



Skeeter Scanner

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MMCA PUBLIC
INFORMATION
AND EDUCATION
COMMITTEE



www.mimosq.org

President's Message

Happy New Year! I hope 2015 is safe and successful for all. As we move deeper into winter or closer to spring, we naturally begin to think of the upcoming season with equipment and product at the ready. The plans are in place as we prepare for the possibilities. Will it be a year of nuisance or disease? We look to the past as we plan for the future, and I would like to reflect on this past year's accomplishments and members of the MMCA.



Thank you to all that have served on the Board and Committees associated with our fine association. The MMCA continues to evolve with the needs of membership and our craft. Our 7-F category training continues to be popular with our membership. The MMCA will most assuredly continue this training program. Our Annual Meeting is coming up next month, February 4th-5th at the Shanty Creek Resort in Bellaire, and again will provide a wealth of mosquito control knowledge. Thank you to Randy Knepper and the Planning Committee for all your time and hard work in putting this valuable resource together.

The MMCA looked to new opportunities to promote mosquito control and surveillance. This past year we were involved with the State of Michigan in a pilot disease surveillance program for Counties with West Nile virus history. The feedback from all parties seems to be positive and many are looking for the opportunity to continue arbovirus surveillance. The MMCA is looking forward in assisting with this program. The MMCA also presented at a statewide public health meeting touting the importance of arbovirus surveillance and education, while stressing possible responses to arbovirus public health threats. Again, the feedback was very positive. Mosquito control is public health and we need to continue to champion that when given opportunity.

I am confident that the MMCA will continue to provide guidance and represent our trade moving forward. We are equipped with talented, passionate members that believe in the public health we provide. I wish the 2015 MMCA Board well and look forward to serving in the future. And maybe, just maybe this year will be a normal year...

It was a pleasure to serve.

This Gene Gave Mosquitoes the Taste for Human Blood



photo credit: The odor-detecting gene Or4 is more abundant and more sensitive in the human-preferring "domestic" form (brown, right) than in the ancestral "forest" form (black, left), which prefers the blood of non-human animals / Carolyn McBride, Princeton

To nourish their eggs, bloodsucking female mosquitoes have become major vectors of human disease. And what's more, some of them actually prefer to bite people. A "domestic" form of the yellow fever mosquito breeds indoors in water jugs and has evolved to specialize in hunting humans -- spreading dengue, yellow fever, and chikungunya. But along the coast of Kenya, this domestic form (*Aedes aegypti aegypti*) coexists with its ancestral, "forest" form (*Aedes aegypti formosus*), which lays its eggs outdoors and prefers to bite other animals.

Now, researchers have identified the genetic tweak that explains why the deadly subspecies prefers to feed on humans: Their taste for our blood is sustained by the abundance and sensitivity of one odor-detecting gene in their antennae that make them more sensitive to our scent. The work, published in *Nature* this week, helps explain how a human-biting specialist evolved from its animal-loving ancestor.

"It was a really good evolutionary move," says Leslie Vosshall from Rockefeller University in a university statement. "We provide the ideal lifestyle for mosquitoes. We always have water around for them to breed in, we are hairless, and we live in large groups."

Vosshall and colleagues collected larvae of both forms from treeholes and from clay pots and metal cans using turkey basters and sieves in Rabai, Kenya. They grew colonies in the lab and documented the striking divergence in their preference for human versus non-human animal odor in a three-part experiment. And the differences were stark.

The team put both types in a large cage and offered them a guinea pig or a (lucky) researcher's arm.

They also got to choose between streams of air that had passed over guinea pigs or humans. And to rule out other mosquito attractants like exhaled carbon dioxide, the team allowed the mosquitoes to choose between the scent of nylon sleeves that had been worn by humans or guinea pigs. Although domestic mosquitoes would sometimes go for the guinea pig, it happened very rarely, Princeton's Carolyn McBride says in a news release.

When the team interbred the two subspecies, and then interbred those offspring to create second-generation hybrids, they found 14 genes that were different between the human- and rodent-preferring mosquitoes. In particular, the preference for human odor is tightly linked to the odor receptor gene Or4, which showed higher levels of expression in the domestic mosquitoes' antennae (the equivalent of our noses).

