RESPONSE TO COMMENTS

This Response to Comments is submitted as requested by the Certificate of the Secretary of Environmental Affairs issued on February 15, 2008 for the Mosquito Control Program GEIR update EEA# 5027. A copy of the Secretary's Certificate is included at the end of this section.

The following Section responds to comment letters from state government agencies, local municipal officials, private organizations and individuals received by the Secretary regarding the Mosquito Control GEIR update titled, *Massachusetts Best Management Practices and Guidance for Freshwater Mosquito Control (Freshwater Mosquito BMP Manual),* submitted by the State Reclamation and Mosquito Control Board (SRMCB) on November 26, 2007. In addition, the SRMCB also provides responses to comments received that were more germane to the Mosquito Control GEIR and Mosquito Control practices in general. These comments and responses were incorporated in the Freshwater Mosquito BMP comments and responses.

All letters have been assigned an abbreviation, listed below in Table 1-1. Specific comments within each letter specific to the Freshwater Mosquito BMP Manual are noted in the margin with this abbreviation and a sequential numbering. Preceding each letter is a listing of comments accompanied by a response.

Table 1-1 Comment Letters Received

Commenter	Abbreviation
Mathew Selby, Ashland Conservation Commission	MSACC
Carol Harley	CH
Town of Stow, Conservation Commission	SCC
Judith Eiseman	JE
Lynn Southey	LS
Mass Audubon	MA
Jones River Watershed Association, Inc.	JRWA
Green Futures	GF
The Nature Conservancy	NC
Alexandra Dawson	AC
Mass Audubon – Heidi Ricci	MAHR
Natural Heritage and Endangered Species Program	NHESP
Miscellaneous Comments	MC

MATHEW SELBY, ASHLAND CONSERVATION COMMISSION

MSACC.01 *Because mosquito control work is exempt from the Wetlands Protection Act, all of this work – including taking large machinery into jurisdictional wetlands – is done without the oversight of the Conservation Commission.*

Yes, mosquito control district work is exempt pursuant to Chapter 252 of the MGL. However, the Freshwater Mosquito BMP recommends (but does not require) that MCDs notify the applicable Conservation Commission. Also, MCDs, as a matter of practice, currently and historically, contact their local conservation commissions as well as abutters regarding the proposed work not only to notify all parties of the work but also to provide an opportunity to comment and provide additional information on the proposed project. Additionally, while exempt from the Wetland Protection Act, if MCDs projects exceed certain limits they are subject to ACOE 404 and 401 Water Quality Certification. Finally, if the project is within Rare and Endangered Species Habitat, a project notice is filed with MassDFW. The freshwater mosquito BMP document purpose is to standardized MCDs activities in freshwater wetland areas.

MCDs use low-ground pressure equipment in sensitive sites that require such equipment and perform hand clearing when and where feasible for equipment and work access to mitigate negative environmental impacts. Additionally, the MCDs to mitigate potential impacts will schedule work in environmentally sensitive areas during the winter months when the ground is frozen and plants are dormant.

MSACC.02 *Yet the proposed Best Management Practices for Freshwater Mosquito Control lack any provisions for monitoring the success or failure of the work in reducing mosquito breeding habitat.*

Yes, the Board agrees that pre and post monitoring is justified. The Board will work with MCDs to develop a protocol to be appended to the Freshwater Mosquito BMP as an update by the 2009 mosquito season. However, it is also important to recognize that some sites are deemed a problem by the MCD staff before mosquitoes become apparent because of historical records or because the topography / ecology of the site is consistent with one that would likely pose a problem as the mosquito season progressed.

MSACC.03 *Rather than repeated ditching and pesticide management, freshwater mosquito control practices should focus on improving and restoring the health of wetlands and waterways to enhance habitat for mosquito predators (e.g. fish) and to reduce water pollution, sedimentation and fish barriers (e.g. undersized culverts).*

The mandate to control mosquitoes (Chapter 252) is meant to offer the greatest relief from both nuisance and disease bearing mosquitoes. The MCDs take into account the legal aspects of any action, the efficacy of any intervention, the impact upon the environment, the financial costs, and the preferences of community members. MCDs are not mandated to restore wetlands, but they consider such activities if they mitigate a current or future mosquito problem, and if the MCD is empowered to perform the activities.

Any increase in biodiversity and improvement in aesthetics that result from mosquito wetland activities is normally a secondary benefit of proper mosquito control using IPM. In many cases, work by MCDs will result in secondary beneficial results such as enhancing habitat for fish and other mosquito predators as observed in Open Marsh Water Management (OMWM) in coastal ecosystems. OMWM is effective as mosquito control largely because the channels, ponds, and other constructed waterways provide permanent habitats for predators such as fish. The purpose of the Freshwater Mosquito BMP is to control or reduce the conditions that lead to mosquito development by maintaining and/or repairing (thus enhancing) the wetland or waterway. These Freshwater Mosquito BMPs are consistent with the principles of Integrated Pest Management (IPM), and if successful, can reduce the use of pesticides in these particular sites.

