River Otter (*Lontra canadensis*) Survey and Monitoring in the Peconic Estuary (NY)

QUALITY ASSURANCE PROJECT PLAN

EPA Award# CE-96247001

COMPLETED PLAN PREPARED BY:

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11/26/2023

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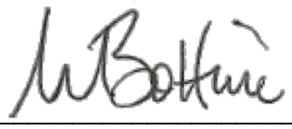
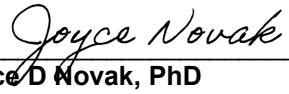
QAPP APPROVALS PAGE

Approval Signatures (required prior to project start):



_____ Date: 1/9/2024

Mike Bottini
Project Leader, **Seatuck Environmental Association**
Wildlife Biologist



_____ Date: 1-9-2024

Joyce D Novak, PhD
Peconic Estuary Partnership
Executive Director

_____ Date: _____

Aimee Boucher
US EPA Region 2
Project Officer, Water Division

_____ Date: 1/9/2024

Emily Nering
US EPA Region
Quality Assurance Officer

1 PROJECT MANAGEMENT

1.1 CONTACT INFORMATION

All personnel listed below in Table 1 will receive copies of this Quality Assurance Project Plan (QAPP), and any approved revisions of this plan. Once approved, this QAPP will be available to any interested party by requesting a copy from the project management.

Table 1: Project Team Contact Information

Title	Name (Affiliation)	Phone Number/E-mail
Project Manager / Primary Field Sampler / QA Officer	Mike Bottini, Seatuck Environmental Association	631-267-5228 (work) mbottini@seatuck.org
Executive Director	Joyce Novak, PhD (PEP)	631-852-2961 Joyce.novak@suffolkcountyny.gov
EPA Project Officer/NEP Coordinator	Aimee Boucher (EPA)	Boucher.Aimee@epa.gov
EPA QA Officer	Emily Nering (EPA)	Nering.Emily@epa.gov

Mike Bottini, Seatuck Environmental Association, is the PROJECT MANAGER and Primary field sampler. Mike has the overall responsibility for ensuring that the project meets the project objectives and quality standards. Bottini will be the responsible for overseeing all activities conducted on this project including schedule adherence, budgeting, data collection, data analysis, interpretation, communication, and final reporting.

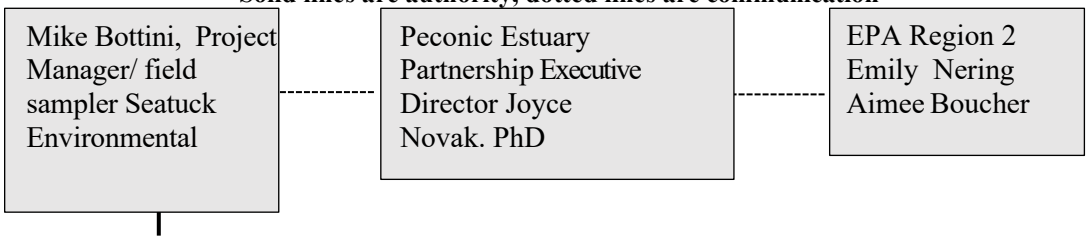
Joyce Novak, PhD, Director of Peconic Estuary Partnership will be responsible for overseeing this project for PEP, participation in meetings and communication with the USEPA.

Emily Nering will serve as the USEPA Quality Assurance Officer and will be responsible for review and approval of the QAPP, including all subsequent versions, and participation in Agency reviews of work performed.

Aimee Boucher, Clean Water Division, USEPA, Region 2, will participate in technical reviews and internal PEP communication of results.

