

# Annual Program Report 2007



Base Station  
(St. Augustine, FL)



North Station  
(Sampson, FL)



## **ANASTASIA MOSQUITO CONTROL DISTRICT ST. JOHNS COUNTY, FLORIDA**

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South Station  
(Hastings, FL)

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## Mission & Goals

*To preserve and protect the people from mosquitoes and mosquito-borne diseases.*

*To reduce/control mosquitoes through integrated pest management based on environmentally-friendly and cost effective methods.*

*To minimize negative impacts on people and other living things, based on valid scientific data, peer review and public hearings.*

*To spend public funds prudently; and*

*To become recognized as one of the leading mosquito control districts.*

*(Revised & approved on July 10, 2007)*





## *Note from the Director*

In 2007, the Board of Commissioners and all employees worked very hard to conduct each of our programs. We provided more than 2,000 customer service requests about mosquitoes, mosquito-borne diseases, and other insect control. The residents in St. Johns County have been free of any mosquito-borne diseases for the 4<sup>th</sup> year and the local horses/animals have been free of any mosquito-borne diseases for the 2<sup>nd</sup> year. AMCD provided a significant amount of professional service for the federal, state governmental agencies, national, state, and local professional associations, communities, clubs, and private companies/organizations through many cooperative projects.

AMCD promoted public education about mosquitoes and mosquito-borne disease control. AMCD successfully organized mosquito control and environmental events in April, open house in November, and many public education events. AMCD provided 22 CEUs to our and other district employees through the 4th workshop, the AMCA (national) in Orlando, and FMCA (state in Jacksonville) meeting symposia. AMCD provided most service requests for public records in 2007 and dealt with many public and local media agencies on several hot issues, such as helicopter contracts, legal service, pesticides, and sunshine law.

AMCD promoted environmentally-friendly methods for mosquito control and aimed to reduce pesticide application. We used mosquito magnets, toxic baits and bait stations, personal / community protection techniques, and barrier treatments to protect residents at some hot spots/areas. Mosquito fish has been frequently transferred for some new ditches and retention ponds for mosquito larval control. The pesticide amounts and application times have been reduced 1/3, compared to the last few years. Malathion has been limited for use due to high resistance and more than 600 gallons have been sold.

AMCD successfully organized a cooperation research workshop with the Department of Environmental Protection at Guana Education Center in May, and helped the Board to decide to switch OP pesticides to ANVIL 10 + 10 for aerial spraying. The barrier treatment study helped the district to reduce the cost and complaints from the residents who live in a "hot spot" and have multiple service requests.

Aerial application was issued in October and ANVIL 10 + 10 was used due to WNV spread, countywide service request after 19-20 inches of rainfall in late September and early October. Over 200,000 acres were sprayed and the WNV spread and mosquito nuisance problem were controlled by aerial application. No residents complained about the aerial spray, but some residents complained the spray did not work very well as 2005's aerial spray with Dibrom.

The staff and I prepared/supported 24 Board meetings and workshops and many committee meetings in 2007. The North Station ran very smoothly after merging with the Ponte Vedra (PV) Station. The service has been improved and the cost has been reduced after the close of PV in December 2006. Six trucks have been sold after merging. So far, there are no complaints from PV residents about the merge. The district's safety program ran smoothly and the number of serious accident reports was the lowest in the last few years.

AMCD adopted and used new technology and more scientific methods to provide an excellent customer/professional service through employee training and public education. Currently, AMCD is doing well and we are working together under the new Board's direction and leadership in order to reach our mission and goals. I am appreciative and "Thank You" to all the Board members, employees, contractors, and cooperative organizations for your support and service to the AMCD's programs.

We welcome suggestions and promote participation from the citizens of St. Johns County or any concerned party.

Rui-De Xue, Ph.D.  
District Director



## Letter from Chairperson of the Board of Commissioners

December 31, 2007

Dear Board Members and All Employees:



Thanks for giving me the opportunity to serve the Board, the employees and the taxpayers as the Chairperson, Board of Commissioners of Anastasia Mosquito Control District of St. Johns County in 2007 for the 2<sup>nd</sup> time. In 2007, we held a total of 24 Board meetings, including 12 regular meetings, 2 continued meetings, 6 workshops (medical insurance, leadership training, salary, and budget), 3 special meetings (2 times for hiring lawyers and 1 time for final budget hearing), and 1 emergency meeting about SBA. Based on the AMCD's mission and goals, the Board directed and supported the district's administrative staff and all employees to provide the high quality services for our taxpayers, the residents in St. Johns County were free of any kind of mosquito-borne disease for the 4<sup>th</sup> year and our local horses/animals were free of mosquito-borne disease for the 2<sup>nd</sup> year.

Three new board members took office in January, 2007-- Commissioner, Mrs. Jeanne Moeller, Commissioner, Mr. John Sundeman, and Commissioner, Mrs. Linda Wampler. At the first Board meeting in January, I was elected as the Chairperson for the second time. Mrs. Wampler was elected as the Vice Chairperson. Mrs. Moeller was elected as the Secretary/Treasurer for the Board.

The Board promoted publicity and for the first time used a DVD recorder for Board meetings and they were broadcasted on local television.

The Board approved the budget and reduced the millage rate from 0.1500 in 2006 to 0.1344 in 2007. All employees received a 5% raise and 2 supervisors and a staff's salaries have been adjusted with an increase. A new position (Business Manager) has been created. Mr. Meiszer has been appointed as the Interim Business Manager at November 8th's Board meeting to help the Board to recruit the Business Manager and other consultations.

The new Board of Commissioners decided to cancel the helicopter contract based on the public's input and the Board accepted the recommendation to continue the development of the aerial program with a new aerial committee.

The Board decided to give 7 acres of AMCD's land in SR 16 to the county for building their EOC buildings and the County will build the road and make the rezoning change and other items for AMCD.

The Board made several new policies and changed 1 policy, such as: public records request copy charge policy and procedure, AMCD employee whistle blower protection policy, investment policy and changed the contract renewal time from 3 months to 4 months prior to expiration.



The Board held an emergency meeting on December 3, 2007 about stopping the distribution of AMCD local funds to the SBA account due to the account freeze issued by the Governor.

The Board renewed the aerial spray contract with Clarke Mosquito Control by using ANVIL 10 + 10, approved new Auditor/CPA contract recommended by the Auditor Committee. Mr. Mark Bailey resigned as the AMCD's health insurance agent. The Board spent several workshops to select and change the health insurance to HSA with Blue Cross and Blue Shield due to the increased cost of health insurance.

The Board had a difficult time with our legal service. Mr. Dobson resigned at the 1<sup>st</sup> Board meeting in January after several years of service. The Board hired Mrs. Carolyn Ansay as the new Attorney. After 6 months, she resigned her position. Then, the Board hired Mr. Doug Wyckoff as the new Attorney and started August 30, 2007.

AMCD held the 4th Arbovirus Surveillance and Mosquito Control Workshop, Mosquito Control and Environmental Event Symposium, and many employee trainings have been conducted in 2007. An increased amount of surveillance, public education and public relations has been conducted and enhanced.

Overall, AMCD is in good shape and the majority of the employees are happy and satisfied with the programs, the Board and administrative service. Thanks for your support.

Sincerely,

Mrs. Barbara Bosanko, Chair, 2007



## *Board of Commissioners & Appointed Officers*

Mrs. Emily B. Hummel, Commissioner  
Mrs. Barbara H. Bosanko, Chairperson  
Mr. John Sundeman, Commissioner  
Mrs. Jeanne Moeller, Secretary/Treasurer  
Mrs. Linda Wampler, Vice-Chairperson



### *Appointed Officers by the Board*

Dr. Rui-De Xue, District Director  
Mr. Geoff Dobson, District Attorney (1/07-4/07)  
Mrs. Carolyn Ansay, District Attorney (4/07-9/07)  
Mr. Wyckoff, District Attorney (9/07-present)  
Randolph Sandy, CPA