MSACC.04 *Mosquito Control practices should be consistent with the principles of integrated pest management, and the methods should be studied for effectiveness.*

Mosquito Control practices in Massachusetts are consistent with the principles of Integrated Pest Management (IPM) approaches which means that the MCDs control mosquitoes utilizing a combination of chemical, physical, and biological methods e.g. Open Marsh Water Management (OMWM). The MCDs rely on surveillance and monitoring to guide them in their intervention decisions. Also, the MCDs incorporate education and outreach within these programs as another important element to IPM. Pesticides are an acceptable and often necessary component of any IPM program. The use of pesticides in Massachusetts is extensively regulated by the Department of Agricultural Resources. MCDs are funded to carry out an operational mandate and are not established or funded as research institutions. The methods that are employed in Massachusetts are consistent with methods used nationally. Research to improve mosquito management and reduce potential environmental impacts is ongoing and the Board monitors and welcomes and adopts such advances when practical.

MSACC.05 *If a Citizens Advisory Committee (CAC) is to be created, it should include technical and public stakeholder representatives who are independent of the mosquito control districts, such as local boards of health, conservation commissions, wetland restoration experts, watershed associations, the Department of Public Health, and experts in the effects of pesticides on human health and the environment.*

The fact that the SRMCB has initiated a Special Review Procedure (SRP) to facilitate updating the current GEIR that previously had an extensive CAC negates the need for a CAC for these updates. However, the Board does not object to convening a small group annually per MEPA's instructions to discuss concerns from representatives mentioned in the comment.

CAROL HARLEY

CH.01 *First and foremost, the current mosquito control districts operating in Massachusetts under the State Reclamation and Mosquito Control Board (SRMCB) and MGL Ch. 252 are exempt from the Wetlands Protection Act, and can operate heavy machinery or apply pesticides in wetlands without conservation commission review or approval.*

See response MSACC.01.

CH.02 *Freshwater mosquito control practices should focus on improving and restoring the health of wetlands and waterways to enhance habitat for mosquito predators (e.g. fish) and to reduce water pollution, sedimentation, and fish barriers (e.g. undersized culverts), rather than ditching and pesticide applications.*

See response MSACC.03.

In addition, inland freshwater mosquito control practices include removal of excessive sedimentation and obstructions in streams to improve the flow of water and reduce stagnant water. MCDs do not, as a general practice, create new "ditches" in freshwater wetland resource areas. The larvicides MCDs apply directly to wetlands are types that are very selective and environmentally benign such as *Bacillus thurengensis israelensis* (Bti) a microbial pesticide. MCDs have worked with local DPWs to replace under-sized culverts and remove obstructions in streams to improve fish migration. One of the goals of the Freshwater Mosquito BMP is to provide standardization in order to guide mosquito control activities such as these that are exempt from the Wetland Protection Act.

CH.03 *Freshwater mosquito control practices should focus on improving and restoring the health of wetlands and waterways to enhance habitat for mosquito predators (e.g. fish) and to reduce water pollution, sedimentation and fish barriers (e.g. undersized culverts), rather than repeated ditching and pesticide management*

See response to MSACC.03.

CH.04 *Existing documents should be submitted to MEPA for public review (e.g. a report on the 2006 aerial spraying of 425,000 acres).*

All applicable documents have been attached including but not limited to final reports summarizing both the August 8th and 9th, 2006 and August 22nd, through 24th aerial applications, 2008 MassDPH Arbovirus Surveillance and Response Plan, 2008 Operational Response Plan to Reduce The Risk of Mosquito-Borne Disease in Massachusetts, Choice of Anvil 10+10 for Aerial Mosquito Control dated July 28, 2006, and the 2006 EPA Final Report dated March 6, 2007 on use of Anvil 10+10.

CH.05 *Any Citizens Advisory Committee should include technical and public stakeholder representatives who are independent of the mosquito control districts.*
See response to MSACC.05.

TOWN OF STOW, CONSERVATION COMMISSION

SCC.01 *The Stow Conservation Commission believes that the proposed CAC is heavily weighted toward the Districts and does not provide adequate balance from the environmental community.*

See response to MSACC.05.