Project Organization Chart

Solid lines are authority, dotted lines are communication



1.2 PROJECT OBJECTIVES AND APPROACH

BACKGROUND

The North American River Otter (*Lontra canadensis*) – herein referred to as "otter" - once occupied all the major watersheds in the United States (excluding Hawaii) and Canada. Unregulated trapping, habitat destruction, and water pollution resulted in their extirpation from large portion of their original range, including Long Island and much of New York State. Conservation laws and reintroduction programs have enabled this species to recolonize much of its former range. A mammal survey of Long Island conducted by Paul Connor for the New York State Museum in the early 1960s did not find evidence of otters on the island (Connor 1971). Established home ranges of otters on Long Island were first documented in a 2008 otter survey that mapped their latrines (aka scent stations). That survey mapped their distribution along the north shore of Nassau County and western Suffolk, Long Island and a small portion of the Peconic Estuary centered around Greenport, Shelter Island and the Northwest area of East Hampton Town (Bottini 2009). Using the same latrine survey methodology, a 2018 survey confirmed the slow expansion of their distribution eastward along the island's north shore, south to include one major watershed on the island's south shore, and westward to include the entire Peconic River and its tributaries. Despite the presence of excellent otter habitat in the Peconic Estuary's watersheds, much of that area remains unoccupied, particularly on the south fork.

OBJECTIVES

The objective of this project is to update the results of the 2018 survey within the Peconic Estuary's 73 watersheds, complete a more extensive survey of those watersheds, and to identify and map potential otter latrines in watersheds currently lacking otter presence but exhibiting excellent otter latrine characteristics for future monitoring of changes in their distribution in the Peconic Estuary. River otters are non-migratory, apex predators whose diet consists largely of aquatic prey (fish, crustaceans and frogs) and are considered an important sentinel species for water quality since contaminants are bio-magnified as they work their way up the aquatic food chain. NYSDEC maintains a database of otter tissue samples from all major watersheds in the state inhabited by otters. This watershed database is used to track changes in various contaminants over time and has been used to determine the effectiveness of mitigation measures in the Hudson River PCB cleanup.

METHODOLGY

Due to the otter's large home range size (as much as 60 km of shoreline in coastal habitat), highly mobile and elusive nature, and nocturnal habits in developed areas, the most accurate and efficient presence / absence survey technique for otters is known as a latrine or scent station survey (Blundell et al. 2000). Otters are prolific markers of specific sites within their respective home ranges, such as points of land, dams, small islands, the confluence of tributary streams, and the shortest overland routes between two waterways. Peak marking occurs from November through April, coinciding with yearlings traveling with their mother during late fall, dispersing in winter, and the late winter – early spring mating season. Markings include scats, scrapes in the leaf litter that expose bare soil, and less frequently a jelly-like anal secretion. These latrine sites are situated on level, upland areas, often under coniferous trees, and within 5 meters of water (Swimley et al. 1998). The physical features of otter latrine sites (e.g. dams, islands, points of land) can be identified and marked on topographic maps and aerial photos, enabling surveyors to focus field time and reducing survey effort (Bottini 2022).

Otters and raccoons share a preference for riparian habitat. On Long Island, all otter latrines sites are regularly visited by raccoons. This survey will use otter scats as evidence of otter presence. Raccoon scats can be mistaken for otter when raccoons have scavenged a fish carcass or are feeding on crab or crayfish. However, raccoons are omnivores whose scats are dominated by remnants of fruits and seeds, while otters are strict carnivores whose scats on Long Island are dominated by fish and crustacean remains. They can also be distinguished by smell, although this is not advised when encountering old, dried scats as raccoon scat can contain the eggs of parasites that are easily inhaled.

Using aerial photos and topographic maps of the Peconic estuary watershed and the knowledge of the physical features of otter latrine sites, potential otter latrine sites in the estuary's watersheds that have not already been documented as having otter latrines will be marked on the maps. Both new potential latrine sites and latrine sites documented in the 2008 and 2018 surveys will be inspected in the field.

