

# AGENDA

## HUMAN SERVICES COMMITTEE

111 S. Michigan Ave., Room 200, Saginaw, MI 48602

**Monday, April 5, 2021 – 4:00 p.m.**

**VIA ZOOM PER PA 267 of 1976/PA 228 of 2020**

**& Local Emergency Declaration dated April 1, 2021**

Members: James Theisen – Chair, Michael Webster – Vice-Chair, Kathy Dwan, Gerald Little, Carl Ruth  
Others: Controller, Civil Counsel, Finance Director, Personnel Director, Board Staff, *Media*

***The Human Services Committee meeting will be held via Zoom.***

***As the County Building is closed to the public, except by appointment, this meeting is being held remotely pursuant to and consistent with PA 267 of 1976 / PA 228 of 2020 and a Local Emergency Declaration dated April 1, 2021.***

***For public comment, please utilize the “Raise Hand” option if on Zoom or \*9 if calling in.***

County of Saginaw is inviting you to a scheduled Zoom meeting.

Topic: [See Agenda below](#)

Date/Time: **April 5, 2021 04:00 PM EST**

Join Zoom Meeting: <https://zoom.us/j/8024441727> Meeting ID: **802 444 1727**

**INSTRUCTIONS using ZOOM audio conferencing:**

Dial: **1 (877) 853-5257 or 1 (888) 475-4499** and enter Meeting ID: **802 444 1727**

- I. Call to order
- II. Welcome
- III. Correction/Approval of Minutes (*March 1, 2021 - Attached*)
- III. Public comment
  - *Speakers limited to 3 minutes*
  - *Please utilize the “Raise Hand” option if on Zoom or \*9 if calling in*
- IV. Agenda
  1. **William Stanuszek, Director, Mosquito Abatement Commission, re:**
    - **4-20-13** Submitting its 2021 Program Plan for informational purposes and discussion (*Receive and File*)
  2. **Christina Harrington, Health Officer, Saginaw Health Department, re:**
    - County COVID Update
    - County Vaccination Update
- V. Miscellaneous
- VI. Adjournment

# MINUTES

## HUMAN SERVICES COMMITTEE

111 S. Michigan Ave., Room 200, Saginaw, MI 48602

Monday, March 1, 2021 – 4:00 p.m.

**VIA ZOOM PER P.A. 254 of 2020 (MCL 15.263)**

Present: James Theisen – Chair (*Thomas Township, MI*) Michael Webster – Vice-Chair (*Saginaw, MI*),  
Kathy Dwan – (*Freeland, MI*), Gerald Little – (*Saginaw, MI*), Carl Ruth – (*Saginaw, MI*)  
Others: Robert Belleman, Dave Gilbert, Vanessa Guerra, Jennifer Broadfoot, Jessica Sargent, Mark  
Rankin, Christopher Boyd, Bill Stanuszek, Christina Harrington, Sue Arceo, Cindy Louchart

***The Human Services Committee meeting was held via Zoom.  
As the County Building is closed to the public, the meeting was open remotely  
to allow participation during the public portion of the meeting.***

- I. Call to order---**Webster at 4:00 p.m.**
- II. Welcome/Roll Call---**Roll-call with location taken by County Clerk**
- III. Correction/Approval of Minutes (*February 1, 2021 - Attached*)  
---**Moved by Dwan, seconded by Little, to approve. Motion carried.**
- III. Public comment---**None**
- IV. Agenda
  1. **Jessica Sargent, Director, Commission on Aging, re:**
    - **3-16-4** Submitting its Annual Report for FY 2020 (*Receive & File*)  
---**Ms. Sargent shared a PowerPoint presentation and highlighted, in detail, the Mission, Vision and Delivery of Service provided by the Saginaw County Commission on Aging, including statistics on outreach; revenue and expenses; meals and transportation assistance; and changes in how services are delivered due to COVID19. Moved by Ruth, seconded by Dwan, to receive and file. Motion carried.**
  2. **Christina Harrington, Health Officer, Saginaw Health Department, re:**
    - County COVID Update
    - County Vaccination Update  
---**Ms. Harrington provided a brief update on COVID19 statistics for Saginaw County including:  
Positivity Rate currently 4%; over 100 days of decline until the past few days, which showed a slight increase but not enough to declare a surge; daily testing below 600; vaccination progress includes recent clinics, proposed clinics, assistance from local medical facilities and pharmacies.**
- V. Miscellaneous---**None**
- VI. Adjournment---**Moved by Ruth, seconded by Little, to adjourn. Motion carried; time being 4:59 p.m.**

Respectfully Submitted,  
James Theisen, Committee Chair  
Vanessa Guerra, County Clerk  
Sue Arceo, Committee Clerk

3-2-21/sea



William W. Stanuszek, Director



March 31, 2021

**HUMAN  
SERVICES**

Honorable Carl E. Ruth, Chairman  
Saginaw County Board of Commissioners  
County of Saginaw  
111 S. Saginaw Ave.  
Saginaw, MI 48602

4-20-13

RECEIVED  
SAGINAW COUNTY  
BOARD OF COMMISSIONERS  
2021 APR - 1 AM 9:52

RE: MOSQUITO ABATEMENT 2021 PROGRAM PLAN

Dear Chairman Ruth:

I will be attending the April Human Services Committee meeting to discuss the enclosed, Saginaw County Mosquito Abatement Commission 2021 Program Plan. This document provides a general synopsis of our operations, and serves as public notification for the upcoming mosquito control season.

Respectfully,

William W. Stanuszek  
Director

# Saginaw County Mosquito Abatement Commission

## 2021 Program Plan



Click on QR code to go directly to



[saginawmosquito.com](http://saginawmosquito.com)

211 Congress Avenue  
Saginaw, MI 48602

989.755.5751 | Fax 989.758.2309  
Recorder 989.755.0449  
[saginawmosquito.com](http://saginawmosquito.com)

# Staff

## Saginaw County Mosquito Abatement Commission



### Board of Trustees

**Chairman of the Board:**

*Carl E. Ruth*

Saginaw County Commissioner Representative

**Vice-Chairman:**

*Rene C. DeSander*

Saginaw; Member-at-Large

**Secretary:**

*Sidney R. Childs*

Saginaw; Member-at-Large

**Trustee:**

*Christopher N. Klawuhn*

Saginaw County Environmental Health

**Trustee:**

*Randall G. Knepper*

Saginaw; Member-at-Large

### Permanent Staff

**Director:**

*William W. Stanuszek*

**Account Specialist:**

*Courtney L. Eggebrecht*

**Biologist:**

*Charles R. Pearce*

**Chief Mechanic:**

*Jeremy D. Fabera*

**Chief Mechanic:**

*Paul B. Kinde*

**Education Coordinator:**

*Mathys G. Kotze*

**Foreman:**

*Ryan A. DuRussel*

**Foreman:**

*Paul P. Gutka*

**Office Manager:**

*Gloria K. Katch*

**Operations Manager:**

*Isaac Blackmon*

### Consultants

**Entomologist:**

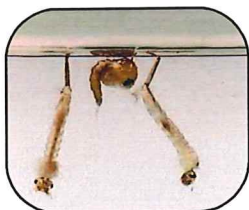
*Edward D. Walker, Ph.D., MSU*

**Source Reduction:**

*Brian J. Wendling  
Public Works Commissioner*

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**Detailed reports on file at:**

211 Congress Avenue

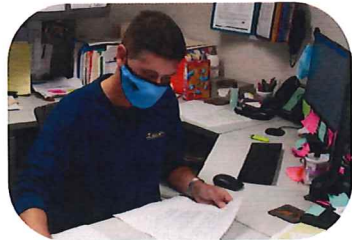
Saginaw, MI 48602

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# COVID-19

## COVID-19 Impact on SCMAC Operations



This season will mark the second year of operating through the COVID-19 pandemic. While it is our hope that the pandemic precautions ease, protocols will continue to reflect current and acceptable public health practices and county policies. Our goal remains resolute, that we continue to offer the safest possible environment for both staff and the community while providing our essential public health service. SCMAC precautions will include social distancing, mandatory mask use, health monitoring, hand washing, and routine cleaning/disinfecting. The identified impact on services will resemble last year's and are as follows:

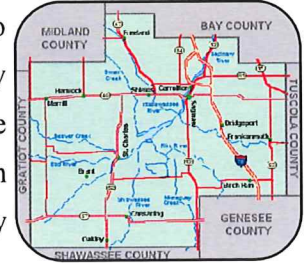
- Priority yard sprays to begin in June – tentative, depends on precautions and staffing
- Household scrap tire collection - drop-off at our facility, by appointment only
- Public *Bti* (granular) distribution – picked up at our facility, by appointment only
- Limiting close in-person contact and services – includes unsolicited property visits and public presentations

To address the above impacts, SCMAC has increased access to information, forms, and services through our website and social media. We also increased our community level larval control operations, targeting abundant storm-water catch basin and roadside ditch habitat. We are also looking forward to using new surveillance and larval control technologies that will increase our understanding and control of various mosquito threats. SCMAC appreciates the community's understanding during this challenging time.