SCC.02 *The report does not present any evidence that common mosquito control practices, such as wetland ditching, are effective in actually reducing mosquito breeding habitat;*

The purpose of the Freshwater Mosquito BMP is to provide standards to guide mosquito control activities in freshwater wetlands. Water Management projects in these areas meet the dual aim of being an effective means of mosquito control while at the same time minimizing negative impacts to the ecosystem. Mosquito Control agencies in many states have conducted this kind of work for many years. Over the long term, impacts to the ecosystem, if any, tend to be short-term and the result of work activities at the site rather than permanent changes to the ecosystem. Finally, MCDs share your interest in research regarding effectiveness and environmental impacts of water management or source reduction work. However, these efforts are constrained by lack of staff and/or funding. MCDs and the Board would welcome ideas to support these initiatives.

SCC.03 *Nor does it quantify the impact of such practices on sensitive species or on fisheries, that can provide natural control of mosquito populations. We believe the State Reclamation and Mosquito Control Board should be required to undertake such studies.*

The Board disagrees and believes that is not the responsibility of the Board or MCDs. Further, it is not within the scope of the Board's or MCD's expertise nor is it part of its statutory mandate. This kind of environmental monitoring is best performed by other state agencies with the appropriate personnel, expertise and mandate.

JUDITH EISEMAN

JE.01 *I have always been concerned that the nine mosquito control districts operating in Massachusetts are exempt from the Wetlands Protection Act, and can operate heavy machinery or apply pesticides in wetlands without conservation commission review or approval.*

See response MSACC.01.

JE.02 *At a bare minimum, any Citizens Advisory Committee (CAC) must be constituted to include technical and public stakeholder representatives who are expert and independent of the mosquito control districts and have time to devote to the Committee.*

See response to MSACC.05.

JE.03 *The fact that the 1998 MEPA Certificate called for annual updates and additional study and research and that this is the first update filed in 10 years is enough to raise ones eyebrows.*

The Board agrees that this filing could be perceived as an improvement after a number of years. However, the Board sought guidance from MEPA over the years on the best approach to accomplish the annual updates. As a result, the Board was directed to develop a website as a means to accomplish and achieve this goal. Currently, the website continues to be strengthened and updated as needed. When significant improvements to mosquito control practices are available, they are adopted. Such changes do not occur with great frequency. Early in this process, the Board acknowledged that annual updates were unrealistic and suggested an alternative timeline in a letter to MEPA Director dated March 4, 2002 (copy attached). While the Board did not receive a written response to this request, verbal communication with MEPA staff indicated that an acceptable alternative approach would allow the SRMCB to post new information as it became available on the DAR/SRMCB web site. This approach was adopted as previously stated.

JE.04 *The proposed "Best Management Practices for Freshwater Mosquito Control" lacks any provisions for monitoring the success or failure of the work in reducing mosquito breeding habitat.*

See Response to MSACC.02.

LYNN SOUTHEY (LS)

LS.01 *I am very concerned that because mosquito control districts are routinely altering wetland and applying pesticides in large areas of the state, that the MEPA review are [sic] continued to document 1) the effectiveness of current mosquito control practices in protecting public health and 2) the environmental impact of these activities;*

See Response to CH 04.

LS.02 *Existing documents should continue to be submitted to MEPA for public review, e.g. 2006 report on aerial spraying of 425,000 acres.*

See Response to CH.04.

LS.03 *I strongly feel that any Citizens Advisory Committee (CAC) should include technical and public stakeholder representatives who are independent of the mosquito districts.*

See response to MSACC.05.

LS.04 *I [sic] addition, Freshwater mosquito control practices should focus on improving and restoring the health of wetlands and waterways to enhance habitat for mosquito predators (e.g. fish) and to reduce water pollution, sedimentation and fish barriers (e.g. undersized culverts), rather than repeated ditching and pesticide management*

See Response MSACC.03.

MASS AUDUBON

MA.01 *We are concerned that this is the first update in ten years, whereas annual updates were required.*

See Response JE.03.

MA.02 *During all this time, mosquito control districts continued to operate heavy equipment in wetlands and apply pesticides across large areas of the Massachusetts landscape without benefit of standardized BMPs or documentation of the effects of these activities on mosquito populations, human health, or the environment.*

See Responses MSACC.03. SCC.02, and CH .02

MA.03 *Therefore, we support a program of mosquito control base on Integrated Pest Management (IPM) principles and consistent with the recommendations of the Centers for Disease Control and the Environmental Protection Agency.*

See Response MSACC.04.

MA.04 *While we do not expect mosquito control districts to remedy the many problems caused by a wide range of human activities, they should work cooperatively with municipalities, state agencies, watershed groups, and others to restore wetlands.*

The Board appreciates the sentiment expressed and notes that MCDs have a long history of working cooperatively with municipalities and other groups that have wetland concerns which overlap with the MCD mandate to control mosquitoes. However, such parties must realize that the primary goal of water management projects conducted by mosquito control projects is to reduce the presence of mosquitoes and the conditions conducive to the development of mosquitoes. Wetland restoration benefits that are realized by such work are secondary to the MCD primary purpose. There are situations where such restoration may increase the development of mosquito populations and increase public health risks associated with arboviruses; such as, Eastern Equine Encephalitis virus (EEEv). In addition to oversight provided by diverse state and federal entities, each MCD reports to its own Commission. Commission members represent the interests of the communities serviced by the MCD.