Then, human volunteers and guinea pigs donned pantyhose for 24 hours, after which these were placed in a machine to separate out scent into hundreds of chemicals. That's how they discovered that Or4 is highly attuned to sulcatone, a prevalent compound in human odor. Additionally, when the team implanted the gene into fruit-fly neurons, the cells showed a burst of activity when exposed to sulcatone.

"They've acquired a love for human body odor," Vosshall says. They retuned the way odors are detected by their antennae, moved indoors, and started breeding in clean water. McBride adds: "The more we know about the genes and compounds that help mosquitoes target us, the better chance we have of manipulating their response to our odor."

Newly Discovered Class of Antibodies Could Lead to Universal Dengue Vaccine

Scientists have discovered a new class of extremely potent antibodies that effectively neutralize all of the viruses that cause dengue fever, a rapidly emerging disease that has become a leading cause of illness and death in tropical and subtropical regions. The discovery raises hope that these antibodies could be used in the development of a much sought after universal vaccine and better laboratory tests for dengue viruses.

Dengue is a mosquito-borne viral infection that has rapidly emerged in the past 50 years. Around one-third of the world’s population live in areas at risk for infection, and as many as 400 million dengue infections are estimated to occur annually in over 100 countries. The disease is caused by any one of four related viruses, for which there are no licensed vaccines or specific drugs, although one vaccine is going through trials at the moment. This means that currently, the only way to prevent infection is by reducing transmission through vector control measures, such as mosquito nets or even genetically modified mosquitoes, which are being trialed in various countries.

Dengue fever is characterized by severe, flu-like symptoms that usually disappear within a week. Occasionally, however, the infection develops into a potentially lethal complication called severe dengue, which claims around 22,000 lives a year. Furthermore, infection with one of the viruses means you are more likely to develop severe disease if you are subsequently infected with a different dengue virus. A vaccine that protects against all four viruses is therefore, realistically, the only way that the disease is going to be controlled. And new work suggests that this could be within reach, thanks to the discovery of a new class of potent antibodies.

The antibodies were identified by researchers from Imperial College London and the University of Melbourne after they analyzed the blood of a group of infected patients. As described in *Nature Immunology*, they discovered that a significant portion of their immune response came from a class of antibodies that targeted a previously unidentified viral epitope—a unique region that components of the immune system can bind to and recognize—that’s present on all four dengue viruses. This structure was found to be a molecular bridge that joins two proteins on the virus’ surface.

The researchers tested out this class of antibodies on dengue viruses produced in both insect and human cells, and found that they were capable of successfully neutralizing all four viruses. Having successfully manufactured a batch of these antibodies, the researchers are hopeful that they can be tested out in trials soon. It’s possible that they could be used to develop a vaccine, or even as a

form of therapy to help infected individuals clear the virus. Alternatively, it may be possible to synthesize the molecular bridge and use that as a vaccine, which would prime the immune system for attack should it subsequently, encounter any of the dengue viruses.

Commercial Pesticide Bulk Storage and Regulation 640

Michigan Department of Agriculture and Rural Development’s bulk storage program provides environmental and groundwater protection by setting up a system for safely storing pesticides. By inspecting and registering businesses storing large quantities of agricultural chemicals, the bulk storage program helps prevent the likelihood of agrichemical contamination of Michigan's natural resources. The bulk storage program ensures commercial bulk storage facilities are constructed, installed, and maintained in a safe manner with the least possible impact on people, property, and the environment.

Each new, existing, and proposed commercial pesticide and/or fertilizer bulk storage facility is required to register annually with the MDARD, which there is no cost for. The following categories and amounts qualify:

Bulk Pesticide	Minibulk Pesticide	Bulk Fertilizer
<ul style="list-style-type: none"> • 55 gallons individual quantity • 100 lbs individual quantity • Includes minibulks, solutions, and rinsates 	<ul style="list-style-type: none"> • Undivided quantity ranging from 55-400 gallons 	<ul style="list-style-type: none"> • 2,500 gallons individual quantity • 7,500 gallons combined total • 2,000 lbs individual quantity

The application for registering can be found at: [Application for Agrichemical Storage Facility Registration and Aboveground Tank Inventory Form](#).

A registered facility is required to keep an updated copy of their registration packet (application, site plan, and inventory list) and discharge response plan on site. Each storage facility also needs to keep inspection and maintenance records. Much more information can be found on the MDARD website at www.michigan.gov/mdard.