## Full-Time Personnel

<b>Administration</b>		<b>Hire Date</b>
Director/Entomologist	Dr. Rui-De Xue	4/14/03
Receptionist	Charolette McElroy	11/05/07
Accountant	Brooke Tedford	12/12/05-7/8/07
Accountant	Scott Hanna	7/09/07
<b>Department of Entomology</b>		
Education Specialist	Gina LeBlanc	9/26/05
Inspector	Mike Smith	11/05/84
Biological Technician	Whitney Qualls	3/20/06
VCMS Coordinator	Richard Weaver	4/14/03
<b>Base Station</b>		
Supervisor	Kay Gaines	8/07/00
Inspector/Sprayers	Jacque Bolduc	10/09/00-10/07
	Tom Downey	3/1/06
	Greg Griggs	4/15/91
	Cathy Hendricks	7/08/02
	Patrick Kendrick	4/07/03
	Loren Smith	3/18/02
	Elaine Scanzani	3/20/02
	David Strickland	3/10/97
Mechanic	James Wynn	3/04/96
<b>North Station</b>		
Supervisor	John Boone	4/17/00
Inspector/Sprayers	Jimmy Baer	4/08/96-12/07
	Michelle Davenport	3/1/06
	Mike Mills	3/31/03
	Vincent Price	6/01/99
	Ed Schneider	10/23/00
	Paul Whatley	7/08/02
Mechanic	Gene Wells	11/26/79
<b>South Station</b>		
Supervisor	David Taylor	2/28/94
Inspector/Sprayers	Freddie Allen	7/08/02
	Steve Solana	4/24/00
	Steven Steele	11/1/05-05/07
	Ken Daniel	9/26/05





## *Part-Time/Seasonal Personnel*

<b>Part-Time</b>		<b>Dates of Service</b>
Receptionist	Alfredo Azpiazu	3/12– 8/02
Education Intern	Rebecca Waler	05/29– 09/05
Biological Technician Intern	Katherine Cash	05/29– 08/31
<b>Seasonal</b>		
Entomologist	Abimbola Amoo	05/07– 10/19
Inspector/Sprayer	Walter Hedge	06/05– 11/30
Inspector/Sprayer	Ricky Stockley	06/22– 11/30
Inspector/Sprayer	Dennis Thierrien	03/12– 08/17
Inspector/Sprayer	Barbi Watkins	06/04– 11/30
Inspector/Sprayer	Robert Baker	06/04– 11/30
Inspector/Sprayer	David King	06/04– 11/30
Inspector/Sprayer	Mary Hardin	09/04/-12/28



## Customer & Professional Service

### 1. Service Requests

All service requests are entered into the Vector Control Management System (VCMS), which is a database used by the district to keep track of all service requests, chemical use, employee time records, landing rates, light traps and other statistical data. In 2007, 1952 service requests were received. Most of the requests were due to two nor'easters that came through Saint Augustine in late August and early October and dumped about 19 inches of rain.

Most service requests are called in, some are received by the inspector/sprayers while on their route, others are received via e-mail. However, no matter how a service request is received, it is entered into the computer and is assigned to an inspector/sprayer for that area. Each inspector/sprayer has a Pocket Computer assigned to them. This allows them to view the service request in the field.

Service requests are taken care of as soon as possible. The inspector/sprayer will go to a service request and check the area for standing water and containers that may be holding water. If standing water is causing the problem, the inspector/sprayer will treat the area as needed. If containers are causing the mosquito problem, the inspector/sprayer will empty the container if it is not too large. If they are unable to empty the container they will put a *Bacillus thuringiensis israeliensis* briquette or liquid to stop the mosquitoes from breeding for a short time and inform the owner on what is causing the mosquito problem and what they can do to help eliminate the problem. The inspector/sprayer will always try to speak to someone about the mosquito problem they are having. If no one is home, they will leave a door hanger to explain what they found and recommend prevention tips.

If the service request is for Adulticiding (fogging), the area will be checked for standing water and a landing rate count will be done. A landing rate count is where the Inspector/Sprayer will stand for one minute and count how many mosquitoes land on them--five or more in a minute is justification for adulticiding.

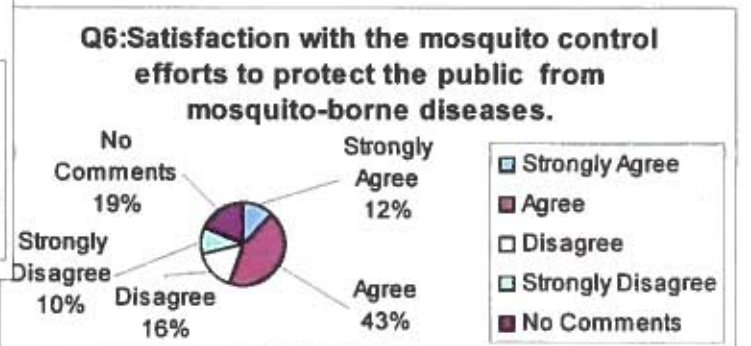
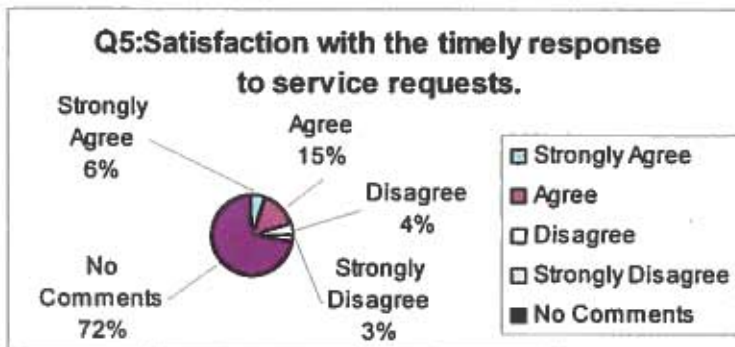
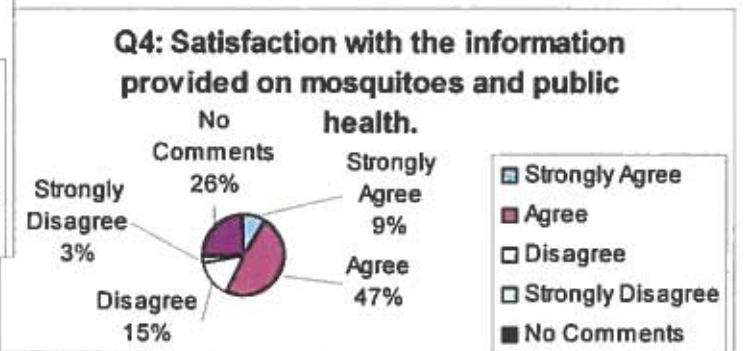
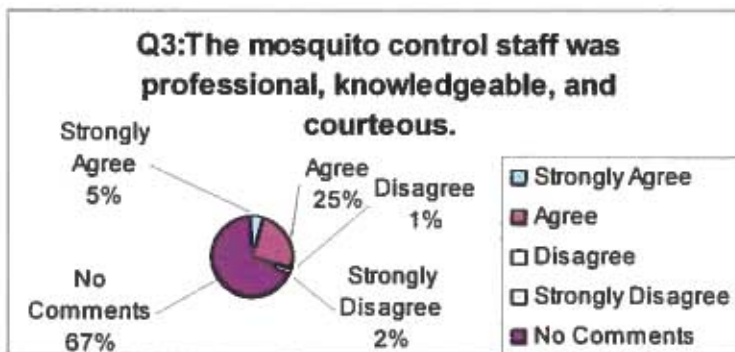
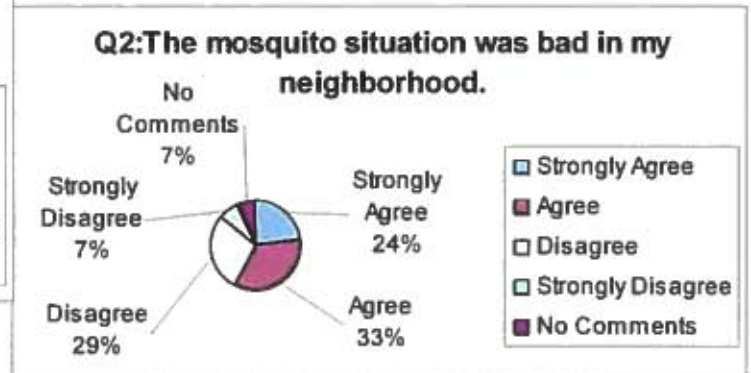
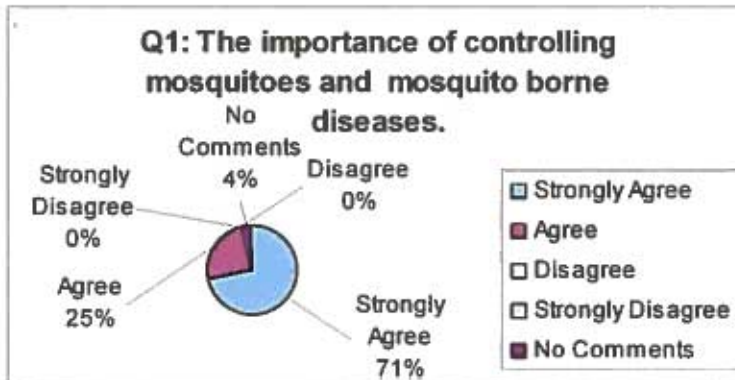
Adulticiding is done between 3:00 am to 6:00 am or in the evenings from 6:00pm to 10:00 pm during mosquito activity. Unless the person requests to speak to the Inspector/Sprayer, they may not be aware that we have taken care of their requests.

