



SALEM COUNTY MOSQUITO CONTROL

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Annual Report

2021

With a glance back: 2020, 2019, 2018 & 2017

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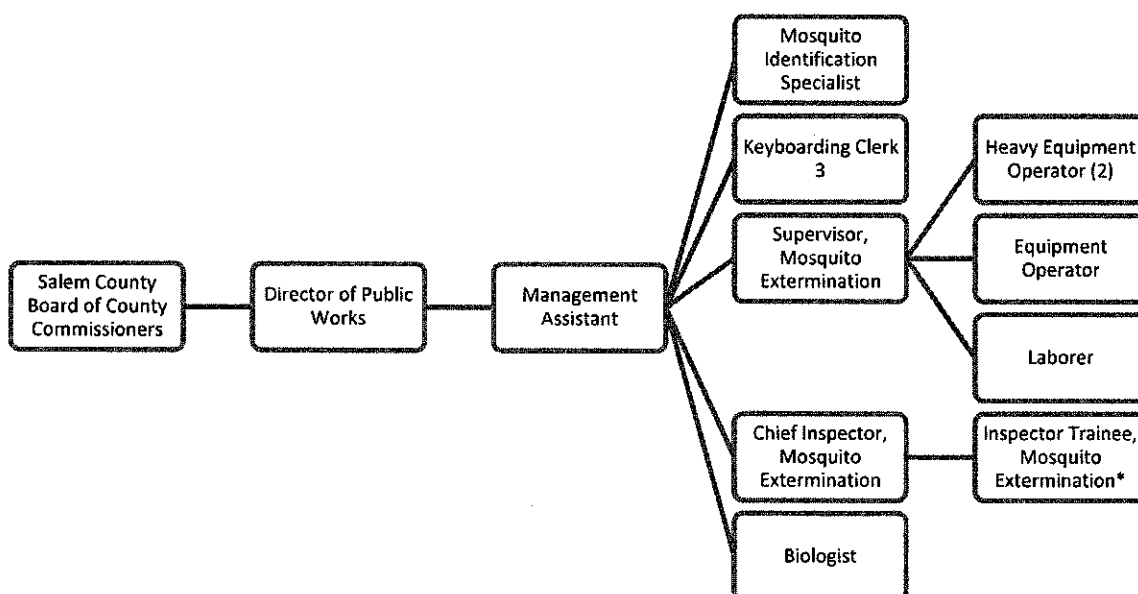
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Budget Overview

Salem County is located in the southwestern corner of New Jersey and comprises 338 square miles of flat to gently sloping land. There are 15 municipalities within the County, which includes a population of approximately 64,000 people. Although the County is generally rural and has a strong agricultural industry, some of this prime agricultural land is being sold to developers. These housing projects contain more retention ponds, impervious surface, catch basins, and drainage systems requiring more inspections and treatment. Besides possessing extensive prime agricultural land, Salem County also contains about 50,000 acres of undisturbed woodlands, almost 30,000 acres of wetlands, and several surface water resources. These natural and human-made resources provide both an economical and ecological value to the County; however, they also provide a habitat for the 32+ species of mosquitoes residing within its borders. Other mosquito habitats within the County include, but are not limited to: salt and fresh water marshes, swamps, irrigation ponds, dredge spoils, storm water management facilities, and water impoundments. The few urban areas provide habitat in the form of various and numerous artificial containers. Moreover, many Salem County residents own horses. Proximity of residents and their horses to the previously mentioned mosquito habitats poses concern regarding human and equine health due to mosquito-borne disease. The agricultural industry within the county employs many farm workers that travel from areas where exotic arboviruses are endemic, therefore it is imperative that we continue to monitor for Chikungunya, Dengue and Zika viruses.

The Salem County Mosquito Control (SCMC) office is located at 900 Route 45, Building #4, Woodstown, NJ. The main office is attached to a renovated barn which serves as the shop/garage. There are multiple storage containers in which sprayers, pesticides, boats and trailers, welders, spare parts and other supplies are stored.

SCMC is a small facility; therefore, employees must handle various tasks. Currently the department has ten full time employees and one vacant position*.

