

# PROGRAM

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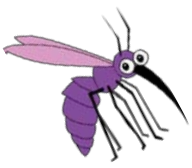
2010

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[WWW.AMCDSJC.ORG](http://WWW.AMCDSJC.ORG)

(904) 471-3107



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





## The Director's Message

In 2010, AMCD started to use MapVision, the computer software program that manages our database and customer service requests through our website. More than 50% of our customer service requests were done online through our website. The service request process has been greatly enhanced by the addition of MapVision. AMCD answered 1,211 customer service requests for control of mosquitoes and mosquito-borne diseases, especially salt marsh mosquitoes in the Ponte Vedra and North City areas. The residents in St. Johns County have been free of any mosquito-borne diseases for the last 7 years, except for one horse that tested positive for EEE. Surrounding Duval, Flagler, Putnam, Clay, and Volusia counties were under a mosquito-borne illness advisory or alert, where St. Johns County was not. Also, AMCD provided a significant amount of professional service for federal and state governmental agencies, national, state, and local professional associations, communities, clubs, and private companies and or organizations, as well as several international organizations.

AMCD expanded our public relations and education events in 2010. Working through the local legislative delegation, the Board of Commissioners and all employees working together successfully rejected the request for absolving the AMCD to the county's operations by the Board of County Commissioners in December, 2010. AMCD successfully organized a summer camp and provided 19 CEU's to our employees and the employees from other districts and organizations through the 7th annual workshop and AMCA's symposia which was held in Lexington in March, 2010, was about pesticide alternative methods.

AMCD promoted environmentally-friendly methods and was accepted by the American Mosquito Control Association for the Pesticide Environmental Stewardship Partner (PESP) in March, 2010. AMCD promoted using fish and Bti at the Alligator Farm to control mosquitoes, collected 2,056 used tires for source reduction, and renewed the arthropod control plan in public lands with the State Fish and Wildlife agency.

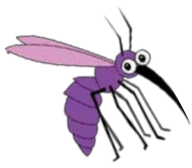
The staff prepared and supported 18 Board meetings and workshops, and many committee meetings in 2010.

Currently, AMCD's Board members and employees are continuing to work together to maintain our mission and achieve our goals. I appreciate and thank the residents, board members, employees, contractors, and cooperative organizations for your support and service to the AMCD's programs.

Rui-De Xue, Ph.D.  
Director







## A Message from the Chairperson



2010 marked the 7th consecutive year without any kind of human mosquito-borne diseases reported in St. Johns County. This is due to the hard work of our dedicated staff with support from the Board. AMCD continues to have a strong record of accomplishments, such as salt marsh mosquito management, promoted public education/outreach, and several applied research projects, as evidenced in the Annual Program Report. We, as a team, worked hard to fulfill the District's mission. The District kept the same millage for the 2010/2011 fiscal year and the lowest costs for operation. Thanks to the residents of St. Johns County and other cooperating agencies and organizations for their support.

Jeanne Moeller  
Chair 2010



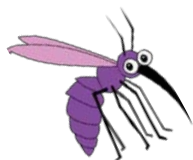
## Board of Commissioners & Appointed Officers



Mrs. Jeanne Moeller, Chairperson  
Mr. Ronnie Radford, Vice-Chairperson  
Ms. Vivian Browning, Secretary/Treasurer  
Ms. Janice Bequette, Commissioner  
Mr. John Sundeman, Commissioner

### ***Appointed Officers by the Board:***

Dr. Rui-De Xue, Executive Director  
Mr. Doug Wyckoff, District Attorney (ended Nov)  
Mr. Wayne Flowers, District Attorney (started Dec)  
Ms. Julieann Klein, CPA



## Full Time Personnel

Administration	Name	Hire Date
Executive Director	Dr. Rui-De Xue	4/14/03
Assistant Director	Priscilla Greene	3/10/08-05/29/10
Administrative Office Assistant	Charolette M. Hall	11/05/07
Accountant	Scott Hanna	7/09/07
<b>Department of Entomology</b>		
Biological Technician	Mike Smith	11/05/84
Biologist/Ph.D. candidate	Whitney Qualls	3/20/06
Data Manager	Richard Weaver	4/14/03
Education Specialist	Adam Holt	11/03/08
<b>Base Station</b>		
Supervisor	Kay Gaines	8/07/00
Inspector/Sprayers	David King	2/1/08
	Tom Downey	3/1/06
	Greg Griggs	4/15/91
	Cathy Hendricks	7/08/02
	Patrick Kendrick	4/07/03
	Ken Daniel	9/26/05
	Ed Schneider	10/23/02-7/31/10
	David Strickland	3/10/97
Mechanic	James Wynn	3/04/96
<b>North Station</b>		
Supervisor	John Boone	4/17/00
Inspector/Sprayers	Michelle McCoy	3/1/06
	Elaine Scanzani	3/20/02
	Mike Mills	3/31/03
	Vincent Price	6/01/99
	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



## Seasonal Personnel

Seasonal Full-Time	Name	Dates of Service (2009)
Inspector/Sprayer	Linda Gorey	05/03/10-10/29/10
Inspector/Sprayer	Bobby Robinson	05/03/10-10/29/10
Inspector/Sprayer	Barry Scott	05/03/10-10/29/10
Inspector/Sprayer	Matthew Volberg	05/03/10-10/29/10
Inspector/Sprayer	Martin Healey	05/03/10-10/29/10
Inspector/Sprayer	Leonard Osgoode	05/03/10-10/29/10
Inspector/Sprayer	Dennis Thierrien	05/03/10-10/29/10
Inspector/Sprayer	Ronald Steinmueller	05/03/10-10/29/10



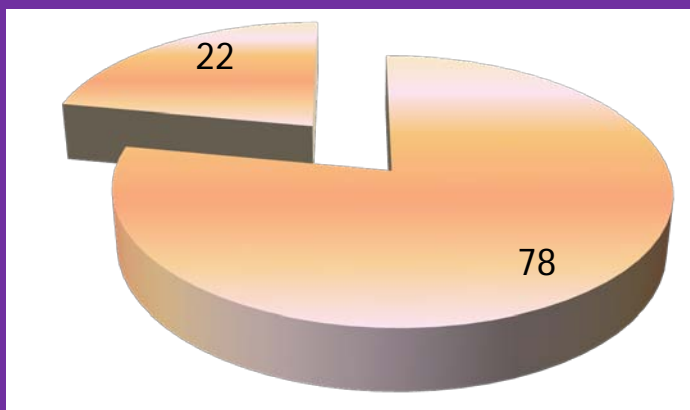




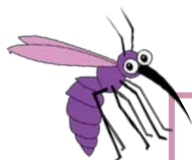
# Customer Service

In 2010 AMCD began to use MapVision, the computer software program, for customer service requests. The customers were able to check, from our website, whether their areas had been or were planned to be sprayed. Most of the service requests were complaints about biting mosquitoes and requests for fogging and/or spraying, worries about pesticide safety, mosquitoes and other insect identification, pesticide applications and personal protection methods, mosquito prevention, commercial mosquito traps, repellents, insecticides, and tools from local residents. We answered 1211 service requests from local residents by phone, online through our website (approximately 50%), e-mail, fax, and walk-ins. We followed the Florida Statutes, Chapter 388 and DACS's, 5E-13, EPA labels, and the District's procedures to provide necessary inspections, fogging and spraying. The salt marsh mosquitoes in the Ponte Vedra and North City areas created more problems in 2010 than in previous years.

