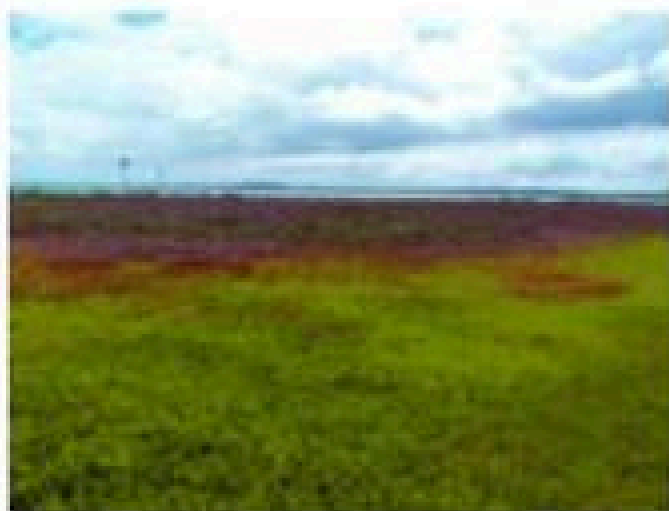
**Tourism & Recreation**  
– amenity, aesthetic values, education



**Carbon storage & sequestration**

**Trophic enrichment of coastal waters –** high biodiversity & productivity

**Resting areas for migratory birds & habitat for birds –** including breeding & feeding grounds.



**Food, fuel, fibre –**  
e.g. through saline Agriculture

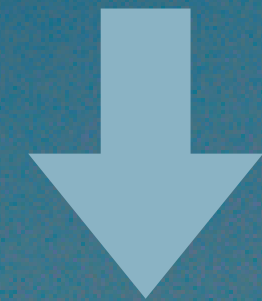
**Habitat for aquatic invertebrates**

**Nursery for fish species –** permanent or transient, including important habitat for commercial & recreational fisheries.

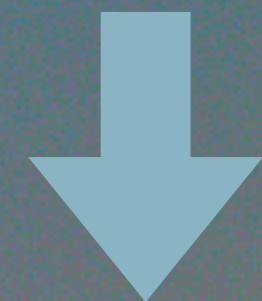




Degraded Marsh  
Systems face  
*subsidence*



Standing pools of  
water



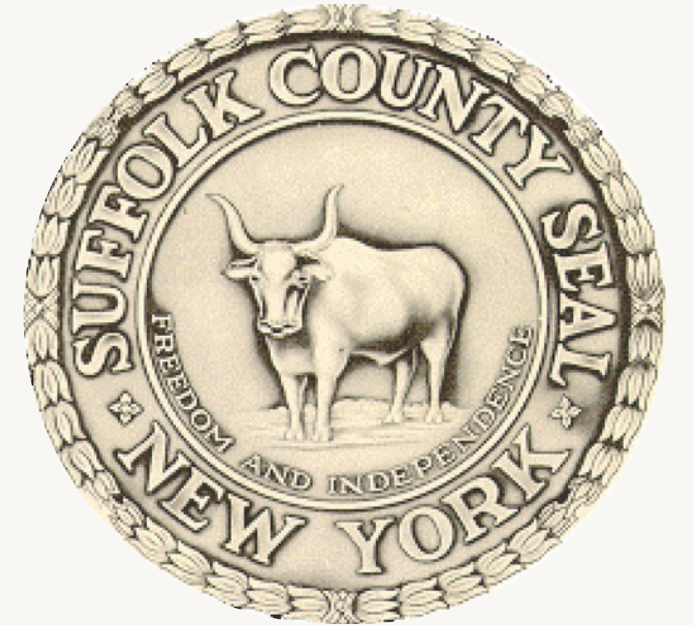
Mosquito Breeding





# ***Mosquito Control in Suffolk County***

- Division of Vector Control operates within Suffolk County Department of Public Works
- Protects public health across large geographic area



## Integrated Marsh Management (IMM)

- Use restoration to treat the core issue
- Granular larvicides applied by helicopter during season (Late Spring- Summer)