Organizational Chart



Disease Surveillance

SCMC participates in the arbovirus surveillance program funded and organized by the Office of Mosquito Control Coordination and the State Mosquito Commission. Mosquito traps that live-catch mosquitoes are placed in known mosquito habitats and/or at sites with virus-positive birds, horses, and/or humans. SCMC currently utilizes resting boxes, gravid traps, CDC mini light traps outfitted with CO2 (dry ice) dispenser, BG Pro CDC-style traps, and BG Sentinel 2 traps for this surveillance program. The collections are pooled according to various parameters, and transported via courier service at the expense of SCMC to the NJ Department of Health Public Health Environmental Laboratory (PHEL) in Trenton for virus testing. Zero mosquito pools tested positive for West Nile virus Eastern equine encephalitis in the 2021 season. The season wrapped up later than normal this year on 11/13/2021; resulting in no other disease positives in mosquitoes, horses, or humans in Salem County.

Salem County disease surveillance began on June 1st and concluded on November 13th. Collections yielded 6,094 mosquitoes and 592 pooled vials were submitted to PHEL for testing. In 2021 Salem County also collected and submitted pools for state resting boxes which were set at two locations in Pittsgrove Township.

Salem County Mosquito Control utilizes the JerseySurv platform, provided by the University of California, Davis as a database for population surveillance, vector surveillance, and inspections. This information is sharable and allows for multi-agency collaboration. SCMC plans to continue to utilize this online resource and has entered historical data for more well rounded records.

2021 Positive mosquitoes:

0 West Nile virus positive mosquito pools
0 Eastern Equine Encephalitis positive mosquito pools

2021 Other Virus Results:

0 Arthropod-borne pathogen positive cases

2021 NJ statewide arthropod-transmitted disease positive human cases:

36 West Nile virus, with 5 fatalities
0 Eastern Equine Encephalitis
8 Dengue virus
1 Chikungunya virus
39 Malaria
0 Zika virus
1 Jamestown canyon virus
2,173 Lyme disease

Disease Surveillance						
Year	Mosquitoes Collected	Pools Submitted	Collection Dates	Positive Mosquitoes	Other Virus Results	NJ Statewide Arbovirus (positive human cases)
2017	2,528	219	June 15 th – October 27 th	10- WNV 5- EEE	1- WNV positive horse 0-EEE positive horse 0- Arbovirus positive human case	7- WNV 9- Dengue Virus* 8- Chikungunya Virus* 33- Zika Virus*
2018	7,043	395	June 15 th – October 15 th	9- WNV 2- EEE	0- WNV positive horse 0-EEE positive horse 0- Arbovirus positive human case	58- WNV 14- Dengue Virus* 9- Chikungunya Virus* 73- Malaria 7- Zika Virus* 2,995- Lyme disease
2019	5,322	609	June 6 th – October 24 th	4- WNV 3- EEE 1- JCV	0- WNV positive horse 1-EEE positive horse 0- Arbovirus positive human case	8- WNV 4- EEE 54- Dengue Virus* 8- Chikungunya Virus* 87- Malaria* 10- Zika Virus* 2,589- Lyme disease
2020	6,517	662	June 1 st – October 31 st	1- WNV 1- EEE	0- WNV positive horse 0-EEE positive horse 0- Arbovirus positive human case	3- WNV 2- Dengue Virus* 3- Chikungunya Virus* 14- Malaria 3- Zika Virus* 1,785- Lyme disease
2021	6,094	592	June 1 st – November 13 th	0- WNV 0- EEE	0- WNV positive horse 0-EEE positive horse 0- Arbovirus positive human case	36- WNV, with 5 fatalities 8- Dengue Virus* 1- Chikungunya Virus* 39- Malaria 1- Jamestown Canyon Virus 2,173- Lyme disease

Population Surveillance

Adult population surveillance is chiefly based on data collected from NJ light traps. SCMC has 15 light traps placed strategically throughout the County. Population surveillance began on May 1st and concluded on October 22nd. Mosquitoes are collected, sorted from by-catch, counted, and identified following each collection. SCMC participates in the State surveillance program, providing light trap data to Rutgers from four sites, reported weekly.

2021 NJ light trap collections yielded 45,723 total mosquitoes. A 75.5% decrease in population compared to 2020 is likely a result of 34.31% decreased precipitation. Population surveillance records are kept for each site to aid in control decisions and to allow for comparisons between sites and between years. Seven of the sites also have rain gauges, representing rainfall throughout the County.