Depending on the location of potential latrine sites and the previously documented latrine sites, they will be visited in the field by hiking or kayaking, whichever is most efficient. Sites where otter sign is encountered will be photographed and the latitude and longitude will be noted. Sites with no otter sign noted but that exhibit excellent otter latrine potential will also be noted with latitude and longitude coordinates for future surveys to document changes in otter distribution over time. Otter latrine sites identified and mapped in previous surveys will be revisited to ensure they are still being maintained as part of an otter's home range. All survey data will be entered on paper forms in the field and entered into digital spreadsheets at the office. The field form is found as Appendix C. All sites verified in the field as having otter sign, as well as sites exhibiting excellent otter latrine characteristics but no otter sign, will be added to the final map and labelled appropriately.

For sites located on private land, permission of the landowner for survey work would be required. Any otter latrine sites reported by volunteers will be verified in the field by the Project Leader.

GEOGRAPHIC SCOPE
Peconic Estuary watershed, Long Island, N.Y. See map in Appendix.

BACKGROUND / EXPERIENCE OF PROJECT LEADER
Project Manager / QA Officer Mike Bottini has a MSc. from the University of British Columbia, has a Level III Wildlife Track & Sign Certification from North American Cybertracker, and is a member of the IUCN Otter Specialist Group. Bottini has been directing the Long Island River Otter Project since 2008; with funding from the Baker Foundation, the first comprehensive survey of otters on Long Island was completed in 2008. A follow-up survey in 2018 was funded by J.Crew, Group for the East End, Town of Southold, New York State Department of State under Title 11 of the Environmental Protection Fund, and John Waddell. The Fishers Island Conservancy funded a survey of otters on Fishers Island in 2012. Bottini has also taught otter survey training workshops for conservation and natural resource agency staff and interested volunteers and in 2022 published a guide to surveying otters: "River Otter Sign and Survey Manual."

The overall project timeline is November 1, 2023 – April 1, 2024. Required field work will begin December 1, 2023 or as soon thereafter as the QAPP has been approved. NOTE: peak marking season for otters is November through April. Final report will be completed by September 30,2024.

1.3 DATA QUALITY OBJECTIVES

See also "OBJECTIVES" under section 1.2
The primary goal of this project is to estimate otter distribution in the Peconic watershed. Distribution data is qualitative and will be presence/absence only. This will be used to identify areas used as habitat for otters and is not a quantitative population survey. This information will be used by the Peconic Estuary Partnership and our partners to evaluate areas for preservation and land conservation in the watershed.

1.3.1 Precision, Accuracy, Bias:

This survey work is presence/absence and qualitative. Accuracy is dependent on correct identification of otter scat and other signs identified in the methods section. All signs will be confirmed by the project manager for maximum accuracy.

Bias is limited in this type of work due to the nature of presence/absence survey work. All signs will be confirmed by the project manager and room for bias is low.

1.3.2 Completeness
Assessments will be made of each watershed throughout the course of the peak otter scenting season to obtain a complete data set of otter distribution in the estuary as of 2024.

1.3.3 Comparability
Year to year comparisons can provide information on relative habitat use fluctuations from year to year and assess if the population range is expanding. It is intended that the otter survey will occur bi-annually in the Peconic watershed moving forward, allowing for the detection of future habitat use changes and identify areas that may require wildlife passage assistance.

1.3.4 Representativeness
Assessments will be made of each watershed throughout the course of the peak otter scenting season.

1.4 Quality Assurance Objective Criteria

See “METHODOLOGY” and “BACKGROUND/EXPERIENCE OF PROJECT LEADER” under section 1.2.

1.5 Documentation and Records

All records generated by this project will be stored at Seatuck Environmental Association’s main office. Copies of this QAPP will be distributed to all parties involved with the project, including signatories and field sampling personnel. Any future changes or amendments to the QAPP will be held and distributed in the same fashion. Copies of previous versions of the QAPP will be clearly marked as “superseded by Revision #” so as not to create confusion.