Promising Compound Rapidly Eliminates Malaria Parasite

An international research collaborative has determined that a promising anti-malarial compound tricks the immune system to rapidly destroy red blood cells infected with the malaria parasite but leaves healthy cells unharmed. St. Jude Children's Research Hospital scientists led the study, which appears in the current online early edition of the *Proceedings of the National Academy of Sciences (PNAS)*.

The compound, (+)-SJ733, was developed from a molecule identified in a previous St. Jude-led study that helped to jumpstart worldwide anti-malarial drug development efforts.

In this study, researchers determined that (+)-SJ733 uses a novel mechanism to kill the parasite by recruiting the immune system to eliminate malaria-infected red blood cells. In a mouse model of malaria, a single dose of (+)-SJ733 killed 80 percent of malaria parasites within 24 hours. After 48 hours the parasite was undetectable.

Planning has begun for safety trials of the compound in healthy adults. Laboratory evidence suggests that the compound's speed and mode of action work together to slow and suppress development of drug-resistant parasites. Drug resistance has long undermined efforts to treat and block malaria transmission.

"Our goal is to develop an affordable, fast-acting combination therapy that cures malaria with a single dose," said corresponding author R. Kiplin Guy, Ph.D., chair of the St. Jude Department of Chemical Biology and Therapeutics. "These results indicate that SJ733 and other compounds that act in a similar fashion are highly attractive additions to the global malaria eradication campaign, which would mean so much for the world's children, who are central to the mission of St. Jude."

Whole genome sequencing of the *Plasmodium falciparum*, the deadliest of the malaria parasites, revealed that (+)-SJ733 disrupted activity of the ATP4 protein in the parasites. The protein functions as a pump that the parasites depend on to maintain the proper sodium balance by removing excess sodium.

The sequencing effort was led by co-author Joseph DeRisi, Ph.D., a Howard Hughes Medical Institute investigator and chair of the University of California, San Francisco Department of Biochemistry and Biophysics. Investigators used the laboratory technique to determine the makeup of the DNA molecule in different strains of the malaria parasite.

Researchers showed that inhibiting ATP4 triggered a series of changes in malaria-infected red blood cells that marked them for destruction by the immune system. The infected cells changed shape and shrank in size. They also became more rigid and exhibited other alterations typical of aging red blood cells. The immune system responded using the same mechanism the body relies on to rid itself of aging red blood cells.

Another promising class of antimalarial compounds triggered the same changes in red blood cells infected with the malaria parasite, researchers reported. The drugs, called spiroindolones, also target the ATP4 protein. The drugs include NITD246, which is already in clinical trials for treatment of malaria. Those trials involve investigators at other institutions.

"The data suggest that compounds targeting ATP4 induce physical changes in the infected red blood cells that allow the immune system or erythrocyte quality control mechanisms to recognize and rapidly eliminate infected cells," DeRisi said. "This rapid clearance response depends on the presence of both the parasite and the investigational drug. That is important because it leaves uninfected red blood cells, unharmed."

Laboratory evidence also suggests that the mechanism will slow and suppress development of drug-resistant strains of the parasite, researchers said.

Planning has begun to move (+)-SJ733 from the laboratory into the clinic beginning with a safety study of the drug in healthy adults. The drug development effort is being led by a consortium that includes scientists at St. Jude, the Swiss-based non-profit Medicines for Malaria Venture and Eisai Co., a Japanese pharmaceutical company.

Michigan Mosquito Control Association
29th Annual Conference Tentative Agenda
Shanty Creek Resorts, Bellaire
February 4-5, 2015