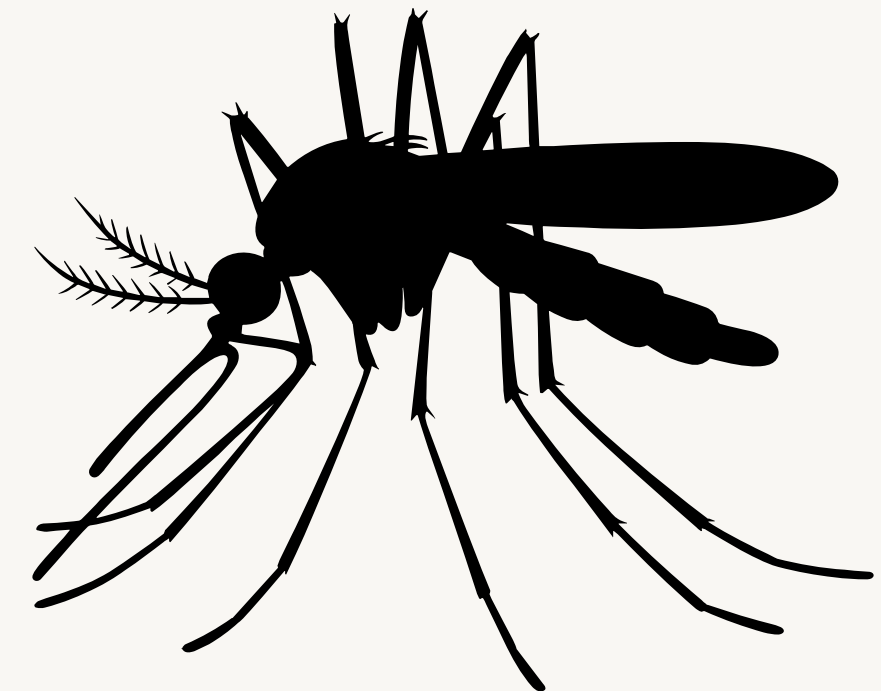




Photo : Southampton Town CPF

## ***Limits of Traditional Mosquito Control***

- Staff capacity for fine-scale mapping
- Reliance on large spray blocks



## 2. Program Background & Success

### ***Accabonac Mosquito Sampling Program: Background***

- Citizen Science sampling program
- Launched in 2017
- Coordinated by The Nature Conservancy
- Partnered with Suffolk County Vector Control
- Supported by PEP, East Hampton Town & Trustees



# *Citizen Science Program Goals*



Volunteers assist in mapping active hotspots



SC Vector Control treats only hotspots



**Reduce pesticide exposure, flight time, \$, increase transparency**





# How?

Coordinated volunteer group:  
Monday Morning Mosquito Samplers

Collect dip sample data:  
Key locations & tides

Record & share data using  
ArcGIS Survey 123\*

SC Vector Control treatment is  
limited to active areas



Mosquito larvae, Accabonac saltmarsh:  
Photo Susan McGraw-Keber

\*Developed by The Nature Conservancy

# Results

ID true mosquito breeding hotspots

Reduce treated acreage

Lower operational costs,

Limit chemical exposure

consistency of results

= reliable, scalable, & operationally useful.



