

*Suffolk County Vector Control &
Wetlands Management Long Term
Plan & Environmental Impact
Statement*



**Draft Generic Environmental
Impact Statement**

Volume 1 of 7

Executive Summary

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Prepared for:

**Suffolk County Department of
Environment and Energy**

Suffolk County Department of Health Services

Suffolk County Department of Public Works

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SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES
SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS

DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN

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**SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT
LONG - TERM PLAN AND ENVIRONMENTAL IMPACT STATEMENT**

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VOLUME 1 of 7

Executive Summary

**SUFFOLK COUNTY VECTOR CONTROL AND
WETLANDS MANAGEMENT LONG-TERM
MANAGEMENT PLAN**

**DRAFT GENERIC ENVIRONMENTAL IMPACT
STATEMENT**

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- Appendix B. Wetlands Management Plan
- Appendix C. Best Management Practices Manual
- Appendix D. Final Scope of the GEIS
- Appendix E. Plan of Work

LIST OF ABBREVIATIONS AND ACRONYMS

ABDL	Suffolk County Department of Health Services Arthropod-Borne Disease Laboratory
AChE	acetylcholinesterase
AMCA	American Mosquito Control Association
ANOVA	analysis of variance
ARS PPDB	USDA's Agricultural Research Service Pesticide and Properties Database
ASPCA	American Society for the Prevention of Cruelty to Animals
ATSDR	Agency for Toxic Substances and Disease Registry
BCFs	bioconcentration factors
BMP	Best Management Practice
BNL	Brookhaven National Laboratory
BOCES	Suffolk County Board of Cooperative Educational Services
Bs	<i>Bacillus sphaericus</i>
BSL	Biosafety Level-3
Bti	<i>Bacillus thuringiensis (var.) israelensis</i>
CA	Cashin Associates, PC
CAC	Citizens Advisory Committee
CAS	Chemical Abstract Service
CBC	Christmas Bird Count
CCMP	Comprehensive Coastal Management Plan
CD	Sag Harbor Conservation District
CDC	Centers for Disease Control and Prevention
CE	Cameron Engineering
CEA	Critical Environmental Area
CEQ	Suffolk County Council on Environmental Quality
CWA	Clean Water Act
CWQGs	Canadian Water Quality Guidelines
CZMA	Coastal Zone Management Act
DEET	N,N-diethyl- <i>m</i> -toluamide
DEIS	Draft Environmental Impact Statement
DEM	Digital Elevation Model
DGEIS	Draft Generic Environmental Impact Statement
DHF	Dengue hemorrhagic fever
DO	dissolved oxygen
EA	Environmental Assessment
EAF	Environmental Assessment Form
EC ₅₀	median effective concentrations
ECL	New York State Environmental Conservation Law
EEC	estimated exposure concentration
EED	estimated exposure dose
EEE	Eastern equine encephalitis
EFED	USEPA's Environmental Fate and Effects Division
EIS	Environmental Impact Statement
ELAP	Environmental Laboratory Approval Program
ELISA	enzyme-linked immunoabsorbent assay

ERA	ecological risk assessment
EXPRESS	USEPA's EXAMS-PRZM exposure simulation model
Extoxnet	Extension Toxicology Network
EWG	Environmental Working Group
FC	formerly connected tidal wetlands
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FINS	Fire Island National Seashore
FM	fresh marsh
Fom	fraction of organic carbon
FONSI	Finding of No Significant Impact
GB-1111	Golden Bear-1111
GEIS	Generic Environmental Impact Statement
GIS	Geographical Information System
GPS	Global Positioning System
HM	high marsh
HQ	Hazard Quotient
HSDB	National Library of Medicine's Hazardous Substances Data Bank
IARC	International Agency for the Research on Cancer
IM	intertidal marsh
IMM	Integrated Mosquito Management
IMAs	Interim Management/Ongoing Maintenance Activities
IPM	Integrated Pest Management
IRED	Interim Reregistration Eligibility Decision
JE	Japanese encephalitis
K_{oc}	soil sorption coefficient
LAC	LaCrosse encephalitis
LC ₅₀	median lethal concentration
LD ₅₀	median lethal dosage
LIRR	Long Island Rail Road
LOAEC	lowest observable adverse effect concentration
LOEL	lowest-observable-effects level
LOI	loss on ignition
LWRP	Local Waterfront Revitalization Program
M	average mass of chemical loaded
MCC	Mosquito Control Commission
MMD	mass median diameter
MMLP	Mosquito Magnet Liberty Plus
MMP	Mosquito Magnet Pro
MOE	Margin of Exposure
MOU	Memorandum of Understanding
msl	mean sea level
MVE	Murray Valley encephalitis
NAS	National Academy of Sciences
NAWQA	National Water Quality Assessment
NEPA	National Environmental Protection Act

