



**Beach Mosquito
Control District's
2005 - 2006
Annual Report**

BEACH MOSQUITO CONTROL DISTRICT'S

MISSION STATEMENT

Beach Mosquito Control District seeks to protect the public health, safety and welfare by using science-based, environmentally sensitive, integrated mosquito control techniques employing public education, surveillance, source reduction, biological control and the judicious use of pesticides to enhance the quality of life for district residents.

Beach Mosquito Control District's Motto:

“Protecting public health and comfort through responsible and effective mosquito control”

Director's Message

I am proud to present **Beach Mosquito Control District's** first annual report to the citizens of Panama City Beach, Florida. The annual report has been created to familiarize the community with the importance of its operational service and how local tax funding establishes the quality of mosquito control. The report will cover the **BMCD's** calendar year beginning October 1, 2005 through September 31, 2006.

Historic Summary

In 1952 the negative health and monetary impact mosquitoes created in the area caused local citizens to form a mosquito control district. It was known as Gulf Mosquito Control District. Through the 1950's, 60's and 70's Gulf Mosquito Control District had additional operational responsibilities. They were operating the local landfill and dog fly control.

In the late seventies we left the refuse business to focus primarily on mosquito control. During the 1980's all mosquito control districts experienced a revamping of mosquito control techniques. This was due to environmental concerns about the use of pesticides. These issues changed old rules and created new laws for the protection of our natural environment. In addition these new regulations improved the efficiency of our business. **Beach Mosquito Control District** has established a sound **Integrated Mosquito Management (IMM)** program.

Early in the year 1997 Gulf Mosquito Control was renamed and became **Beach Mosquito Control District**. It continues to operate beneath the jurisdiction of the Department of Agriculture and Consumer Affairs under Chapter 388 Florida Statutes rule 5E - 13. **BMCD** is operational by funding through the levying of a local ad-valorem tax and state matching funds. It is governed by three voter elected commissioners. The term is a four year commitment.

Future

Over the years **BMCD** has experienced many positive changes that effect the way that we conduct our business today. Each improvement allows us to move forward into the future by creating a more efficient and healthier district.

Beach Mosquito Control District consists of a dedicated, hardworking and multitalented small team of employees. Being able to accomplish everything successfully with such a small group demonstrates that the most important asset to an organization is its employees.

I would like to extend special thanks to the **BMCD** board members and employees for your support and quality service to the Beach Mosquito Control District.

Sincerely,

Edward C. Hunter

A PECULIAR MOSQUITO SEASON

This year the **Beach Mosquito Control District** experienced a very unusual mosquito season. Our district began with below average rainfall. As the year progressed the rainfall tapered off to draught conditions. The number of mosquitoes collected also dwindled.

However, later on in the season the eastern part of our district was effected by a significant outbreak of saltwater marsh mosquitoes. This was primarily due to the change in wind direction across the bay into our district. The strong wind conditions were responsible for redirecting this specie with it's flight pattern. It blew these fierce biting mosquitoes straight across the bay relocating them into our district. Also, the high surf created by the wind along the bay's water edge (that borders our district) assisted in the hatching of millions of salt water marsh mosquito eggs. These eggs were just lying around the marshy terrain waiting for the water to touch and trigger the optimal hatching process. The number of *Ochlerotatus taeniorhynchus* dominated our trap collections and citizen complaints were higher than normal for this part of our district.

Chairman's Message

The **B**each **M**osquito **C**ontrol **D**istrict commissioners are elected to the board by the public for a 4 year term during a general election. The BMCD Board of Commissioners conduct their meetings the first Monday of each month. The meetings begin promptly at four o'clock. All meetings are open to the public. Special meetings are held as deemed necessary.

NOTE: Meet the commissioners & photograph plus short biography?

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Employee Requirements

Beach Mosquito Control District is professionally staffed with highly skilled employees. The entire staff maintains their State of Florida Public Health License to insure quality mosquito control by attending continuing education programs. A mandatory drug screening test is required prior to employment. Also, all employees must have a valid Florida Drivers License in good standing. Within six months of employment each new employee must obtain a Florida Public Health and Pest Control License. The pilot must obtain an aerial license and already have earned the documented amount of flight hours for agricultural spray application.

BMCD may appear small in size but our daily control of the district's large variety of mosquito populations is a great responsibility. Due to increasing number of mosquito borne diseases through out the state of Florida we dedicate ourselves by promoting and protecting the health of our community and its guests.

We follow federal and state environmental guidelines, use the four basic control methods (Prevention, Source Reduction, Larviciding and Adulticiding) to establish an up to date environmentally safe and professional service to our community.

To ensure a safe working environment we hold quarterly safety meetings. During these meetings new safety topics are addressed and old ones readdressed and update safety guidelines.

BMCD is continuously striving to educate and work with our community to promote and provide a healthier future.

Beach Mosquito Control District's 2005 - 2006 Employees

Director: Edward C. Hunter Jr.

Commissioners: Larry C. Couch Sr.
Tom D. Easter Sr.
Dr. John P. Smith

Administrative Assistant: Stacey L. Oyler

Receptionist / Secretary: Jennifer A. Weeks

Operational Supervisor: Riley F. Jordan

Entomologist: Dale W. Martin

Helicopter Pilot: Jimmy Sheehee

Mechanic Specialist: William E. Valdez (Skip)

Mosquito Technician III: Lee D. Duke Vander Vinson

Mosquito Technician II: Thomas E. Bass Cynthia J. Mulla
Philip R. Harvey Edward A. Summer III

Mosquito Technician I: James L. Hull

We would like to extend our best wishes to the employees that serve and have served the Beach Mosquito Control District.