AMCD conducted it's 5<sup>th</sup> annual Customer Satisfaction Survey by mail using contacts from the VCMS database (Survey Report attached).



\* 78% of the surveyed population **supports AMCD as an INDEPENDENT TAXING DISTRICT**



## 2010 Anastasia Mosquito Control District Customer Service Satisfaction Survey



To maintain an effective mosquito control program, it is necessary to collect feedback from our customers, the residents of St. Johns County, in order to effectively serve the needs of our community. The information collected in this survey is invaluable and may be used to improve the operations of AMCD.

Please answer **ALL** the questions honestly and return the survey in the prepaid envelope. Thank you in advance for your time and efforts.

5 - Strongly Agree 4 - Agree 3 - Neutral 2 - Disagree 1 - Strongly disagree

1. The goal of AMCD is to preserve and protect the community from mosquitoes and mosquito-borne diseases by reducing nuisance and disease spreading mosquito populations.

5 4 3 2 1

2. AMCD staff is informative and professional.

5 4 3 2 1

3. AMCD's staff responds to my service requests within the standard 1-2 business days.

5 4 3 2 1

4. AMCD is an independent taxing authority. Do you support this? Yes ☐ No ☐

5. I am aware of the measures I can take to protect myself from mosquitoes and mosquito-borne diseases by practicing the 5 D's of Prevention: Yes ☐ No ☐

Don't go outside during Dusk and Dawn.

Use a repellent containing 25% or less DEET.

Drain standing water and empty containers to prevent mosquito growth.

Dress: wear long sleeves and pants at dusk and dawn.

6. I am an active participant in contributing to the 5 D's of Prevention.

5 4 3 2 1

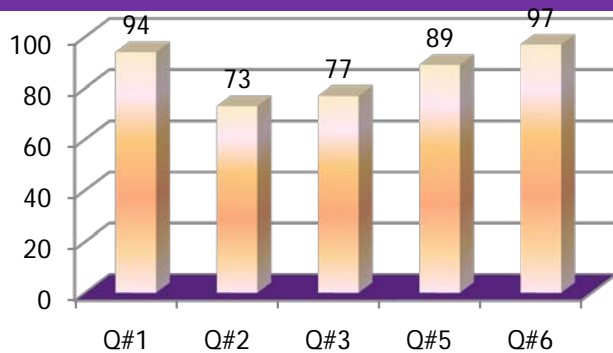
7. If you belong to a club, organization or HOA; would you like our staff to give a presentation on mosquito control. Yes ☐ No ☐

If Yes, please name affiliation \_\_\_\_\_.

8. For more information, please visit our website at [www.amcdsjc.org](http://www.amcdsjc.org). We are also on FACEBOOK which can be accessed through our website.

For demographic purposes, please check the box below for your zip code only.

- |                                |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> 32145 | <input type="checkbox"/> 32086 | <input type="checkbox"/> 32080 | <input type="checkbox"/> 32033 |
| <input type="checkbox"/> 32084 | <input type="checkbox"/> 32092 | <input type="checkbox"/> 32095 | <input type="checkbox"/> 32082 |
| <input type="checkbox"/> 32081 | <input type="checkbox"/> 32259 | <input type="checkbox"/> 32224 |                                |



\* Percentages of customers who overall agree to each of the above questions.



# Professional Service

The Anastasia Mosquito Control District (AMCD) works in cooperation with a number of related professional agencies. Those listed below briefly describe the work associations with AMCD in 2010:

## **Associations:**

AMCA (American Mosquito Control Association) & FMCA (Florida Mosquito Control Association). Our District is a sustaining member of the AMCA & the FMCA. AMCD was accepted at the AMCA/DEP PESP in March, 2010. Dr. Xue organized a symposium for the AMCA meeting on "Pesticide Optimum Use and Alternative to None", Lexington, KY, March 28-April 2, 2010. Four presentations were given at the AMCA meeting in March and three at the FMCA meeting, Duck Key, FL, November, 2010. Dr. Xue and Ms. Qualls reviewed many manuscripts for the Journal of the AMCA and other journals. Dr. Xue served and was re-elected to the Board of the FMCA as the Northeast Regional Director and Commissioner Mrs. J. Moeller served as the Vice Chair for the Commissioner Section. Ms. W. Qualls continues to service the FMCA research as a committee member, and Mr. A. Holt continues to serve the FMCA's public relations as a committee member.

## ESA (Entomological Society of America) & SOVE (Society for Vector Ecology):

Dr. Xue reviewed manuscripts for the "Journal of Medical Entomology" and the "Journal of Vector Ecology" and organized a symposium on "Attractants for Control of Mosquitoes and Other Biting Vectors" for the SOVE meeting, September 26-30, 2010.

## FASD (Florida Association of Special Districts): AMCD is a member.

## International, National, and Federal Agencies:

Dr. Xue was invited to visit Taiwan and used his annual leave time to attend. He gave a lecture about mosquito control programs in Florida at the Taiwan Vector and Pest Control Association meeting, Taipei, May 27-June 1, 2010.

Dr. Xue was invited to give a lecture about Arbovirus surveillance in Florida at the 3<sup>rd</sup> International Forum for Sustaining Management of Vectors in Hangzhou, China, October 28-31, 2010. He used his annual leave time to attend. He also visited the Shenzhen LongRoy manufactory and gave a lecture on ULV spray equipment, November 1, 2010.

Dr. Xue was invited to visit China's CDC's Institute for Communicable Disease Control and used his annual leave time to attend. He gave a lecture about sugar feeding and the control possibility for vector mosquitoes, Beijing, China, November 5, 2010.

USDA (United States Department of Agriculture): The AMCD Board continued a collaborating contract for research on GIS & mosquito populations and mosquito-borne disease surveillance. The AMCD also cooperated with the USDA in a study about mosquito traps and attractants, larvicide tests, barrier sprays, repellants and employee training and workshop projects. AMCD cooperated with the Navy's Center for Entomological Excellence, Jacksonville, FL on container-inhabiting mosquito control by auto dissemination of the IGRs, Pyriproxyfen. Commissioner Mrs. Moeller and Dr. Xue visited their center in Sept. 2010. Dr. Xue consulted the FBI and other agencies about the prevention of bioterrorist threats and had meetings with them four times in 2010.



# Professional Service

(Cont'd)

## State Agencies/Universities:

UF(University of Florida: AMCD cooperated with UF's Florida Medical Entomology Laboratory at Vero Beach to train a Ph.D. student and attended their workshop on antiobiteerorists, Gainesville, FL May 21-22, 2010.