Wednesday, February 4, 2015

8:00 am	Registration
9:00 am	Welcome - Bill Stanuszek, 2014 MMCA President
9:15 am	Keynote: Countering a Bioterrorist's Introduction of Pathogen-Infected Mosquitoes Through Mosquito Control - Roxanne Rutledge Connelly, PhD, University of Florida
10:15am	AMCA Update - Mike Szyska, MS, BCE, Northwest Mosquito Abatement District & AMCA North Central Dir
10:30am	Mid-morning Break
William J. Lechel, II Memorial Scholarship Student Presentations	
11:00am	Outdoor Insecticide-Impregnated Barriers: A New Intervention for Malaria Control in the Solomon Islands - Nick Deason, Notre Dame
11:15am	The Effect of Salmon Carcass Introduction on Aquatic Insect and Microbial Communities in Michigan Headwater Streams - Courtney Larson, Michigan State University
11:30am	Arbovirus Infection of Domesticated Birds in Michigan - Katherine Demeuse, Michigan State Univ.
11:45am	Lunch and MMCA Business Meeting
1:15 pm	Review of Rainfall Tracking and Mapping - Doug Allen, Midland County Mosquito Control
1:30 pm	2014 Rainfall Events and Their Effect on Mosquitoes in Saginaw County - Chuck Pearce, Saginaw County Mosquito Abatement Commission
1:45 pm	Ladybugs, Boxelder Bugs, and Cluster Flies, Oh My! - Joe Flood, Rose Pest Solutions
2:00 pm	Bulk Storage Regulations - April Hunt, Michigan Department of Agriculture & Rural Development
2:15 pm	Pesticide Labeling & Spill Response - Eric McCumber, MI Dept of Agriculture & Rural Development
2:30 pm	Expanding Arbovirus Surveillance in Michigan: MDCH and Local Health Department Experiences in 2014 - Erik Foster, MS, Michigan Department of Community Health
3:10 pm	Vendor Introduction/Presentations
3:30 pm	Break
3:50 pm	Indoor <i>Aedes aegypti</i> Control in Thailand with Thermal Foggers & ULV Sprayers - Carl Doud, PhD, Midland County Mosquito Control
4:10 pm	Aligning Mosquito Control Operations with Pollinator Protection - Stephen Manweiller, PhD, Metropolitan Mosquito Control District
4:30 pm	Chikungunya in North America - Michael Kaufman, PhD, Michigan State University
5:00 pm	Cash Bar
6:00 pm	Banquet, Awards & Entertainment

Thursday, February 5, 2015

8:30 am	Abandoned Swimming Pools: A Health Perspective - Bryant Wilke, Sanilac County
8:50 am	Field Trial of DeltaGard a Public Health Insecticide in Saginaw County - William Stanuszek, Saginaw County Mosquito Abatement Commission
9:10 am	Invasive Plant Leaf Litter Leachate Effects on <i>Culex pipiens</i> - Eric Benbow, PhD, Michigan State Univ
9:30 am	Entomology Training Techniques "Keys" to Success - Sandy Brogren, Metropolitan Mosquito Control
9:50 am	Lyme Disease Research in Michigan - Jean Tsao, PhD, Michigan State University
10:10am	Break
10:40am	Defending an Adult Mosquito Control Program - Paul Bauman, MS, RS, Toledo Area Sanitary District
11:00am	Drift Management 101 - Joe Flood, Rose Pest Solutions
11:15am	Signals and Senses: What do Insects Smell and How? - Zain Syed, PhD, Notre Dame
11:30am	The Pros and Cons of Thermal Fogging - Brett Ireland, Midland County Mosquito Control
11:45am	Field Evaluations of an Electric ULV Sprayer - Justin Krick, Bay County Mosquito Control
12:00pm	Concluding Remarks - Doug Allen, 2015 MMCA President



Michigan Mosquito Control Association 29th Annual Conference Registration

Shanty Creek Resorts, Bellaire
February 4-5, 2015

Conference Registration - Regular		Attendees	Fees	Total
2-Day Registration (Includes membership and banquet)			\$95.00	
1-Day Registration for Feb 4 (Includes membership and banquet)			\$75.00	
1-Day Registration for Feb 5 (Includes membership)			\$40.00	
Conference Registration - Student		Attendees	Fees	Total
2-Day Registration (Includes membership and banquet)			\$55.00	
1-Day Registration for Feb 4 (Includes membership and banquet)			\$30.00	
Conference Registration - Exhibitor		Attendees	Fees	Total
2-Day Registration (Includes one 6-ft table, membership, and banquet)			\$200.00	
Additional Exhibition Space			\$50.00	
Conference Break Sponsorship			\$500.00	
Banquet		Attendees	Fees	Total
Extra Banquet Dinner			\$25.00	
Membership Dues not attending conference		Members	Fees	Total
Individual Membership			\$15.00	
Student Membership			\$7.50	
Business Membership (Agency, Association, etc. limited to 3 names)			\$50.00	
Total Amount Enclosed (Registration at the door will incur an additional \$10 fee)				\$

Attending lunch
Wednesday?

Yes No

Attending banquet
Wednesday?

