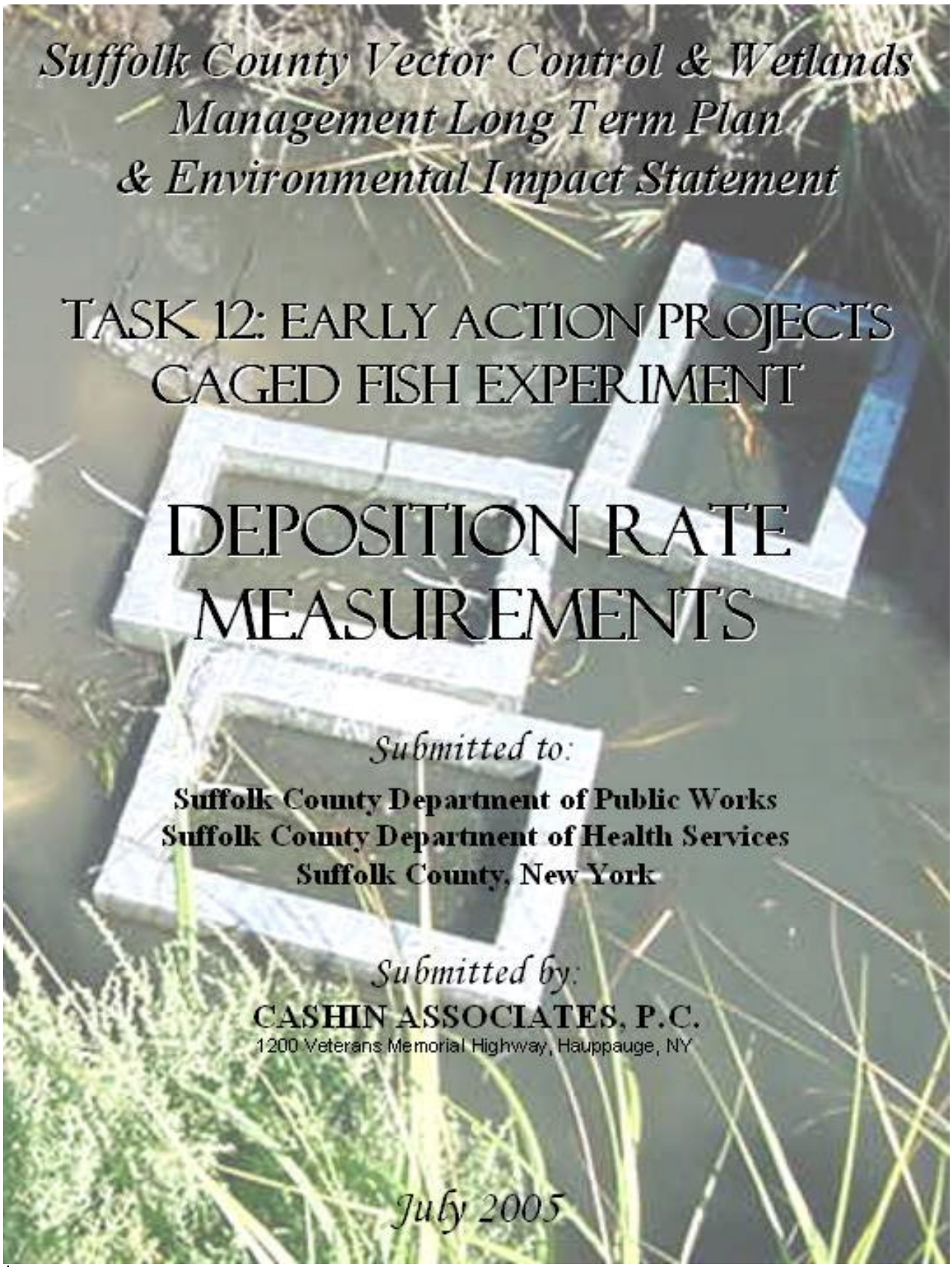

Suffolk County Vector Control & Wetlands Management Long Term Plan & Environmental Impact Statement