# Introduction

The Saginaw County Mosquito Abatement Commission's (SCMAC) Program Plan presents methods and responsibilities for continuing to provide Integrated Mosquito Management (IMM) to the Saginaw County community in 2021. SCMAC is a County Governmental Agency which serves to promote public health through the control of nuisance and disease carrying mosquitoes for all 816 square miles of Saginaw County. Careful consideration and attention are given to environmental concerns. SCMAC is dedicated to a quality environment for both man and animals.



The Board of Trustees for SCMAC determines policies for the agency and meets monthly. The Board of Trustees and the agency are advised by a Technical Advisory Group (TAG) composed of some of Michigan's leading biologists, entomologists, conservationists, and scientists. Within the TAG are two State Consultants from Michigan State University, the Saginaw County Environmental Health Services Director, and the Saginaw County Public Works Commissioner.

SCMAC's funding is provided by the citizens of Saginaw County through a 10-year millage approved in 2014, receiving 81% approval. The millage rate is 0.64 of a mil per \$1,000.00 of state equalized value (SEV). A homeowner with property valued at \$100,000.00 (SEV \$50,000.00) pays \$32.00 per year. SCMAC is committed to controlling mosquitoes responsibly by selecting strategies that minimize risks to health, non-target organisms, and the environment.



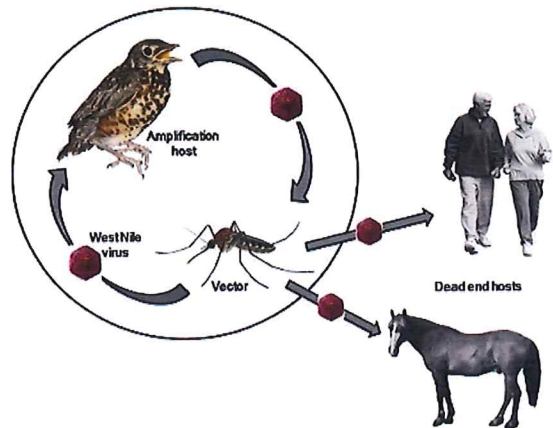
SCMAC has embraced the concept of Integrated Mosquito Management (IMM) for many years. This multifaceted approach uses a combination of methods to reduce the level of nuisance and disease bearing mosquitoes. Control strategies are chosen after careful consideration of efficacy, health effects, ecological effects, and cost benefit analysis of various options. Mosquitoes will never be eliminated but can be controlled to tolerable levels. The basis for all our programs is disease prevention. Today's nuisance mosquitoes may be tomorrow's disease vectoring mosquitoes.



Should you desire additional information about a specific aspect of the program, please contact the office at (989) 755-5751. Visitors are always welcome to tour our facility. We encourage you to visit our website at [saginawmosquito.com](http://saginawmosquito.com) and follow our activities on social media. Any suggestions, comments, and/or questions may be submitted through our e-mail address [info@scmac.org](mailto:info@scmac.org).



During 2020, the agency's disease surveillance program noted 27 West Nile virus (WNV) positive mosquito samples; and two WNV positive corvids. There were no human cases of mosquito-borne disease reported in Saginaw County. During 2020, the State of Michigan reported 32 human WNV cases. There were also 10 birds and 73 mosquito samples found positive for WNV. The state also reported three human cases of Jamestown Canyon virus. Most notable from 2020 was the outbreak of Eastern Equine Encephalitis (EEE) in Michigan.



This outbreak, as in 2019, resulted in the State of Michigan contracting and executing aerial treatment in many of the impacted counties. In total, there were 3 human cases of EEE reported with one of those resulting in death. The EEE virus was found in 41 animals located in 18 counties in Michigan. These results and others demonstrate that WNV and other mosquito-borne disease continue to maintain their presence within the State of Michigan.



The mosquitoes that transmit these diseases are found throughout Saginaw County. Fortunately, SCMAC substantially suppresses the number of disease transmitting mosquitoes thus providing benefit to the public health of Saginaw County. The threat posed by mosquitoes and the diseases they transmit may change over time. Noting a consecutive year of a EEE outbreak, the arrival of

Zika virus to portions of the U.S. in recent years, and the regional re-emergence of Jamestown Canyon virus serves as evidence for this. While currently the Zika virus poses little threat to Michigan residents, climate and seasonal changes are resulting in changes to our mosquito populations. As mosquito populations change, so does the threat of native and exotic diseases they may transmit. Each mosquito season is unique and varies from the last. SCMAC monitors and responds to current mosquito threats and will change with future threats.

SCMAC is continuously aware of the presence and importance of pollinators in Saginaw County. A major portion of our insecticide budget is for biological larvicides which are applied directly to the water and do not affect pollinators. Additionally, to adequately protect honeybee colonies and other pollinators from possible pesticide exposure, community ULV treatment begins after sunset, well after the time most bees have returned to their hives. SCMAC works with the Saginaw Valley Beekeepers Association to follow the best management practices for bee colony/pollinator health in Saginaw County.



# Personnel

SCMAC employs 10 permanent staff members. In addition, 61 seasonal employees are hired among the following positions: 5 clerk typists, 6 biology assistants, 46 vector control technicians, 2 source reduction technicians, 1 GIS technician, and 1 education assistant. Seasonal employees work approximately 40 hours per week for 18 weeks, depending upon the program needs. Beginning the first week in April, a few seasonal staff are employed to evaluate our aerial larviciding. The remaining staff begins work as they become available May through the middle of June.



## Shift Times

The biology assistants, education assistant, and GIS technician work 8:00 a.m. to 4:30 p.m. The field vector technicians and source reduction technicians are assigned to one of two shifts: 7:00 a.m. to 3:30 p.m. or 4:00 p.m. to 12:30 a.m. Shift times may vary to adapt to program needs such as a disease activity, mosquito densities, sunset times, etc. Due to the pandemic, additional changes to shifts will occur as needed.

## Office Hours

From May 1<sup>st</sup> through September 30<sup>th</sup> the office is open from 7:00 a.m. to 10:00 p.m. Monday - Friday. Shift times are 7:00 a.m. to 2:30 p.m., 10 a.m. to 5:30 p.m., and 2:30 p.m. to 10:00 p.m. During the month of September hours may vary due to inclement weather. The remainder of the year the office is open from 8:00 a.m. to 4:30 p.m. Monday - Friday. Hours may vary depending on agency needs. SCMAC is closed for all County holidays.

## Qualifications for Seasonal Employees

The Commission follows guidelines set forth by Saginaw County and agency policy. SCMAC is an equal opportunity employer and makes no discrimination pertaining to race, color, religion, sex (including pregnancy, gender identity, and sexual orientation), national origin, age (40 or older), disability, or genetic information.