MA.05 *There is a serious flaw in this manual: it lacks any provisions for monitoring the success or failure of the work in reducing mosquito breeding habitat.*

See Response to MSACC.02

MA.06 *The manual also fails to address opportunities for the mosquito control districts to work with the communities they serve to reduce mosquito habitat associated with stormwater management, instead noting that the districts are "not responsible for the operation, maintenance, monitoring, or treatment of larval habitat of stormwater BMPs." It is unfortunate that the SRMCB and districts do not see it as part of their job to cooperate with municipalities to assist in improving the design and management of stormwater facilities to reduce breeding habitat. The manual also lacks any mention of the extensive opportunities for districts to partner with others to restore streams and wetlands, improve fisheries, and reduce mosquito habitat.*

The Board disagrees. MCDs are not responsible for the operation, maintenance, monitoring, and or treatment of stormwater structures.

According to MassDEP's 2008 Stormwater Management handbooks and Wetlands Protection regulations (310 CMR 10.05(6)(k)(9), the owners of the property that develop the stormwater BMPs, or municipalities that "accept" them through local subdivision approval, are responsible for their operation and maintenance. When requested, MCDs do work with municipalities to help address these issues, including, but not limited to larvicide treatment plans. MCDs will alert municipalities when they encounter poorly maintained structures, as these situations can be associated with the increase development of mosquitoes and subsequent risks of arbovirus such as West Nile virus.

MA.07 *The SRMCB has undertaken extensive work over the past several years in cooperation with the districts, the Department of Public Health (DPH). MassWildlife, and other agencies and experts, resulting in issuance of numerous plans, guidelines, analyses, and policies. None of these documents have been filed with MEPA as part of the required annual update process, even though some are available on the SRMCB website. ……These and other existing documents should immediately be submitted for review.*

The Board has attached these documents. The 1991 DPH Vector Control plan was extensively revised after the introduction of WNv in Massachusetts in 2000. Over thirty local and state agencies and environmental groups were involved during the process of development of an Arbovirus State Response and Surveillance plan. DPH widely distributed the plan thorough a series of statewide public meetings and made the plan available both through direct mailings to local BOHs and by posting on the DPH web site. Updates and revisions are made annually to the plan if needed by a collaborative effort with input from local BOH's and others. Recommendations for Mosquito Control from the CDC and EPA have been incorporated into the current State Response and Surveillance Plan and are an integral part of the local MCD programs.

MA.08 *The CAC members should include technical and public stakeholder representatives who are independent of the mosquito control districts, including: DPH Center for Environmental Health; MassWildlife; Experts in the effects of pesticides on human health and the environment; Watershed Associations; Wetlands Restoration experts; Conservation commissions, and Local Boards of Health.*

See response to MSACC.05.

JONES RIVER WATERSHED ASSOCIATION, INC.

JRWA.01 *We are disappointed that the present update does not recount the events of 2006, the monitoring data, the pesticide application and the results, or the chosen methods for chemical control.*

See Response to CH.04

JRWA.02 *We have endured three occurrences of aerial application during that time which have noticeable impact on the nature and health of beneficial organisms, as well as on people.*

Each aerial adulticide application in 1990 and again in 2006 was performed after a declaration of a public health emergency by the Governor. The goals of any mosquito control intervention that targets the adult stage is to reduce mosquito abundance as a means of limiting 1) the force of transmission of mosquito borne disease agents, and 2) the nuisance caused by biting mosquitoes. Complete elimination of mosquitoes neither is possible nor a goal. Regardless of the kind of insecticide applied or the manner of its application, some mosquitoes will survive. No species of mosquito (or any other creature) has been eradicated because of mosquito control efforts. Monitoring prior to and after any spraying was performed to document overall reductions of mosquito populations, and potential impacts. The Board worked closely with various state agencies, most notably the Department of Public Health, and utilized its own operational plan to insure that steps were taken to mitigate and avoid potential negative impacts to people and the environment. During the 2006 spray events the Board and other State agencies collected data on: macroinvertebrate species composition, water quality samples from streams, pre and post treatment water samples from public water suppliers, conducted surveys of lakes for fish kills, contacted local beekeeper associations, collected samples from Cranberry growers. The Board refers you to further details in its current version of the *Operational Response Plan To Reduce The Risk Of Mosquito-Borne Disease In Massachusetts* and *MassDPH Arbovirus State Response and Surveillance Plan* attached.