Yes No

Enclose payment and mail to:

MMCA
PO Box 366
Bay City, MI 48707



OR

To use PayPal or credit card go to
www.mimosq.org/paypal/paypalconference.htm

Phone (989) 894-4555

Fax (989) 894-0526

info@mimosq.org

www.mimosq.org

Name(s)

Agency/Firm

Address

City

State

Zip

Phone

Fax

E-mail address for the Skeeter Scanner

Website

Cancellation Policy - MMCA will refund conference registration fee if cancellation notification is received 3 days prior to the conference.



CEDAR RIVER VILLAGE
SHANTY CREEK RESORTS®

MI Mosquito Control Association (241558)
February 3-5, 2015

Reservations Must Be Received By: January 13, 2015
Reservation requests received after this date will still be accepted provided rooms are available.

PLEASE RETURN THIS FORM BY MAIL (OR) FAX TO:

Reservations Department • Shanty Creek Resorts
5780 Shanty Creek Road • Bellaire, MI 49615
Fax: 231.533.7004
Check-in begins at 5pm, Check-out is 12 Noon.

Name: _____

Address: _____ Home Phone: _____

City: _____ State: _____ Zip: _____ Business Phone: _____

Confirmation Email: _____ Fax: _____

You are welcome to arrive early or extend your stay following this scheduled event. At times specified accommodations are not available prior to or following your event. If the room type requested is not available, we reserve the right to assign the next available room type and rate.

Arrival Date: _____ Departure Date: _____ # Adults: _____ # Children: _____

Quantity	Room Type	1 Adult	2 Adults
	Guest Room	\$99	\$99
	Studio Parlor	\$119	\$119

Additional guest fee is \$15.00 per person, per night. Children under 17 may stay free in their parents' room using existing bedding.
The above rates are per room, per day, plus 6% state tax, 9% resort fee and 5% TCCVB fee.

IF YOUR ORGANIZATION IS STATE TAX EXEMPT YOU MUST FURNISH A COPY OF THE STATE TAX EXEMPTION CERTIFICATE WHEN MAKING YOUR RESERVATIONS.

THIS FORM MUST BE MAILED OR FAXED IN TO RECEIVE THE GROUP DISCOUNTED RATES.

Deposit Policy: You must guarantee your room reservation with a major credit card or a check for deposit of 1st nights lodging. Credit card **WILL BE** charged for the above deposit. **Use of Debit cards at the resort for lodging or deposits may cause your financial institution to put a hold on your account for the total amount of the stay plus a \$50.00 per night incidental charge. The resort is not responsible for returned check fees resulting from this practice by your financial institution.** Refund of your deposit will be made if cancellation occurs at least 5 days prior to arrival, less a \$10 handling fee.

Card Number: _____ Expiration Date: _____

If Mailing a Check, Please Note on the Line Above. Your reservation will be held for 10 days pending receipt of the check. If credit card deposit is made and organization pays in full by check refunds of credit card are subject to a \$10.00 handling fee.

Signature (Required): _____ Printed Name _____

Do you have any special lodging requests? Barrier Free: ___ Other (Please Indicate): _____

We do our best to honor special requests, however we cannot guarantee them.

FOR QUESTIONS OR FOR MORE INFORMATION, PLEASE CALL 800.678.4111

Photo Salon - 2015

The Michigan Mosquito Control Association would like to request submission of photographs for presentation during the Awards Banquet at our 2015 Conference. All shutterbugs are invited to submit digital photos to Photo Salon organizer Randy Knepper. Email to rknepper26@chartermi.net by January 23, 2015. Please, do not submit photos that have been shown at previous MMCA salons.



If a sufficient number of photos are received, cash and prizes will be awarded in the following categories: Mosquitoes, Operations, Surveillance, Mosquito Habitat and Nature/Wildlife. A prize will also be offered for the most amusing title or intriguing story to accompany a slide.

MMCA
Board

CALL FOR NOMINATIONS!

MMCA encourages anyone with an interest in promoting mosquito control to please consider a position on the Board, we encourage new faces and new ideas.