FAMU/PHEREC (Public Health Entomology Research & Education Center): Dr. Xue and Ms. Qualls cooperated with Dr. Zhong to check the residue and efficacy of pesticides and pesticide impacts on honey bees. Dr. Xue served in the capacity as an advisory committee member.

UNF (University of North Florida). AMCD cooperated with Dr. Bowers on Arbovirus research and to train a Ph.D. student.

DACS (Department of Agriculture and Consumer Services): The AMCD has an operational contract with DACS. AMCD provided the monthly report on time and joined the State's Mosquito Population Surveillance program. DACS provided training for AMCD employees and made several presentations at the AMCD workshops. Dr. Xue served their research committee as a member to review grant applications.

DOH (Department of Health) : The AMCD cooperated with the DOH to conduct county-wide arbovirus surveillance and news releases.

DEP (Department of Environmental Protection): AMCD and DEP renewed the contract for the field biologist position, funded by grants.

## Companies:

Clarke Mosquito Control for DUET project  
Australia's pest control company's smoking formulation  
Edges Associate for MapVision and droplet size  
The LongRay for thermal fogger machine test

## Other services:

DACS's grant reviews (19 applications)  
Reviewed manuscripts for the following journals in 2010:  
Journal of Medical Entomology (3)  
Journal of Vector Ecology (2)  
Journal of the American Mosquito Control Association (3)  
Parasitology Research (6)  
Pakistan Journal of Zoology (1)  
Journal of Medicine and Medical Sciences (1)  
USDA/ARS/CMAVE manuscript per review (1)  
Environmental Entomology (1)  
Malaria Journal (2)  
Transaction of the Royal Society of Tropical Medicine and Hygiene (1)





## Surveillance

### **Arbovirus:**

AMCD monitored West Nile virus (WNV), eastern equine encephalitis virus (EEE), Saint Louis virus (SLE), Highland J virus (HJ), and California group viruses using 10 sentinel chicken sites around St. Johns County. In 2010, there were no human cases and 1 equine case. AMCD bled a total of 60 chickens once a week from March through December. A total of 40 sentinel chickens tested positive for arboviruses: 3 for EEE, 34 for WNV, and 3 for HJ. Figure 1 lists the total number of positive chickens/ site for each of the arboviruses tested in 2010.

### **Mosquito population:**

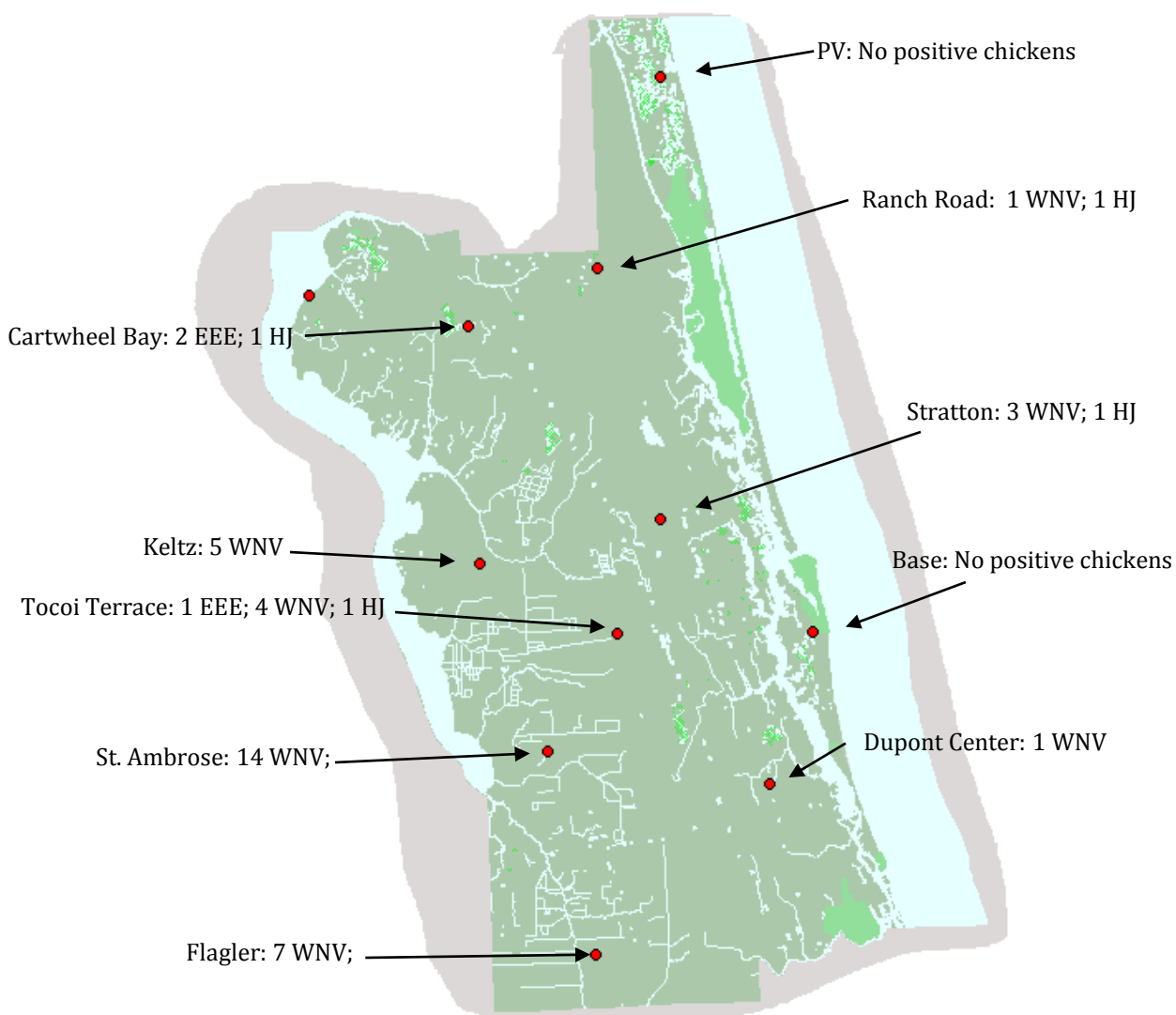
AMCD conducts surveillance weekly by monitoring adult mosquito populations by performing light trap collections using both CO<sub>2</sub> and octenol as attractants. There are a total of 45 octenol baited traps and 6 CO<sub>2</sub> baited traps. The DACS's State Surveillance program collects light trap information using CO<sub>2</sub> as the main attractant. The average number of mosquitoes collected in CDC light traps baited with octenol is 376 per site.

Figure 2 and 3 show the top five species collected in both traps and the seasonality of the mosquito population in St. Johns County (SJC) in 2010, respectively. Landing rate counts (LRC) are performed three times a week at 145 locations to monitor adult biting activity in SJC. The total number of mosquitoes landing and average/site was 24.