As discussed in the attached spray reports, no adverse impacts to the environment were observed through these sampling efforts. Ultimately, the potential risks associated with such emergency operations are outweighed by the public health benefits. Also, See Response MA.HR.01

JRWA.03 *Now we have the SCMCB trying to duck under the sheets again with its own CAC which it will call to session to comment and stamp its occasional reports to MEPA, much like the MCDs which now sent a "courtesy" notice to the Conservation Commission when they choose to work in wetlands.*

See Response MSACC.05 and MSACC.01

JRWA.04 *The Freshwater BMP that was submitted by SRMCB for public comment now is deficient in several critical ways. In our opinion, the first issue to address, which is not even mentioned, is mosquito and environmental monitoring as the underlying basis for MCD activities/wetland management. It is not unusual today for "mosquito control activities" to occur where someone wants to avoid filing with a conservation commission. After all, mosquito control is an exempt activity, so why not clear the stream without filing? We need to set a standard for the mosquito breeding evidence that is available for public review, and understand the human health threat associated with that evidence. This means that not only do we need to count breeding species and their EEE evidence, but calculate how the environment will handle the elevated threat and what assistance to give.*

See Response MSACC.02

JRWA.05 *Because the districts have been in place for quite some time and have a long record of breeding sites, it should be possible to develop local maps for public disclosure and public hearing in communities where mosquito control is necessary to protect public health. These maps and information should clearly describe the problem, location, habitat issues and recommended treatment(s).*

The Board notes that MCDs do have maps and other records available for review by the public at MCDs facilities; however, the Board disagrees that such information be necessarily presented at public hearings. Where such MCD operations are conducted especially for arbovirus suppression, the Board works closely with the following parties to review and evaluate diverse risk factors pertaining to emergency operations to conduct aerial applications when necessary:

- **The MDPH, CEH and SLI epidemiologists and entomologists;**
- **The MDFW and NHESP;**
- **The Massachusetts Mosquito Advisory Group (MAG); and**
- **The experienced staff and experts within the MCDs.**

The maps that are developed are utilized by those professionals dealing with emergency situations along with carrying out well vetted response plans to intervene in the most meaningful manner.

JRWA.06 *We are not aware of any effort to evaluate the compounding of chemicals in the environment or the impact on this valuable and rare ecosystem. While JRWA is busy trying to get fish back to Blackwater Pond by relieving a downstream dam-the stream is clogging and the pond is losing oxygen and growing submerged algae mats.*

The use of pesticides in Massachusetts is extensively regulated by the Department of Agricultural Resources as mentioned in MACC.04. There is a significant body of scientific data, developed to support registration with U.S. EPA, supporting a finding that the chemicals registered for mosquito control in Massachusetts do not appreciably bioaccumulate. The larvicides and adult mosquito control products are not associated with increased aquatic plant growth. Such issues as eutrophication are water quality issues that stem from non-mosquito control related activities. The conditions that you cite in your comment are not related to mosquito control; but rather may also be conducive to the development of mosquitoes.

JRWA.07 *Mosquito Control activities-whether wetland alterations or pesticide applications-lack supervision and environmental monitoring.*

Many MCDs now employ wetland specialists that are dedicated to conduct work in freshwater wetlands and other sensitive environments. However, the Board agrees that there is room for improvement and has, in recent years, taken action to improve oversight. For example, the Board recently required that all MCDs submit annual operation reports. The adoption of the Freshwater Mosquito BMP provides an additional oversight mechanism which ensures that MCDs are using standard practices that aim to achieve the duel purpose of reducing mosquitoes and mitigating potential impacts to the environment.

JRWA.08 *The SRMCB and its mosquito control districts and/projects are not responsible for the operation, maintenance, monitoring, or treatment mosquito larval habitat of stormwater BMPs. Typically, the owners of the property that develop the stormwater BMPs, or municipalities that "accept" them through local subdivision approval, are responsible for their operation and maintenance. This is concerning [sic] because of the increasing incidence of West Nile virus and its relationship to stormwater systems. It is not likely that local towns have the knowledge to effectively control or monitor mosquito breeding in stormwater basins and other structures. Widespread use by the MCDs of growth inhibitors in catch basins which discharge to waterways.*

Although it is true that MCDs are not responsible for the operation, maintenance, monitoring, or treatment mosquito larval habitat of stormwater BMPs, as noted in Response MA.06 when requested, MCDs do work with municipalities to help address these issues, including, but not

limited to larvicide treatment plans. Also, MCDs will alert municipalities when they encounter poorly maintained structures. Further, the Department of Agricultural Resources does make available training to municipal personnel pertaining to monitoring and treatment of catchbasins or stormwater structures. This training includes discussion of mosquito development in catch basins, West Nile virus, mosquito control practices, pesticide labeling, and applicable safety precautions. Individuals who successfully pass the Department's exam are issued a temporary permit for use of select of mosquito larvicides, limited to application of dry formulations of methoprene and microbial larvicides in catch basins.