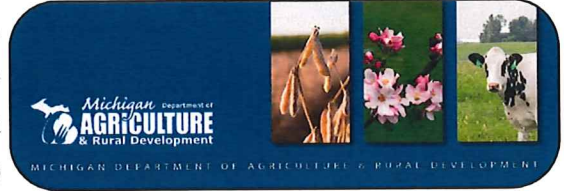
Seasonal recruitment begins in December and applicants must meet the following requirements:

1. At least 18 years of age by June 1<sup>st</sup> of each year.
2. Must have a valid Michigan driver's license, at the time of application, with no more than five points on their record and be insurable by the Commission.
3. Must pass a drug test, physical examination, and criminal background check.

The Commission is under no obligation to rehire past seasonal employees.

## Training

Due to the current COVID-19 pandemic, SCMAC's annual training session will take place online (dates to be determined). All 1<sup>st</sup> and 2<sup>nd</sup> year employees in the Biology, Education, Field, and Source Reduction Departments are required to pass a written test administered by the Michigan Department of Agriculture and Rural Development (MDARD) prior to employment. All new employees must pass an examination covering the National Pesticide Applicator Certification core manual to become a "Registered Pesticide Applicator". An intensive ten days of "hands-on" training begins the first day of work. All 2<sup>nd</sup> year employees must pass the "Mosquito Control" 7F test to become a "Certified Pesticide Applicator". Training continues throughout the season covering policies, safety, products, and methods. Each employee is furnished an Employee Training and Resource Manual which covers all aspects of employment at SCMAC.



## Personnel Evaluations

The purpose of these evaluations is to highlight the employee's strengths and weaknesses. Evaluations will be scheduled within the last 30 days of employment. Additional evaluations may be completed if an employee's supervisor deems it necessary. Evaluations are reviewed in confidence with the employee and become part of the employee's personnel file. A satisfactory evaluation does not commit the Commission to the rehiring of any seasonal employee.

## Policies

All staff are subject to all Saginaw County Policies. These policies are provided to employees at the start of employment. As for any moving traffic violations, citations, corresponding fines, etc. incurred from law enforcement agencies during employment at SCMAC, are the sole responsibility of the driver. The driver must inform his or her supervisor and fill out an incident report immediately.

## Safety

Each technician is issued personal protection equipment with specific instructions for its proper use. Safety vests are required for specific tasks and identification purposes. Every employee is required to attend regularly scheduled safety meetings. Instructions are given in reference to the Employee Right to Know Law which includes Safety Data Sheets (SDS) and potential hazards in the building. COVID-19 protocols are covered with all employees.



# Administration

The Administrative Department has a multitude of responsibilities. Some of the most essential roles are coordinating activities with the Field and Biology Departments, as well as generating reports and citizen service



requests on a daily basis. This department handles the day-to-day business of the agency. A variety of citizen requests and questions are handled ranging from: mosquito control service requests, mosquito-borne disease concerns and questions, reports of dead birds, household scrap tire collection, and general questions about the agency and services offered. In addition to accounting support services and administrative functions, this department notifies residents on the State Pesticide Sensitive Registry and/or agency internal notification list prior to all pesticide treatment scheduled in their immediate area. Other responsibilities include: management of service schedules and program records; generating vehicle fleet maintenance and fueling records; logging and audit of all pesticide application records; and the administration of the *Bti* Distribution Program. SCMAC is a governmental agency in the business of applying insecticides. Therefore, the agency is required to keep public records of all insecticide applications. SCMAC continues to incorporate technology to improve the efficacy, efficiency, and accountability of our control program. We are able to track all control operations utilizing GIS software and compatible equipment. All adult spray operations are tracked and larval control operations are logged as they occur in the field. The Administrative Department reviews the records to verify accuracy. Further responsibilities include, but are not limited to, the assembling and upkeep of employee files, identification cards, employee manuals, and field service books.

## Medical Certification Program

The agency has developed a special program for residents who exhibit severe reactions to mosquito bites. Annually, interested residents must fill out a Medical Certification (Medcert) Request Form and obtain a doctor's stamp or prescription confirming a special medical need exists. Residents meeting SCMAC requirements receive yard treatment when a ULV zone sweep is conducted in their township (no more than once every 10 days). Any treatment that requires the technician to drive off the designated driveway requires the resident to sign a Liability Release Form. This form states that SCMAC and the County of Saginaw are not held responsible for damages associated with any treatment requested off the property owner's driveway.



## No Spray Program

Residents may request their property not be treated by completing a No Spray Request Form annually. Reflective yellow signs are furnished to no spray residents to post along the road at each end of their property line. The property owners' information is located on agency maps and within GIS software, noting the exact location of the no spray area. Organic agricultural operations are identified within this program.



## Long Drive Program

To promote effective adult control, long drives are treated when requested by the homeowner if the following criteria are met: home must be 300 feet or greater from the edge of the road



and from other approved long drives; provide adequate turnaround; and possess significant vegetation providing mosquito harborage. Upon citizen request, SCMAC inspects and may add the address to the “Long Drive Program” if



qualifications are met. All approved long drives are designated on ULV route maps and within the GIS software. Reflective markers are placed at the end of all approved driveways serving as a visual reference for technicians. SCMAC reserves the right to remove long drives as services and best practices dictate.

## Bti Distribution Program

As part of our self-help larviciding program, SCMAC solicits participation from Saginaw County citizens. Due to COVID-19 social distancing guidelines, in 2020 our *Bti* granular product distribution took place by appointment only at SCMAC’s headquarters. We will continue this practice throughout the 2021 control season. Each citizen is given an instruction packet including the product label regarding the proper procedure for applying the product.



The amount available to residents is based on property size and is limited by a fixed annual inventory.

## Winter Work

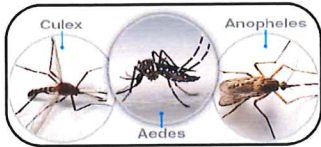
Once the mosquito control season ends, reports are generated, compiled, and data is analyzed. The department begins working on the Annual Report which serves as an accounting for all SCMAC services and activities occurring in that given year. It is distributed in December to the SCMAC Board, SCMAC Technical Advisory Group, and the Saginaw County Board of Commissioners. The Program Plan must be updated and ready for distribution by March of each year. Additionally, the plan is sent to the Michigan Department of Agriculture and Rural Development to fulfill our yearly outreach responsibilities as described in Regulation 637, Rule 11 (5)(b)(ii).

The layout, design, copying, and assembling of these reports are completed in-house. Both the Annual Report and the Program Plan are available for public viewing online at [saginawmosquito.com](http://saginawmosquito.com). The winter months are used for planning and preparing for the next mosquito control season. Treatment maps are updated; state and federal permits are obtained for the aerial larviciding program, as well as recruitment letters are sent to Saginaw County high schools and colleges throughout the State of Michigan. Interviewing and hiring for our seasonal workforce is completed by the end of March.



# Biology

Mosquito-borne disease surveillance is crucial as it promotes public health within Saginaw County. Monitoring virus activity and mosquito populations throughout the season dictates SCMAC's control strategies both preventive and responsive as well as public notification and education. SCMAC samples for mosquito-borne virus activity, which includes St. Louis Encephalitis (SLE), Eastern Equine Encephalitis (EEE), La Crosse Encephalitis (LAC), and West Nile virus (WNV). Jamestown Canyon virus (JCV), belonging to the same group of viruses as LAC, surveillance will continue in 2021 to further understand its presence in Saginaw County.



An arboviral disease testing laboratory was established through a cooperative agreement between SCMAC and Michigan State University (MSU). MSU's lab tests mosquito collections for mosquito control districts, public health departments, and other interested parties.



Quality control is an important element of the Biology Department's operation. Mosquito control products are scrutinized, as are application crews, to ensure effective, consistent, and high-quality mosquito control. New insecticides and formulations are tested routinely to ensure the most environmentally acceptable and effective products are utilized. Monitoring insecticide resistance and changing management strategies is critical to ensuring effective mosquito control and maintaining a successful control program.