Larvae are regularly monitored and inspected to identify breeding sites and optimize control of immatures before they become adults. There were a total of 6533 larvae dipped this year with an average of 5 mosquito larvae per successful dip.

### **Environmental Parameters**

AMCD monitors 46 rain gauges and 2 tide gauges three times a week to predict when and where larviciding activities may need to take place.



**Figure 1:** Location of the 10 sentinel chicken sites with the number of positive chickens at each site for EEE, WNV, and HJ for the 2010 mosquito season.

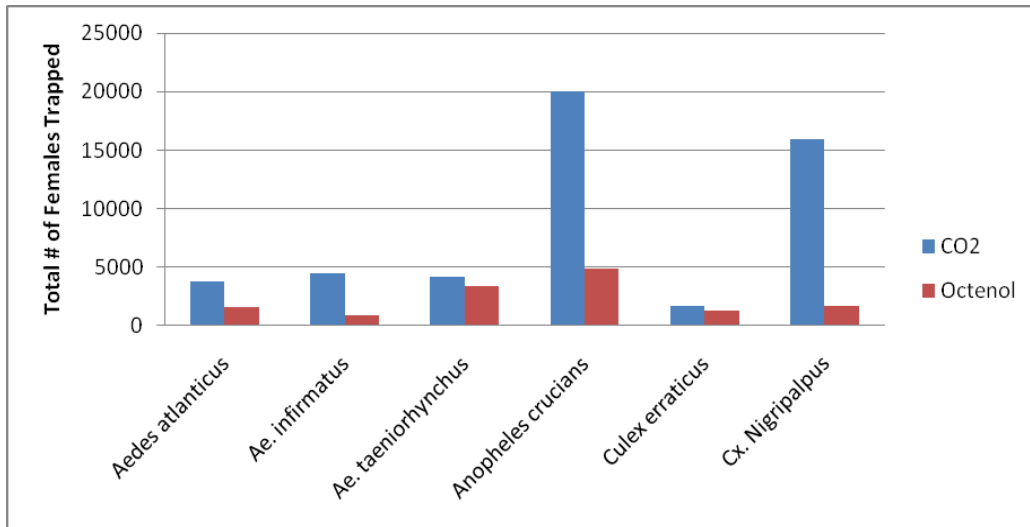


Figure 2. Top five mosquito species collected from March to December, 2010 in St. Johns County in CDC light traps. Collections using octenol are shown in red and collections using dry ice are shown in blue.

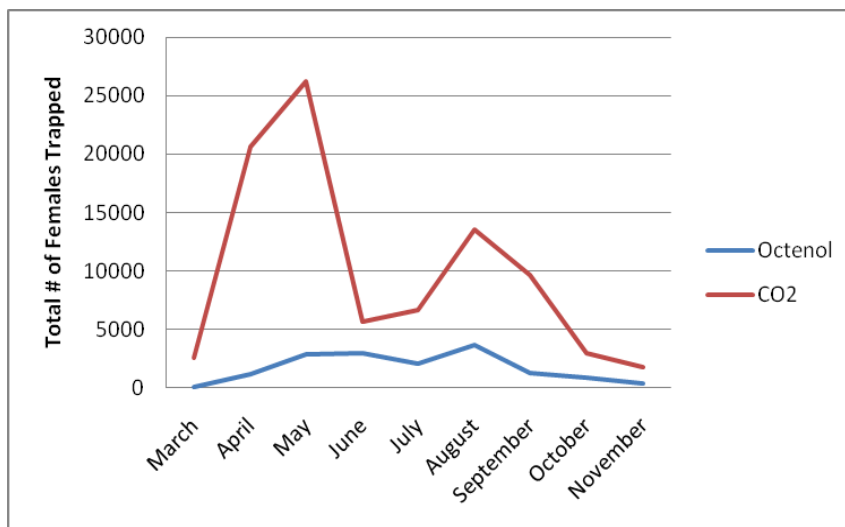


Figure 3. Seasonality of mosquitoes collected in SJC in 2010.



# Operation Control

## ***Source Reduction & Biological Control:***

Due to dry weather in 2010, AMCD did not require any aerial applications. AMCD collected and removed 2,056 used tires, educated residents, and emptied numerous containers in residential front and back yards after inspections. Upon many customer requests, AMCD provided mosquito fish for retention ponds and ditches, except when using BTi for larval control. AMCD renewed their contract with DEP for the field Biologist to work on the Salt Marsh Mosquito Control Project in 2010.

## ***Larvicides and Larviciding:***

Larval inspection was performed on a regular basis every Tuesday and Thursday, as well as on other dates, after completing sentinel chicken and landing rate counts. The District's strategy for larval control is killing larvae with Bti. In 2010, salt marsh mosquitoes caused a lot of problems in the Ponte Vedra and North City areas of St. Augustine. Inspector/sprayers dipped and found mosquito larvae 6,533 times. The county had an average of 32.1 inches of rain during 2010.

## ***Adulticides and Adulticiding:***

AMCD utilized back pack sprayers to apply ANVIL 10 + 10 for backyard treatments, at customers' requests, based on justification. Adult mosquito control is accomplished by ULV spraying for large areas. For adulticiding, Aqualure 20-20 (active ingredient is permethrin) was used in 2010. A total of 262 gallons of Aqualure was used to treat 185,487 acres. ULV spraying was conducted 272 times. Most of this was for salt marsh mosquito control in July and August, and WNV vector mosquito control in late October.

## ***Larvacides and Adulticides Used in 2010***

<b>Larvicides</b>	<b>Amount used</b>	<b>Area treated</b>	<b>Time applied</b>
Altosid WSP	39,527 ea.	123 acres	510
Altosid XR	280 ea.	0.6 acres	31
Altosid XRG	4,657 lbs.	776 acres	168
Bti 200G	1069 lbs.	178 acres	27
Bti briquets	12 ea.	1,200 sq. ft.	3
Aquabac XT	408 gal.	6,521 acres	1053
GB 1111	50.4 gal.	17 acres	58
<b>Adulticides</b>	<b>Amount used</b>	<b>Area treated</b>	<b>Time Applied</b>
Aqualure 20-20	262.3 gal.	185,487 acres	272
ANVIL 10+10	1.9 gal.	401.98 acres	3
Talstar P (barrier)	0.4 gal.	1.3 acres	8