TASK 12: EARLY ACTION PROJECTS CAGED FISH EXPERIMENT

DEPOSITION RATE MEASUREMENTS

Submitted to:

Suffolk County Department of Public Works
Suffolk County Department of Health Services
Suffolk County, New York

Submitted by:

CASHIN ASSOCIATES, P.C.
1200 Veterans Memorial Highway, Hauppauge, NY

July 2005

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

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LIST OF ABBREVIATIONS AND ACRONYMS

PBO	Piperonyl butoxide
PEHL	Public and Environmental Health Laboratory
RTP	RTP Environmental Associates, Inc.
SCDHS	Suffolk County Department of Health Services

Ten deposition samples were collected by Suffolk County Department of Health Services (SCDHS) for analysis by the SCDHS Public and Environmental Health Laboratory (PEHL) on both August 18 and August 25. Deposition of adulticide was to be measured using chilled glass dishes (Pyrex baking dish). The instrument design consisted of a dish placed in a Styrofoam cooler, with a cutout to allow the dish to sit at the top of the cooler, and two bags of ice placed at the bottom of the cooler. All deposition samples were obtained with the cooler sitting on the ground surface, so that the collection dish was approximately two feet above the ground surface (near the top of the cooler). Each dish was covered with heavy duty aluminum foil prior to the applications. The foil was removed during active spraying. The media was collected at the end of the application and packaged for transport to the SCDHS laboratory by the SCDHS staff, including rewrapping in foil. Samples were kept cool during collection and transport. Figure 1 shows the sample locations.