Research is conducted by SCMAC annually. Only through improved knowledge and understanding of mosquitoes, mosquito-borne diseases, insecticides, and application equipment and techniques are we able to enhance our Integrated Mosquito Management Program.



## Surveillance

Routine adult mosquito surveillance is conducted using four trapping methods: New Jersey Light Traps, Centers for Disease Control (CDC) Traps, Gravid Traps, and BG Sentinel Traps. Adults collected are used for species density information and all primary disease vectoring (transmitting) mosquitoes are processed and shipped to MSU for Polymerase Chain Reaction (PCR) testing to determine if they are carrying EEE, JCV, LAC, SLE, or WNV. Approximately 1,500 - 2,000 samples are collected annually. Sample numbers can vary with vector populations and arbovirus activity.



**The New Jersey Light Trap (NJLT) Program** is conducted every Monday, Wednesday, and Friday during the mosquito season. Twenty-five of these traps are placed at geographically assigned locations throughout Saginaw County and manned by citizens. These traps monitor changes in local mosquito populations. General trap location has changed very little since 1977, offering insight into mosquito population change overtime, e.g. year to year and/or decade to decade. This is very important as seasons and control strategies change over time.



**The CDC Trap Program** is conducted Monday through Thursday during the mosquito season. Spring and Summer *Aedes* nuisance mosquitoes are highly attracted to carbon dioxide (CO<sub>2</sub>) released by the dry ice bait. Five CDC traps are placed in tandem with gravid traps. When resources are available, 5 additional traps are utilized. CDC traps are placed individually at locations where increased mosquito population resolution is needed. Ten CDC traps allow us to survey 4 townships a night.



**Elevated CDC traps** are used to monitor disease, efficiently sampling summer *Culex* mosquitoes which are the primary vectors of West Nile virus. These customized traps baited with CO<sub>2</sub> are placed 15-20 feet off the ground into the tree canopy where the *Culex* feed on birds (primary host). Elevated trapping begins in June and occurs on Wednesdays utilizing up to 4 elevated CDC traps nightly.



**Gravid traps** are used to monitor disease in Saginaw County. Gravid traps use highly organic water to attract female mosquitoes, especially *Culex*, looking to lay their eggs. These female mosquitoes have taken a blood meal and therefore are capable of transmitting arboviruses. Deployment occurs Monday through Thursday with 5 gravid traps paired with the 5 aforementioned CDC traps.



**The BG-Sentinel 2 traps** are deployed on Tuesday and run until Thursday, each week. The traps are baited with the BG lures, a custom bait. The BG-Sentinel 2 and its lure are designed to attract and catch *Aedes aegypti* and *Aedes albopictus*. This is an important tool for Zika vectors should populations migrate into the Saginaw Bay region.



Incorporating new technology into adult trapping, the BG-Counter is a remote monitoring device that counts the number of mosquitoes collected in the BG trap. This device also collects environmental data and transmits the data in real time. This data will be analyzed along with the trap collections to provide insight into daily adult mosquito activities, their response to weather, and effectiveness of our control activities.



**Oviposition traps** are used to monitor the egg laying behavior of container breeding mosquitoes. They are placed at select sites in early June and monitored on a weekly basis. The eggs can be collected and reared in the lab for identification.



### Larval and Pupal Surveillance

Monitoring the presence and abundance of mosquito larvae and pupae in various standing water habitats directs larval control efforts. The Biology Department routinely samples all types of breeding habitat. Sampled sites are logged and specimens identified. This assists in the development of breeding site maps. Larval presence and densities aid in identifying control priorities.



Larval surveillance begins in March and April as spring mosquito larvae begin to hatch and develop in flooded woodlands. The department samples this habitat prior to and after our spring aerial larviciding program. Routine larval surveillance continues throughout the season, occurring in multiple locations and habitats, as dictated by weather and time of year. Permanent water habitats like catch basins and neglected swimming pools are routinely checked for *Culex* mosquito infestation, as they are important sources of this WNV vector.

### Dead Bird Reporting

Birds in the Corvidae family, which include crows and blue jays, are very susceptible to WNV often resulting in death. Residents are encouraged to report dead crow and blue jay sightings. Depending on the condition of the dead bird, an oral swab is taken. The swabs are sent to the Veterinary Diagnostic Laboratory at MSU for WNV testing. This reporting further allows the agency to monitor and respond to WNV activity in Saginaw County.



### Mass Median Diameter

Insecticide droplets produced by the agency's Ultra Low Volume (ULV) spray equipment must be within a 12-25 micron size range in order to be effective against mosquitoes. The ULV control material controls adult mosquitoes it comes into contact with, offering no residual control. This means a certain number of droplets must come into contact with the mosquito in order for it to be absorbed into its body resulting in mortality. Monthly tests are conducted to determine the mass median diameter (MMD) droplet size of the ULV equipment. MMD is defined as the diameter of the drop which divides the spray volume into 2 equal parts. Fifty percent of the volume of droplets are below the MMD and 50% are above. MMD's are also completed on all repaired ULV equipment before it is returned to service. By determining the MMD's, the biology staff knows if the equipment is producing droplets within the optimal range, and meeting adulticide label requirements.





## Insecticide Resistance

Adult mosquitoes from various areas within the county are routinely tested for resistance by exposing them to lethal doses of various insecticides.



If resistance appears to be present or developing in a given mosquito population, control strategies are altered to lessen the likelihood of future or continued resistance.



If exposure to the insecticide in question is lessened or ceased there is a chance that resistance may subside, and a pesticide may be used again in the future. Mosquito populations can and have developed resistance

to insecticides. The mosquitoes' ability to have many generations during a given year or season along with the consistent or prolonged exposure over many years to a single insecticide or group of insecticides may result in pesticide resistance. A resistant population is harder to control and resistance may be amplified if the use of the insecticide is continued.



SCMAC views insecticide resistance as a critical issue to our program's effectiveness. As a result, a variety of EPA approved products are utilized by SCMAC to combat this real concern. This strategy includes using biological control, varying chemical groups, and product rotation.

Bottle bioassays are utilized by the Biology Department to expose mosquitoes to a given



insecticide. A certain number of mosquitoes are placed in a bottle coated with a known amount of pesticide, mortality is monitored over time.

Multiple replicates (bottles) and control bottles are used to better define susceptibility within a population. The more bioassays performed on a mosquito species or population the better the ability of SCMAC to monitor and define resistance within the County.



Resistance testing is a continuing program to ensure effective and responsible use of pesticides.

Caged mosquito tests are performed to ensure current products control mosquitoes in the field. Adult mosquitoes are placed in cages and subjected to truck mounted ULV treatment. Mosquito species collected from different areas of Saginaw County are tested for susceptibility to not just current but new ULV formulations. Testing new formulations allows for an operational understanding and expectation for the product prior to incorporation into field services.



The amount of mosquito mortality in the treated cages also allows SCMAC to watch for insecticide resistance. Multiple cage tests are completed each season to better understand adult control.

## Mosquito-Borne Virus Testing

All female mosquitoes from the species listed below are submitted to Michigan State University for their respective virus testing using PCR.