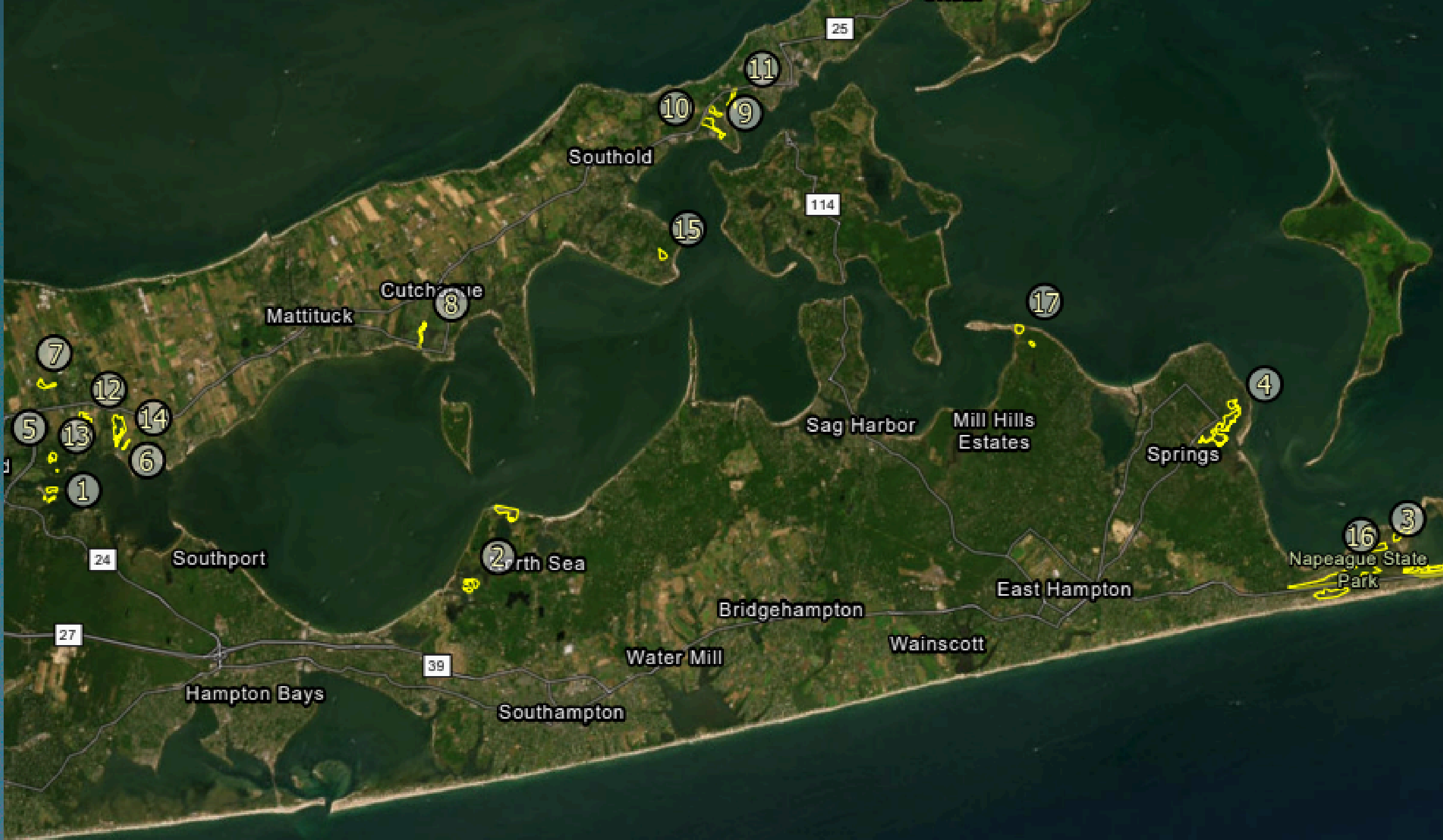
## Accabonac Harbor Mosquito Monitoring & Treatment Summary

| Year | Number of Sampling Days | Acres Treated (Suffolk County Vector Control) |
|------|-------------------------|---|
| 2017 | Pilot year              | ~2,500 acres prior to hotspot targeting       |
| 2019 | 8                       | Substantially reduced from baseline           |
| 2020 | 6                       | Reduced through hotspot only treatments       |
| 2021 | 6                       | Targeted hotspot spraying                     |
| 2022 | 4                       | Targeted hotspot spraying                     |
| 2023 | 7                       | Targeted hotspot spraying                     |
| 2024 | 9                       | Low acreage, hotspot only                     |
| 2025 | 11                      | ~100 acres                                    |