NHANES	National Health and Nutrition Examination Survey
NOAA	National Oceanographic and Atmospheric Administration
NOAECs	no-observable-adverse-effect concentrations
NOAEL	no observed adverse effect level
NOECs	no observed effect concentrations
NPS	National Park Service
NWI	National Wetlands Inventory
NWIRP	Naval Weapons Industrial Reserve Plant
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOS	New York State Department of State
OMWM	Open Marsh Water Management
OP	Organophosphate
OPP	USEPA's Office of Pesticide Programs
PAH	polyaromatic hydrocarbon
PBO	piperonyl butoxide
PCB	polychlorinated biphenyl
PCR	Polymerase Chain Reaction
PDP	Pesticide Data Program
PEHL	Suffolk County Department of Health Services Public and Environmental Health Laboratory
PEP	Peconic Estuary Program
PHL	New York State Public Health Law
PRNT	plaque reduction neutralization
PSA	Primary Study Area
QA/QC	Quality Assurance/Quality Control
RAA	Risk Assessment Area
RAIS	Risk Assessment Information System
RAMP	Rapid Analyte Measurement Platform
RED	Reregistration Eligibility Documents
RfD	reference dose
RFP	Request for Proposals
RUP	Restricted Use Pesticide
SCC	Suffolk County Charter
SCDHS	Suffolk County Department of Health Services
SCDPW	Suffolk County Department of Public Works
SCS	USDA Soil Conservation Service
SCVC	Suffolk County Department of Public Works Division of Vector Control
SEER	Surveillance, Epidemiology and End Results
SEQRA	State Environmental Quality Review Act
SGPA	Special Groundwater Protection Area
SLE	St. Louis encephalitis
STORET	USEPA Storage and Retrieval database
T&E	threatened and endangered
TAC	Technical Advisory Committee
TCPA	tetrachloroterephthalic acid

TRV	toxicity reference value
TSS	total suspended solids
ULV	ultra-low volume
USACOE	US Army Corps of Engineers
USDA	US Department of Agriculture
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VCMS	Vector Control Management System
VEE	Venezuelan equine encephalitis
VOC	volatile organic compound
WEE	Western equine encephalitis
WHO	World Health Organization
WMHO	Ward Melville Heritage Organization
WNV	West Nile virus
WNWR	Wertheim National Wildlife Refuge

GLOSSARY

This glossary of terms used in the Draft Generic Environmental Impact Statement is not intended to be inclusive of all terms that may be unfamiliar to a general reader. It is intended to identify some key, conceptual terms that are often used in the document. In some cases, the meaning in this document may be different or limited compared to more general usage. Many other technical terms are used in this document; most have been defined in passing or are used in standard ways.

Acute - short-term or immediate.

Adulticide - a pesticide used to kill adult mosquitoes.

Amplification vector - a vector that increases a pathogen in reservoir hosts. In particular, in Suffolk County amplification vectors increase viral infections of wild birds..

Arbovirus - a neologism, from arthropod-borne virus; therefore, a viral illness where an arthropod is the vector.

Biocontrol - use of an organism to reduce a population of a pest.

Biorational pesticide - a pesticide that was designed to explicitly use biological processes to specifically target certain kinds of pests.

Bridge vector - a vector that transmits pathogens from a reservoir hosts to humans (or some other target species). In particular, in Suffolk County bridge vectors transmit virus from birds to people and horses.

Caged Fish experiment - an Early Action Project conducted to determine the effects of operational larvicide and adulticide applications on test organisms maintained artificially in salt marsh ditches (caged fish and shrimp), that also included many other experimental aspects important to developing the Long-Term Plan and determining potential impacts associated with methoprene and resmethrin.

Catch basin - a small underground storm water structure; as used in this document, it is interchangeably a leaching pool/ring or a catch basin (technically, a catch basin holds storm water and then conveys to another structure).

Chronic - long-term.

Demonstration project - intended to showcase the advantages and disadvantages of a potential mosquito control technique.

Ditch maintenance - predominantly, the use of wheeled or tracked machines to clean and regrade mosquito control ditches to improve drainage and increase water flows.

Ditch reversion - allowing natural processes to occur in a ditched marsh.