### Testing

*Aedes triseriatus*  
*Aedes japonicus*  
*Culex erraticus*  
*Culex pipiens*  
*Culex restuans*

### Virus Test

La Crosse Encephalitis  
 West Nile virus, La Crosse Encephalitis  
 West Nile virus, Eastern Equine Encephalitis  
 West Nile virus, St. Louis Encephalitis  
 West Nile virus, St. Louis Encephalitis

### Township West Nile virus Testing 2002 - 2020

Township	Corvids	Mosquitoes	Bird Bloods	Total
Albee	5	3	0	8
Birch Run	12	11	1	24
Blumfield	6	12	0	18
Brady	0	13	8	21
Brant	2	5	13	20
Bridgeport	24	12	3	39
Buena Vista	18	20	1	39
Carrollton	24	52	7	83
Chapin	0	5	1	6
Chesaning	7	9	1	17
Frankenmuth	18	18	6	42
Fremont	4	9	4	17
James	4	12	0	16
Jonesfield	2	9	0	11
Kochville	11	13	2	26
Lakefield	1	4	1	6
Maple Grove	3	10	0	13
Marion	0	3	0	3
Richland	10	7	5	22
Saginaw City	60	52	26	138
Saginaw	125	17	11	153
Spaulding	2	10	0	12
St. Charles	4	3	0	7
Swan Creek	7	2	5	14
Taymouth	2	5	5	12
Thomas	25	19	19	63
Tittabawassee	15	3	0	18
Zilwaukee	10	8	1	19
<b>Total</b>	<b>401</b>	<b>346</b>	<b>120</b>	<b>867</b>



## Special Projects

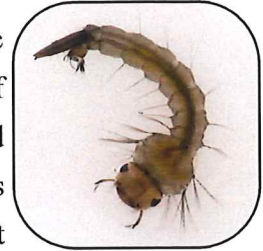
The following is an overview of special projects initiated by the Biology Department:

1. SCMAC and MSU have an ongoing cooperative study to determine if resistance to *Bti* is developing in Spring *Aedes* mosquitoes.
2. ULV spray residual studies were conducted to determine where, how much, and how long detectable amounts of insecticide can be found after adulticiding.
3. A cooperative study with MSU was conducted to determine how cold-water temperatures affect feeding of Spring *Aedes* mosquitoes and the dose response curves to *Bti*.
4. A joint study with SCMAC/MSU/Clarke Mosquito Control was conducted to evaluate residue levels of permethrin after ULV application on objects found in parks or residential backyards. The following are some objects that were used: picnic table, swing, slide, basketball, grill, water fountain, etc.
5. A joint study with MSU was conducted to look at the efficacy of three larviciding products (*B.s.*, *Bti/B.s.* combination, and methoprene) in urban catch basins. As well as a cooperative study with MSU was conducted on the ecology of catch basins.
6. The effectiveness of ULV spraying in rural areas against Spring *Aedes* mosquitoes was examined.
7. Evaluated Natular® XRT and Fourstar® 180 briquets for season long control of *Culex* mosquitoes in neglected swimming pools.
8. The effectiveness of extended release larvicides (Natular® XRT and FourStar® 180) in catch basins.
9. The combined efficacy of bacterial larvicide (Vectobac® WDG and Vectolex® WDG) in roadside catch basins.
10. Feasibility of water-based adulticides for season long truck-mounted ULV applications.
11. Evaluation and use of TrapTech adult mosquito lure's ability to collect additional vector species.
12. Established local surveillance protocol for *Aedes albopictus* and *Aedes aegypti*, exotic vectors of Zika virus.
13. Evaluated methoprene formulations and usage rates in roadside catch basins and ditches.
14. Use and efficacy of VectoMax WSPs and Altosid P35 in roadside catch basins.
15. Evaluation and incorporation of BG Counter technology into mosquito surveillance program.

# Field

## Larval Control

Larval control, or larviciding, involves the introduction of control products into aquatic habitats. The mosquito larva is the least mobile, most concentrated, and accessible stage of the mosquito. By targeting larvae in ditches, flooded fields, flooded woodlots, neglected pools, sewage lagoons, retention ponds, agricultural drains, and catch basins countless mosquitoes are eliminated before they reach the adult biting stage. Larviciding is the “first line of defense” for any environmental mosquito management program. Twelve hours of SCMAC’s 16-hour workday is spent larviciding.



## Spring Larviciding

Aerial larviciding of seasonally flooded woodlots is tentatively scheduled to begin the week of April 12, 2021 (weather dependent). Fixed-wing aircraft treat approximately 52,000 acres of mosquito breeding habitat using granular *Bacillus thuringiensis* variety *israelensis* (*Bti*), Serotype 14 attached to ground corn cob, at the low



application rate of 2.5 to 3 pounds per acre. Additional aerial larviciding with granular *Bti* may be considered depending on feasibility, cost, and opportunity. *Bti* is a naturally-occurring soil bacterium. The bacterium produces proteins in a crystalline form. When mosquito larvae eat these crystals, the proteins cause a cellular breakdown in the alkaline mid-gut which results in rapid death. *Bti* has a highly specific mode of action and is widely considered to be of minimal environmental concern. *Bti* is specific to mosquito, blackfly, and midge larvae and non-toxic to mammals, birds, fish, and many insects, including honeybees. *Bti* bio-degrades quickly and leaves no residue. This larvicide will not kill pupae, as this stage of development does not feed.



SCMAC employs two methods to ensure efficient and accurate aerial treatment. All aircraft use Global Positioning System (GPS) electronic guidance, which can be monitored in real-time by SCMAC staff. SCMAC utilizes Arc-GIS software to develop accurate treatment maps for both aerial and ground operations.



Seasonal vector control technicians begin larviciding immediately following the completion of spring aerial treatment. They concentrate on woodlots infeasible to treat by aircraft, such as small woodlots less than 5 acres. Ground crews will use *Bti* or larviciding oil for this treatment depending on the mosquitoes’ stage of development.



## Summer Larviciding

Most roadside ditches are checked 1 to 3 times during the control season and treated when necessary. They are routinely checked after a significant rainfall as this often produces larval activity. Ditches are treated using granular *Bti* or methoprene. If late fourth instar larvae or pupae are present, larviciding oil may be applied to the water with a pressurized sprayer. If the ditch cannot be accessed by a truck, treatment is made by ground crews using the above control materials.



All villages, cities, and townships with urban and suburban development have catch basins. SCMAC recognizes



these catch basins are a significant source of *Culex* mosquitoes, the primary vector for West Nile virus. This habitat is treated whenever an area's infestation is 25% or greater. The agency uses a variety of larvicide formulations and methods to treat nearly 100,000 catch basins annually. Methoprene and Biological (*Bti* & *Bs*)



products are applied by foot, bicycle, moped, or truck targeting 30 day to season long control, depending on formulation. Targeted catch basins are located in subdivisions, parking lots, yards, and along roads. Catch basins are normally treated 1 to 4 times depending on product formulation, mosquito infestation and disease activity.



SCMAC continues to search for catch basins located off the road in yards, school grounds, apartment complexes, and parks.

Saginaw County has 13 sewage lagoon sites. This organic rich habitat can produce very large numbers of *Culex* mosquitoes. The Field Department monitors infestation rates throughout the summer and treats if necessary. Treatment is with the bacterial larvicide, VectoLex® WDG.



Saginaw County has a large amount of mosquito breeding habitat that routinely floods after significant rain events.



This floodwater habitat can produce substantial nuisance mosquito populations. SCMAC has an extensive catalog of these known floodwater sites which may be treated multiple times each season, depending on rainfall. These breeding



habitats include flooded fields, woodlots, and floodplains. Larval control products used to treat these habitats include *Bti*, methoprene, and larviciding oil.

## Adult Control

Adult control, or adulticiding, targets adult mosquito populations. Even the most rigorous larviciding program may not be able to keep adult mosquito populations at acceptable levels. For instance, Saginaw County has a species of mosquito which is very difficult to control in its aquatic stages; larvae of the cattail marsh mosquito, *Coquillettidia perturbans* attach to aquatic plant roots to obtain oxygen. Another factor is Saginaw County has State and Federal lands located in the center and southwestern portions of the County which are not accessible to larviciding efforts.



## ULV Adulticiding

Adulticiding is the introduction of control products into the air to kill adult mosquitoes in-flight using truck mounted Ultra-Low Volume (ULV) sprayers. Each ULV unit is carefully calibrated monthly to dispense only 0.05 ounces of active ingredient per acre. It is important for these machines to break down insecticides into proper droplet sizes, which is 12-25 microns. All trucks are tracked utilizing GIS technologies which records location, speed, and spray activity.