# 3. Replicating the Program

## How can we replicate across the Peconic Estuary?

Interview-Based Knowledge Collection



### SCVC Aerial Application Sites

- |                      |                      |                           |                              |
|----------------------|----------------------|---------------------------|------------------------------|
| 1 - Iron Point       | 6 - Aquebogue        | 11 - Pipes Cove           | 16 - Beach Hampton           |
| 2 - North Sea        | 7 - Millar Farm      | 12 - Crescent Duck Farm   | 17 - Cedar Point County Park |
| 3 - Napeague         | 8 - New Suffolk      | 13 - Overlook - Aquebogue |                              |
| 4 - Accabonac Harbor | 9 - Pipes Neck Creek | 14 - Aquebogue Farm       |                              |
| 5 - Indian Island    | 10 - Kerwin Blvd.    | 15 - Great Hog Neck       |                              |

Map: Suffolk County Vector Control

# 4. Capstone Deliverables

## Report:

Introduction

Program Overview and Success

Findings of Viability and Site

Selection Report

Conclusion

Sources

## Appendix Items:

### 1. Toolkit:

1a. Setting Up Your Program

1b. General Factsheet

1c. Volunteer Training Manual

1d. Grant Proposal Template

2. Viability and Site Selection Report

3. Site Selection Maps

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# ***Toolkit: Support Coordinator***