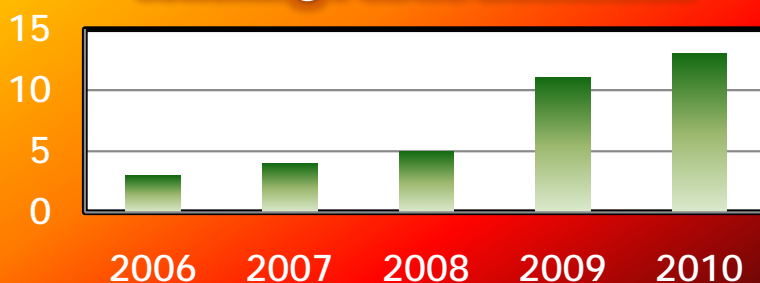
# Education/Training

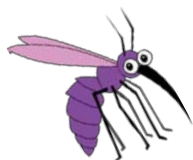
## Public Education

### (1.) Outreach Education

School Name	# Hours	# Students	# Days	# Classes	Dates
Cathedral Parrish School (7th)	2	38	2	2	Jan. 6-8
Southwoods Elementary (1st)	8	160	4	8	Jan. 12, 14, 19 & 21
University of Florida Whitney Laboratory Adult Volunteer Group	2	14	1	1	Jan. 29
Southwoods Elementary (Science Club)	1	20	1	1	Feb. 2
Cathedral Parrish School (Science Club)	1	20	1	1	Feb. 10
Cathedral Parrish Earth Day at Anastasia Park	6	150	1	8	Feb. 18
Liberty Pines Academy (1st)	8	160	4	8	Feb. 23-25; March 1
Sebastian Middle School (7th)	4	80	2	4	April 8,9
R.B. Hunt Elementary (1st)	6	120	3	6	April 13-15
R.B. Hunt Elementary (5th)	6	120	3	6	April 20-22
Liberty Pines Academy (5th)	3	60	3	3	April 27-29
Liberty Pines Academy (5th)	2	40	3	2	May 4-6
Gamble Rodgers Middle School (7th)	2	40	3	2	May 11-13
Hartley Elementary (1st)	6	120	3	6	May 18-20
Anastasia Mosquito Control District Science Summer Camp Session #1	30	20	5	1	June 14-18
University of Florida Agriculture Center "Bug Camp"	12	15	2	2	July 7-8
Anastasia Mosquito Control District Science Summer Camp Session #2	30	11	5	1	July 12-16
Southwoods Elementary (5th)	8	80	6	4	Sept. 14-16, 21-23
PV/PV Rawlings Elementary (1st)	10	200	5	10	Oct. 7, 12-14, 21
Liberty Pines Acadmey (1st)	6	120	3	6	Nov. 2,4, 9
Liberty Pines Academy (Kindergarden)	1	20	1	1	Nov. 23

## Number of Schools that AMCD Participates in Teaching Public Education





## **(2.) Community Events/Public Relations**

Mar. 3	WFOY 1240 AM Radio Interview
Mar. 8	St. Johns County Round Table Presentation
Mar. 20	Coquina Crossing "Senior Lifestyle Expo"
Mar. 25	Anastasia Mosquito Control District Annual Open House
Apr. 4	St. Augustine Annual Easter Parade
Apr. 7	WFOY 1240 AM Radio Interview
Apr. 12	Palm Valley Community Center Presentation
Apr. 17, 18	Washington Oaks State Garden Community "Earth Day"
Apr. 24	Southwoods Elementary "Community Health Fair"
May. 1	St. Augustine Gun Club "Democratic Event"
May. 11	Ponte Vedra HOA? Presentation
May. 13	Southwoods Elementary "Splash Into Science"
May. 27	Kiwanis Club Presentation
Jun. 3	Ponte Vedra Golf & Country Club "Safety & Community Awareness Day"
Jun. 9	WFOY 1240 AM Radio Interview
Jun. 21-25	National Mosquito Awareness Week
Jun. 28	WFOY 1240 AM Radio Interview
July. 1	Light 96.1 Radio Interview
July. 30	St. Johns County Council on Aging Presentation
Aug. 20	Trout Creek Senior Community Center Presentation
Aug. 24	Marsh Creek Country Club HOA Presentation
Aug. 25	WFOY 1240 AM Radio Interview
Aug. 27	FOX 30 Action News Television Interview
Aug. 30	Channel 4 News Television Interview
Sept. 1	First Coast Connect 89.9 FM Radio Interview
Sept. 9	St. Augustine Alligator Farm 2nd Annual Teacher Open House
Sept. 25	GTMNERR "National Estuaries Day"
Oct. 2 & 3	University of Florida Agriculture Center "Home & Garden Show"
Oct. 23	WFOY 1240 AM Radio Interview
Nov. 3	WFOY 1240 AM Radio Interview
Dec. 4	St. Augustine Annual Christmas Parade
Dec. 11	Hastings Annual Christmas Parade



## Publications:

### 1. Literature

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- Xue, RD, Zhao, TY. 2009. The Concepts of IPM/IVM/IMM. Proceedings of the 6<sup>th</sup> Asian-Pacific Congress of Entomology, Beijing, China. October 2009.
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- Qualls, WA, Xue, RD. 2010. Evaluation of a new formulation of adulticide DUET against West Nile Virus vector mosquitoes. JAMCA 26:219-222.
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- Xue, RD, Qualls, WA, Kline, DL, Zhao, TY. 2010. Evaluation of lurex3™, octenol, and CO<sub>2</sub> sachet as baits in mosquito magnet® pro traps against flood water mosquitoes, JAMCA 26:344-345.
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- Muller, GC, Junnila, A, Qualls, WA, Kline, DL, Allan, S, Schlein, Y, Xue, RD. 2010. Control of *Culex quinquefasciatus* in a storm drain system in Florida with attractive toxic sugar baits, Med Vet Entomol. 24:346-351.
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- Xue, RD, Zhao, TY, Clark, G, Muller, G, Moeller, J, Kline, D. 2010. International forum for surveillance and control of mosquitoes and mosquito-borne diseases. Wing Beats 21:24-27.
- Li, CX, Dong, YD, Zhang, XL, Chen, C, Song, SP, Deng, B, Zhao, TY, Xue, RD. 2010. Evaluation of octenol and lurex as baits in mosquito magnet pro traps to collect vector mosquitoes in China. JAMCA. 26: 449-451.
- Xue, RD. Mosquito-borne diseases in Florida. Proceeding 2010. Best management practice for sustaining management of vector mosquitoes and of the 3<sup>rd</sup> International Forum for Sustainable Management of Disease Vectors. P. 16. Hangzhou, China, October 28-31, 2010.

### 2. Website:

In 2010, we made a DVD for public education and also put it online through YouTube. Also, AMCD provided online service requests where customers can check whether their areas have been or are planned to be fogged. About 50% of the service requests were from our online site. AMCD created a face book page and an online survey for customer satisfaction.

