



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

**TASK 12: EARLY ACTION PROJECTS CAGED
FISH EXPERIMENT**

REGULATORY HISTORY

Submitted to:

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

Submitted by:

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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

CA	Cashin Associates, P.C.
CE	Cameron Engineering and Associates, LLP
Cornell	Cornell Cooperative Extension
EQBA	Environmental Quality Bond Act
GEIS	Generic Environmental Impact Statement
Long-Term Plan	Suffolk County Vector Control and Wetlands Management Long-Term Plan and Generic Environmental Impact Statement
NYSDEC	New York State Department of Environmental Conservation
PEHL	Public and Environmental Health Laboratory
SCDHS	Suffolk County Department of Health Services
SCVC	Suffolk County Vector Control
USGS	United States Geological Survey

1 Scoping

In September, 2002, the Suffolk County Vector Control and Wetlands Management Long-Term Plan and Generic Environmental Impact Statement (Long-Term Plan) project opened the Scoping process associated with the Generic Environmental Impact Statement (GEIS). Thirty-nine sets of comments were received (CA-CE, 2002a). One comment from the New York State Department of Environmental Conservation (NYSDEC) requested that the project undertake a particular experiment that has become known as the Caged Fish Experiment.

The NYSDEC suggested protocol was for tests of at least two local organisms in both fresh and salt water, where the organisms would be subjected to applications of adulticides. The organisms would be observed for at least 24 hours to determine immediate and delayed mortality. Sets of organisms would also be placed at control sites (where no chemicals had been applied). NYSDEC also supplied a statistical methodology to be used to determine the significance of the results (CA-CE, 2002a).

The Long-Term Plan produced a Responsiveness Document as part of its Scoping effort. In it, the Caged Fish experiment was addressed as follows:

Despite substantial and substantive criticisms of the caged fish experiment, the County will work with NYSDEC to create a jointly-acceptable field test of acute toxicities associated with a selection of adulticides (and, potentially, certain larvicides).

(CA-CE, 2002b)

The criticisms alluded to in the Responsiveness Document included comments offered by Edward Nadel, a biostatistician in the Suffolk County Department of Health Services (SCDHS), which were included in Scoping, and solicited comments from Anne McElroy, University at Stony Brook.

2. 2003 Activities

In 2003, due to certain funding problems, the Long-Term Plan was not conducted at full-strength. Some activities relating to the Caged Fish experiment did occur, however.

Cornell Co-operative Extension (Cornell) was requested by Cashin Associates, PC (CA), the consultant to the Long-Term Plan, to develop a Caged Fish experiment, based on the requested NYSDEC protocol but also addressing the McElroy and Nadel comments. Cornell, recognizing that certain methodological problems were required to be addressed prior to the completion of such a workplan, produced a generalized approach and a budget based on the maximum number of likely experimental sites and iterations. This was used as a basis for a supplemental funding request by CA to the Long-Term Plan managers to address changes in the project due to Scoping.

The Suffolk County Legislature, in approving the overall project funding in April, declined to directly fund the experiment. This was because the Legislature hoped that SCDHS would be able to secure funding from either federal or State sources. Therefore, in September, SCDHS prepared (with the assistance of CA) a grant proposal to the New York State Environmental Quality Bond Act (EQBA) fund. The proposal was still based on the rather sketchy workplan prepared by Cornell, although Dr. McElroy and CA had succeeded in addressing some of the more problematic issues. The proposal called for leveraging other Long-Term Plan activities with the proposed EQBA funds to cover the costs associated with the experiment (based on the Cornell estimates).

A Long-Term Plan “Monitoring” subcommittee was formed, and had several meetings in 2003. Members of this committee included CA, SCDHS, Suffolk County Department of Public Works Division of Vector Control (SCVC), the US Geological Survey (USGS) (Steve Terracciano), NYSDEC, and various members of the CA team including Ken Skipka (RTP Environmental), Bruce Brownawell (Stony Brook University), and members of Cameron Engineering (CE). Discussions that eventually related to the project included:

- The dry deposition experiments conducted by the SCDHS Office of Ecology under the direction of Ken Hill (Public and Environmental Health Laboratory [PEHL])

- Means of relating various data sets collected by Dr. Brownawell, USGS, and PEHL
- Use of models (including one developed by Adapco) to determine the area impacted by aerial applications of insecticides

Following Dr. McElroy's initial reworking of the Cornell proposal as part of the EQBA application process, it became clear to CA and SCDHS that the project had become more complex than originally envisioned. Dr. McElroy was asked by CA to assume the lead technical role on the project.