State and federal regulations require that we have justification before the use of any pesticides. Service requests are part of our justification process for adulticiding. They also help to give us an idea of what is going on in different areas of the county.



## 2. Customer Satisfaction

In the fall of 2007, a customer service satisfaction survey was sent out to five hundred randomly selected St. Johns county residents. The random recipients of the survey were taken from the Bellsouth phone book and of the five hundred sent out, one hundred and one were completed and returned (25.4%). The survey consisted of six questions, which dealt with the mosquito population, our mosquito control staff, the efforts we make in order to control mosquito-borne diseases, the information we provide and the timely response to service requests. The overall results are as follows.



### 3. Professional Service

AMCD works in cooperation with a number of related professional agencies and associations. Those listed below briefly describes the work association AMCD has with each:

AMCA (American Mosquito Control Association): Dr. Xue was asked to organize a symposium about mosquitoes and plants for AMCA Annual Meeting in Orlando, April 1-5, 2007. Dr. Xue reviewed several manuscripts for the Journal of the AMCA and published/submitted several manuscripts and edited the proceeding of the AMCA meeting symposium about Mosquitoes and Plants. Mrs. Moeller, Dr. Xue, Mrs. Qualls, and Mrs. LeBlanc attended the AMCA annual meeting and gave 4 presentations about mosquito control and education/public relations programs. Mrs. Qualls gave a presentation about insect diversity for a local elementary school in Orlando during the AMCA meeting, April 1-5, 2007. Commissioners Mrs. Bosanko, Mrs. Moeller, and Mrs. Wampler, and Dr. Xue attended Washington conference to support the AMCA's legislation about WNV & EEE fund, and pesticide registration in May 2007.

FMCA (Florida Mosquito Control Association): Commissioner Mr. Sundeman gave a presentation about AMCD's business for the FMCA Dodd Short Course in January, 2007. Eleven employees and three Commissioners attended the Dodd short Courses. Dr. Xue & Mr. Clauson gave a presentation about AMCD's program review for the Dodd Short Course. Commissioner Mrs. Moeller and Dr. Xue attended the Tallahassee Legislation Day to support the FMCA's activity and UF's Institute of Emergency Pathogens in Tallahassee in March, 2007. Mr. Boone served on the Board as NR Representative and Co-instructor at the FMCA's Dodd Short Courses. Dr. Xue edited and submitted the manuscripts of the 2<sup>nd</sup>-4<sup>th</sup> workshops to the Technical Bulletin of the FMCA in 2007. Commissioner Mrs. Moeller and Dr. Xue organized a symposium on Vegetation Barrier Treatment against Mosquitoes for the FMCA Annual meeting in Jacksonville, FL, November 12-14, 2007. AMCD provided a total of 26 CEU for the FMCA members through the 4<sup>th</sup> workshop and AMCA and FMCA meeting symposia. Also, Dr. Xue reviewed the white paper on mosquito research and resistance for the FMCA at the editors' requests.

SOVE (Society for Vector Ecologists): Dr. Xue attended and submitted a poster about Arbovirus Surveillance and Aerial Spraying Success in St. Johns County, Florida, 2005 in Springfield, IL, September 12-16, 2007.

ESA (Entomological Society of American): Dr. Xue reviewed 4 manuscripts for the Journal of Medical Entomology and published an article on Biocontrol Agent's Impact on Blood Feeding Behavior and DEET Repellency with Dr. Barnard and Dr. Becnel.

USDA/CMAVE: AMCD cooperated with USDA to continue studying GIS and B & G. traps, pesticide residue on plant leaves and storm drain mosquito control using toxic baits. AMCD cooperated with USDA/CMAVE to hold the 4<sup>th</sup> workshop to train the mosquito control workers.

UF/FMEL and MFREC: AMCD cooperated with the FMEL scientists and MFREC scientists to conduct mosquito larval collection and pesticide evaluation projects. Also, AMCD cooperated with Dr. Day, FMEL, Vero Beach to train a Ph.D. student and other employees through a lecture and presentation in the workshop.

FAMU/PHEREC: AMCD cooperated with Dr. Harry Zhong to continue testing the pesticide decomposition in spray truck tanks and other professors for biocontrol bacteria and employee training about resistance, and editing proceedings of workshop.



The Hebrew University, Israel: Dr. Xue cooperated with Dr. Muller about storm drain mosquito control using toxic baits in St. Augustine, Florida.

Jacksonville Mosquito Control Division: AMCD cooperated with Jacksonville Mosquito Control for program review, resistance test, and developing an aerial program.

East Flagler Mosquito Control District: Cooperation with Arbovirus surveillance test methods and aerial program development. Two AMCD Commissioners and other group of people visited Flagler MCD or rode their helicopter.

DoD/Navy: Cooperation with pesticide test and equipment evaluation.

DACS: DACS's mosquito control section: Mosquito Control Section administrates the public health pest control license, issue CEU, guide / direct mosquito control operation under Chapter 388 and 5E-13. AMCD has an operational contract with DACS about reports. AMCD gave operational, pesticide usage, and budget/ budget amendment reports to DACS monthly.

DOH Tampa Laboratory: DOH helped AMCD to run the sentinel chicken blood test and provide employee training about Arbovirus. The County Department of Health cooperated with AMCD to share Arbovirus information and provided employee training.

DEP, Environmental Education Center, St. Augustine: AMCD cooperated with the center for non-target projects, workshop/employee training, and created a grant fund position to coordinate the projects between AMCD and DEP's Education Center and is waiting for the final approval by the DEP.

St. Johns County, Department of Public Works: AMCD cooperated with the Biofuel Section to test for mosquito larvicide. Cooperated with GIS department to work out the mapping system for aerial spraying and breeding habitats. Cooperated with the Sheriff Office's Aviation Unit to ride their helicopter to check the breeding sites.

G-Men: AMCD cooperated with G-Men to test the misting system against blind mosquitoes around SR 13 and St. Johns River.

Clarke Mosquito Control: AMCD cooperated with Clarke Mosquito Control to study the aerial application efficacy with ANVIL 10 + 10 and a new formulation of adulticide.

University of Iowa: AMCD cooperated with Dr. Jerry Zhu about evaluation of their new UV traps and VCMS.



# Surveillance

## 1. Mosquito Population

In order to monitor nuisance and public health threats, AMCD conducts mosquito surveillance weekly. We do this by monitoring adult populations by performing landing rate counts, trapping adult mosquitoes for population information and virus detection, and larval monitoring.

Landing rates are performed three times (Mon, Wed, & Fri) a week at 189 landing rate sites throughout the county. The Inspector/Sprayer counts how many mosquitoes land on them within a one minute period. If more than five land, this indicates that there is a nuisance problem and treatment may be necessary.

We use this information in conjunction with our CDC Light trap collections. Each week a CDC light trap baited with octenol is set out in 52 locations to monitor adult mosquito populations. If there are more than 25 traps per night per trap and we have had high landing rate counts near these locations a treatment may be made. We also monitor virus activity, with three pickle jar traps baited with dry ice located at various locations throughout St. Johns County. Adult mosquitoes are trapped, identified to species, and then pooled into 50 of the same species or less for virus detection.



Larvae are regularly monitored /inspected to identify breeding sites and optimize control of immatures before becoming adults.

## 2. Environmental Parameters

Rain gauges (65) and tide gauges (2) are located throughout the county to monitor rainfall and tide events. This information helps us predict when a large hatch or emergence of salt marsh or floodwater mosquitoes might occur.