EIS (Environmental Impact Statement) - a justification of a selected action that lists impacts associated with the action, mitigates the impacts if possible, and compares the results of the analysis to similar analyses conducted on alternative plans of action.

Early Action Project - an experiment or demonstration funded by the project, to test a mosquito control technique or determine the extent of potential impacts associated with a technique or techniques.

Eastern equine encephalitis - a mosquito-borne disease, first detected in the 1930s, that has impacted domesticated animals (horses and pheasants) on Long Island but not humans; produces acute encephalitis with a high fatality rate in people; not treatable.

Fresh water mosquito - a mosquito that breeds predominantly in fresh water environments.

GEIS (Generic Environmental Impact Statement) - an EIS conducted on a program or course of action where all actions associated with the action are not specified; instead, a general discussion of the planned action is presented and analyzed, often using specific examples.

Geographical Information System (GIS) - a means of organizing data so that it is readily mapped.

Grid ditched - a means of marsh manipulation used extensively in the first half of the 20th Century to decrease mosquito breeding in salt marshes, generally employing straight-line waterways without regard for marsh nuances.

High marsh - the portion of a salt marsh that is flooded irregularly – i.e., it is not covered by daily tides, but rather by the higher tides of a month, quarter, or year; often signaled by the presence of *Spartina patens* (salt hay); the portion of a salt marsh where mosquitoes can breed prolifically.

IPM (Integrated Pest Management) - a means of controlling a pest population that endeavors to treat the pest in the most appropriate and environmentally-sound fashion possible, requiring information gathering, and intending to apply controls as early as possible, as limited in scope or force as possible.

Integrated Mosquito Management - IPM for mosquitoes; not used in this document as it is often not recognized as IPM.

Larvicide - a pesticide used to kill mosquitoes in their larval stages, or to otherwise prevent adult emergence.

Lead Agency - for this action, the Suffolk County Legislature; in general, the organization tasked with determining if the DEIS addressed key issues in sufficient detail so as to meet all the requirements of the SEQRA “hard look.”

Long-Term Plan - the proposed means of managing mosquitoes in Suffolk County as determined by the Long-Term Plan project; also, the document that discusses the elements of the Long-Term Plan.

Low marsh - salt marsh that is inundated by tides on a daily basis; practically determined by the presence of a tall-form *Spartina alterniflora* (smooth cordgrass) monoculture; does not support mosquito breeding.

Management plan - a synonym for the Long-Term Plan; generally, a process developed by USEPA to produce environmental management programs for complicated estuarine systems, where science is intended to drive the planning process, and to result in consensus among a variety of different stakeholders.

Mosquito pool - a sample of (usually) one species of mosquito collected from a CDC mosquito trap, and analyzed for virus presence; may consist of any number of individual mosquitoes.

NEPA (National Environmental Protection Act) - the Federal act regulating actions and decisions made by Federal agencies; also, the Federal process that may result in an environmental impact statement.

Non-target organism - an organism other than a mosquito that is affected by mosquito control activities.

No-spray List - a compendium of addresses, comprised of the locations where individuals have notified SCVC of their desire not to be treated with adulticides, and so where treatment will not occur within 150 feet under vector control conditions (the Commissioner of the Department of Health Services can waive the requirements of the no-spray list under Health Emergency conditions).

Nuisance - commonly, a problem of not-great import; for mosquito control purposes, a mosquito nuisance implies considerable impacts to quality of life. Because these two understandings of the meaning of the term are not commensurate, this document has not used nuisance to describe quality of life impacts.

OMWM (Open Marsh Water Management) - a collection of techniques designed to be used on a salt marsh (“open marsh”) that, by manipulating how water flows through the marsh (“water management”) encourages the presence of killifish in areas where mosquitoes breed, and also may limit habitat for mosquito breeding through selective physical alterations of the marsh, including excavations (pond or channel construction) or filling (thin veneers of sediment to fill microdepressions that support breeding), ditch plugging, ditch filling, etc. OMWM proper is a mosquito control practice, but often is applied in conjunction with other marsh alterations to generate marsh restoration.

Pathogen - an organism that, if transmitted to people, can cause human illness.

Pesticide - a substance designed to eliminate an organism (pest).

Pesticide label - a legal document that specifies the manner in which a pesticide can be used.

Phragmites - technically, *Phragmites australis*; also known as common reed. Capable of exceeding eight feet in height, it is a plant that has aggressively invaded or expanded into many fresh water and salt water marshes, creating a (new) monoculture. Although *Phragmites* is native to North America, the invasive type has been linked to a Eurasian genotype that may have been introduced to North America in the late 1800s.