ULV treatment normally takes place from sunset to approximately 12:30 a.m., Monday - Friday to coincide with peak mosquito activity. If mosquito-borne diseases or mosquito populations are high, a second spray shift is conducted in early morning hours during the second peak of mosquito activity prior to sunrise. ULV applications are less effective at temperatures below 56 degrees, if winds are greater than 10 mph, or in heavy rain. Due to these factors, ULV operations cannot be performed every evening.

Adulticiding is only performed after careful analysis of biological data from traps, disease surveillance, and citizen complaint calls. Saginaw County is divided into 9 treatment zones (page 18) based on city, village, or township boundaries. These zones are adulticided when surveillance warrants treatment. Our principal adulticiding material is a 4% permethrin ULV formulation.

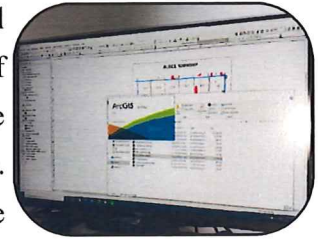
## Adulticiding of Mosquito Harborage Areas

SCMAC utilizes a Buffalo Turbine sprayer to treat 78 predetermined sites scheduled for foliage adulticiding treatment. This method applies a residual spray to foliage, which then controls resting mosquitoes. These sites consist of parks, sportsman clubs, golf courses, campgrounds, etc. and are visited weekly on a designated day (weather permitting). This method controls resting mosquitoes during daylight hours. The sites are treated only if adult mosquito populations are warranted. The insecticide used is a Mavrik® Perimeter applied to foliage at a .01% active ingredient solution.



## Geographic Information System (GIS)

SCMAC's Field Operations relies on our Geographic Information System or GIS to plan, conduct, and track our operations and services. This system utilizes ESRI-based computer software and specialized equipment promoting efficient and timely mosquito control operations. This system catalogues and presents intuitive mapping of mosquito larval habitats, roads and properties, control operations, and special service considerations. This geographic inventory of important items is accessible and interactive in the office as well as the field utilizing both web-based applications and mobile devices. This system also assists with special services, service requests, and scrap tire collection. In addition, other departments use GIS for public outreach, mosquito surveillance, and public *Bti* distribution. Our GIS coordinates with our spray equipment tracking and records our community adult treatment. This GIS software is key to the planning, conducting, and recording of our many services and operations.



## Pollination Awareness

SCMAC is continuously aware of the presence and importance of pollinators and works with the Saginaw Valley Beekeepers Association to follow the best management practices for bee colony/pollinator health in Saginaw County. With this in mind our control efforts are designed around Pollinator Best Management Practices, using an Integrated Mosquito Management Program.



In order to adequately protect honeybee colonies and other pollinators from possible pesticide exposure, there must be effective communication and cooperation from those involved. It may be necessary to control adult mosquitoes in areas known to have bee colonies. Bees and many pollinators are most active from sunrise to sunset. Our treatment schedule in these areas begins after sunset, which is after the time most bees have returned to their hives. A major portion of the insecticide budget is for larvicide (*Bti*) that is applied directly to the water and does not affect pollinators.

Spray equipment is carefully calibrated to dispense proper droplet size to impact



mosquito sized insects, not the larger insects like butterflies, bees, or beetles. The spray is a contact insecticide, once released it breaks down rapidly. The treatment has a short range, 300 feet from the treatment path, depending on wind direction and speed.



## Best Management Practices for pollinator/mosquito control interaction

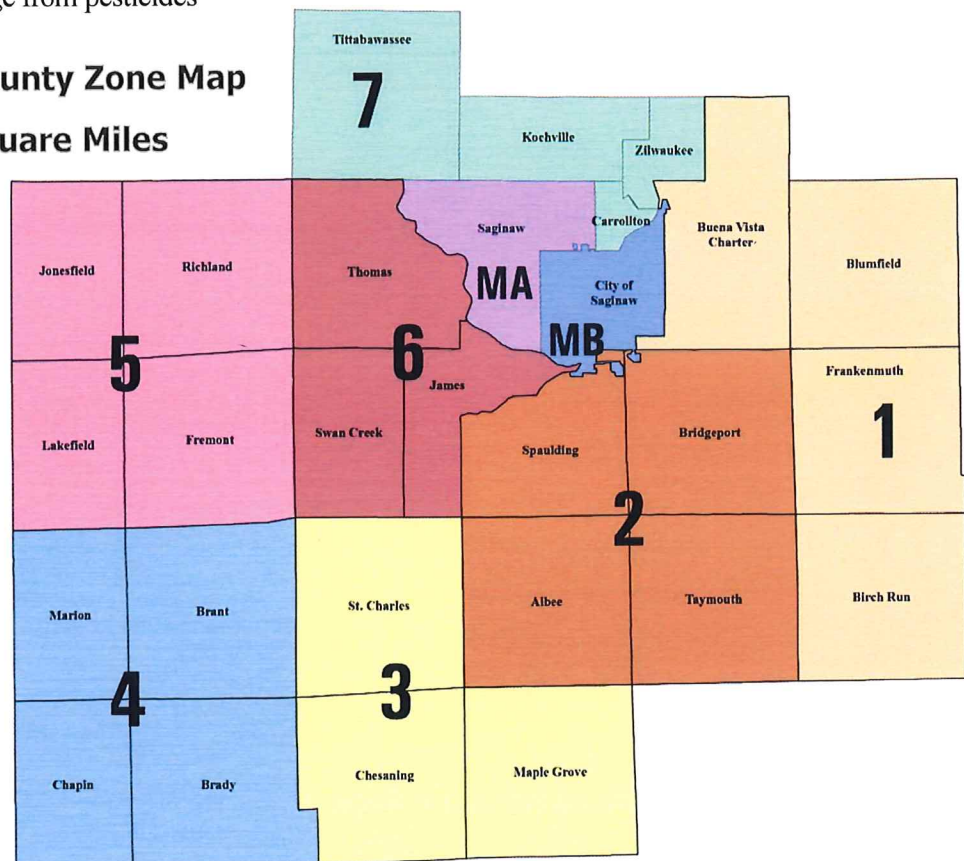
### Mosquito Control

- Locate apiaries annually, communicating regularly with local beekeepers
- ULV treatment when bees are not flying, late evening/night and early morning
- Let beekeepers know the insecticide we are using
- Avoid direct application of spray to flowering plants
- Monitor and time treatment related to wind direction with respect to colonies

### Bee Keepers

- Report colony movement (location) to mosquito control
- If possible, locate hives 300 feet from the roads
- Beekeepers are responsible to manage health of their colonies; healthy hives are less susceptible to disease and possible damage from pesticides

**Saginaw County Zone Map**  
**816 Square Miles**







## Summary of Insecticides/Biologicals \*

Altosid® XR Briquets (2.1% (S)-Methoprene) - larvicide used in catch basins, 1 briquet/CB

Altosid® P35 (4.25% (S)-Methoprene) - larvicide used in catch basins, 4.0 grams/CB

Altosid WSP® (4.25% (S)-Methoprene)- larvicide used in catch basins, 1 packet/CB

*Bti* (Serotype 14) - corn cob granule - larvicide used in a variety of floodwater habitat including flooded fields, woodland pools, and roadside ditches, 2.5 - 20 lbs./acre

DeltaGard® (2.0% Deltamethrin) - adulticide used in urban and suburban areas during mid to late summer months at 10.5 -12 fl.oz./minute. Active ingredient = 0.00045 to 0.00067 lbs. Ai/A

Duplex™-G (5.35% *Bti*, 1.6% Methoprene) - larvicide used in roadside ditches, 10 lbs./acre

Fourstar® Briquets - 180 (6% *Bs*, 1% *Bti*) - larvicide used in neglected pools, 1 - 2 briquets/100 sq. ft.