Presently there is only one insect growth regulator, methoprene, which is registered for use in controlling mosquitoes in such outdoor sites as catch basins. The discharge of methoprene treated waters from such sites does not present significant risks to non-target organisms. This is due in-part to the extremely low application rates of product, the rapid rate of degradation of methoprene in the environment and the specific mode of action.

GREEN FUTURES

GF.01 *The only major beneficiaries of these actions seem to be promoters of ill-conceived development projects that amazingly appear on the "reclaimed" land and, of course, these wetland altering projects provide employment for mosquito control personnel. During the 2006 spraying frenzy, we received numerous complaints of Mosquito Control employees for-spraying "Anvil"… an endocrine disruptor, on organic gardens, a municipal water supply watershed, and PHE private property.*

See MSACC.02

The Board disagrees with the characterization of the emergency public health aerial applications during 2006. These efforts provided benefits to the public in terms of enhancing the quality of life and reducing public health risks for the citizens of Massachusetts. Great effort went into coordination and planning in anticipation of an arbovirus threat in order to be ready to respond in a timely fashion to suppress human risk from a serious mosquito-borne disease as well as minimize impacts to the environment.

The Board refers you to its current version of the *Operational Response Plan To Reduce The Risk Of Mosquito-Borne Disease In Massachusetts* and *Mass DPH Arbovirus State Response and Surveillance Plan* attached.

The aerial application occurred at dusk and into the evening hours. As a result, overlap with outdoor human activities was minimized and few human illnesses were reported. However, after further investigation, no objective findings were found. There were no documented unintended effects regarding fish, birds, and or bees. Further, water sampling analysis by the Massachusetts Pesticide Analytical Laboratory (MPAL) indicated there were no detectable residues of d-phenothrin/sumithrin or Anvil 10+10 ULV in surface water and drinking water supplies tested.

The potential for effects of the pyrethroid sumithrin, active ingredient in Anvil 10+10 ULV, on the endocrine system have not been substantiated. Human and other non-target organism exposure is extremely limited given that the maximum rate of application for the product is 0.62 fluid ounces per acre. Moreover, the chemical properties of sumithrin are such that this extremely small amount of chemical is then degraded rapidly in the environment.

During the public health emergency (PHE), certified organic farms were excluded from the area of application. The public received pre-notification; such that, individuals with farms and gardens in the treated areas would follow the required 48-preharvest interval specified by the EPA as a precaution to further minimize exposure from residues in harvested produce.

The Board notes that the Massachusetts Department of Public Health (MDPH), in cooperation with the Cape Cod Grower's Association collected cranberries from areas treated with Anvil 10+10 ULV. The report from the MDPH indicates that sumithrin levels were not detected, but that very low levels of Piperonly Butoxide (PBO) were detected below the established maximum allowable residue level in/on cranberries.

It is important to note that by itself PBO does not have insecticidal properties, but is added to enhance or synergize the effectiveness of certain pyrethroid insecticides; such as, Anvil 10+10. Given its extremely low toxicity and common use, there is a general exemption from the requirement of a tolerance for low levels of PBO residues in/on most crops.

During the emergency spray event, all no-spray areas were adhered to by MCD employees. Please note that during a PHE such as was declared, the Board and MCDs are authorized to conduct ground spray operations in all mosquito habitats including private property previously designated as a no-spray area.

GF.02 *Years of altering, draining, channeling and ditching of wetlands has shown little, if any, reduction in mosquito populations. Where are the studies of locally altered wetlands and/or documentation that conclusively show these alterations work? Mosquito control practices should focus on encouraging natural mosquito predators and restoring and improving wetlands.*

See response to MSACC.03.

GF.03 *Modern technology presents us with an array of mosquito eliminating and repellent devices for our yards and effective repellents for use by individuals that can be applied to clothes and/or skin.*

Part of what is done in mosquito control is to educate the public to the need for avoiding mosquito bites and to use the various effective mosquito repellents such as DEET. However, the array of mosquito eliminating and electronic repellent devices available to the homeowner in many cases are marketed without the benefit of scientific validation to claims made by the manufacturers. However, several devices have been studied and to date these kinds of devices do not provide the claimed benefits. For example, electronic zappers have been shown to attract and kill other kinds of nocturnal insects such as moths. The majority of insect "zapped" are something other than mosquitoes. Other devices such as the mosquito magnet attract mosquitoes but do not generally control them. Even natural controls such as bats and dragonflies claimed to control mosquitoes is inaccurate and erroneously communicated to the public. Finally, recently marketed whole house misting systems have not been shown to be effective. In fact, the Board has issued a policy against mosquito misters because their release of pesticides is not based on current mosquito conditions or Integrated Pest Management e.g. automatic use of pesticides whether it's needed or not.