The final report for the project will include the following: objectives of the survey; methodology employed for the survey; a spreadsheet of the latitude and longitude coordinates for the confirmed otter latrine sites, the potential sites exhibiting excellent otter latrine characteristics but were currently unoccupied, and coordinates of site surveyed but had no otter sign and were found, based on field inspection, to not have excellent otter latrine characteristics; a map depicting all sites surveyed and coded to show confirmed otter latrines, potential otter latrines and surveyed sites lacking key otter latrine characteristics. Copies of the final report will be sent to the NYSDEC Region 1 office, USFWS – Long Island office, Peconic Estuary Partnership, NYS Parks, Suffolk County Parks, Central Pine Barrens Commission, the towns and villages encompassing the study area (Southold, Riverhead, Southampton, Shelter Island, East Hampton, North Haven Village, Sag Harbor Village, Greenport Village), and conservation groups in the study area (Peconic Land Trust, Group for the East End, Peconic Baykeeper. South Fork Natural History Museum, The Nature Conservancy).

The records of all project information and data used to complete the activities of the project will be retained for at least seven years from the date of sampling, measurement, report, or application.

2 DATA ACQUISITION

An iPhone will be used for photos and obtaining latitude / longitude coordinates of the otter latrines. Since these coordinates will be used to determine occupied watersheds, the exact position of the latrine is not critical.
Site selection is detailed in Section 1.2 under “Methodology.”
DOCUMENTATION PROCEDURES

Two photos will be taken at each site having otter sign: a close-up of the otter sign (scat) and context photo of the sign relative to the nearest water. Paper data sheets will be used to record location (town, watershed, lat/long coordinates, date, observer, distance to water, whether water is fresh or brackish (or both in the case of a dam), otter sign (scat, scrape, tracks, anal jelly), estimated number of scats, and any other pertinent information under "notes." Project leader will transfer data to electronic spreadsheets weekly.

3 QUALITY CONTROL REQUIREMENTS

3.1 MEASUREMENT PERFORMANCE CRITERIA

The overall QA objective for this project is to use a standard otter survey technique for data collection and reporting that will provide results that are scientifically defensible. Please note that this survey method has been used by the Project Leader in 2008, 2012 and 2018, the findings for all three separate surveys have been published and distributed to interested agencies, and the methodology and results have been presented at conferences and many conservation organization meetings including, among others, the Northeast Natural History Conference, the Long Island Natural History Conference, the Long Island Central Pine Barrens Commission annual meeting, the Peconic Estuary Partnership, South Fork Natural History Museum.

3.2 INTERNAL QUALITY CONTROL

All data collection, data entry, data verification, data mapping, transferal of data and reports will be done by the Project Leader.

4 INSTRUMENTATION AND EQUIPMENT PREVENTIVE MAINTENANCE

The sections below are not applicable as no instrumentation is being used for this project.

4.1 DATA COLLECTION EQUIPMENT CLEANING PROCEDURES

4.2 INSTRUMENT AND EQUIPMENT TESTING PROCEDURES AND CORRECTIVE ACTIONS

5 DATA MANAGEMENT

Copies of field assessment data collection sheets, original preliminary and final reports, and electronic media reports will be kept for review by the Seatuck Environmental Association and available on their website at www.seatuck.org **.** Project leader Mike Bottini will retain original field assessment data sheets.

PEP and Seatuck created the Wildlife Monitoring Network and Seatuck maintains this as a regional resource. Data from this project will be accessible through the existing platform.

Field assessment data sheets are checked and signed in the field by the project leader**.** They will identify sites as either having otter sign or not having otter sign.

The data generated will be entered into a digital spreadsheet maintained by Mike Bottini and available for review when requested

After weekly data entries are completed for each data collection event, that week's data will be inspected for data transcription errors by verifying otter site locations on Google Earth by the

project leader and corrected as appropriate**.** After the final QA checks for errors are completed, the assessment data will be added to the project database weekly by the project leader.

5.1 DATA ASSESSMENT PROCEDURES

Data must be consistently assessed and documented to determine whether project QAOs discussed in section 1.4 have been met, quantitatively assess data quality and identify potential limitations on data use. Assessment and compliance with quality control procedures will be undertaken during the data collection phase of the project.