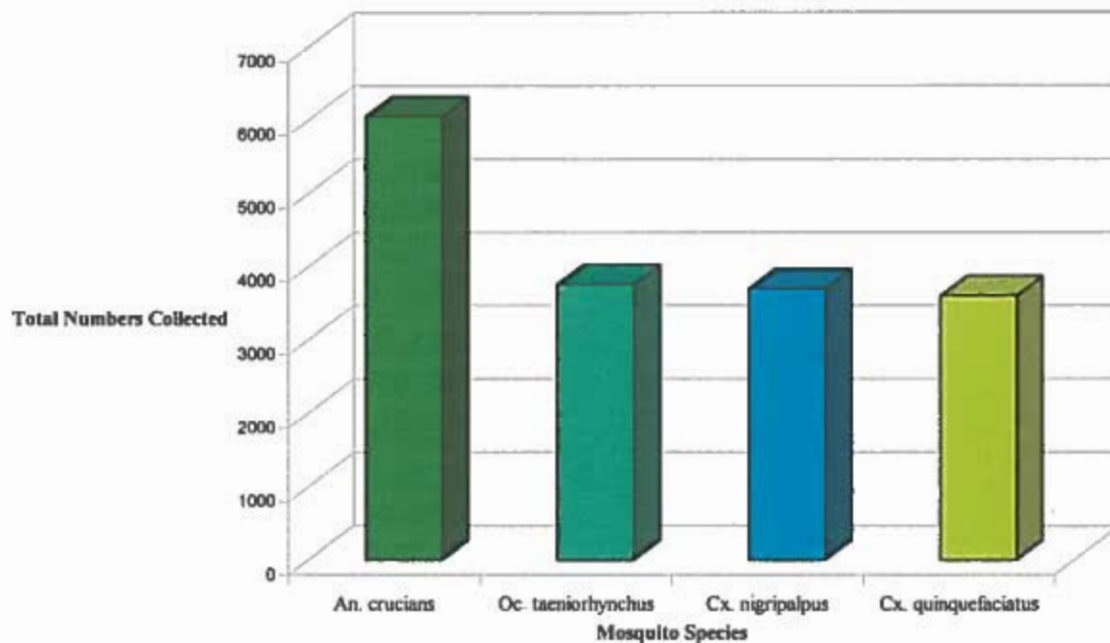


**Table 1: Total Numbers of Adult Mosquito Population in St. Johns County, 2005-2007.**

	Totals			Yearly Avg/site		
	2005	2006	2007	2005	2006	2007
<b>CDC light traps (52)</b>	62183	9422	28996	1196	181	558
<b>Landing Rate Counts (189)</b>	18185	2537	13636	96	13.4	72
<b>Pickle Jar Traps (3)</b>	145814	5422	22786	36453	1807	7593



**Figure 1: Top Four Mosquito Species Collected from January to December, 2007 in St. Johns County in CDC Light Traps.**



### 3. Arbovirus Monitoring

The most prevalent mosquito-borne viruses in St. Johns County are West Nile Virus (WNV), Eastern Equine Encephalitis Virus (EEE), Saint Louis Encephalitis Virus (SLE), Highland J Virus (HJV), and California Group Viruses. We monitor these viruses by using sentinel chickens and adult mosquito trapping.

Sentinel chickens are bled once a week from March to December at 10 locations throughout the county. We have six birds at each location. The blood samples are sent to Tampa Laboratories for antigen/antibody detection associated with these viruses. Reports are received weekly and positive reports provide us with the information needed to treat areas that have virus activity. In 2007, we had one EEE positive chicken in August at the Joe Ashton site. We had 9 WNV positive birds; 3 at St. Ambrose in August and September, 2 at Joe Ashton in September, 3 at Flagler Estates in September and October, and 1 at Stratton in October. We also had one HJ positive bird in May.

We trap adults at three locations with Pickle Jar traps baited with dry ice. We have collected a total of 22,786 mosquitoes, representing 9 genera and 23 species. Thirty-two mosquito pools, 16 *Cx. quinquefasciatus*, 9 *Cx. nigripalpus* and 7 *Oc. infirmatus*, have been tested for EEE with no positive results. Nine *Cx. quinquefasciatus* pools, 7 *Cx. nigripalpus*, and 4 *Oc. infirmatus* pools have also been tested for WNV. There were no positive mosquito pools for either EEE or WNV in 2007.



# Operation Control

## 1. Source Reduction

Source reduction is an important aspect and permanent solution for mosquito control because controlling mosquito populations starts with limiting or reducing the number of eggs, larvae or pupae from developing into an adult.



AMCD determines the areas that need source reduction based on customer contact, service requests, and inspection/surveillance. One of the major ways AMCD deals with source reduction is through customer education. When a service request is made, an inspector/sprayer will go out to the site, survey the property for places mosquitoes would breed in, inform the customer and then implement a plan of action. For example, the inspector/sprayer may notice tires or a bird bath that contains mosquito larvae. After such determination, if the customer is home, the inspector/sprayer makes the customer aware of the fact that mosquitoes will lay their eggs in anything that holds water, such as: kiddie pools, tires, vases, buckets, pet bowls, jars, toys, boats, bird baths, bromeliads, pitcher plants etc. The inspector/sprayer also makes them aware that simply emptying the water from these containers once a week will reduce mosquito populations. If a customer is not at home, an assessment is made and a door hanger that explains where the mosquitoes are coming from and how they can prevent growing mosquitoes in their own yards, is left.

Another way AMCD deals with source reduction is through their tire removal program. Upon receiving service requests, inspector/sprayers go to the sites and remove old tires free of charge. In 2007, 800 tires were collected which aided in our efforts of source reduction.

Also, AMCD helped/advised the local development agencies for ditching and retention ponds to reduce possible mosquito breeding sites.





## 2. Larvicides and Larval Control

One of the most effective means of controlling mosquito populations is to reduce their numbers while in the larval stage. Mosquito larvae are generally concentrated in small bodies of water where the larvae are vulnerable to the application of larvicides. Adult mosquitoes are mobile flying insects not concentrated in one area thus difficult to control.

St. Johns County is approximately 609 square miles, which is equal to 389,760 acres. The district treats acres of accessible breeding sites, sometimes repeatedly during the mosquito season. Those sites include salt marsh, fresh water swamps, ditches, flooded pastures, yards, storm drains, catch basins and artificial containers.



Inspector/Sprayers routinely monitor breeding sites, rainfall amounts, temperature and tide gauges. Inspectors treat larvae using an arsenal of different equipment and larvicides. Equipment includes ATVs, trucks, an airboat, backpack blowers and dippers. Larvicides include Altosid, Golden Bear, Agnique, and *Bacillus thuringiensis israelensis*. Altosid is a contact larvicide, which is absorbed through the exoskeleton and inhibits larval growth. Golden Bear and Agnique are surface larvicides and pupacides, which create a film and prevents oxygen transport. *Bti* is a form of biological control: bacteria release toxins that are ingested by the mosquito larvae. Mosquito fish are another form of biological control. Inspectors transfer larvae-eating fish to sites that have a high population of mosquito larvae. The above larvicides are environmentally safe and are effective.

The District is growing due to development. It is increasingly more important to map breeding sites and identify species so that larviciding can become a more effective tool for control

**Larvicide Application Summary**

Larvicide	Application Amount	Acres	# of Treatments
Agnique MMF	23.18 gal.	46.40	36
Altosid Briquets	16,942.00 ea.	38.89	185
Altosid Pellets WSP	1,976 ea.	4.54	40
Aquabac 200 G	1,530.00 lb.	255.00	43
Aquabac XT Liquid	804.18 gal.	12,866.88	1,490
Golden Bear	100.30 gal.	33.43	92
Teknar G	160.00 lb.	26.67	2
Teknar HP-D	151.91 gal.	2,430.5	397
Vectobac Granular	40.00 lb.	6.67	3
Zoecon Altosid XR-G	122.50 lb.	20.42	10



### 3. Adult Control

Adult mosquito control by hand fogger for backyard, ULV trucks for small areas, aerial spraying for large areas and emergency situation, and toxic bait/barrier treatment for small hot spots. Adulticide materials are used to treat areas where adult mosquitoes are found in numbers that justify treatment. The following lists procedures and standards for the adult control program.

- Insecticides are dispersed from vehicle mounted equipment in areas accessible by vehicles (ULV).
- Industry standard surveillance methods are used to determine the necessity for adulticide missions. State regulations demand the documentation of surveillance data.
- Service requests for spraying, adult mosquito light trap collections, landing rate count numbers, current weather and rain gauge data are compiled to schedule areas for treatment.
- Landing rate count and rain gauge stations are monitored Monday, Wednesday and Friday.
- Adult mosquito light traps are set weekly throughout the county.
- Service requests from citizens are downloaded daily into a computer database (VCMS) and electronically transferred to Inspector/Sprayers and assigned to the proper locations.
- In addition to vehicle mounted equipment, the District also uses hand held adulticiding equipment to treat small "backyard" areas not accessible from the road.

In 2007, Fyfanon ULV, Aqua-Reslin (permethrin), ANVIL 10 + 10 (sumithrin for aerial application), and resmethrin (hand fogger) were utilized in ground application equipment. Materials were applied using variable speed pumps, a monitor III computer system and high pressure nozzles. Applications were made in areas of the county easily accessible by vehicles.

Fyfanon (Active ingredient: malathion) was applied as a concentrate by ULV truck. AMCD reduced/limited the application of Fyfanon due to high resistance at some areas.

Aqua-Reslin (Active ingredient: permethrin) is a concentrated liquid product that is mixed with nine parts water to one part concentrate, and applied using the ULV trucks. Aqua-Reslin kills mosquitoes by contact as they are exposed to the fog cloud.