## **Toolkit 1a. Setting Up Your Program**

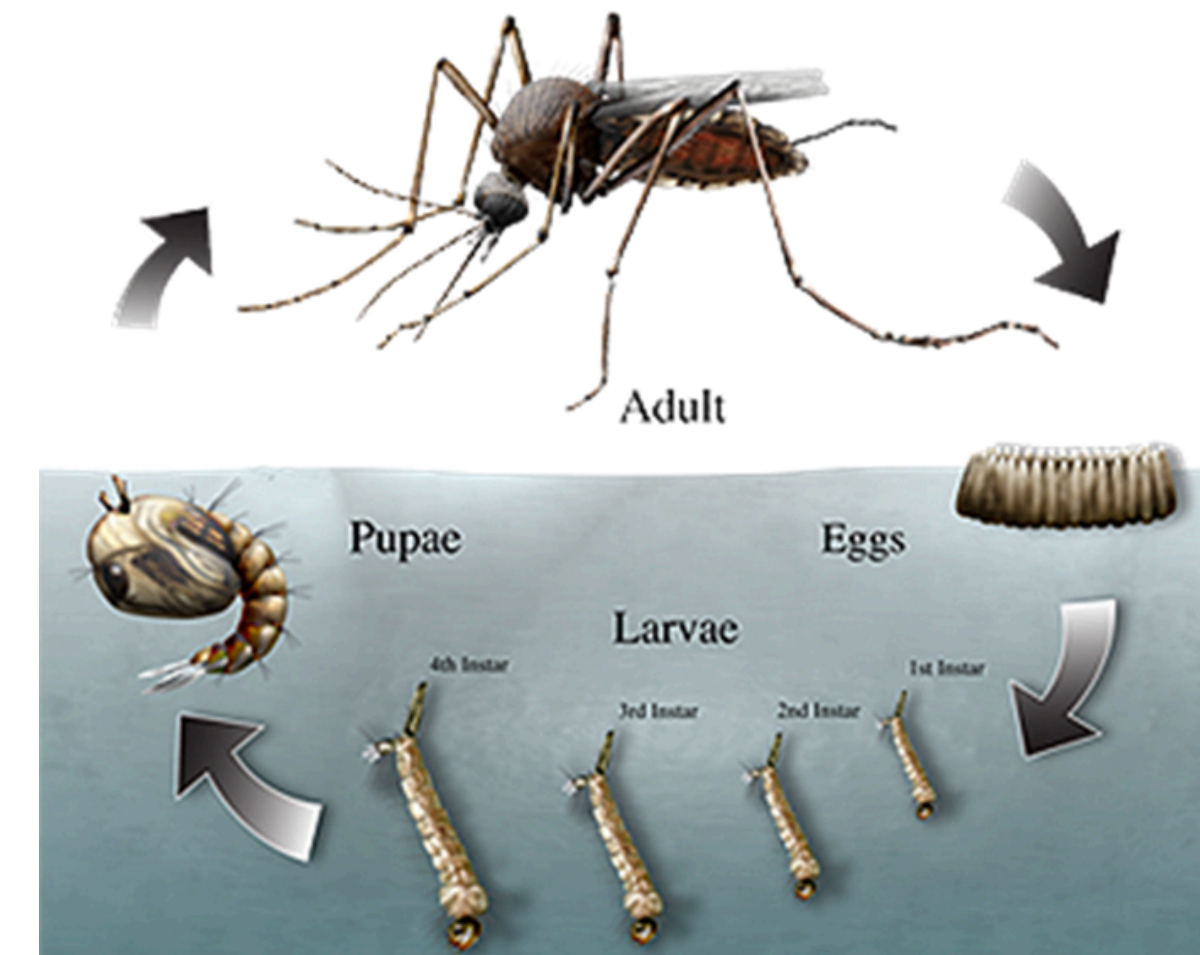
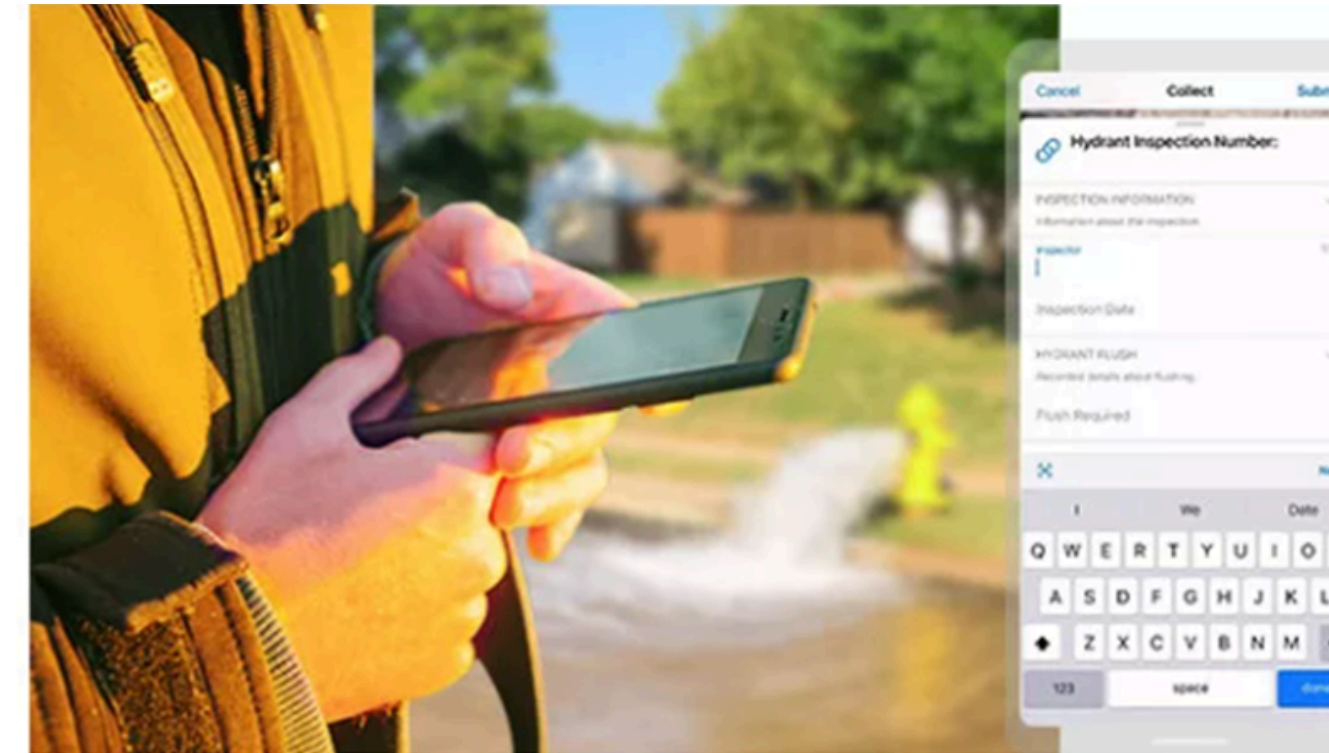
- Connecting w. Vector Control
- IDing sampling sites
- Setting up Survey App