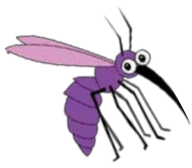


## Employee Continuing Education Courses



Date	Course
Jan. 5	Microsoft Office Power Point 2007
Jan. 11	Defensive Driving and Winch
Jan. 18	VCMSD and Pocket PC
	Sexual Harrassment & Diversity: Respecting Differences
	Aquatic Insect Taxonomy & Habitat Ecology
	Medical & Veterinary Entomology
	HAZWOPER Hazardous Communication
	The Power of Positive Discipline
	Preventing Harrassment: "A Manager's Role"
Feb. 1	Florida Venomous Snakes with the Jacksonville Zoo & Gardens
Feb. 16	Native Florida Species with the St. Augustine Alligator Farm
	PPE (Personal Protection Equipment)
	HAZWOPER Heat Illness
Feb. 19	Biomedical Waste & Chicken Program
	Native Florida Aquatic Species with the University of Florida Whitney Laboratories
	Safety Manual
	Pesticide Use Review of MSDS Labels & Procedures
Feb. 22	Universal Waste
	Fire Safety
	Invasive Florida Plant Species
May. 3	Sexual Harrassment: " A Commonsense Approach"
	Harrassment & Diversity: Respecting Differences
	Aquatic Insect Taxonomy & Habitat
	PPE (Personal Protection Equipment)
	HAZWOPER Hazardous Communication
	HAZWOPER Heat Illness
	Pesticide Use Review of MSDS Labels & Procedures
	VCMSD and Pocket PC
	Safety Manual
May. 4	Biomedical Waste & Chicken Program
	Mosquito Biology & Mosquito-borne Diseases
	AMCD Program Overview
	Adult Mosquito Identification
May. 7	Ultra Low Volume Spray Troubleshoot
	Public Education/Public Relations/Customer Service
	Native Florida Aquatic Species with the University of Florida Whitney Laboratories





### ***Symposium, Workshop, and Professional Meetings Organized By AMCD:***

March 22-24, 2010. 7<sup>th</sup> Annual Arbovirus Surveillance and Mosquito Control Workshop (Organizer: Dr. Xue)

March 28-April 1, 2010. AMCA 75<sup>th</sup> Annual Meeting Symposium, Lexington Ky. (Pesticides: Optimum amounts and alternative for none) (Organizer: Dr. Xue).

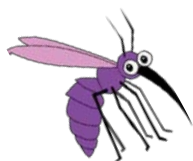
September 26-29, 2010. SOVE Annual Meeting Symposium, Raleigh, NC (Attractants for control of mosquitoes and other vectors (Organizers: Dr. Xue & Dr. Muller).

October 28-31, 2010. 3<sup>rd</sup> International Forum for Sustainable Management of Disease Vectors, Hangzhou, China (Dr. Xue as Section Co-moderators for Strategic framework for sustainable management of disease vectors).

May 20-22, 2010. Attended anti-bioterrorists workshop, UF, Gainesville, FL (Mrs. Moeller and Dr. Xue were invited).

August 26, 2010. EEE Workshop, AMCD, St. Augustine, FL (Organizer: Mr. Holt)





### ***Presentations at Professional Meetings/Associations/Clubs:***

January 12, 2010. Aerial spraying study report -2009, FMCA's Fly-In Class, Ft. Myers, FL (Dr. Xue)

January 14, 2010. Aquatic and non-target insects in Guana, Salt Marsh Management Committee Meeting, AMCD, St. Augustine, FL (Andrew Thornton)

January 26, 2010. Update about barrier spraying against mosquitoes in St. Johns Golf Course, The FMCA Dodd Short Course, Ocala, FL, (Dr. Xue)

March 23-25, 2010. What was suppressed for mosquito control in St. Johns County, 2009? 7<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL (Dr. Xue)

March 23-25, 2010. Unusual population increase and aerial spraying in St. Johns County in 2009. 7<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL (Dr. Xue)

March 23-25, 2010. Achievements of AMCD's education/public relation program in 2009, 7<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL (Mr. Holt).

March 23-25, 2010. Marsh restoration and its impact on mosquito population, 7<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL (Mr. Thornton)

March 23-25, 2010. Blood feeding behaviors and deet repellency in Sindbis virus-infected *Aedes aegypti*, 7<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL (Ms. Qualls)

March 23-25, 2010. Update about MapVision in AMCD's operation, 7<sup>th</sup> Arbovirus Surveillance and Mosquito Control Workshop, AMCD, St. Augustine, FL (Mr. Weaver)

March 28-April 1, 2010. Pesticide use: Optimum amounts and alternative for non (symposium introduction), The 76 Annual Meeting of the AMCA, Lexington, Kentucky (Dr. Xue)

March 28-April 1, 2010. Malaria reduction through urbanization and living condition improvement, The 76 Annual Meeting of the AMCA, Lexington, Kentucky (Dr. Xue)

March 28-April 1, 2010. Vegetation barrier treatments against adult mosquitoes and reducing adulticide application, The 76 Annual Meeting of the AMCA, Lexington, Kentucky (Qualls & Xue)

March 28-April 1, 2010. Bloodfeeding behaviors and deet repellency in Sindbis virus-infected *Aedes aegypti*. The 76 Annual Meeting of the AMCA, Lexington, Kentucky (Ms. Qualls)



### ***Presentations at Professional Meetings/Associations/Clubs: (Cont'd)***

May 30, 2010. Best management practice for integrated mosquito management, Taiwan Society of Public Health Pest Control, Taipei, Taiwan.

August 26, 2010. DOH & AMCD's response to EEE outbreak, EEE Workshop, AMCD, St. Augustine, FL (Dr. Xue)

September 26-30, 2010. Sugar selection behavior and boric acid sugar bait for control, SOVE Annual Conference, Raleigh, NC (Dr. Xue)

October 30, 2010. Best management practice for vector mosquitoes and mosquito-borne diseases. 3<sup>rd</sup> international forum for sustaining management of disease vectors, Hangzhou, China (Dr. Xue)

October 31. MapVision and surveillance techniques. 3<sup>rd</sup> international forum for sustaining management of disease vectors, Hangzhou, China (Dr. Xue)

November 2, Lecture about Ground application equipment and technology, LongRoy Manufacture, Shenzhen, China

November 5, 2010. Lecture about sugar feeding and possible for control, CDC / Institute for Communicable diseases and prevention, Beijing (Dr. Xue)

November 16, 2010. An overview of AMCD's customer satisfaction surveys over the past 5 years. 82<sup>nd</sup> Annual Meeting of the FMCA, Duck Key, FL (Mr. Holt)

November 16, 2010. Application rates and duration of boric acid sugar baits against *Aedes albopictus*, 82<sup>nd</sup> Annual Meeting of the FMCA, Duck Key, FL (Dr. Xue)

November 17, 2010. What are the benefits for AMCD from applied research on adult mosquito control? 82<sup>nd</sup> Annual Meeting of the FMCA, Duck Key, FL (Ms. Bequette)

During 2010. Commissioner and Education Committee Chairperson Mrs. Moeller gave over 36 speeches at many local communities, home owner associations, and clubs. Other Commissioners gave different speeches at the local legislation delegation meeting about keeping AMCD as an independent district.