THE NATURE CONSERVANCY

NC.01 *Though the 1998 MEPA Certificate called for annual updates and additional study and research, no such materials have been submitted until now.*

See response JE.03

NC.02 *The scope should be focused on substantive information related to BMP's and demonstration of the effects of the mosquito control district activities on human health and the environment.*

The mosquito control scope of work is operational in nature. However, impairment to human health and the environment as the result mosquito control in Massachusetts has not been substantiated. In the most recent emergency aerial application, during the summer of 2006, analysis by various

state agencies indicates that there were no significant negative effects of the MCDs activities on human health and the environment. The kinds of studies and information being requested would require additional funding and resources.

NC.03 *The proposed Citizen's Advisory Committee would be more meaningful if it included technical and stakeholder representatives who are independent of the mosquito control districts*

See response MSACC.05

ALEXANDRA DAWSON

AD.01 *The districts work alters extensive areas of wetlands and rare species and is exempt from the Wetlands Protection Act.*

See Response MSACC.01

MASS AUDUBON – HEIDI RICCI

MA.HR.01 *There are also many other existing documents that should have been noted and made available with the recent GEIR update, e.g. reports on the 2006 aerial spraying, various protocols and technical analyses such as a technical memo describing why Anvil was chosen for aerial spraying.*

The technical memo described in the comment has been attached to this response titled, Choice of Anvil 10+10 for Aerial Mosquito Control dated July 28, 2006 from the Department of Public Health, Bureau of Environmental Health. Other documents such as a Report on Efficacy of Spraying produced by Arbovirus Workgroup, MDEP/ORS Memorandum on Products, Golden Pacific Laboratory Cranberry Testing Protocol, MDEP Surface Water Monitoring Protocol, MDEP Benthos Monitoring Protocol, MDPH/CEH Aerial Spray Fact Sheets (original and updated version), and Public Health Emergency Declaration by Governor on 8/21 Draft MDPH/Office of General Counsel Memorandum on legal authority for aerial spraying will be attached to future filings to MEPA.

MA.HR.02 *There are also other documents that were circulated to people involved in last year's Working Groups, e.g. protocols for monitoring mosquitoes, water supplies, and other aspects in the event of aerial spraying.*

All of these documents will be available in upcoming filings to MEPA. The Board acknowledges that these documents are important as they were vetted through the workgroups convened by the Department of Public Health and a number of them have been incorporated in the State Reclamation and Mosquito Control Board's operational plan which is attached.

MA.HR.03 *I object to the use of a definition of IPM that departs from state law. I strenuously object to the use of the SRMCB's IPM/IMM definition. Administrative policies cannot supersede law.* MA Pesticide Control Act: http://www.mass.gove/legis/laws/mgl/132b-2.htm
Furthermore, the last sentence of the SRMCBs IPM policy is not supported by evidence due to the lack of a standardized pre and post treatment monitoring program or any quantification of side effects on human health and the environment (which are also important to Massachusetts' quality of life).

There are many definitions of IPM. The IPM definition in Chapter 132B of the MGL was written specifically for the Children and Families Protection Act. There are important differences in how IPM is applied in various settings that should be accounted for in any definition. Chapter 132B of the MGL broadly describes IPM for a school setting. Where possible, the definition should be tailored to the practice such as mosquito control. Given the variable nature of pests, the practices employed to implement IPM vary widely across the spectrum of pest control activities.

Before these products are registered for use they have gone through the scrutiny of a Federal risk assessment process.

There is no language in state law that requires that the definition promulgated in Chapter 132B of the MGL must be used. Its purpose in the law is simply to provide a context for mandatory IPM, which is limited to schools and daycares. The key components of the state statute mentioned such as monitoring and minimization of the use of pesticides and selection of lowest risk pesticides when necessary are in fact part of any mosquito control IPM strategy. The concepts and strategies employed by Massachusetts Mosquito Control Projects are also consistent with CDC and EPA recommendations on IPM and mosquito control. For example, mosquito control projects perform surveillance of mosquitoes for their own regions and in collaboration with the Department of Public Health to monitor for arboviruses.

Mosquito control in Massachusetts is carried out using pesticides that have been scrutinized via regulatory programs both at the Federal and State Level. Through the labeling of these products and other regulatory requirements, an analysis is conducted to ensure that the pesticides do not represent unreasonable adverse effects to the public or environment.

In Massachusetts, pesticide use is governed solely by the Department of Agricultural Resources, Pesticide Board. Pesticides used by mosquito control projects have been approved and registered by the EPA and approved by the MA Pesticide Board. Pesticides are applied by credentialed and trained practitioners and are used according to the label. The label is the law.