Population Surveillance					
Year	2017	2018	2019	2020	2021
Mosquitoes Collected	73,266	107,544	49,564	96,104	45,723
No. of NJ Light Traps	14	13	13	15	15
Collection Dates	May 1 st – October 27 th	May 1 st – October 22 nd	May 1 st – October 31 st	May 1 st – October 31 st	May 1 st – October 22 nd

Precipitation

Month/Year	2017	2018	2019	2020	2021
January	2.56	2.44	4.69	3.70	1.66
February	1.35	2.68	8.85	4.13	3.22
March	4.86	3.92	4.09	4.01	5.28
April	2.32	3.50	2.80	4.35	2.30
May	5.86	5.68	4.97	2.52	3.20
June	3.99	3.34	8.54	2.27	1.76
July	4.99	3.06	5.62	7.61	2.30
August	3.87	4.11	2.66	13.97	4.39
September	4.32	9.76	0.48	3.15	6.57
October	4.02	3.08	5.03	3.82	8.01
November	1.39	5.71	1.60	4.78	2.66
December	1.23	5.16	4.68	12.08	2.26
Total	40.76 inches	52.44 inches	54.01 inches	66.39 inches	43.61 inches

Requests for Service

Municipality	2017	2018	2019	2020	2021
Alloway	23	35	26	30	21
Carney's Point	34	54	29	56	62
Elmer	4	9	9	8	8
Elsinboro	7	20	7	27	10
LAC	15	46	16	29	12
Mannington	10	26	12	24	17
Oldmans	26	39	22	62	26
Penns Grove	9	11	6	20	14
Pennsville	69	111	59	99	78
Pilesgrove	15	38	9	22	18
Pittsgrove	69	89	41	55	51
Quinton	13	33	12	22	6
Salem City	8	14	9	13	15
Upper Pittsgrove	38	79	18	66	29
Woodstown	15	15	8	15	13
Total	355	619	283	548	380

Chemical Control

Salem County Mosquito Control will use insecticides as temporary control and only when other approved control methods are not effective or are not feasible. SCMC uses larvicides, pupicides, and adulticides to aid in the control of mosquitoes and will follow all pesticide labels and adhere to all New Jersey Agricultural Experiment Station and Rutgers University Department of Mosquito Research and Development recommendations.

All field personnel are Certified Pesticide Applicators. In order to maintain pesticide application certifications, employees attend annual training sessions that are presented by the New Jersey Mosquito Control Association (NJMCA). Each year SCMC staff attends the NJMCA annual meeting and professional training session. Attendance at these meetings and training sessions was conducted virtually for 2021 and will continue virtually or in-person during 2022.

Pursuant to law; extremely detailed records are kept on every insecticide application performed by our employees. Log books are maintained detailing the pesticide used, amount applied, the name and certification number of the applicator, the time, date and location of application, and the EPA registration number of the product used.

Larvicide Applications

Larvicide applications are made once mosquito habitats are located and mechanical control measures are not feasible. Most larvicides are applied to the water as the inspectors are examining known "hot spots," or as a response to service request calls.

The larvicide and pupicide active ingredients that are used include: temephos, methoprene, *Bacillus thuringiensis israelensis*, *Bacillus sphaericus*, spinosad, and mineral oil. These materials are measured and applied by hand (briquets), hand sprayer (liquid), horn seeder (granular), gas powered backpack sprayer (set up for liquid and/or granular application) and a 50 gallon or 100 gallon tank sprayer. Employees are trained in the field to ensure measuring and estimating techniques are accurate.

Larvicide Application				
Year	Granular	Covering	Liquid	Covering
2017	5386.3 lbs	1256.25 acres	240.3 gal	153.8 acres
2018	5404.5 lbs	2210.6 acres	137.6 gal	56.6 acres
2019	3006.6 lbs	1206.6 acres	100.6 gal	33.5 acres
2020	3696.84 lbs	310 acres	245 gal	411 acres
2021	2242.44 lbs	448 acres	32.31 gal	11 acres

Adulticide Applications

Adulticide applications are made by truck mounted ultra-low volume (ULV) spraying machines. Before adulticide applications are performed, the area to be treated is inspected and other control options are considered. Adulticide applications are deemed necessary if it is meant to reduce a public health risk or a severe nuisance problem.

