

Suffolk County Vector Control & Wetlands Management Long-Term Plan

**Early Action Project: Impact of Pesticides on
Caged Fish & Crustaceans**



SCDHS Caged Fish Monitoring

- Evaluate baseline water quality conditions at perspective study sites
- Monitor resmethrin deposition during actual spray events

Resmethrin Deposition Monitoring

Objectives:

- **Develop techniques to collect and quantify resmethrin residues in dry deposition**
- **Evaluate whether Vector Control pesticides are reaching surface waters and if so, at what concentrations**

Sub-Tasks

- **Select a suitable sampling device**
- **Perform pesticide recovery experiments**
- **Perform controlled release field trials**
- **Monitor deposition during actual spray events**

Sampling Device

- Based on PEHL's prior experience with deposition monitoring, selected large Pyrex dishes (lasagna pans)
- Other techniques such as absorbent paper (Kimbies) and liquids were rejected due to potential problems with quality control and the extra extraction steps required

Pesticide Recovery Experiments

- Dishes inoculated with pesticide mixture of known concentrations, including resmethrin and PBO.
- Dishes exposed to air (in the dark) for varying periods of time and under different conditions.
- Tested extraction efficiency of various solvents, effects of temperature, humidity, and duration of air exposure.

Results of Recovery Experiments

- Resmethrin recoveries in lab and field were generally poor
- PBO recoveries were higher than resmethrin
- Recoveries for both compounds decreased with increasing temperature
- Field recoveries increased significantly when dishes were kept cool
- Modified Styrofoam dry-ice mailers to cool and transport the dishes

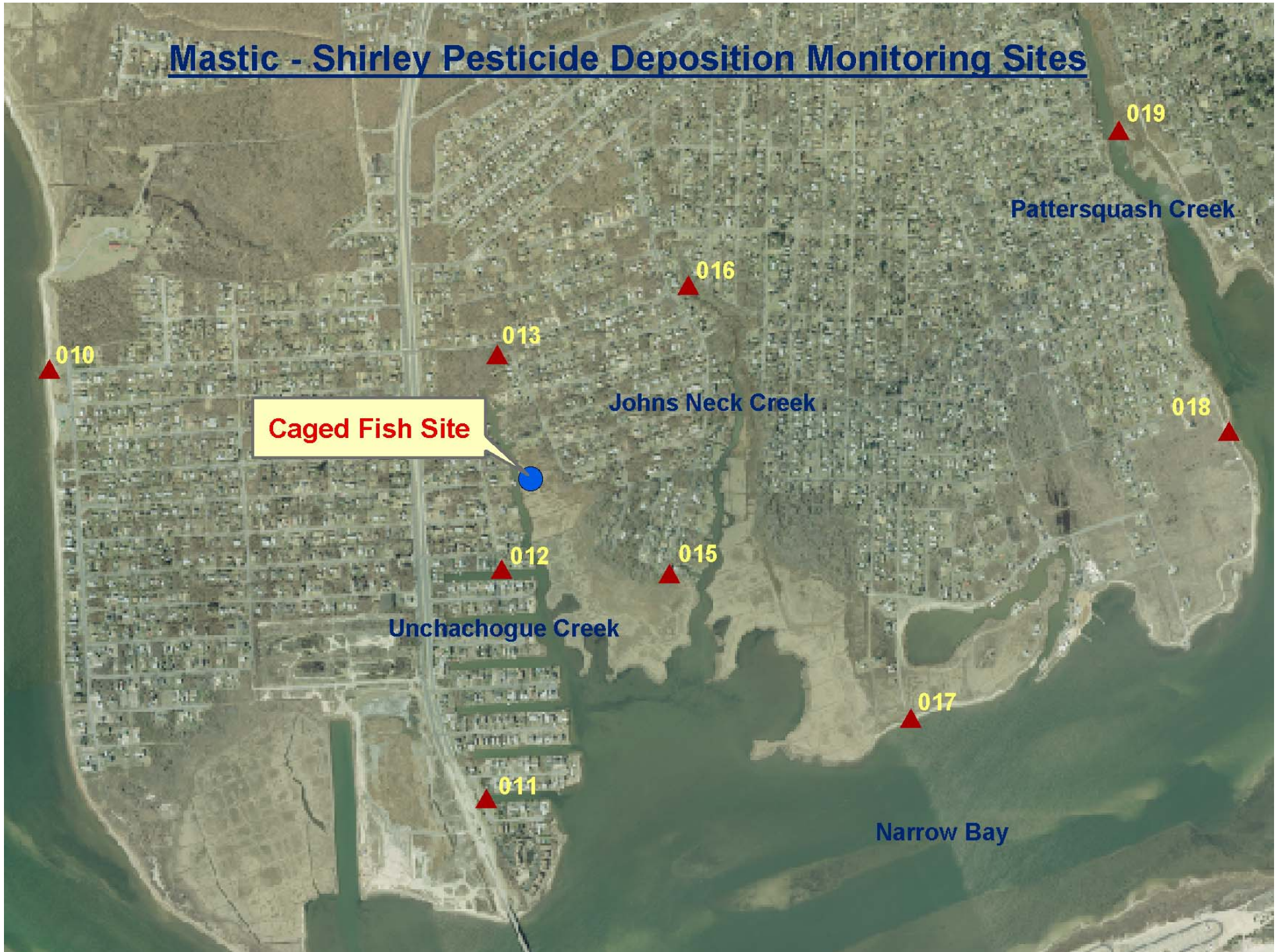
Deposition Sampling Coolers





SUFFOLK COUNTY
DEPT OF HEALTH SERVICES
EXPERIMENT IN PROGRESS
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Mastic - Shirley Pesticide Deposition Monitoring Sites



Deposition Monitoring Results

Station #	Resmethrin (ug/sq-ft)		PBO (ug/sq-ft)	
	18-Aug-04	25-Aug-04	18-Aug-04	25-Aug-04
010	<0.2	<0.2	1.7	19.5
011	<0.2	<0.2	<0.5	2.7
012	<0.2	1.2	21.7	12.0
013	----	<0.2	----	10.7
015	----	<0.2	----	<0.5
016	<0.2	<0.2	2.4	3.1
017	<0.2	<0.2	<0.5	<0.5
018	<0.2	<0.2	1.0	<0.5
019	----	<0.2	----	0.5
020	<0.2	<0.2	<0.5	<0.5
021	0.9	----	9.3	----
Caged Fish Site	----	<0.2	----	0.7

Baseline Water Quality Monitoring



Preliminary Organic Sampling

Monitored 9 areas being considered as potential spray and control sites:

- Beaver Dam Creek
- Fireplace Neck
- Havens Point
- Johns Neck (ditch and channel)
- Old Fort Pond
- Pepperidge Hall
- Timber point
- Flax Pond

Sample Analytes

- Samples analyzed by the Suffolk County PEHL for a full range of organic constituents (over 230 compounds), including:
 - VOCs
 - SVOCs
 - Chlorinated pesticides
 - Carbamate pesticides
 - Herbicide metabolites

Results of Preliminary Sampling

Sampling Site	Positive Detects (ug/L)	
	VOCs	SVOCs
Havens Point	Methyl sulfide (3)	DEET (8.5)
Old Fort Pond	Methyl sulfide (5)	
Flax Pond	Methyl sulfide (1)	
Johns Neck Ditch	MTBE (0.7), Methyl sulfide (1)	DEET (1.3)
Johns Neck Channel	Methyl sulfide (1)	DEET (6.3)
Timber Point	Methyl sulfide (0.9)	