**Positions open for the nomination of candidates will be:
Vice-President, Secretary, and Trustee (2).**

**To propose a candidate please contact
Rebecca Brandt, brandtr@baycounty.net or (989)894-4555.**

**Elections will be held during our Annual Business Meeting at the
MMCA Annual Conference, on Wednesday, February 4, 2015.**

Michigan's Premier Public Health Conference

Bill Stanuszek and Mary McCarry represented MMCA at Michigan's Premier Public Health Conference (MPPHC) on October 24, 2014 at Shanty Creek Resorts with a presentation titled "Mosquito Control and West Nile Virus Surveillance in Michigan". They shared information with health department staff that included history of mosquito control, threats to public health, West Nile Virus transmission, types of mosquitoes and habitats to target, WNV surveillance, public education, traps, testing, and cost. Erik Foster with the Michigan Department of Community Health provided information that Bill and Mary were able to incorporate into the presentation regarding the state's efforts to work with local health departments in mosquito trapping and testing this past summer.

Post-conference evaluations were very favorable and one attendee commented that he would consider re-establishing a surveillance program.

Saginaw County Mosquito Abatement Commission Welcomes New Staff

2014 has been a year of change for us here at Saginaw County Mosquito Abatement Commission. With the retirement of 3 permanent staff members early in the year, there was a movement of staff positions leaving 3 openings. In fall we hired a new biologist, who most of us know, Chuck Pearce (formerly from Midland), and a new account clerk, Courtney Eggbrecht, who had worked in our office, for 6 years, as a seasonal employee.

Our final open position was finally filled with the hiring of Ryan DuRussel as one of our two foremen. Ryan worked for SCMAC for 9 years, as a seasonal employee and seasonal foreman.



Board Meeting Highlights

A record-setting 86 registrants attended the 7F Training Session hosted by MMCA in October. The evaluation summary reflected 97% of attendees would recommend this program to others and would consider attending again in the future. Considerations for next year's program include more information on public relations and more private applicator demonstrations.

President Bill Stanuszek and Treasurer Mary McCarry presented a program at the Michigan Premier Public Health Conference at Shanty Creek on behalf of MMCA. The presentation was focused on surveillance methods done throughout the districts along with data collected by the MDCH from surveillance done by county public health agencies in Michigan. Evaluations from the program showed positive feedback.

Digital copies of a selection of proceedings from MMCA and North Central State annual conferences dating back to 1987 will be made available on the MMCA website in the near future.





News From Around The Districts

TUSCOLA

We are currently busy preparing the annual reports and storing and updating forms. We will begin the process of hiring our 2015 seasonal staff, plans for testing are in place.

The MDA has completed the inspection of our insecticide storage area and issued a permit for bulk storage. Material orders for the 2015 mosquito season have been placed. Route maps are being updated at this time.

Our Equipment Technician is busy with maintenance to the ULVs and hand held equipment. We also have a few building maintenance projects that will be completed in the off season.

This winter we are finalizing plans for the new insecticide storage and garage. We hope to have them ready for bids in January.

BAY

It's once again time to both look back at our fourth quarter accomplishments and think about the upcoming year. The mosquito season wrapped up on October 1 when we finished the last of our clean-up. Since then we've been busy compiling data for the annual report, processing invoices, correspondence, cleaning, taking inventories, ordering supplies, organizing a major 7F Training Session, conducting equipment and vehicle repairs, and preparing for the 2015 season. The 2014 Annual Report was completed in early December and will be presented to the Mid-Michigan Technical Advisory Committee in March, 2015. It will soon be available for viewing at our website www.baycounty-mi.gov/MosquitoControl under the "Resources-Reports, Brochures, Flyers" link. More recently, we have been putting together the 2015 Program Plan that will also be linked to the website.

Staff took part in the MMCA's 7F Training Session in October, giving several presentations to the attendees. At this, our sixth annual training session, there seems to be continued interest in having recertification seminars in the future – this year there were 81 attendees! Not only are we providing a needed service, but our own staff benefits by attending and qualifying for recertification credits.

The 2015 chemical order was compiled and bid specifications were sent out to vendors in early December in conjunction with Midland County Mosquito Control and Tuscola County Mosquito Abatement. Chemical bids will be opened in Midland January 14 and vendors will be notified.

We continue our community-outreach efforts, which include presentations at local elementary schools and developing new information for Bay3TV. Database and map updates continue to take place. Operations Supervisor, Bob Kline, passed his "aerial" category test with the MDARD in November. MDARD also conducted an inspection of our bulk storage facility this quarter, which we passed.