#### Adulticide Use Summary

Adulticide	Application Amount	Acres	# of Treatments
Permanone 31-66	0 gal.	0	0
Fyfanon	446.38 gal.	88,615.90	111
Aqua-Reslin	230.35 gal.	232,620.11	247
Talstar P	0.750000 gal.	2.20	1
Total	231.55 Gal.	321,238.21	359

Future goals include reducing the ground application of pesticides by utilizing aircraft to efficiently cover areas of treatment, researching new insecticides for adult mosquito control, developing new control methods (toxic baits) and barrier spray applications to reduce pesticide applications.



#### 4. Personal /Community Protection and Prevention

Protection against mosquito bites is promoted through public education. Anastasia Mosquito Control District encourages the public to be proactive by following the “5 D’s of Prevention” and offering other prevention tips.

##### 5 D’s of Prevention

Avoid going outdoors at DUSK & DAWN when mosquitoes are most active.

To protect against bites, DRESS so that your skin is covered with clothing. (Long sleeve shirts and pants)

Apply mosquito repellent containing DEET to bare skin and clothing.

Empty containers and DRAIN stagnant water.



##### Prevention Tips

1. Repair screens and spray repellent on them
2. Rake leaves
3. Remove debris from ditches and rain gutters so that water flows and doesn't remain stagnant
4. Fill holes in trees with sand or mortar or make a drain hole
5. Keep ponds and pools circulating
6. Flush bromeliads out frequently

We strongly encourage the public to take protective measures and reduce mosquito breeding sites. AMCD provided barrier treatment for residents who frequently requested service and live in the hot spots/ areas. AMCD cooperated with the State Park using mosquito magnets to protect activity areas. Additionally, AMCD provides insect repellent with Deet at a variety of educational events.



# Education

## 1. Public Education:

### a. Teaching & Judging events:

January, 2007. Mr. John Boone. "Introduction to mosquito control", Dr. Xue. "AMCD program review report", Dodd Short Course, Ocala, FL.

April 3, 2007. Mrs. Whitney Qualls, Shingle Creek Elementary.

June 22, 2007. Mrs. Gina LeBlanc, Osceola Elementary.

May 2, 2007. Mr. John Boone & Mr. Ken Daniel, Muray Middle School.

November 29, 2007. Science Fair, Murray Middle School.

### b. Community Events

March 16, 2007. Bartram High School Career Fair.

March 17, 2007. South Woods Elementary community day.

March 30, 2007. Florida School for the Deaf and Blind.

April 17, 2007. AMCD Mosquito Control/Environmental Events / Open House.

April 21-22, 2007. Washington Oaks Earth Day.

April 21, 2007. St. Augustine Earth Day.

May 3, 2007. Gamble Rogers Festival.

June 16, 2007. "A Day with Nature" (Anastasia Park)

August 29, 2007. DOH Health Fair.

September 28, 2007. Saw Grass Country Club Safety Fair.

September 29, 2007. National Estuaries Day (GTMNERR).

October 13, 2007. Senior Expo.

October 24, 2007. St. Augustine Career Fair.

October 30, 2007. St. Johns County Tax Office.

October 30, 2007. Home Depot.

November 3, 2007. AMCD Open House.

November 3, 2007. Flagler Hospital Health Fair.

November 13-18, 2007. St. Johns County Fair.



### c. Public Relations

January 17, 2007. PV Recorder interview.

January 17, 2007. St. Augustine Record interview.

January 17, 2007. WFOY phone interview.

January 19, 2007. Channel 4 Interview

January 23, 2007. PV Recorder interview.

January 30, 2007. St. Augustine Record interview.

March 20, 2007. PV Recorder phone interview.

April 2007. FL Times Union interview.

June 28, 2007. WFOY phone interview.

July 2007-December 1, 2007. Ch.2 PSA. (5 D's)

August 2, 2007. WFOY phone interview.

August 3, 2007. WFOY talk show.

August 14, 2007. WFOY talk show.

August 23, 2007. WFOY phone interview.



August 31, 2007. Fox News interview.  
October 13, 2007. WFOY-live air. Phone interview.  
October 19, 2007. WFOY. Aerial Spray announcement/interview.  
October 19, 2007. St. Augustine Record. Aerial Spray announcement/interview.  
October 19, 2007. PV Recorder. Aerial Spray announcement/interview.  
October 29, 2007. WFOY commercial.  
December 1, 2007. Christmas Parade.  
December 3, 2007. WFOY-live air. Phone interview.

#### **Additional Scheduled Public Relations**

August-November 2007. Mosquito prevention PSAs. Ch.2.  
August-December 2007. Board meetings. Ch.2.

#### **d. Newspaper articles:**

January 2, 2007. PV Recorder, "DEP investigates mosquito control stations."  
January 7, 2007. St. Augustine Record, "Incoming commissioner vows fight to stop helicopter."  
January 2007. PV Recorder, "DEP reports one violation for mosquito control."  
January 18, 2007. St. Augustine Record, "We're in trouble."  
January 26, 2007. Ponte Vedra Recorder, "Your tax dollars at work"  
January 31, 2007. St. Augustine Record, "Cold snap slows insect reproduction"  
April 16, 2007. FL Times Union, "More than bugs cause buzz in St. Johns."  
June 15, 2007. St. Augustine Record, "Mosquito control budget elusive."  
July 10, 2007. FL Times Union, "Commissioner will ask mosquito control board to dissolve."  
July 13, 2007. FL Times Union, "District passes budget millage."  
July 20, 2007. PV Recorder, "Mosquito board to discuss consolidation."  
July 26, 2007. St. Augustine Record, "Sunshine complaints sting mosquito board."  
July 27, 2007. St. Augustine Record, "Sunshine complaints against mosquito board members need timely review."  
August 1, 2007. St. Augustine Record, "Audience was not unruly at mosquito board meeting."  
August 3, 2007. PV Recorder, "A mosquito's eye view of Guana lake, salt water marsh."  
August 5, 2007. St. Augustine Record, "Mosquito control director: staff keeps viruses at bay."  
August 5, 2007. St. Augustine Record, "Merge mosquito board with county."  
August 5, 2007. St. Augustine Record, "Mosquito control should rethink 'copter."  
August 2007. FL Times Union, "A whole lot of buzzing over mosquito control board."  
August 2007. FL Times Union, "News story on mosquito control agency omitted some key facts."  
August 10, 2007. St. Augustine Record, "Chopper contract up in the air."  
August 16, 2007. St. Augustine Record, "Commissioners attempt to take over mosquito control district."  
August 19, 2007. St. Augustine Record, "Mosquito board struggles internally."  
August 31, 2007. St. Augustine Record, "West Nile turns up in Elkton."  
September 2, 2007. St. Augustine Record, "Mosquito board stifles free speech."  
September 23, 2007. St. Augustine Record, "Outside help needed on mosquito control."  
September 28, 2007. St. Augustine Record, "Board nixes chopper."  
October, 10 2007. St. Augustine Record, "Mosquitoes on the rise in county."  
October 10, 2007. St. Augustine Record, "Mosquito district plans out attacks."  
October 10, 2007. St. Augustine Record, "Spraying begins today."  
November 10, 2007. St. Augustine Record, "Deal on EOC site reached."  
November 28, 2007. St. Augustine Record, "County Oks EOC parcel , including an escape hatch."



## 2. Publications:

### a. Magazines & Newsletters:

Xue, RD., A. Ali, DR, Barnard. 2007. Effects of in vivo exposure to DEET on blood feeding behavior and fecundity in *Anopheles quadrimaculatus* (Diptera: Culicidae). *Experimental Parasitology* 116:201-204.

Xue, RD, A. Ali, V. Crainich, DR Barnard. 2007. Oviposition deterrence and larvicidal activity of three formulations of piperidine repellent (AI3-37220) against field population of *Stegomyia albopictus*, *Journal of the American Mosquito Control Association (JAMCA)* 23:283-287.

Qualls, WA, RD. Xue. 2007. Efficacy of a granule formulation of the insect growth regulator, s-methoprene, against salt-marsh mosquitoes in Florida. *JAMCA*. 23:363-365.

Barnard, DR, RD, Xue, MA, Rotstein, JJ, Becnel. 2007. Microsporidiosis (Microsporidia: Culicosporidae) alters blood-feeding responses and DEET repellency in *Aedes aegypti* (Diptera: Culicidae). *Journal of Medical Entomology* 44:1040-1046.

Xue, RD, A. Ali, JF, Day. 2007. (Book Chapter 25). Commercial available insect repellents and criteria for their use. In *Insect Repellents-Principles, methods, and uses*, ed. By M. Debboun, SP. Frances, D. Strickman, CRC Press, Boca Raton, FL, pp:405-415.

Barnard, DR, UR, Bernier, RD, Xue, M. Debboun. 2007. (Book Chapter 5). Standard methods for testing mosquito repellents, *Ibid*, pp:101-108.