## **Toolkit 1b. General Factsheet**

## **Toolkit 1c. Volunteer Training Manual**

- Sampling Field Technique
- Larval stage ID
- Survey 123 technical assistance
- Quality Data Submission

## **Toolkit 1d. Grant Proposal Template**



# Viability & Site Selection Report



## ***SC Spatial Data***

- Aerial mosquito spray areas
- Protected & publicly accessible lands
- Town and hamlet boundaries
- PE boundary
- Existing Accabonac pilot site boundary

## ***Analysis steps***

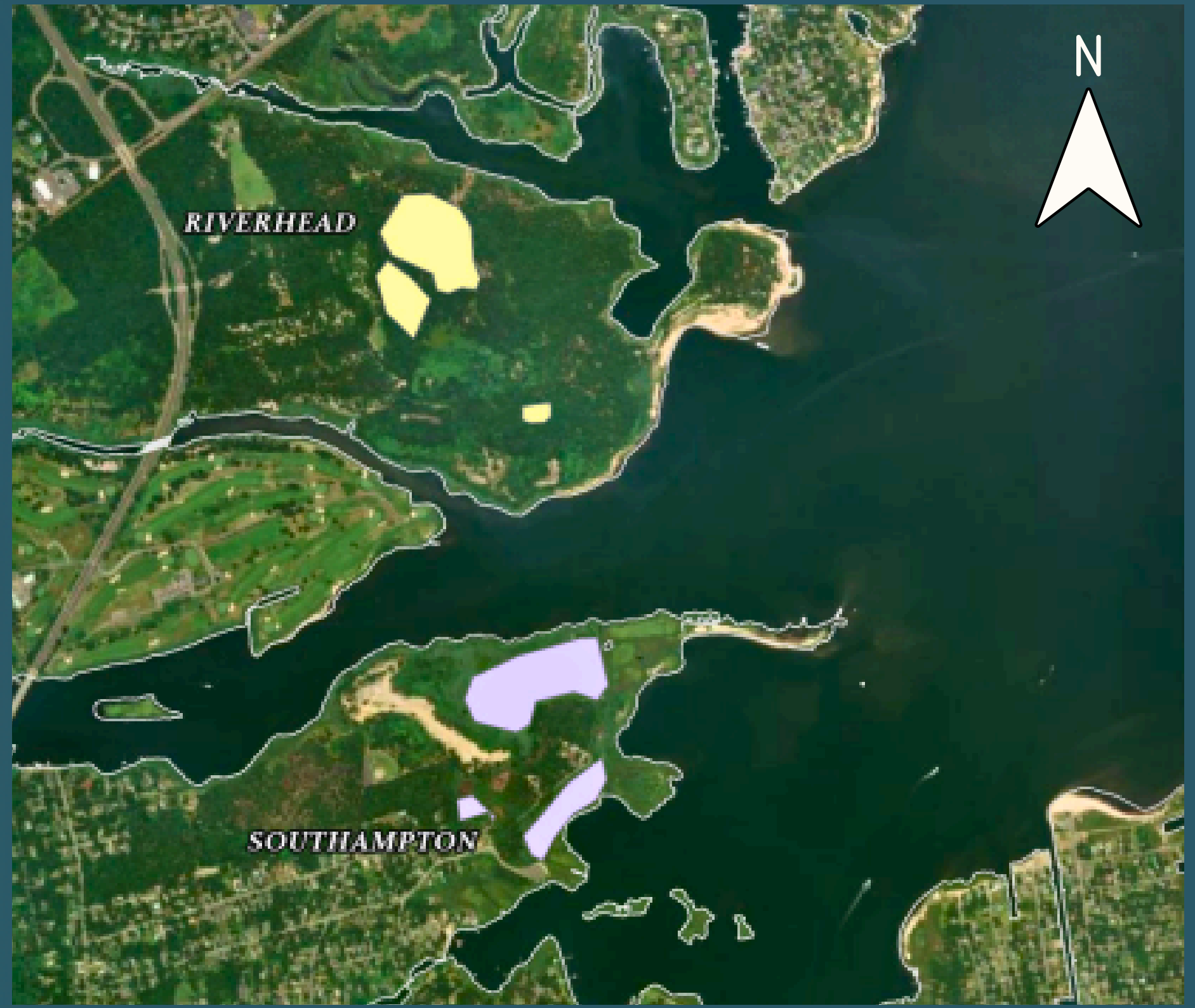
- Converted & cleaned mosquito spray polygons
- Standardized ownership and access information
- Clipped datasets to PE boundary
- Overlaid spray areas with protected lands
- Dissolved and simplified features to ID site-level units