5.2 DATA TO BE INCLUDED IN QA SUMMARY REPORTS

Table 5 summarizes the types of data to be reported and the method in which that information will be delivered.

Table 5: QA Summary Reporting Data

Data	Data Description	Reporting Method	Frequency
Survey Data	Site location, otter sign and type, # scats and composition, distance from water, type of water (fresh or brackish). If no sign noted, does site exhibit good otter latrine potential for future monitoring.	Paper forms later transferred to digital spreadsheets	weekly
Geospatial Data	latitude/longitude	ArcGIS	weekly

5.3 REPORTING FORMAT

All results meeting data quality objectives and results having satisfactory explanations for deviations from objectives will be reported in the QA Summary Report. Results will be reported at project completion. Reports may be submitted electronically along with the final programmatic report.

6 DATA VERIFICATION AND USABILITY

All data will be collected by the Project Leader.

6.1 Self-Assessment, Data System Audits

Any data submitted to the Project Leader by colleagues or volunteers will be checked and verified in the field by the Project Leader.

7 REFERENCES

Blundell, G.M., R.T. Bower, M. Ben-David, T.A. Dean, and S.C. Jewett. 2000. Effects of food resources on spacing behavior of river otters: does forage abundance control home-range size? Pages 325-333 in J.H. Eiler, D. Alcorn, and M. Neuman, eds. Biotelemetry 15: Proceedings of the 15th International Symposium on Biotelemetry, Juneau, AK. International Society on Biotelemetry, Wageningen, Netherlands.

Bottini, M. 2009. The status and distribution of the river otter (*Lontra canadensis*) on Long Island, New York. https://seatuck.org/wp-content/uploads/2021/09/2008OtterStudyFinal.pdf

Bottini, M. 2013. River otter (*Lontra canadensis*) survey of Fishers Island, Southold, N.Y. https://seatuck.org/wp-content/uploads/2021/09/FishersIs2013finalreport.pdf

Bottini, M. 2019. The natural recolonization of Long Island, New York by the North American river otter (*Lontra canadensis*).
https://seatuck.org/wp-content/uploads/2021/09/2018_OtterReportData-1.pdf

Bottini, M. 2022. The Long Island river otter project's river otter sign and survey manual. https://seatuck.org/wp-content/uploads/2022/02/OtterManual.pdf

Connor, P. F. 1971. The mammals of Long Island, New York. N.Y.S. Museum Bulletin 416.

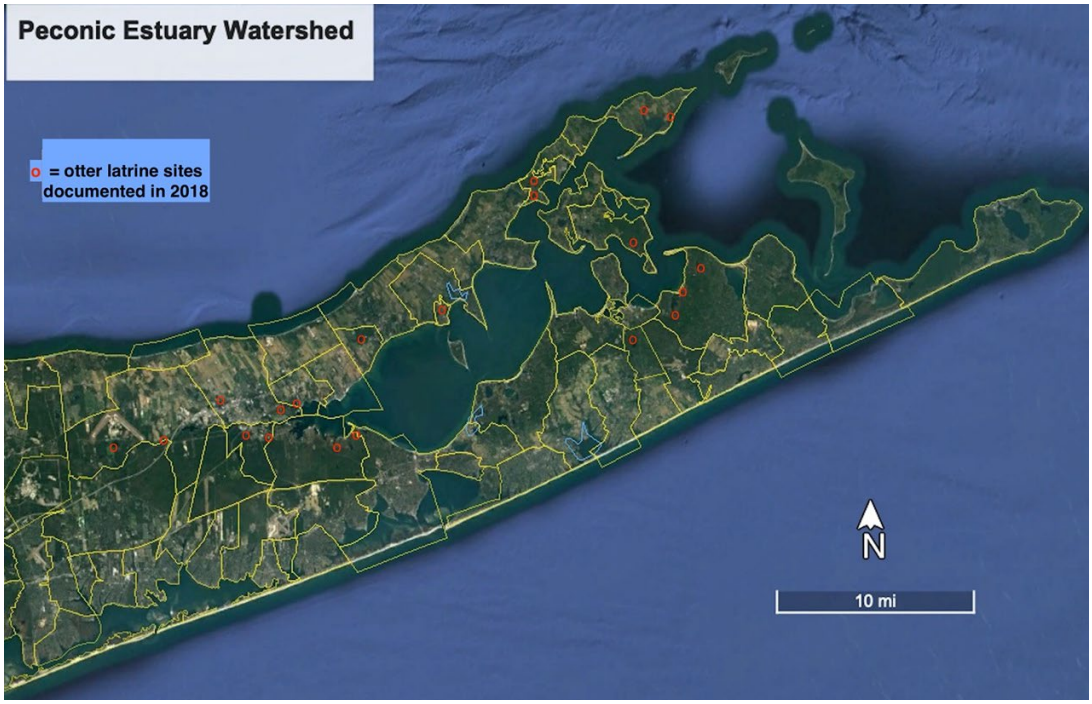
Swimley, T. J., T. L. Serfass, R. P. Brooks, and W. M. Tzilkowski. 1998. Predicting river otter latrine sites in Pennsylvania. Wildlife Society Bulletin 26(4): 836-845.