Population surveillance - sampling of larval and adult mosquito populations to determine the species present in an area, and often to determine relative population densities.

Progressive water management - the term used to describe the environmentally-sensitive wetlands management techniques to be employed under the Long-Term Plan, where local conditions (including mosquito breeding) and landowner/land manager preferences will determine what particular actions are used; an alternative to maintenance of the existing grid ditch system.

Public health threat - a condition declared by the Commissioner of the New York State Department of Health, in response to a petition from the Commissioner of the Suffolk County Department of Health Services, based on the presence of mosquito-borne pathogens in the County; under a public health threat, control of mosquito management in the County passes from the Department of Public Works to the Department of Health Services.

Public health emergency - conditions under a public health threat that rise to the level to require emergency actions, including invoking waivers of SEQRA requirements and expedited

permit reviews by NYSDEC, as determined by the Commissioner of the Department of Health Services.

Public health emergency treatment - an adulticide application made under the terms of a declared public health emergency.

Public health nuisance - under New York State Public Health Law, a condition that may affect public health.

Public welfare - the quality of life, including enjoyment of property, minimization of health threats as is possible, and protection of the environment, expected by the general public, and generally ensured by local government.

Pyrethroid - a modern pesticide (a synthetic analog of pyrethrins) with little to no environmental persistence, commonly used for adult mosquito control, but also for other pest control applications.

Quality of life - commonly held expectations regarding worry-free activities associated with residence in or use of a certain area.

Quantitative risk assessment - a process defined by the National Academy of Sciences that relates a human health or ecological threat that causes an exposure through a defined pathway, resulting in a dosage that may or may not result in an effect. Determination of the effect depends upon the existence of the threat, pathway, exposure, and dosage – absence of or lack of knowledge concerning any element means the analysis cannot be accomplished. If the effect has a threshold, the risk assessment determines if the threshold is likely to be exceeded; if the effect has no threshold, the risk assessment determines the probability of the effect occurring.

Remote sensing - the ability to conduct monitoring without necessarily visiting the area being monitored; usually conducted through aerial or satellite image interpretation.

Repellent - something intended to reduce adult mosquito contact or presence without necessarily killing them; a substance that disrupts a blood-seeking insect's host location ability, reducing contacts with people without reducing insect densities.

Reversion - see ditch reversion.

SEQRA (State Environmental Quality Review Act) - the State analog to NEPA; the assessment of potential impacts required for all government actions undertaken by State or local government agencies in New York State.

Salt marsh - a wetland, generally without trees or any kind of canopy, where tides control inundations, and where the water table is generally salty.

Salt marsh mosquito - commonly, a mosquito that breeds in the salt marsh; also, a particular, extremely aggressive, predominantly mammal-feeding mosquito, *Ochlerotatus (Aedes) sollicitans*.

Scoping - a process under SEQRA that determines issues that must be considered in an environmental review.

Source control - see source reduction (because control implies treatment, often with pesticides, source reduction is the preferred term).

Source reduction - elimination of mosquito breeding, most often by habitat alteration.

Surveillance - the process of sampling to determine where mosquitoes are, what mosquitoes are present, and often if the mosquitoes are infected with or carry pathogens.

Synergist - a substance that enhances the effects of a pesticide.

Synergy - when the effects of two conditions exceed the sum of the effects that might have occurred with each condition separately.

ULV (ultra-low volume) - a pesticide application, generally using relatively undiluted pesticides, that is made with very low concentrations using very fine droplets to achieve its effect. ULV applications are generally so fine that gravity does not control the movement of the pesticide; instead, it moves as carried by air currents and according to dispersive forces.

Vector - technically: a force with direction; thus, a mosquito that can transmit a pathogen in the course of blood-feeding.

Vector Control - mosquito control, generally; the division of Suffolk County Department of Public Works charged with mosquito control; in this document, mosquito control intended primarily to preserve quality of life, which in other jurisdictions is called nuisance abatement (this is not a standard usage of the term, “vector control”).

Vector control treatment - a non-Health Emergency adulticide application, where the primary (but not sole) purpose is to preserve public welfare.

Viral surveillance - sampling conducted to test for the presence of pathogens in adult mosquitoes.

West Nile virus - an untreatable, mosquito transmitted virus that can result in sometimes fatal or otherwise debilitating encephalitis, that was introduced to the US in 1999.

Wetlands - permanent or seasonal soil conditions that meet certain requirements regarding water presence or other soil factors.

Wetlands Management - making intentional choices to result in certain expected conditions in a wetlands.

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