MA.HR.04 *They have said they plan to post the reports on the SRMCB website so if they do that is should be simple to publish a notice of availability in the Monitor annually linking people to the website.*

The Board has posted various materials on it website. The Special Review Procedure will permit this information to be published in the Environmental Monitor.

NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM

NHESP.01 *The BMPs include a brief summary of the MESA (see 2. b) which requires clarification.*

The Board has clarified MESA adding additional language to the Freshwater Mosquito BMP.

NHESP.02 *In response to the 1998 Generic Environmental Impact Report, the Secretary of EOEA stated, "The SRMCB and, GEIR acknowledge that additional study and research work is necessary to truly document the effectiveness of mosquito control techniques and their impact on the environment, particularly as they relate to freshwater project[s]." The NHESP finds that this lack of research and study remains nine years after the GEIR was completed. It is still unclear if the proposed methods are effective at controlling mosquito populations, rather than simply mitigating nuisance issues. There continues to be a lack of effort to document the post-project to understand the actual effectiveness of the mosquito control effort nor the environmental impacts.*

The Board does agree that additional study and research work is necessary but it also disagrees that there is a lack of effort to document post-project effectiveness and environmental impact. As stated in response MSACC.04, MCDs are limited in that they are funded to carry out an operational mandate. They are not established or funded as research institutions. The methods that are employed in Massachusetts are consistent with methods used nationally. Research to improve mosquito management and reduce potential environmental impacts is ongoing and the Board welcomes and adopts such advances when practical.

The Board would welcome input and assistance from other agencies whose mandate is to perform environmental monitoring to assist in monitoring environmental impacts.

MISCELLANEOUS COMMENTS

MC.01 *It is not unusual today for "mosquito control activities" to occur where someone wants to avoid filing with a conservation commission."*

The Board believes this statement to be untrue and in fairness to the MCDs, their relationship with conservation commissions and other agencies in member municipalities are strong. This comment is unsubstantiated.

MC.02 *Widespread destruction of wetlands – draining wetlands*

The Board believes this criticism is unwarranted and not specific. MCDs have been very careful in their wetland project approaches and generally find that wetland functions are enhanced after they employ well-designed, carefully-implemented projects.

MC.03 *"Years of altering, draining, channeling and ditching of wetlands has shown little if any reduction in mosquito populations."*

Studies and MCDs post evaluations of both freshwater and OMWM projects suggest that at a minimum when properly conducted, all water management tends to be effective and as such an important component of any IPM program. The Board believes that there is no compelling evidence to suggest otherwise. Again, the Board notes that MCDs activities are operational based on many years of experience.

MC.04 *Lack of monitoring for mosquitoes "Where are the studies of locally altered wetlands and /or documentation that conclusively show these alterations work?"*

The Board agrees that the Freshwater Mosquito BMP should outline some practicable and effective monitoring protocols. However, it should be pointed out that MCDs do collect and record dip data, maintain, and develop larviciding records, or have a history of mosquito collection and control practices for each site. All of this is information is available upon request. The Board and the MCDs will continue to work towards a fiscally responsible and feasible monitoring effort that addresses environmental concerns.

MC.05 *Monitoring of treatment effectiveness*

The Board agrees. MCDs can do a better job of analyzing treatment effectiveness. The Board will work with MCDs to better document the data they collect each season and present in their annual reports.

MC.06 *No clear line between "nuisance" and "disease" vectors.*

The Board recognizes that MCDs activities serve dual purposes in that reducing the number of mosquitoes that bite people necessarily reduces quality of life impacts, and because these mosquitoes are capable of spreading disease to people, the control measures also reduce public health risks. A number of the MCDs were originally established to combat nuisance mosquitoes in places such as Cape Cod. A number of the MCDs were established to suppress arbovirus risk of Eastern Equine Encephalitis virus such as Northeast, Bristol, and Plymouth County Mosquito Control. Today, given that other arboviruses have become established (such West Nile virus) it is no longer practical to separate or make distinctions between nuisance and disease control. The Board believes it is a prudent public health measure to reduce the numbers of mosquitoes available to transmit the disease agents prior to their actual detection. However, it should be pointed out that the time of the year when mosquitoes create the greatest "nuisance" is also the time of year when viral transmission may occur.

MC.07 *Towns need to join a MCD to obtain vector surveillance.*

This is not correct. DPH maintains a statewide system of long term monitoring sites for EEEv. DPH also deploys traps statewide for detection of West Nile virus including trap sites in communities that have no membership with an organized mosquito control district. These sites are supplemented by MCD trapping sites. The MCDs bear the cost of collecting these samples if the samples from an individual MCD exceed 400 pools during the mosquito season, the MCDs will bear the cost of analyzing these samples for arboviruses.