Fourstar® WSP (3.0% *Bs*, 3.0% *Bti*) - larvicide used in catch basins, 1 packet/CB

Larviciding Oil (BVA2) - used where pupation has occurred in floodwater habitat, 3 - 5 gallons/acre

Mavrik® Perimeter (22.3% Tau-fluvalinate) - foliage treatment for adult mosquitoes. Mixed 8 fl.oz. of product to 100 gallons of water. Active ingredient = 0.283 lbs. Ai/A

MetaLarv® S-PT (4.25% (S)-Methoprene) - larvicide used in floodwater habitats, 2.5 to 10 lbs./acre

Permethrin 4 - 4 (4% Permethrin) - adulticide used in all temperatures at 5 - 10.5 fl.oz./minute

Active ingredient = 0.001 - 0.007 lbs. Ai/A

Permethrin 30-30 (30% Permethrin) - adulticide used in all temperatures at 5 - 11 fl.oz./minute

Active ingredient =0.00175-0.007lbs. Ai/A

VectoBac® WDG (37.4% *Bti*) - wide area larviciding, 1.75 to 14 oz./acre

VectoLex® WDG (51.2% *Bs*) - sewage lagoon treatment, 0.5 - 1.5 lbs./acre

VectoMax® WSP (2.7% *Bs*, 4.5% *Bti*) - larvicide used in catch basins, 1 packet/CB

**\*Product use may change as needed in response to control needs.**

# Public Information and Education

Public education is an important part of SCMAC's Integrated Mosquito Management Program aiming to engender a cultural awareness of both SCMAC's and the public's responsibilities. It is important for residents to understand the primary purpose of our control efforts is to reduce mosquito-borne diseases while realizing the impact they also have on mosquito habitat in our community. It is truly a collaborative effort.

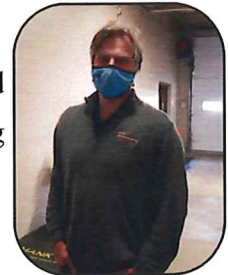


## Educational Programs

SCMAC's educational program provides presentations to pre-K through college level students. While classroom presentations have been the tradition, a transition and incorporation of virtual presentations may become the norm depending on requirements. Educational material such as videos, presentations, and fun worksheets are available online per request. All material focus on mosquito development and habitat; mosquito-borne disease; surveillance methods; insecticide safety; and methods for personal protection and control.

SCMAC sponsors an annual Creative Arts Contest to Saginaw County students. In 2021, the contest will be conducted via our website and pushed through social media. Students will have the opportunity to creatively express their understanding of mosquitoes, and how they can help control mosquitoes around their homes and community. The best artwork may then be used in some of SCMAC's education campaigns.

Our Education Coordinator is available to speak to community service groups and organizations about the importance of our program and how to make a difference by helping control mosquitoes in their neighborhoods.



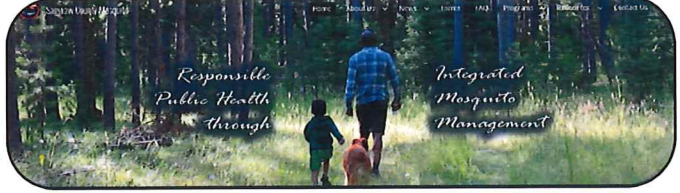
## Community Outreach

SCMAC keeps the community current with our program and mosquito control by having an accessible and effective presence in the community. When possible, SCMAC attends community events such as Friday Night Live, Saginaw Children's Zoo, Saginaw County Park Programs, and the Saginaw County Fair. These events allow SCMAC to address frequently asked questions and concerns, which promotes community participation and awareness resulting in better mosquito control. Depending on health regulations SCMAC may have a visual but not interactive presence at some events.



## Educational Tools and Material

SCMAC's website contains a wealth of information about our program, services, and related mosquito topics. A visual representation of our treatment and surveillance efforts are displayed as maps on our home page along with other important announcements. In addition to the website, social media such as Facebook and Twitter as well as other newer platforms, provide relevant information and developments. To follow us on the social media of your choice (if available) please visit our website for the links.



## Resources

Employees and Trustees stay abreast of current science, practices, and information on a routine basis. Attending conferences, classes, and seminars increases staff knowledge and awareness. Our Technical Advisory Group (TAG) is comprised of academics, public health professionals, regulators, industry members, and leaders in the field of mosquito control. The TAG provides the agency with new developments and important data in the areas of biological and environmental sciences as they pertain to our operations. SCMAC is also an active member of the Michigan Mosquito Control Association (MMCA).



## Cooperative Relationships

The Saginaw County Health Department has been helpful in utilizing the Public Health Code to resolve nuisance problems involving sanitation and neglected pools.



SCMAC has also begun working in collaboration with the Midwest Center of Excellence Vector-Borne Diseases (MCE-VBD), assisting with coordinated surveillance and resistance monitoring and standardization. The MCE-



VBD focuses on the Upper Midwest to better monitor, understand, control, and share information about disease-carrying mosquitoes and ticks. Additionally, SCMAC works cooperatively with other professional associations, such as the American Mosquito Control Association

(AMCA), the Entomological Society of America (ESA), the Michigan Mosquito Control Association (MMCA), and the Michigan Pest Management Association (MPMA) to ensure that our staff receives the most current information.

SCMAC carefully tracks proposed legislation as it relates to mosquito control. Members of our permanent staff serve on Michigan regulatory committees and work groups when needed.

# Source Reduction

Source Reduction is the removal of mosquito breeding habitat through the elimination of standing water. This practice is the most effective way to control mosquitoes around the home and community. SCMAC's Source Reduction Program seeks to reduce the amount of mosquitoes and mosquito-borne disease within communities through education and habitat removal. The following source reduction strategies are employed to achieve this goal:

1. Homeowner education and consultation
2. Search and Inform Program
3. Household Scrap Tire Collection Program
4. Neglected Pool Program



Mosquito breeding habitat (standing water) comes in various forms, varying from artificial habitats such as tires and buckets to natural habitats like floodwater found in low areas. In either case, the elimination of these mosquito sources are often possible; simply dumping or removing artificial habitats or draining standing water can eliminate local mosquito threats.



## Public Education

### Homeowner Education and Consultations

Citizens will occasionally ask questions in regard to draining water from low lying areas. SCMAC looks to provide them with information as to possible drainage solutions. Mosquito Control with the help of the Saginaw County Public Works Department can provide homeowners guidance through information or site consultations. We look to provide residents with an awareness of the variety of habitat wherein mosquitoes breed through information readily available on our website and routinely on our social media platforms.

### Search and Inform Program

SCMAC prides itself in providing residents with information that can help control mosquitoes in and around their yard and community. Our technicians canvas



neighborhoods educating homeowners while looking for sources of mosquito breeding; specifically, artificial habitats that can be simply emptied or removed. Due to COVID-19 precautions, this year's efforts will target homeowners that have requested this or other services. In the past, community surveys would be conducted throughout the summer. The following mosquito habitats are frequently encountered by



technicians: buckets, tarps, bird baths, toys, tires, swimming pools, flowerpots, trash cans, kiddie pools, and ornamental ponds.

## Household Scrap Tire Collection

In 2004 legislation was passed in Michigan making it illegal to dump scrap tires into landfills. This action resulted in an abundance of tires dumped in ditches, fields, woods, and yards. Since 2015, annual funding assistance is sought through the Michigan Department of Environment, Great Lakes and Energy's Scrap Tire Cleanup Grant. This grant helps offset costs associated with our Household Scrap Tire Collection Program and reduces the number of tires that promote mosquito breeding.



As a service to Saginaw County residents and an effort to reduce the number of mosquitoes, SCMAC will accept scrap tires at our facility and continue to work with communities to assist with clean-up efforts that remove tires from the landscape. Tire collection is by appointment only from May 1<sup>st</sup> through August 31<sup>st</sup>. First Class Tire Shredders transports and utilizes the scrap tires in various capacities.



Tires are limited to a total of 10 household tires (without rims), passenger size only (car and pickup truck) per address, per year. Semi, tractor, and heavy equipment tires are not accepted. Businesses and other revenue generating enterprises are excluded from this program.