During the summer of 2003, unknown to the Long-Term Plan, students under the direction of Southampton College faculty conducted a caged-fish-exposure-to-insecticides experiment. The organisms were exposed to larvicides and adulticides. The data were assessed in the fall, and a report was released in the spring of 2004.

3. Experiment Modification

In early 2004, the Long-Term Plan learned that the State would decline to fund the experiment. The funding applications were submitted to the Suffolk County Quarter Percent Committee, which recommended funding the projects. In April, the Legislature approved the funding proposals. There were some problems with the form of the approval that impacted the delivery of funds to the project, but there were no material impacts from these problems on the experiment itself.

The preparation of materials for the Legislature resulted in another draft of the experimental procedures for the experiment by Dr. McElroy. These procedures were circulated among interested parties (SCDHS, SCVC, Cornell, USGS, other CA subconsultants, and NYSDEC).

On March 19, 2004 another meeting of the Monitoring Committee was held. A frank discussion of the Caged Fish experiment procedures occurred between CA and NYSDEC. At this time, CA was proposing to use controlled sprays as the means of dosing the organisms, for instance. NYSDEC expressed a desire to see a proposal that used operationally-required applications as the basis for the proposal. NYSDEC also preferred to see artificial freshwater environments (golf course ponds or recharge basins) used for that portion of the experiment, to avoid impacts to natural water bodies. NYSDEC did point out that Article 24 appeared to allow for the possibility of waiving the requirement for operational applications, if a case could be made that a waiver should be granted for a demonstration or experimental purpose.

The project proposal was therefore reconsidered. Environments such as Timber Point golf course, where salt marshes and freshwater sites were found in close proximity, were very carefully considered. However, Dr. McElroy also counseled that the need for control sites and appropriate replication made it unlikely that two different tests could be successfully managed at once.

At this time, the Southampton College report was released (SCERP, 2004). After reviewing its contents, Robert Turner and Chris Goble of Southampton College were invited to join the project team. Perceived problems with the Southampton College work made the need for adequate replication and supporting data collection even more important. The project scope was

expanded to include tests of methoprene as well as the adulticide resmethrin, extensive water and sediment sample collection (Bruce Brownawell and USGS), caged mosquito and larval impacts (SCVC), air sampling (PEHL), meteorological data collection to support air modeling (RTP, potentially with Adapco, a private modeling company), and dry deposition monitoring (SCDHS Office of Ecology). Two sites would be used, both for control samples as well as for exposures. The organisms (sheepshead minnows and grass shrimp) would be evaluated for mortality, the minnows would be tested for growth rates, and the shrimp would be evaluated for prey capture and fecundity. The experiments would be repeated twice, for both chemicals.

This proposal was submitted for NYSDEC consideration. On June 18, 2004, a meeting was held at NYSDEC Region I to discuss the proposal. NYSDEC accepted most of the proposal, but held fast to its need for the insecticide applications to occur on an operational basis. This would not be a problem for methoprene, but SCVC had only made aerial applications of adulticide six times over the preceding five years. Further discussion resulted in provisional NYSDEC acceptance of the alteration of truck-based adulticide applications to aerial applications. The acceptance was provisional based on a final interpretation of the freshwater wetlands regulations. CA was to submit an application for waiver of the regulations on the “experimental” clause in Article 24 (the aerial applications necessitated a freshwater permit decision). On July 2, 2004, CA submitted the waiver request.

NYSDEC was unable to waive the freshwater regulations. However, in response to a request by CA, it did consider issuing permit for the aerial adulticide applications, and one was issued July 15, 2004. The permit allowed SCVC to apply resmethrin via helicopter at Gilgo Beach or Mastic-Shirley, in place of operationally-required truck-based applications.

The Caged Fish Experiment and Subsequent Reporting

The experiments were conducted through August. Three larvicide and two adulticide applications were tested. Some related work, such as sampling benthic invertebrates to determine if long-term impacts from larvicides could be discerned, and laboratory work in conjunction with the field work, was conducted in the fall of 2004. All work on the project has been completed.

This report section constitutes one part of the overall Caged Fish Experiment report. In addition to the experiment reporting, a master's thesis at the Marine Sciences Research Center, Stony Brook University (Robin Barnes), has also been completed on the project.

References

CA-CE. 2002a. *Scoping Comments, Generic Environmental Impact Statement, Suffolk County Vector Control and Wetlands Management Long-Term Plan*. Suffolk County Department of Health Services, Riverhead, NY. 310 pp.

CA-CE. 2002b. *Draft Task 1 Report, Suffolk County Vector Control and Wetlands Management Long-Term Plan and Environmental Impact Statement*. Suffolk County Department of Health Services, Riverhead, NY. Paged in sections.