Appendices

A) MAPS

1. PROJECT SITE MAP

2. MAP OF LOCATIONS OF OTTER LATRINES AS PER 2018 SURVEY



B) STANDARD OPERATING PROCEDURES

SEE METHODOLOGY

C) FIELD FORM

LONG ISLAND RIVER OTTER PROJECT
SURVEY / MONITORING FORM

LOCATION:____OBSERVER: _________________

WATERSHED: _______________________________________ TOWN: ______________________

OTHER NOTES:

DATE: SITE/GPS____

DISTANCE TO WATER: ____meters WATER is (circle one): fresh brackish fresh/brackish (dam)

OTTER SIGN (circle): NONE scat (# of_____ / composition________________ scrape tracks jellies

NOTES:

DATE: SITE/GPS____

DISTANCE TO WATER: ____meters WATER is (circle one): fresh brackish fresh/brackish (dam)

OTTER SIGN (circle): NONE scat (# of_____ / composition________________ scrape tracks jellies

NOTES:

DATE: SITE/GPS____

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NOTES:

DATE: SITE/GPS____

DISTANCE TO WATER: ____meters WATER is (circle one): fresh brackish fresh/brackish (dam)

OTTER SIGN (circle): NONE scat (# of_____ / composition________________ scrape tracks jellies

NOTES:

D) COORDINATES OF OTTER LATRINES IN THE PECONIC ESTUARY WATERSHED IN 2018

SOUTHOLD TOWN	
ORIENT STATE PARK	41.148155 -72.247628
NARROW RIVER	41.147390° -72.281096°
ARSHAMOMAQUE PRESERVE	41.091271° -72.393638°
SAGE BLVD	41.082900° -72.390899°
WEST CREEK DIKE	40.99887 -72.48412
LAUREL LAKE	40.978775° -72.555419°
SHELTER ISLAND	
MASHOMACK PRESERVE	41.046955° -72.296977°
EAST HAMPTON TOWN	
SCOY POND	41.026832° -72.231124°
BARNES MEADOW	41.015219° -72.246055°
NORTHWEST CREEK	40.993191° -72.256755°
SOUTHAMPTON TOWN	
RED CEDAR POINT	40.910225° -72.558551°
MILL POND	40.898043° -72.581550°
FW POND S OF 24 & W OF 105	40.905582° -72.643845°
LITTLE RIVER	40.912136° -72.669516°
RIVERHEAD TOWN	
SWAN LAKE	40.899875° -72.795762°
PECONIC RIVER	40.90230 -72.75237
OSBORNE AVENUE PONDS	40.929779 -72.692769
SAWMILL CREEK	40.926057 -72.650639
TERRY CREEK	40.932340° -72.630855°