# Applied Research

## 1. Field Evaluation of octenol, Lurex 3, and octenol+lurex 3 combination as baits in BG Sentinel traps to collect *Aedes albopictus*

Octenol, lurex 3, and octenol+lurex 3 combinations as bait in BG-sentinel traps and unbaited BG-sentinel traps were evaluated to collect container-inhabiting mosquitoes *Aedes albopictus* in the field in a used tire pile, Elkton, Florida during June through October, 2010. Octenol baited traps collected a similar number of mosquitoes, compared to the number of mosquitoes caught by lurex 3 baited traps. Octenol + lurex 3 combination-baited traps caught more mosquitoes than the octenol or lurex 3 alone baited traps and trap only. The 2 kinds of bait combinations with BG-sentinel traps are the effective sampling methods for the population surveillance of *Ae. albopictus*.

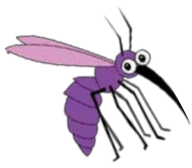


## 2. Evaluation of a new smoke-generating formulation of insecticides against 3 species of adult mosquitoes

The efficacy of a new smoke-generating formulation (fumigant) containing the active ingredient permethrin and deltamethrin was evaluated against adult female *Anopheles albimanus*, *Aedes aegypti*, and *Culex quinquefasciatus* in a large vehicle storage building (22M L, 13M W, 4.5M H), Florida and against *Cx. pipiens* and *Aedes albopictus* in a furnished apartment (12M L, 7 M W, 3.5 M H) in Israel. In the vehicle building, 2 fumigants caused 100% mortality for all 3 species of mosquitoes in 15 minutes, and one fumigant resulted in 100% mortality for *An. albimanus*, 98% for *Ae. aegypti*, and 97% for *Cx. quinquefasciatus* in 15 minutes, and 100% mortality for both *Ae. albopictus* and *Cx. pipiens* after 15 minutes. The new formulation of fumigant could be a valuable new tool for controlling mosquitoes.







### 3. Evaluation of two formulations of BTi and fish against larval *Culex quinquefasciatus* in Alligator pools at a commercial alligator farm, St. Augustine, FL

BTi and mosquito fish are environmentally-friendly and safety biocontrol agents.

Alligator pools are environmentally sensitive breeding sites for mosquitoes.

These methods are suitable for control of mosquitoes in alligator pools. The efficacy of two formulations (liquid and granular) of BTi and mosquito fish have been used for control of larval *Culex quinquefasciatus* in alligator pools in a commercial alligator farm, St. Augustine, Florida in August and October, 2010. Both formulations of BTi and mosquito fish provided control of mosquito larvae in alligator pools for 1 week. Fish provided completed larval control for 2 weeks post-treatment.

### 4. Off Clip-on Mosquito Repellents (Metofluthrin) are effective at repelling *Aedes albopictus* and *Aedes taeniorhynchus*, Northeast Florida

Off Clip-on mosquito repellents work by releasing a vapor active pyrethroid insecticide (metofluthrin). The clip-on was evaluated with 6 human subjects against the container-inhabiting mosquito *Aedes albopictus* in a used tire pile, Elkton, Florida, and the salt marsh mosquito, *Aedes taeniorhynchus*, Ponte Vedra, Florida from August to October, 2010. The results showed that the spatial repellent provided an average of 77% protection from bites by *Ae. albopictus* and 80% protection from bites by *Ae. taeniorhynchus*.





## Administration/Supply

### 1. Budget:

Staff prepared calculations for the budget and millage rate for FY2010/2011. The final budget and millage rate at 0.1325 was approved by the Board at the Final Public Hearing in September 2010. The budget was cut by 12% compared to FY09/10 based on the Board's direction and requests. Two full time positions were eliminated in the middle of 2010. All overtime pay was cut based on working hour adjustments. Ms. Klein continued to serve as the auditor. The Accountant and Data Manager finished the TRIM, work plan and certified budget, and the monthly DACS financial, operations, and chemical usage reports on time. The quarterly budget analysis was presented to the Board on time.

### 2. Board Business:

Staff supported and prepared for 18 Board meetings and workshops, including Board books, Board meeting minutes, documentation, meeting rooms, equipment and facilities.

### 3. Insurance:

Staff cooperated with other agencies to prepare for all insurance documentation. The Board approved AMCD to continue with an HSA health insurance plan with Blue Cross and Blue Shield with better coverage. It became effective January 1, 2010. The commercial insurance packages were approved by the Board in September 2010.

### 4. Inventory.

The annual physical inventory, monthly tire inventory, and chemical inventory were done regularly. Monitor III and other items were surplus, sold or auctioned.

### 5. Policies:

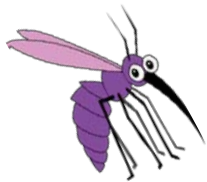
The Environmental and the Independent Special District policies were approved by the Board in calendar year 2010.

### 6. Contracts:

AMCD renewed the lease contract with Hastings, the Clarke Mosquito Control contract for emergency aerial spraying, the Southern Helicopter LLC contract for aerial inspection, larviciding, and necessary adulticiding, and the Thompson Baker Insurance Agency contract for commercial/fleet insurance.

7. Personnel: (a). The Board of Commissioners hired Wayne Flowers, with Lewis, Longman, & Walker, P.A. as the new AMCD attorney, at the November Board meeting. He began effective December 1, 2010. (b). Susan Merris from the Lee County Mosquito Control District audited AMCD's Human Resources, including documentation, and gave several recommendations in March, 2010. (c). Inspector/Sprayers: Mr. Ed Schneider resigned his Inspector/Sprayer position from the Base Station in July 2010. (d). Seasonal employees: Eight seasonal inspector/sprayers (4 at the Base Station, 3 at the North Station, and 1 at the South Station) worked for AMCD from May to October, 2010. (e). Staff: Assistant Director Ms. P. Greene was terminated by the Board and the position was abolished on May 13, 2010.

8. Recognition/Awards (a). David King received the Management's Choice Award., (b) J. Boone, K. Gaines, and S. Solana received 10 year Service Awards, (c) K. Daniel received a 5 year Service Award, (d) A. Holt and R. Weaver received Advanced Education Recognitions, and (e) S. Solana received a Character Recognition for Saving a Life.



# Committee Members 2010

1. **PLANNING COMMITTEE:**

**Commissioner:** Ms. Vivian Browning  
(Chair)  
**Director:** Dr. Rui-De Xue  
**Assistant Director:** Ms. Priscilla Greene  
(end on May 29, 2010)  
**Supervisor:** Mr. John Boone  
**Biologist:** Ms. Whitney Qualls

2. **FINANCIAL / AUDITOR COMMITTEE:**

**Commissioner:** Mr. John Sundeman (Chair)  
**Accountant:** Mr. Scott Hanna  
**Director:** Dr. Rui-De Xue  
**Assistant Director:** Ms. Priscilla Greene  
(end on May 29, 2010)  
**Administrative Office Assistant:**  
Ms. Charolette M. Hall

3. **OPERATIONAL COMMITTEE:**

**(Ground/Aerial)**

**Commissioner:** Mr. Ron Radford (Chair)  
**Director:** Dr. Rui-De Xue  
**Assistant Director:** Ms. Priscilla Greene  
(end on May 29)  
**Biological Technician:** Mr. Mike Smith  
**Supervisors:** Mr. John Boone, Mrs. Kay  
Gaines, Mr. David Taylor