SCMC has performed ground adulticide applications in the morning for many years, and has generally replaced evening adulticide applications. This program change has produced a significant decrease in the overtime hours which were previously needed to provide our services to the residents of Salem County. Evening ground adulticide applications are still performed when weather or other variables prevent morning applications.

In accordance with N.J.A.C. Title 7, Chapter 30, an advertisement is placed in the local newspapers, NJ Advanced Media and Elmer Times, on a monthly basis to advertise for the potential of aerial insecticide applications. In addition, to comply with the provisions of N.J.A.C. 7:30-9.10, notification packets are prepared and sent to all municipalities annually. These packets include information about the department and all of the insecticides that we use.

The active ingredients in the adulticides used by SCMC include: Rosemary oil & peppermint oil, prallethrin, sumithrin, piperonyl butoxide, malathion, and etofenprox. These materials are measured and applied by a gas powered backpack sprayer (set up for liquid application) and truck mounted sprayers.

SCMC currently utilizes four trucks with mounted ULV sprayers:

- #6 2010 Chevy Colorado/#4 2018 Guardian ULV Sprayer, 14,786 miles
- #7 2010 Chevy Colorado/#1 2012 Dyna Jet ULV Sprayer, 10,140 miles
- #16 1992 Dodge Dakota/#3 2016 Guardian ULV Sprayer, 78,418 miles
- #17 2000 Chevy S10/#2 2016 Guardian ULV Sprayer, 67,878 miles

Annually, representatives from pesticide manufacturer companies assist in calibration of the insecticide dispersal equipment.

SCMC notifies beekeepers, township clerks, Salem County Health Department, Salem County Emergency Services Department, and township officials with information regarding when and where we will be conducting adulticiding operations. Adulticide operations are also posted on the county website. SCMC office staff notifies residents that have called in a request before the spray application takes place. In addition, residents who have requested special notification when SCMC is in the area are notified prior to ULV applications.

Adulticide Application		
Year	ULV	Covering
2017	240.3 gal	30,859.79 acres
2018	137.6 gal	25,036 acres
2019	100.61 gal	14,856.5 acres
2020	245 gal	26,432 acres
2021	32.3 gal	15,620 acres

In 2019, 2020 and 2021 SCMC partnered with Cornell University to test for mosquito resistance against Etofenprox (Zenivex E4) proving no resistance, resulting in 100% mortality rate.

Chemicals for mosquito control are purchased from state contract which is being renewed in 2022. The contract renewal is expected to reflect a price increase of approximately 10% for all products.

The below table gives an overview of service calls that resulted in larvicide only or larvicide and ground adulticide treatments:

Municipality	2017			2018			2019			2020			2021		
	Service Requests	Larvicide Treatment	Larvicide & Adulticide Treatment	Service Requests	Larvicide Treatment	Larvicide & Adulticide Treatment	Service Requests	Larvicide Treatment	Larvicide & Adulticide Treatment	Service Requests	Larvicide Treatment	Larvicide & Adulticide Treatment	Service Requests	Larvicide Treatment	Larvicide & Adulticide Treatment
Alloway	23	19	31	35	31	9	26	25	9	30	26	15	21	21	1
Carney's Point	34	23	32	54	32	43	29	20	8	56	32	31	62	49	18
Elmer	4	3	5	9	5	4	9	7	2	8	7	4	8	6	1
Elsinboro	7	7	16	20	16	15	7	4	5	27	21	18	10	8	3
LAC	15	8	33	46	33	32	16	11	3	29	23	14	12	10	0
Mannington	10	9	24	26	24	14	12	8	8	24	23	18	17	14	5
Oldmans	26	15	27	39	27	30	22	14	17	62	38	54	26	20	7
Penns Grove	9	7	8	11	8	4	6	5	5	20	8	14	14	11	4
Pennsville	69	55	85	111	85	59	59	46	15	99	79	33	78	63	19
Pilesgrove	15	13	32	38	32	24	9	8	4	22	17	8	18	13	0
Pittsgrove	69	49	76	89	76	40	41	31	8	55	44	32	51	47	15
Quinton	13	9	26	33	26	22	12	8	4	22	20	16	6	6	0
Salem City	8	5	9	14	9	6	9	7	3	13	10	9	15	8	3
Upper Pittsgrove	38	28	59	79	59	38	18	14	4	66	52	53	29	29	11
Woodstown	15	14	11	15	11	8	8	7	1	15	13	9	13	11	1
Total	355	264	474	619	474	348	283	215	96	548	413	328	380	316	88