Barnard, DR, RD, Xue. 2007. (Book Chapter 6). Biometrics and behavior in mosquito repellent assays. *Ibid*, pp:109-122.

### b. Web Site

AMCD's website is updated on a biweekly basis. The web site contains a multitude of information such as: the district, board meeting, mosquito biology, mosquito-borne diseases, mosquito habitat, surveillance, prevention & control, operations, services, research & education, links, contact & employment information and information sheets & digest.

In 2007, the website was expanded to include the WNV map of the country, updated district bid/RFP information, biology and prevention information on local insect nuisance problems (such as the eye gnat and blind mosquito), and mosquito control links for counties throughout the state of Florida.



## 3. Continuing Education:

### a. Classes:

January 10, 2007. FRS.

Cash and Debt Management.

Brooke Tedford, "Filing your tax return"



January 17, 2007. Whitney Qualls, "Insect Biology."  
 Lawrence Lane, "Nutrition."  
 Whitney Qualls, "Mosquito-borne diseases."

January 24, 2007. James Wynn, "Larviciding Calibration."  
 ADAPCO, "GEO-Flow"  
 Dr. Xue, AMCD program review report

February 2, 2007. Dr. Xue, How to listen to a scientific report

February 7, 2007. Mike Smith and Whitney Qualls, "Field identification of Adult and larval mosquitoes."

February 21, 2007. Jimmy Baer, "Larviciding techniques."

February 28, 2007. Investment Planning.  
 Education Planning.  
 Brooke Tedford, "Deferred Compensation."  
 Richard Weaver, "Pocket PC."

March 1, 2007. Estate Planning.

May 17, 2007. "Workplace violence, alcoholism, and sexual harassment."  
 "Sexual harassment for management."

July 20, 2007. Rob Fox, "CPR."

August 16, 2007. Katherine McCombs, "DOH."  
 Stephanie Denz, "Health Insurance."

September 5, 2007. Stephanie Denz, "Health Insurance."  
 Dr. Amoo, "Laboratory and field evaluation of 3 pyrethroid insecticides against mosquitoes."  
 Katie Cash, "Mosquito host preference to plants/vegetation, a possible target treatment."  
 Whitney Qualls, "Arbovirus update and current strategy for storm drain mosquito control."

**b. Symposiums, Workshops & Professional Meetings:**

January 25, 2007. Board workshop about sunshine law and medical insurance.

February 2, 2007. Board workshop about medical and dental insurance (continued)

March 1, 2007. All employee training about FRS presented by the Department of Management.

March 27-29, 2007. 4th Arbovirus Surveillance and Mosquito Control Workshop (Dr. Xue & Dr. Kline, Organizers).

April 1-5, 2007. AMCA Annual Meeting Symposium (Mosquitoes and Plants) (Dr. Xue and Dr. G. Muller, Organizers).

April 17, 2007. Symposium about mosquito control and environmental events (Mrs. Moeller, Mrs. LeBlanc, and Dr. Xue, Organizers. Dr. JJ Becnel and Dr. Xue gave presentations).

April 19, 2007. Workshop for the Board about leadership (Mr. Meiszer).

May 30, 2007. Workshop about AMCD and DEP Applied Research Cooperation Meeting/Workshop (Dr. Xue and Dr. Shirley, Organizers. Dr. Xue, Dr. Shirley, Dr. Zhong, and Mrs. Line gave presentations).

May 31, 2007. Board Budget workshop, AMCD Budget Projections for the Next 5 Years (presentation by Dr. Xue).

October 4, 2007. Workshop about health insurance (HSA) for commissioners and all employees.

November 12-14, 2007. FMCA Annual meeting symposium (Vegetation Barrier Treatment Against Mosquitoes, Organized by Dr. Xue and Mrs. Moeller).

**c. Presentations at Professional /Community meetings/Associations/Clubs:**

Overview of AMCD's Program , Board Meeting, January 11, 2007 (Dr. Xue).



Aerial contract service for WNV suppression in St. Johns county, Florida, Fly-In Class, FMCA, Ft. Myers, FL, January 16-18, 2007 (Dr. Xue).

AMCD's program review and progress, All employee training class, January 24, 2007 (Dr. Xue).

AMCD's business and finance status, Dodd Short Course, Ocala, FL, January 30, 2007 (Mr. Sundeman)

AMCD's program review report, Dodd Short Course, Ocala, January 30 (Mr. Clauson & Dr. Xue).

How to listen to a scientific report/presentation? All employee training, February 2, 2007 (Dr. Xue).

Spraying insecticides on plants against adult mosquitoes, 4th workshop, AMCD, Mar 27-29 (Dr. Xue)

Spatial and temporal characterization of mosquito distributions and arbovirus transmission activity in St. Johns County, Florida, 4th workshop, AMCD, March 27-29, 2007. (Dr. Barnard, Mr. G. Knue, and Dr. Xue).

Overview of AMCD's education and public relations program, 4th workshop, AMCD, March 27-29, 2007 (Mrs. LeBlanc).

Efficacy of Altosid XR-G against salt marsh mosquitoes in Guana Tolmato Matanzas National Estuarine Research Reserve, Florida, 4th workshop, AMCD, March 27-29, 2007 (Mrs. Qualls).

AMCD's VCMS application: advantages and disadvantages, 4th workshop, AMCD, March 27-29, 2007 (Mr. Weaver).

Introduction to symposium on mosquitoes and plants, AMCA 73rd Annual meeting, Orlando, FL, April 1-5, 2007 (Dr. Xue).

Spraying pesticides on vegetation/plants against mosquitoes, AMCA73rd Annual meeting, Orlando, FL, April 1-5, 2007 (Dr. Xue).

Pre-treatment with Altosid XR-G for control of salt marsh mosquitoes, AMCA73rd Annual meeting, Orlando, FL, April 1-5, 2007 (Mrs. Qualls & Dr. Xue).

Efficacy of Altosid briquettes vs. WSP against *Culex quinquefasciatus*, AMCA73rd Annual meeting, Orlando, FL, April 1-5, 2007 (Mrs. Qualls & Mrs. LeBlanc).

Overview of Anastasia Mosquito Control District's public education & public relations program, AMCA73rd Annual meeting, Orlando, FL, April 1-5, 2007 (Mrs. LeBlanc & Dr. Xue).

Do we need mosquito control and is mosquito control effective without pesticides? AMCD's symposium about Mosquito Control and Environmental Events, April 17, 2007 (Dr. Xue).

AMCD's business and finance, The Rotary Club, St. Augustine, FL (Mr. Sundeman).

Mosquito insecticide bioassay techniques, BASF Chemical Company, Triangle Research Park, NC, May 1, 2007 (Dr. Xue).

Overview of AMCD's applied research and progress, Board meeting , May 10 (Dr. Xue).

Overview of AMCD's education and public relations plan, Board meeting , May 10 (Mrs. LeBlanc).

What is AMCD's plan for the non-target impact research project? AMCD & DEP Applied Research Cooperation Meeting, DEP Education Center, St. Augustine, FL, May 30, 2007 (Dr. Xue).

AMCD's program, policy and regulation, new employee training class, June 6, 2007 (Dr. Xue).

Mosquito-borne diseases and control, new employee training class, June 7, 2007 (Dr. Xue).

Nuisance midge prevention and control, SR 13 for local residential community, June 12, 2007 (Dr. Xue)

Overview of AMCD's Board of Commissioners and programs, Round table meeting, St. Johns library, July 9, 2007 (Mrs. Moeller).

AMCD's programs, future plan, and budget, Round table meeting, St. Johns library, July 9, 2007 (Dr. Xue).

Mosquito biology, Round table meeting, St. Johns library, July 9, 2007 (Mrs. Qualls).

AMCD's education and public relations program Round table meeting, St. Johns library, July 9, 2007 (Mrs. LeBlanc).

AMCD's programs, budget, education and customer service, Coquina Crossing, July 17, 2007 (Dr. Xue, Mrs. Gaines, Mrs. LeBlanc and Mr. Kendrick).

Malaria in African Countries, Kiwanis Club, July 26, 2007 (Dr. Amoo).





Current situation about mosquito-borne diseases in the world, all employee training seminar, August 16, 2007(Dr. Xue).

Arbovirus Surveillance and Aerial Spraying Success in St. Johns County, Annual meeting of SOVE, Springfield, IL, September 16-20, 2007. (poster by Dr. Xue).

Contract Aerial Spraying in St. Johns County 2007 for Arobovirus Suppression and Mosquito Nuisance Problem, Board meeting, November 8, 2007 (Dr. Xue and Mrs. Gaines).

Vegetation/plant Preference by Adult Mosquitoes-Possible Target Treatment, Annual meeting of the FMCA, Jacksonville, FL, November 11-14, 2007 (Dr. Xue and Mrs. Qualls).