Figure 1: Deposition Sampling and Meteorological Equipment Locations

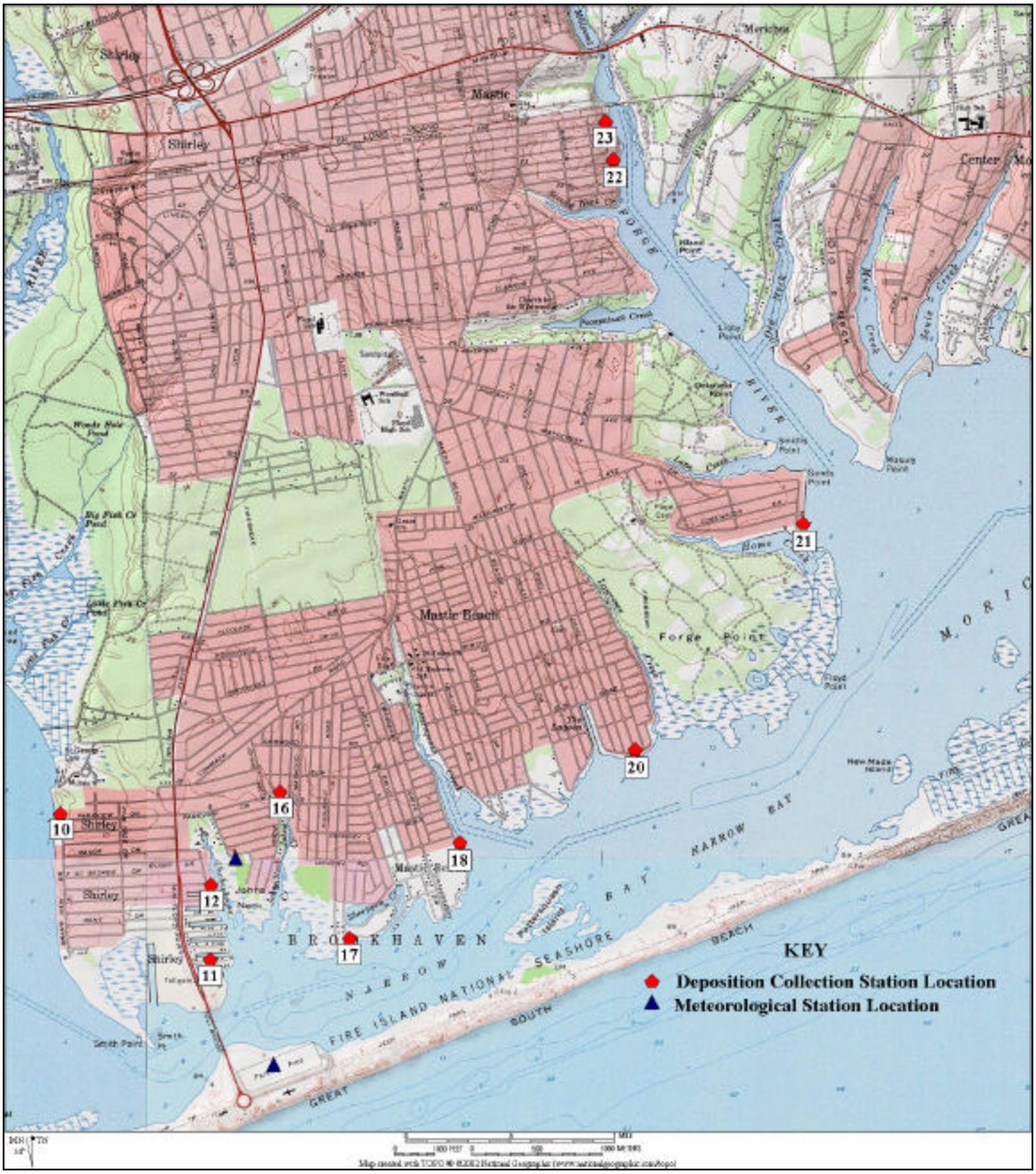

Table 1. Sampling Results for August 18, 2004

Station	Resmethrin Concentration ug/ft^2	PBO Concentration (ug/ft$^{2)}$
10	<0.2	1.7
11	<0.2	<0.5
12	<0.2	21.7
16	<0.2	2.4
17	<0.2	<0.5
18	<0.2	0.9
20	<0.2	<0.5
21	0.9	9.3
22	<0.2	10.9
23	<0.2	2.6

Table 2. Sampling Results for August 25, 2004

Station	Resmethrin Concentration ug/ft^2	PBO Concentration (ug/ft$^{2)}$
10	<0.2	19.5
11	<0.2	2.7
12	1.2	12.0
13	<0.2	10.7
15	<0.2	<0.5
16	<0.2	3.1
17	<0.2	<0.5
18	<0.2	<0.5
19	<0.2	0.5
20	<0.2	<0.5

Resmethrin was only detected in two samples. Piperonyl butoxide (PBO) was detected more frequently (seven samples on August 18, and six samples on August 25).

RTP Environmental (RTP) used a combination of USEPA-approved air dispersion models to simulate the release and transport of pesticides. The AGDISP model was used to predict the release of the pesticide from the helicopter and then tracked the plume until ambient atmospheric conditions predominate. At this point, the solution is transferred to the ISCST3 dispersion model to predict impacts in the far field. It should be understood that no chemical or physical degradation of the pesticides were accounted for, and some physical properties such as impingement on trees or buildings were also discounted. This means that the simulations are conservative, and will tend to overestimate the actual concentrations that might affect receptors.

A comparison of the PBO deposition rates predicted by the AgDISP/ISCST3 model combination and the values measured by SCDHS on the August 18 and 25 was made. RTP used the detection limit for the value of PBO when it was not detected. The model results and observed values for the August 18 spray event are in reasonable agreement. The peak observed value overall was 21.7 ug/ft^2, and the model peak predicted value over the entire deposition area was 21.3 ug/ft^2. Predicted values at each deposition sampler location were somewhat inconsistent, although in general the predicted values tend to exceed observed levels by a factor of three times, on average.

The comparison of the deposition rates predicted by the model compared to August 25 measured values showed reasonable agreement at some points and less at others. The highest predicted deposition value was 99.0 ug/ft^2, while the highest observed value was 19.5 ug/ft^2. The averaged ratio of predicted to observed values at the 10 stations was 14 to one.