Biological Control

SCMC began participating in the State Mosquito Control Commission's predatory fish program in 2001. Each year, areas which are conducive to the survival of predatory fish are identified. These areas become candidates for fish stocking to help in controlling mosquito populations. In 2021; 14,300 Fat Head minnows (*Pimephales promelas*) were stocked in 8 locations, within 5 municipalities. 1,000 mosquito fish (*Gambusia affinis*) were stocked in 2 locations, within 2 municipalities. Two 300 gallon tanks and a large volume filter and pump are located on premises to hold fish for use in the field, as needed. Ideally, fish stocking will continue as a method of mosquito larvae/ pupae control in the upcoming seasons.

Year	Pimephales promelas (fat head minnow)		Gambusia affinis (mosquito fish)		Centrarchidae (sunfish)	
2017	5,000	7 locations in 3 municipalities	0		0	
2018	33,000	17 locations in 6 municipalities	50	abandoned swimming pools	0	
2019	8,015	15 locations in 9 municipalities	350	abandoned swimming pools	0	
2020	16,655	11 locations in 8 municipalities	50	abandoned swimming pools	0	
2021	14,300	8 locations in 5 municipalities	0	abandoned swimming pools	1,000	2 locations in 2 municipalities

Source Reduction/Water Management

Source reduction, or water management, is viewed as the most efficient method of mosquito control. In general, water management can be defined as the enhancement of the environment to reduce or eliminate those habitats favorable to mosquito production. Although water management techniques vary depending upon the mosquito species and their breeding habitats, all accomplish two major objectives: they provide long term or permanent control and they eliminate the need for the repeated use of chemicals in the managed areas.

SCMC has been granted a Countywide Freshwater Wetlands General Permit 1, a Countywide Flood Hazard Area General Permit 2, a FWW GP15, and a Waterfront Development Permit with a Water Quality Certificate. With these blanket permits, SCMC maintains existing manmade and natural waterways to improve flow, therefore creating inhospitable habitat for mosquito larvae. State and Federal restrictions and the nature of employee workloads have resulted in a substandard quantity of water management projects than anticipated.

These water management permits were granted in May 2020 and expire in May 2025. Although the 2020 renewal of these permits cost SCMC approximately \$6,000, there were no additional application fees for 2021. Salem County Mosquito Control will continue to follow all guidelines outlined in the Best Management Practices for Mosquito Control Work in Wetlands and the Standards for Soil Erosion and Sediment Control in New Jersey, and will continue to cooperate with the NJ Department of Environmental Protection and the Office of Mosquito Control Coordination to provide water management activities as an Integrated Pest Management (IPM) practice to reduce mosquito habitats throughout Salem County.

Restrictions set forth by state or federal regulations prohibit some water management activities between April 1st through June 30th (no digging) and March 15th through July 31st (no clearing of vegetation).

Salem County owns and utilizes the following heavy equipment on water management projects:

- 1990 #2 MDI Yutani Excavator (extended stick)
- 2010 Caterpillar 324 Long Reach Excavator
- 1970 Bombardier
- 1970 Caterpillar D4 Dozer
- 2016 Morbark Beaver M12R Chipper
- 2016 John Deere XUV 625i Gator
- 2016 Blackstone Utility Trailer (for Gator)
- 2008 Hydroseeder
- 2008 Straw Mulcher
- 2009 CAM Dump Trailer
- 1990 #1 MDI Yutani Excavator – non functioning, needs major overhaul

To comply with project permit regulations, the County has solid white oak equipment mats to reduce the ground pressure of any of the above machines. Mats are replaced as needed. In 2021 a total of 6 mats were replaced at a cost of \$8,100. Prior, 6 mats were replaced in 2018 totaling \$5,790.