Barrier Treatment against *Aedes albopictus* and Salt Marsh Mosquitoes at a Residential Home in St. Johns County, FL, Annual meeting of the FMCA, Jacksonville, FL, November 11-14, 2007 (Dr. Xue, Mr. Smith and Mrs. Qualls)

Laboratory and Field Evaluation of Aqareslin, Sumithrin, and Resmethrin Sprayed on Vegetation Against Mosquitoes, Annual meeting of the FMCA, Jacksonville, FL, November, 11-14, 2007 (Dr. Xue, Dr. Amoo, Mr. Daniel and Mrs. Qualls).

Sugar Baits Eliminate Adult Mosquitoes from Underground Breeding Sites, Annual Meeting of the FMCA, Jacksonville, Florida, November 11-14, 2007 (Dr. Muller, Dr. Schlein and Dr. Xue).



## Applied Research

The purpose of our applied research is to test the efficacy of existing and new innovative methods of mosquito control and to develop new



technologies that will allow us to reduce our operational costs. In 2007, we investigated new control methods for adult mosquitoes through barrier treatment applications, toxic bait stations, and mosquito-sugar feeding behavior. We tested the efficacy of Altosid XR-G (XRG), an insect growth regulator used in larval mosquito control, to determine its longevity when exposed to variable



environmental conditions. We have evaluated new formulations and natural plant products as possible new larvicides, adulticides, and insect repellents against both urban and floodwater mosquito species. We have also evaluated new traps and attractants for mosquito population surveillance.

Attempts were made to control adult mosquitoes by treating vegetation with 4 pyrethroid insecticides, Aqareslin®, Sumithrin™, Resmethrin®, and Bifenthrin™ in different habitats using a backpack sprayer and a hand-held pump for application. Aqareslin®, Sumithrin™, and Resmethrin® were evaluated in an urban and salt-marsh mosquito habitat and leaves treated with these products were evaluated at AMCD laboratories against mosquitoes and also sent to USDA in Gainesville Florida to determine pesticide residual using GC. Bifenthrin™ was evaluated in a residential setting where multiple urban and salt-marsh mosquito species were present. Bifenthrin™ resulted in over 4-wk control in the field and 6-wk in the laboratory where Aqareslin®, Sumithrin™, and Resmethrin®, gave up to 1-wk and 48-hr control respectively. We look to incorporate barrier treatments in the future to provide more effective control to some of our hot spots in St. Johns County.

Mosquito-sugar feeding behavior is currently being evaluated at AMCD. Because both male and female mosquitoes need a sugar meal for day-to-day activity we can potentially target control efforts, develop new repellents or attractants, and possibly discover new insecticides. We were successful in controlling adult mosquitoes using toxic bait stations in storm water management systems in St. Johns County by utilizing mosquitoes sugar-feeding behavior. We have also been evaluating plant families to determine if there are certain characteristics of these families that we can use to develop new attractants, repellents, or insecticides. We have continued to evaluate the efficacy of XRG when exposed to different environmental conditions. XRG has been exposed to solar exposure since August 2006 and evaluated against mosquito larvae to determine the longevity of its efficacy once exposed to the sun. We have also exposed XRG to temperature extremes for 1 month, its recommended active period once applied to a control site, and evaluated its efficacy against mosquito species. Results demonstrate that XRG still provides adequate (>70%) control even when exposed to multiple environmental conditions for prolonged periods.

At AMCD we are continually trying to promote more environmentally friendly methods of mosquito control. In 2006 and 2007, we have evaluated many natural plant products against both the larval and adult



stage of multiple mosquito species. We have had some promising results against the larval stage and hope to evaluate these products further.

Regularly new mosquito collecting traps become available on the market. At AMCD, we like to evaluate these new traps to determine their efficacy and their potential economical benefit to our surveillance program. We currently operate CDC light traps for weekly mosquito surveillance using the mosquito attractant octenol. A new UV light trap could replace our need for octenol with studies reporting these traps work as well as the CDC light traps with octenol. After our evaluation, our CDC light traps out performed the new UV light trap. Therefore, we will continue to use our current traps.

**Table 1. Abbott's corrected mean  $\pm$  SE percentage of knockdown/mortality (24 h) of female *Ochlerotatus taeniorhynchus*, *Aedes albopictus*, and *Culex quinquefasciatus* from excised leaves treated with Bifenthrin from a residential home in St. Johns County, FL.**

Species	Wk1	WK2	Wk3	WK4	WK5	Wk6
<i>Ochlerotatus taeniorhynchus</i>	100a	88.8 $\pm$ 3.2ab	84.7 $\pm$ 2.9b	61.0 $\pm$ 1.9c	44.9 $\pm$ 1.9d	33.2 $\pm$ 3.5e
<i>Aedes albopictus</i>	100a	93.7 $\pm$ 3.4a	89.5 $\pm$ 3.2a	73.7 $\pm$ 2.4b	37.9 $\pm$ 1.9c	29.0 $\pm$ 3.3d
<i>Culex quinquefasciatus</i>	100a	86.7 $\pm$ 3.1b	76.6 $\pm$ 2.8b	75.5 $\pm$ 2.5b	32.7 $\pm$ 2.0c	20.1 $\pm$ 3.4d



# Aerial Application

Two Nor'easters came through Saint Johns County late September and early October and dumped 17 to 19 inches of rain. On October 10-11, 2007 starting at 7:00p.m. At the request of AMCD. Clarke Mosquito Control did an aerial spray to control the spread of West Nile Virus and nuisance mosquitoes. AMCD

currently has an emergency aerial application contract with Clarke Mosquito Control. Approximately, 208,000 acres were treated in over two nights. The decision to spray was based on several factors: the increased number of positive sentinel chickens for West Nile Virus, the high number of service request and the results of our mosquito population surveillance data. Clarke Mosquito Control sprayed using 2 aircrafts and a chemical called Anvil 10+10 (active ingredient is sumithrin) at a rate of 0.62 oz/acre.



AMCD informed the public, local Beekeeper's Association, Department of Agriculture and all residents on the "Do not fog list" by: phone, local newspaper, flyers and the Radio Station (WFOY). In addition, live interviews were done by TV News Stations channel 4 and 12.

To test the effectiveness of the application AMCD conducted a test. The test was done by placing 12 cages 40ft apart at two sites, there were 30 mosquitoes in each cage. The cages were collected the next morning after the 1st spray mission, only a few mosquitoes were dead.

AMCD is looking to develop an in-house aerial program through purchasing a helicopter which was originally initiated in 2003. The purpose will be predominantly for larviciding and surveillance. However, this helicopter will also be utilized for adulticide application. We are anticipating an increase in efficiency and effectiveness of controlling nuisance populations and mosquito-borne diseases.

The Board cancelled the old contract of purchasing a Bell-206 helicopter. A new committee recommended that AMCD should have aerial capability and started a new process.



## Administrative & Supply Service

1. **Budget:** Staff prepared for the budget 07/08 and milage rate calculation. The final budget and milage rate at 0.1344 were approved by the Board at the final public hearing on September 27, 2007. Mrs. Klein has been selected for the new auditor by the auditor committee and the Board. The AMCD stopped for further distribution of new tax fund to the SBA account due to account freeze. Accountant and VCMS Coordinator finished monthly DACS financial, operation, and chemical usage report on time.
2. **Supply:** Staff supported/prepared 24 Board meetings/workshops, including Board books, Board meeting minutes, documentations, meeting rooms, and equipment /facility. St. Augustine Court Report provided the board minutes from May to December. Staff and employees processed and provided >2,000 service request.
3. **Insurances:** Staff cooperated with the agencies to prepare for all insurance documentations. AMCD first time switched to Blue Cross and Blue Shield for the HSA and effect from January 1, 2008. The tank insurance and commercial insurance package have been approved by the Board.
4. **Inventory.** Annual physical inventory, monthly tire inventory and chemical inventory have been done regularly. Six surplus vehicles and 600 gallons malathion and other stuff have been sold.
5. **Policy:** The employee whistle blower protection policy, policy for State Fund usage, contract renewal policy, and a revised job description for the General Manager have been prepared and approved by the Board.
6. **Contract:** AMCD renewed the contract with Hasting lease, Clarke Mosquito Control for the aerial spraying, Thomas Baker about commercial /fleet insurance.
7. **Personnel:** Mr. Steve Steele resigned his Inspector position from South Station in May. Mr. Jimmy Baer resigned his Inspector III position from North Station on December 7, 2007. Mr. Jacque Bolduc from Base Station has been considered automatically resigning his Inspector II position in October. Mr. David King, Base station seasonal employee has been appointed as a full time inspector I (replaces Jacque Bolduc).  
Seasonal employees: Dr. A. Amoo backed to AMCD as the seasonal entomologist from May to October. Seven seasonal inspectors (4 in Base, 3 in North) worked for AMCD from June to November, and 3 part time employees worked for AMCD for 2-4 months.  
Accountant Mrs. Brooke Tedford resigned her position in July and Mr. Scott Hanna was hired as the new Accountant and started from July 9, 2007. Mrs. Charolette McElroy has started as receptionist on November 5, 2007. Mr. Nick Meiszer as a volunteer has been appointed as the Interim Business Manager by the Board on November 8, 2007.