## Neglected Pool Program

Neglected swimming pools are capable of breeding very large populations of *Culex* mosquitoes, the primary West Nile virus vector. Mosquito Control, along with the Public Health Department, take these habitats very serious as they pose a threat to public health. Pools are monitored for mosquito breeding routinely throughout the season, as well as kiddie pools, hot-tubs, and ornamental ponds. This program has achieved much success with many pools removed or reopened.



## Historic Source Reduction Projects

SCMAC has drained a large amount of standing water over the last few decades. Mosquito Control provided engineered drainage solutions, prior to 2015, to qualified residents through a SCMAC funded drainage program. This program was eliminated due to engineering and construction costs far exceeding those associated with larviciding. Nearly 400 projects were completed with over 1,000 catch basins placed to eliminate standing water in yards, parks, churches, ball fields, and other community areas. It is important that SCMAC monitor these projects and treat the catch basins for mosquitoes.

# Vehicle and Equipment Maintenance

SCMAC's Vehicle Maintenance Department performs both major and routine vehicle maintenance repairs on the agency's fleet as well as 11 other Saginaw County departments. This totals approximately 138 vehicles. Departments are billed quarterly for parts and labor at a cost that is beneficial to everyone. This cooperative relationship allows SCMAC to employ two State of Michigan Certified Mechanics.

Additional responsibilities include the repair, fabrication, and maintenance of the following: Ultra low volume (ULV) adulticide sprayers, compression sprayers, granular applicators,



fleet of mopeds and bikes, tire trailers, and other agency equipment. The work is



completed in a fully equipped 2,500 square foot vehicle maintenance facility. The facility consists of 4 bays (1 hoist, 1 wash bay, and 2 oil change pits).

## Preventive Maintenance

The agency utilizes a vehicle and equipment maintenance sheet that is reviewed by the staff at the start of each shift to ensure the equipment is in proper working condition. Seasonal employees assigned a vehicle must complete a "Daily Truck Checklist." This guides



them through a thorough inspection of the vehicle which includes checking fluid levels, taillights, blinkers, strobe lights, headlights, tire conditions, tire pressure, etc.



## Vehicle Repairs

SCMAC takes pride in the appearance of our trucks and equipment; therefore, a finishing and detailing shop was built in the main building. Employees



not only paint new vehicles, with our "trademark" optic yellow color, they repair dents, dings, and scratches which occur throughout the season. Most vehicle repairs are performed during the winter months saving the agency money.



## Fuel Facilities

SCMAC operates a secure 24-hour fueling depot providing gasoline for mosquito control, as well as 13 other county departments. SCMAC utilizes a Fuel Master system which is supplied by a 6,000 gallon above ground tank. The system logs all fuel transactions using a ProKey and pin number combination.



# Mosquito Outbreak Emergency Response Guidelines

DISEASE DETECTION AND MOSQUITO OUTBREAK EMERGENCY RESPONSE GUIDELINES		
LEVEL	CRITERIA	RESPONSE
I	<p><b>Below Normal to Normal Mosquito Populations</b> All New Jersey Light Traps less than 200 mosquitoes per night CDC Traps average less than 100 mosquitoes/trap/night Complaint/Service Calls average less than 100 per day</p> <p><b>Disease Detection</b> No Detection of Disease</p>	<p>Control operations target nuisance and/or disease vectoring mosquitoes in locations with highest mosquito densities Target larval breeding sites associated with vector and/or nuisance mosquitoes Continue routine surveillance Priorities accepted: 50 Thursday/Friday and 25 Monday – Wednesday Medcerts treated routinely with zone sweeps</p>
I I	<p><b>Normal Mosquito Populations</b> Fewer than 3-5 New Jersey Light Traps greater than 200 mosquitoes per night CDC Traps average less than 250 mosquitoes/trap/night Complaint/Service Calls average 100-175 per day</p> <p><b>Disease Detection (Background Activity)</b> Occasional positive detection in mosquito collections and citizen reported dead crows and blue jays. Normal for time of year</p>	<p>Control operations target nuisance and/or disease vectoring mosquitoes in locations of highest mosquito densities Increase larval control in areas with increased virus, vector, and nuisance activity Monitor potential hot spots using various surveillance methods Priorities accepted: 50 Thursday/Friday and 25 Monday – Wednesday Medcerts treated routinely with zone sweeps</p>
I I I	<p><b>Elevated Mosquito Populations</b> 3-5 New Jersey Light Traps greater than 200 mosquitoes for two consecutive nights CDC Traps average greater than 250 mosquitoes/trap/night Complaint/Service Calls average 175-200 per day</p> <p><b>Elevated Disease Detection (Mosquito-Borne Illness Advisory)</b> Noted increase in mosquito and dead bird reporting infection rates Multiple detection noted throughout the county Arrival of new mosquito-borne disease or vector</p>	<p>Repeated nightly spraying in high risk areas or in areas with increased larval surveillance in areas most likely to breed disease vectoring mosquitoes Continue spraying nuisance mosquitoes in areas with high mosquito densities Increase disease surveillance in areas with high levels of mosquito disease activity News release sent to media encouraging citizens to use personal protection Priorities reduced: 25 Thursday/Friday and 10 Monday – Wednesday Priorities for civic/community events only, not for complaint calls Medcerts treated routinely with zone sweeps AM spray shift implemented as needed to assist with nights</p>
I V	<p><b>Mosquito Populations Substantially Above Historical Levels</b> New Jersey Light Traps with more than 5 traps greater than 200 mosquitoes for consecutive nights CDC Traps average greater than 500 mosquitoes/trap/night Complaint/Service Calls average greater than 200 per day</p> <p><b>Highly Elevated Disease Detection During Weekly Testing Period</b> Single human case of mosquito borne disease Mosquito and bird surveillance higher than historical levels Increase in mosquito-borne disease or vector</p>	<p>Focus control efforts to high risk mosquito populations and areas commensurate with arbovirus indicators for risk Control operations will continue to target nuisance mosquitoes in locations of highest mosquito densities Increased disease surveillance to obtain estimates of mosquito transmission frequency in targeted areas News release sent to media encouraging citizens to use personal protection Total ban on accepting new Priorities (ONLY honoring requests already in system) civic/community events treated Medcerts treated no more than once every 10 working days (treated as a long drive only if within 10 day time frame) Night Shift (adulticiding only): 6 days a week Sunday - Friday AM and weekend spray shift implemented (weather dependent) as needed</p>
V	<p><b>Mosquito Populations Extremely Elevated</b> New Jersey Light Traps greater than 300 mosquitoes in 5 or more traps for consecutive nights CDC Traps average greater than 1,000 mosquitoes/trap/night Complaint/Service Calls average greater than 300 per day</p> <p><b>Extremely Elevated Disease Detection During Weekly Testing Period</b> Multiple human cases of mosquito-borne disease Mosquito and bird surveillance infection 75% above historic data Arrival/detection of new arbovirus with multiple infectious pathways</p>	<p>Aggressive adulticiding and larviciding efforts to high risk mosquito populations and areas commensurate with arbovirus indicators for risk Consider aerial adulticiding Consider strategies for increased disease surveillance: canceling outdoor events, closing parks, etc. Consider control on protected lands such as no sprays and Federal/State lands Increase surveillance to obtain estimates of mosquito transmission frequency in targeted areas Increase news releases encouraging citizens to use personal protection Total ban on Priorities except civic/community events Total ban on Medcerts Night Shift (adulticiding only): 6 days a week Sunday - Friday AM and weekend spray shift implemented (weather dependent) Consider requesting assistance from Centers for Disease Control (CDC) for increased disease surveillance Consider requesting for State and Federal Emergency (FEMA) support for mosquito control operations</p>

Final decision in regards to status levels is at the discretion of SCMAC's Director.

Accountability and transparency documents are available under the Performance Dashboard tab at [www.saginawcounty.com](http://www.saginawcounty.com)