The NJ Mosquito Control Commission provides aid to Salem County in the way of an annual equipment lease program which runs on a fiscal year July 1st through June 30th. In 2021 the Commissioner's entered into the agreement, Resolution 2021-220, and the following pieces of state owned equipment were assigned to Salem County:

- #7 2003 Kobelco Low Ground Pressure Excavator
- #10 1995 John Deere Amphibious Excavator
- #17 1985 John Deere Widetrack Bulldozer
- #58 1989 Argo ATV
- #59 1989 Argo Trailer
- #28 1995 ULV Vectec Grizzly – non-functioning
- #28A 2007 ACCUflow2 Variable Flow Control System – non-functioning
- #77 ULV Machine Curtis Typhoon – non-functioning
- #105 ULV Machine Beecomist HD – non-functioning
- #108 ULV Machine Beecomist ProMist 25HD – non-functioning

Salem County is responsible for insuring the leased equipment and conducting routine maintenance and repairs. Individual repairs and/or major repairs in excess of \$1,000 are reimbursed by the State Mosquito Control Commission. There were no major repairs in

2021, 2020, 2018 or 2017. In 2019, the #7 Kobelco Excavator required repairs totaling \$13,207.21 which was funded by the State Mosquito Control Commission, less the obligatory \$1,000 deductible.

This lease program benefits our water management program greatly. Obsolete or non-functioning equipment is expected to go to auction in 2022. The amphibious excavator will be surrendered due to lack of an operator on staff. The agro and trailer will also be surrendered for use by another entity.

In 2021, the following water management projects were completed:

**Cross Road/George, LAC Township
500' ditching cleaned, 55.6 CY material removed**

Man Hours	Truck Miles	Truck Fuel	Kobelco Hours	Kobelco Fuel (gal)	Chipper Hours	Chipper Fuel (gal)	JD350 Hours	JD350 Fuel (gal)
192	796	88.1	26	57	5.7	22	1	5

**Harmersville Pecks Corner Road/Renzi & Massey, LAC Township
3,615' ditching cleaned, 766.2 CY of material removed**

Man Hours	Truck Miles	Truck Fuel (gal)	#2 MDI Hours	#2 MDI Fuel (gal)	Chipper Hours	Chipper Fuel (gal)	JD350 Hours	JD350 Fuel (gal)
284	1,372	164.8	136.8	407	12.7	13.3	0	5.7

**Harmersville Pecks Corner Road/Wibel, LAC Township
700' ditching cleaned, 77.8 CY of material removed**

Man Hours	Truck Miles	Truck Fuel	Kobelco Hours	Kobelco Fuel (gal)	Chipper Hours	Chipper Fuel (gal)	JD350 Hours	JD350 Fuel (gal)
76	304	45.8	39	71	0	0	0	0

The below water management project started in 2021 and is ongoing:

**Miles Creek, Pennsville Township
1,441' ditching cleaned, 15,696.6 CY of material removed**

Hours	Truck Miles	Truck Fuel (gal)	Cat324D Hours	Cat324D Fuel (gal)	Silt Fence (rolls)
434	1460	170.3	235.8	1,137.5	10

The below areas have been slated for our next water management projects:

- Bowden/Plummer - Church Road, LAC Twp.
- Vice - Delaware to Salem, Pennsville Twp.
- Keasbey Creek UNT - Keasbey Street, Salem City

2021 yielded 13,989 linear feet of ditching cleaned by manual labor and hand tools:

Location	Municipality	Total Linear Feet
61 East Main Street	Alloway Township	1,065'
237 Pennsville Pedricktown Road	Oldmans Township	1,389'
6 Leap Drive	Pennsville Township	717'
108 Woolman Road	Upper Pittsgrove Township	612'
Industrial Park Road	Pennsville Township	1,035'
English Road/Parvins Mill Road	Pittsgrove Township	2,264'
130 Amwellbury Road	Elsinboro Township	7,972'

Two banks in Salem County were repaired in 2021. NJDEP Fish and Wildlife owned bank on Fort Elfsborg Road, Elsinboro Township was repaired in July utilizing one employee, a boat and the state owned JD690 Amphibious excavator. Locust Island Bank in LAC Township was repaired in conjunction with LAC Township Public Works by placing sandbags and clay material in the breach.

NJPDES Highway Agency Stormwater General Permit

SCMC assists the SC Road Department and local municipalities with NJPDES permit compliance. For mosquito control, all catch basins throughout the County are inspected annually for mosquito larvae presence and treated with insecticide, whenever necessary. Detailed inspection records are maintained regarding whether basins are structurally sound, filled with debris, in need of repair and if the basin is labeled properly. These records are shared with the SC Road Department all local municipalities for storm water compliance. SCMC encourages basins to be cleaned, repaired and labeled as reported.