# Appendix

KIND OF CHEMICAL	TOTAL AMOUNT	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
INDICATE LBS. OR GALS													
AGNIQUE MMF (OZS.)	\$1,258.10	\$1,120.56	\$1,069.96	\$1,105.84	\$1,072.72	\$934.72	\$821.79	\$821.79	\$821.79	\$741.52	\$594.32	\$520.72	\$520.72
ALTOCID BRIQUETTES (EA.)	\$18,696.00	\$17,408.75	\$13,558.40	\$12,784.15	\$9,353.70	\$7,760.55	\$6,759.25	\$3,586.25	\$3,586.25	\$3,347.80	\$3,096.05	\$2,674.25	\$2,579.25
ALTOCID XRG GRANULES	\$14,338.80	\$14,338.80	\$14,338.80	\$14,338.80	\$14,050.80	\$14,049.00	\$14,040.00	\$13,752.00	\$13,752.00	\$13,744.80	\$13,528.80	\$13,420.80	\$13,420.80
ALTOCID WSP (EA.)	\$3,120.00	\$3,120.00	\$3,120.00	\$3,120.00	\$3,087.50	\$3,087.50	\$2,650.70	\$2,090.40	\$2,090.40	\$11,896.95	\$11,802.70	\$11,728.60	\$16,928.60
TALSTAR P OZS.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,680.00	\$1,620.00	\$1,620.00
AQUA-RESLIN (OZS.)	\$123,364.76	\$123,364.76	\$123,364.76	\$122,946.76	\$122,636.37	\$117,620.40	\$112,340.58	\$109,513.55	\$100,812.36	\$70,075.23	\$67,797.47	\$67,797.47	\$67,797.47
B.T.I. AQUA-BAC LIQUID OZS.	\$5,744.30	\$4,200.70	\$2,961.94	\$2,558.21	\$6,242.18	\$4,951.02	\$6,909.02	\$6,378.72	\$8,043.89	\$6,463.43	\$8,323.16	\$8,294.54	\$8,294.54
B.I.I. TEKNAR LIQUID OZS	\$4,049.28	\$4,049.28	\$3,485.76	\$2,702.89	\$2,144.43	\$929.51	\$333.93	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
B.I.I. TEKNAR GRANULES	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,752.00	\$1,518.40	\$1,518.40	\$1,518.40	\$1,518.40
B.T.I. AQUA-BAC 200G LBS.	\$3,707.50	\$3,691.50	\$3,611.50	\$3,585.50	\$3,585.50	\$2,791.50	\$2,671.50	\$2,287.25	\$1,618.75	\$997.50	\$927.50	\$927.50	\$927.50
B.T.I. VECTO-BAC GRANULES LBS.	\$339.30	\$339.30	\$339.30	\$339.30	\$339.30	\$331.11	\$284.31	\$284.31	\$284.31	\$284.31	\$280.80	\$234.00	\$234.00
B.T.I. VEC-TOLEX GRANULES LBS.	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50	\$48.50
ANVIL 10 +10 GALS.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,425.00	\$1,425.00	\$1,425.00	\$1,372.28	\$1,372.28	\$1,372.28	\$1,372.28	\$1,372.28
DIESEL OIL GALS.	\$918.02	\$919.66	\$919.66	\$899.64	\$674.20	\$865.21	\$865.21	\$839.40	\$839.40	\$838.40	\$832.29	\$825.84	\$821.52
FYFANON 95% GALS.	\$55,483.75	\$55,337.50	\$55,337.50	\$55,337.50	\$56,271.25	\$53,155.00	\$52,772.50	\$16,155.00	\$14,157.50	\$10,920.00	\$10,920.00	\$11,100.00	\$11,040.00
GASOLINE GALS.	\$4,124.18	\$6,931.68	\$3,789.12	\$2,927.61	\$2,929.74	6010.7	\$5,958.50	\$3,583.18	\$4,835.52	\$4,379.12	\$6,939.44	\$8,208.84	\$8,208.84
MOSQ. LARV. GB-1111 GALS.	\$2,699.83	\$2,642.83	\$2,619.58	\$2,563.33	\$2,552.08	\$2,255.19	\$2,099.90	\$2,031.74	\$6,394.84	\$6,183.79	\$6,137.76	\$6,137.76	\$6,137.76
PERMANONE MIX GALS.	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$491.92	\$160.32	\$173.68
<b>TOTAL =</b>	<b>\$240,136.24</b>	<b>\$239,757.74</b>	<b>\$230,808.70</b>	<b>\$227,501.95</b>	<b>\$228,857.19</b>	<b>\$218,458.83</b>	<b>\$212,224.61</b>	<b>\$164,988.29</b>	<b>\$170,138.74</b>	<b>\$134,265.13</b>	<b>\$135,349.04</b>	<b>\$141,643.6</b>	<b>\$141,643.6</b>



ANASTASIA MOSQUITO CONTROL DISTRICT  
OF ST. JOHNS COUNTY

**CONSOLIDATED FINANCIAL STATEMENTS – LOCAL FUND - 2007**

	<b>2007</b>
REVENUE	3,558,896
EXPENDITURES	<u>2,294,367</u>
EXCESS or (DEFICIT)	1,264,529
BEGINNING CASH BALANCES	3,454,580
ACCRUAL CASH ADJUSTMENT	<u>(19,846)</u>
ENDING CASH BALANCES	<u><u>4,699,263</u></u>
RESERVES:	
CONTINGENCY	450,258
FUTURE CAPITAL OUTLAY	489,412
SICK/VACATION LEAVE	6,000
ENDING CASH BALANCES	3,753,593
TOTAL RESERVES	<u><u>4,699,263</u></u>

ANASTASIA MOSQUITO CONTROL DISTRICT  
OF ST. JOHNS COUNTY

**CONSOLIDATED FINANCIAL STATEMENTS – STATE I FUND – 2007**

	<b>2007</b>
REVENUE	37,030
EXPENDITURES	<u>                    </u>
EXCESS or (DEFICIT)	37,030
BEGINNING CASH BALANCES	41,966
ACCRUAL CASH ADJUSTMENT	<u>(3)</u>
ENDING CASH BALANCES	<u><u>78,993</u></u>
RESERVES:	
CONTINGENCY	
FUTURE CAPITAL OUTLAY	-
SICK/VACATION LEAVE	-
ENDING CASH BALANCES	78,993
TOTAL RESERVES	<u><u>78,993</u></u>



## OPERATIONS SUMMARY

OPERATIONS	HOURS
ADMINISTRATIVE	10779.4
ADULTICIDE	1291.2
ASSIT	1275.8
BIO CONTROL	31.2
BUILDING MAIN.	3048.1
CALIBERATION	2.1
CHEMICAL	108.4
CHICKEN SURVEY	1432.1
COMPUTER REPAIR	73.9
DRY ICE	27.1
EQUIPMENT MAINT.	418.7
FIELD EXP.	523.4
FILLING TRUCK	111.7
GAS	103.2
GROUNDS WORK	1187.7
HAND FOG	33.7
IDENTIFY	153.5
INSECTARY	706.7
INSPECT	13777.2
INVENTORY	596
LAB EXPERIMENT	400.3
LARVICIDE	3425.9
LIGHT TRAP	1304.8
MECH. VEH./EQU.M	1846.7
MEETING	4164.1
MOLECULAR	96.1
MOSQUITO POOL	19.9
OFFICE	3256.2
OTHER	611.5
PICKLE JAR TRAP	161.7
PUBLIC RELATIONS	456.7
SCI PAPER & PRE	149.4
SPECIAL PROJECT	321.3
SUPERVISORY	2772.1
TIRE	113.5
TRAILS	178.8
TRAINING	2169.9
TRAVEL	2331.6
VEHICLE MAINT.	476.1
WATER	34.8
XCL FOG MIN PAY	2.0
ANNUAL LEAVE	3740.5
COMP. TIME	8.0
HOLIDAY	2928.0
L.W.P.	187.0
SICK LEAVE	2104.0
SICK / PERSONAL L.	224.0
<b>TOTAL LEAVE</b>	<b>9191.5</b>
<b>TOTAL HOURS</b>	<b>69165.8</b>
<b>TOTAL WORK</b>	<b>59974.3</b>





## *Committee & Contributors*

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