4. **EDUCATION COMMITTEE:**

**Commissioner:** Mrs. Jeanne Moeller (Chair)  
**Education Specialist:** Mr. Adam Holt  
**Supervisor:** Mrs. Kay Gaines  
**Biologist:** Ms. Whitney Qualls  
**Employee:** Mr. Patrick Kendrick

5. **APPLIED RESEARCH COMMITTEE:**

**Commissioner:** Ms. Janice Bequette (Chair)  
**Biologist:** Ms. Whitney Qualls  
**Data Manager:** Mr. Richard Weaver  
**Biological Technician:** Mr. Mike Smith  
**Education Specialist:** Mr. Adam Holt

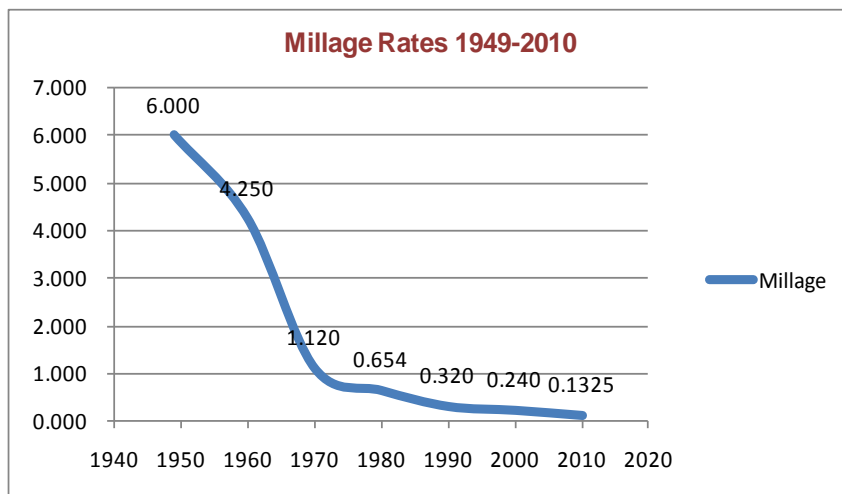
6. **SAFETY COMMITTEE:**

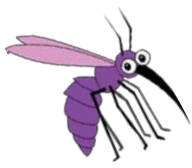
**Safety Coordinator:** Mr. Richard Weaver  
**Assistant Director:** Ms. Priscilla Greene  
(end on May 29)  
**Employees:** Mr. David King (Base Station),  
Mr. Ken Daniel (Base Station), Mr. Ed.  
Schneider (end July) Mr. Eugene Wells  
(North Station), Mr. John "Freddie" Allen  
(South Station),



## History of Millage Rates

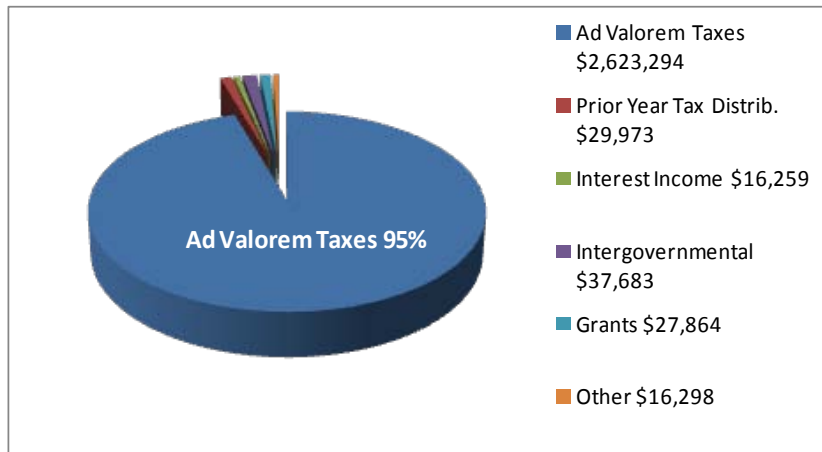
The District began with its **first assessed millage rate of 6.0 in 1949**. The District's **principal source of income is property tax revenue**, calculated from these millage rates, based on property value assessments. Historically, the rate, over the years, has decreased somewhat inversely with real property value increases. However, **property valuations have recently shown a decline**. In order to compensate for this shortfall, the District has had to expend some of its reserves, originally planned for financing long-term capital growth projects. This has enabled the governing board to **maintain the same millage rate** from the prior year for the budget year ending September 30, 2010 at **.1325**, saving the taxpayers money, illustrating the fiduciary responsibility of the District, and maintaining a consistent level of service.





## FY 09/10 District Revenues

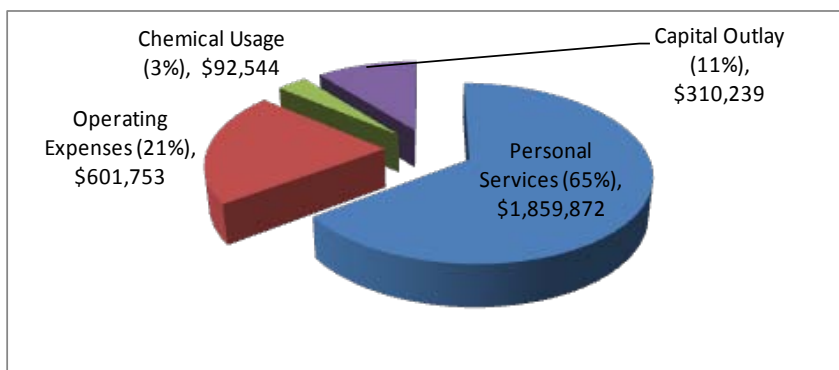
Total \$2,751,371



**Ad Valorem** (real property) **taxes** are the primary source of revenue for the Anastasia Mosquito Control District. Despite the District's levying a consistent millage rate of **.1325** for the last two years, decreasing property values have led to decreased tax revenues of **\$ 3,019,848** and **\$ 2,623,294**, respectively.

## FY09/10 District Expenditures

Total \$2,864,408



**In response to declining revenues**, the District has **reduced expenses**, suspended some capital outlay programs and used reserves to maintain consistent levels of service.





## Annual Program Report Committee Members

Chair: Dr. Rui-De Xue, *Executive Director / Entomologist*

Members: Mrs. Kay Gaines, *Base Station Supervisor*  
Mr. Richard Weaver, *Data Manager*  
Ms. Whitney Qualls, *Biologist*  
Ms. Charolette M. Hall, *Administrative Office Assistant*  
Mr. Adam Holt, *Education Specialist*

## Acknowledgements

We would like to thank all local residents for their support, as well as the AMCD Board of Commissioners, the District's attorney, all employees, and all contractors, cooperative organizations and agencies for helping AMCD's programs in 2010. We would also like to thank the Department of Agricultural and Consumer Services and the Department of Environmental Protection for partial funding, the State Department of Health, and the Tampa Laboratory for assistance in disease testing.