Salem County Catch Basins

	County	Municipal	State
Alloway	155	98	0
Carney's Point	241	698	65
Elmer	96	93	25
Elsinboro	44	32	0
LAC	221	132	0
Mannington	75	98	34
Oldmans	195	294	19
Penns Grove	103	164	26

	County	Municipal	State
Pennsville	147	1220	94
Pilesgrove	236	243	58
Pittsgrove	182	149	0
Quinton	70	107	40
Salem City	126	279	90
Upper Pittsgrove	82	44	159
Woodstown	130	250	75

Water Control Structures

Water control structures are monitored and regulated daily in effort to maintain consistent water levels in impoundments at the Locust Island sluice, West Branch sluice, Silver Lake sluice and Moore's Bank in LAC Township. Water levels are maintained year round by adding and removing boards in the sluice structures. Water level regulation greatly reduces mosquito populations. As needed, sluice gate doors are repaired or replaced by SCMC staff averaging one major overhaul per year. Any new fabrications are made with stainless steel. This is done to gain extended life of the door. Underwater inspections and repairs are conducted by a contractor.

Tire Collection Program

In response to heightened concern regarding viral transmission through mosquito vectors such as *Aedes albopictus* (aka the Asian Tiger Mosquito) an agreement was formed in July of 2017 between Salem County Mosquito Control and Salem County Improvement Authority permitting disposal/recycling of tires that are collected by mosquito control staff to be recycled. Recycling fees are charged to the Clean Communities Grant at the current rate, leaving no additional charges incurred for the department. 794 total tires have been recycled since the inception of the agreement. This program has effectively reduced the treatment and retreatment of problematic habitats that continually host one of the main nuisance mosquitoes in Salem County.

Tires Collected Per Year				
2017	2018	2019	2020	2021
0	40	547	159	48

State Airspray Program

SCMC is a participant in the State Airspray Program; SCMC does not own any aircraft, nor hires aircraft operators. When the need arises and ample budget funding is available, the State Mosquito Control Commission and the State Office of Mosquito Control Coordination provide aerial application services. There were no aerial missions in 2021. The last aerial mission that took place in Salem County was in July 2018. Sinnickson's Landing sluice in Elsinboro Township failed resulting in extreme elevated mosquito populations. Only one liquid larvicide application, covering 747 acres, was necessary for control. These services are not guaranteed due to current budget constraints at the state level, however, should the need arise SCMC and the state office would work together to ensure necessary treatment within Salem County potentially at full, partial or no cost to the County.

Tick Surveillance and Education Program

In June 2018 SCMC was designated to provide surveillance, education, training and recommendations on Integrated Pest Management for the management of ticks and tick-borne diseases and to provide appropriate tick-borne management activities. These efforts are now being funded through a grant in the amount of \$12,000 issued by New Jersey Department of Health (NJDOH). This grant was accepted on October 20, 2021 and terminates on September 14, 2022. Active and passive surveillance measures continue with added responsibility of tick sample and data submissions to NJDOH. Tick samples were submitted to PHEL on 12/30/2021. The active surveillance will continue routinely twice per month at three county owned parks; Fenwick Park, Perkintown Park and Camp Crockett.

Passive surveillance will continue by identifying and recording ticks that have been collected and submitted to our lab by residents and employees.

Ticks Species Collected				
	2018	2019	2020	2021
Active Surveillance	- Amblyomma americanum - Dermacenter variabilis - Ixodes scapularis	- Amblyomma americanum - Dermacenter variabilis - Ixodes scapularis	- Amblyomma americanum - Dermacenter variabilis - Ixodes scapularis - Haemaphysalis longicornis	- Amblyomma americanum - Dermacenter variabilis - Ixodes scapularis - Haemaphysalis leporispalustris
Passive Surveillance	- Amblyomma americanum - Dermacenter variabilis - Ixodes scapularis	32 samples - Amblyomma americanum - Dermacenter variabilis	45 samples - Amblyomma americanum - Dermacenter variabilis	51 samples - Amblyomma americanum - Dermacenter variabilis - Ixodes scapularis

Public Education

Our employees often use literature on various aspects of mosquito biology, mosquito control and tick information to educate the public. Inspectors carry copies of various brochures (redesigned and printed in 2019), door hangers, and Q & A sheets for dispersal. It is also essential that any county resident, whom calls with questions, receives an accurate and timely answer to any pertinent questions they may have. Public education is an opportunity to provide insight into services rendered for residents, and to educate them on how to reduce artificial habitats on their property and how to keep themselves and their pets safe. The staff typically gives presentations to various school groups, associations and public meetings each year. In 2021, SCMC participated in the Salem County Fair distributing over 500 packets of educational materials and the Salem County Agricultural Day, providing hands on education to over 175 students from local schools at the 8th grade level. We also focused on education with resident interactions and/or phone calls.