The MDEQ's NPDES annual report was filed in mid-November, which was the second year we were required to submit a report for compliance. In December we mailed a "2015 Application/Permit to Use State Land" to the Bay City State Recreation Area. 2014 New Jersey Light Trap summary data (for the trap maintained at the park) was mailed concurrently. We expect to hear that treatment of the park property will continue as in 2014.

We look forward to meeting with colleagues and hearing presentations at the upcoming MMCA Conference February 4-5 (held at Shanty Creek, Bellaire). In the next few months we'll be working on MMCA annual meeting plans, the 2015 program plan, hiring of new seasonal staff, and continuing our mission of mosquito education.

As is normal for this time of year, staff are busy with winter projects that include: repair and maintenance of application equipment and vehicles; revising sections of the employee manual; body work on damaged vehicles; updates to various maps and data bases; updating yearly program plan; seasonal workforce recruitment; website updates; sending our letters to citizens on our No Spray and Medical Certification lists; and the purchasing and outfitting of two new vehicles for our fleet.

Our 2014 annual report/2015 calendar is complete and can be reviewed on our website, www.scmac.org. If you would like a hard copy please call Gloria Katch at 989-755-5751 or email her at gkatch@scmac.org and let her know the amount of calendars you would like to receive.

School and community presentations by our education department continue to be in high demand. This school year our Education Coordinator has scheduled 172 classroom presentations at 44 schools and 10 Community Events.

We have submitted permit applications to conduct our limited aerial larviciding program for spring mosquitoes on the Shiawassee National Wildlife Refuge. We have also submitted and received treatment permits for the Shiawassee River State Game Area and Gratiot-Saginaw State Game Area. Due to mosquito-borne disease detections last year in our county, we do not anticipate problems securing the remaining permits for 2015.

Our agency is now in the hiring process for seasonal workers. We will accept summer job applications through January 31, 2015. Interested individuals can apply at our facility or directly on-line at www.scmac.org. Interviews will be held in February, with our annual training session scheduled for March 27-28, 2015.

The weather continues to baffle experiencing fifty degree weather in December. We are hoping for a mild winter with dryer conditions. A drop in the water table would help decrease the amount of floodwater habitat and resultant mosquitoes this upcoming mosquito season. Hope all have a productive and safe New Year.

Well, not too bad of a winter so far. With our first significant snow occurring early January, it beats last year. The new Director from Florida is getting credit for the slow onset of Michigan winter weather – he'll take it. At the same time, the former Director is texting photos of himself in shorts from his new home in Florida. We'll ask him how he likes it in August.

We are busy with normal winter tasks of analyzing last year's activities and preparing for the upcoming season. We purchased two new hand-held thermal fogging units, which we will put to the test next spring. These are compact in design and may prove to be a good replacement for the aging Golden Eagles. On its way is a DC IV unit for droplet testing. This will be an added capability for us to quickly and periodically assess our spray output through the season.

The New Year will bring new meetings with Michigan DNR regarding our hopes of adulticiding in a few spots on state land during 2015. It has been discovered that one of the certifying organizations, the Forest Stewardship Council, is considering at the international level a criteria for pesticides that would effectively take any mosquito adulticide off the table of consideration for use. No attempt here to balance hazard and risk. The campaign to protect Midland County residents goes on...

We wish you all the best for 2015 and look forward to seeing you all soon for the MMCA meeting.

Kenley Farrel Memorial Scholarship Winners



1st Place

Macy Doster, of Midland, MI, is a sophomore at Grand Valley State University. She is currently studying Natural Resources Management and hopes to use her degree to help preserve state and federal land, water, and wildlife. In her free time she likes to be outdoors, spend time with friends and family, and backpacking. Macy is very passionate about conserving our resources so that they are available for future generations.



2nd Place

Lara Tongue is a high school senior residing in Traverse City, MI. She is homeschooled and also dual-enrolled at Northwestern Michigan College. She enjoys dancing with the Northwest Michigan Ballet Theater and performing various styles of dance from ballet to ballroom. In her rare free time she likes to enjoy the beauty of northern Michigan, make crafts, and spend time with her friends and family. Next year she plans to attend Calvin College in Grand Rapids, MI to pursue a degree in speech and language pathology and audiology. Lara is thankful to the MMCA for this scholarship opportunity.



**Michigan Mosquito
Control Association
P.O. Box 366
Bay City, MI 48707**

WINTER