# Key Findings



# 5. Next Steps

## Recreate the program: *Flanders Site*



**Potential Sites**

Site Name

- FLANDERS
- GREENPORT WEST
- NAPEAGUE
- NORTHWEST HARBOR
- RIVERHEAD
- Town
- Peconic Estuary Boundary



# 4. Next Steps

## Recreate the program: *Flanders Site*





# 6. Conclusion

- Coordinator Toolkit with program setup, volunteer recruitment, training
- Info on site ID, resources, & funding future program
- A ready-to-use foundation for future implementation

Key:

- PEP = Strong partner relationships = connection

## Toolkit: 1a-1d



# 7. Acknowledgements

SoMAS, David Taylor & Kaitlin Giglio

MCP Program Professors

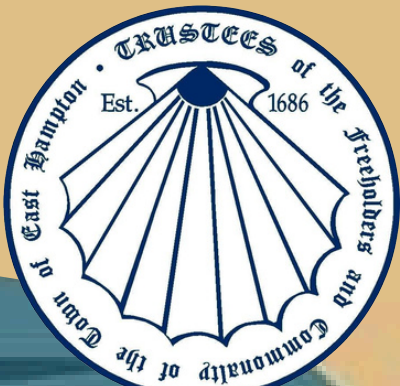
Peconic Estuary Partnership

Joyce Novak & Valerie Virgona

The Nature Conservancy, Town of East

Hampton, East Hampton Trustees,

Suffolk County Vector Control



# 8. References



## **Suffolk County Vector Control**

Suffolk County Department of Public Works. Vector and Wetland Management Program.

<https://suffolkcountyny.gov/Departments/Public-Works/Vector-Mosquito-Control/Vector-Wetland-Management>

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## **Peconic Estuary & Local Partners**

Peconic Estuary Partnership. 2020 Comprehensive Conservation and Management Plan (CCMP).

<https://www.peconicestuary.org/ccmp2020/>

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<https://ehtrustees.com/2025/12/mosquito-water-sampling-suffolk-county-vector-control/>

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<https://www.southamptontownny.gov/188/Community-Preservation-Fund-CPF>

## **Media & Public Reporting**

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<https://www.easthamptonstar.com/east-magazine/20251129/diversions-mosquito-hunters>

## **Scientific Literature**

Adams, J., Raw, J., Riddin, T., Wasserman, J., & van Niekerk, L. (2021).

Salt Marsh Restoration for the Provision of Multiple Ecosystem Services.

Diversity, 13(12), 680. <https://doi.org/10.3390/d13120680>

## **Environmental Justice Data**

New York State Department of Environmental Conservation. Potential Environmental Justice Areas (GIS).

<https://dec.ny.gov/get-involved/environmental-justice/gis-tools>





# Thank you!

## Questions?



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