Fleet

Aside from the trucks dedicated to the adulticide treatment program; the fleet includes a total of eight operating vehicles. The vehicles have lockable storage boxes wherein pesticides, spill kits, safety equipment, and any necessary tools are kept. Several county vehicles are beginning to deteriorate and eventually must be replaced. The non-functioning truck is slated to be added to the next county auction.

- #1 2008 Ford F250, 77,262 miles
- #2 2008 Ford F250, 85,676 miles
- #3 2008 Dodge Dakota, 144,147 miles
- #5 2008 GMC Sierra, 166,486 miles
- #14 1991 Ford F150, 229,776 miles
- #18 2017 Ford F250, 85,713 miles
- #19 2006 Dodge Dakota, 92,471 miles
- #501 2000 Jeep Cherokee, 141,240 miles
- #10 2008 GMC Sierra – non-functioning

Budget Overview

2017 OPERATING EXPENDITURES - \$137,250 BUDGET

Advertisement	\$3,810.00
Education, Association Dues, Certificates	\$4,487.00
Equipment Maintenance	\$16,208.06
Water Management	\$8,427.98
Lab & Surveillance	\$3,084.86
Office	\$4,429.95
Pesticides	\$54,401.40
Safety	\$7,708.07
Shop	\$13,409.20
TOTAL OPERATING EXPENSES	\$115,966.52

Budget Overview (continued)

2018 OPERATING EXPENDITURES - \$137,250 BUDGET

Advertisement	\$4,623.75
Education, Association Dues, Certificates	\$8,194.00
Equipment Maintenance	\$15,463.28
Water Management	\$6,179.46
Lab & Surveillance	\$5,066.97
Office	\$8,209.08
Pesticides	\$89,077.09
Safety	\$9,376.14
Shop	\$7,649.89
TOTAL OPERATING EXPENSES	\$153,839.66

2019 OPERATING EXPENDITURES - \$165,000 BUDGET

Advertisement	\$4,308.75
Education, Association Dues, Certificates	\$11,176.00
Equipment Maintenance	\$12,008.85
Water Management	\$1,233.22
Lab & Surveillance	\$5,857.62
Office	\$4,480.56
Pesticides	\$107,215.64
Safety	\$8,031.32
Shop	\$5,052.51
TOTAL OPERATING EXPENSES	\$159,364.47

2020 OPERATING EXPENDITURES - \$171,000 BUDGET

Advertisement	\$4,308.75
Education, Association Dues, Certificates	\$8,744.00
Equipment Maintenance	\$28,457.87
Water Management	\$6,825.00
Lab & Surveillance	\$3,537.60
Office	\$5,005.86
Pesticides	\$95,712.20
Safety	\$9,757.75
Shop	\$5,280.48
TOTAL OPERATING EXPENSES	\$167,629.51

2021 OPERATING EXPENDITURES - \$171,000 BUDGET

Advertisement	\$4,010.00
Education, Association Dues, Certificates	\$6,872.53
Equipment Maintenance	\$12,400.70
Water Management	\$19,138.02
Lab & Surveillance	\$2,986.67
Office	\$3,874.00
Pesticides	\$90,929.30
Safety	\$16,476.67
Shop	\$13,365.53
TOTAL OPERATING EXPENSES	\$170,053.42

2022 PRELIMINARY OPERATING EXPENSE BUDGET

Advertisement	\$4,250.00
Education, Association Dues, Certificates	\$4,000.00
Equipment Maintenance	\$12,000.00
Water Management	\$15,000.00
Lab & Surveillance	\$4,500.00
Office	\$4,500.00
Pesticides	\$100,000.00
Safety	\$15,000.00
Shop	\$12,000.00
TOTAL OPERATING EXPENSES	\$171,000.00