Special Appreciation to the following employees with 10 years or more of dedicated service.

Riley Jordan	36 years of service
Edward Hunter	31 years of service
Vander Vinson	29 years of service
Thomas Bass	12 years of service
William Valdez	10 years of service

Retired Employee: Shirley Kelly 2-20-03 / 12-20-05

Personnel Career Change: Peter L. Banks 4-17-00 / 5-04-06
Jimmy Sheehee 6-01-05 / 9-05-06

Mosquito Control Conferences & Special Training Sessions Attended

- Name:** The Fall Mosquito Control Association Meeting
Location: Hawks Cay Resort, Duck Key Florida
Dates: November 13-16 2005
Attendees: Director Ed Hunter & BMCD Commissioners
Topics: Varied and a total of 65 papers were presented during conference
- Name:** The Florida Mosquito Control Association Aerial Short Course
Location: Lee County, Florida Mosquito District
Dates: January 19, 2006
Attendees: BMCD Director, BMCD Commissioners, Supervisor, Pilot & Mechanic Specialist
Presentation: The Newly Designed Helicopter Spray System
Speakers: Jimmy Sheehee (Pilot) & Skip Valdez (Mechanic Specialist)
- Name:** The Florida Mosquito Control Association Dodd Plenary Short Courses
Location: Ocala, Florida
Dates: January 20 - 26, 2006
Attendees: BMCD Director, Administrative Assistant, Secretary and 3 Mosquito Technicians
Classes: Continuing Educational Units (CEU's) were attended to maintain the Florida Public Health License. New employees were tested for the License. Classes attended pertained to the BMCD employees occupational specialty.
- Name:** 10th Southeast Regional Public Health Pest & Vector Management Conference
Location: Panama City Beach, Florida
Dates: February 21- 23
Attendees: Director Ed Hunter, Dale Martin
Speakers: Director Ed Hunter Arbovirus Surveillance and Dale Martin assisted Donnie Powers of ADAPCO with RAMP testing seminar.
- Name:** The American Mosquito Control Association Annual Meeting
Location: Detroit Michigan
Dates: February 26 - March 2, 2006
Attendees: BMCD Director and Commissioners
Topics: Annual Business and Presentations

Mosquito Control Conferences & Special Training Sessions Attended Continued

Name: The Florida Mosquito Control Association Tallahassee Legislative Day Meeting
Location: Tallahassee State Capital, Florida
Dates: March 17 - 18, 2006
Attendees: Director Ed Hunter & BMCD Commissioners'
Topics: Reviewed State and Federal Regulations. A time to meet with district's State Representative and address concerns and BMCD's needs.

Name: The Florida Mosquito Control Association Spring Meeting
Location: St. Petersburg, Florida
Dates: May 17 - 18, 2006
Attendees: Director Ed Hunter, Commissioner Larry Couch, Riley Jordan & Dale Martin
Topics: Variety of Papers and Presentations Presented

Name: The DACS 5E - 13 Meeting
Location: Gainesville, Florida
Dates: June 20, 2006
Attendees: Director Ed Hunter
Topics: The meeting was regarding the revisions to 5E - 13.

Name: Local Emergency Planning for District 1 Hazardous Materials Level 1 Awareness Training Course
Location: Gulf Coast Community College
Date: August 29, 2006
Attendees: Lee Duke, James Hull, Philip Harvey, Cindy Mulla, Eddie Summers, Skip Valdez
(All the above persons completed and received certification for training)

In addition the Beach Mosquito Surveillance Team participated in the Florida Arbovirus Conference Call Meetings Starting in October of 2005 - November 2006.

BMCD Operational Updates

Beach Mosquito Control District's main operational objective is to maintain and continually update its fleet of equipment and mosquito control protocol so it can provide its district with optimal environmental mosquito control.

New equipment purchases and updates to our Mosquito Task Force:

1. Helicopter Upgrades: To improve the efficiency and cost of mosquito control product application and distribution a new tank & high pressure spray system was installed.

In addition the elite AIMMS weather and navigational system was added to the helicopter. It generates up to the second accurate aerial and ground weather conditions for the pilot to assist in safety and determining optimal flight patterns to use for successful treatment applications for each mission.

Night time vision goggles were purchased to facilitate evening spray operations and increase the pilots safety for nighttime flying.

2. An All Terrain John Deer 4x4 Gator was purchased to assist in transporting the Buffalo Turbine Spray System over rugged terrain and difficult to reach treatment sites.
3. The Buffalo Turbine Spray System was purchased to assist us with our new Barrier Treatment Program. This program is offered to the BMCD's public facilities. This form of treatment offers an extended quality of mosquito control while optimizing a healthier and safer outdoor recreational environment for all to enjoy. This system has been effectively and efficiently treating local recreational facilities and school campus's in the district.
4. A new van was purchased to cut transportation costs. It assists in delivery of employees for training sessions and visitors to our district office.
5. A new generator was bought to facilitate and keep BMCD operational during long power outages. This updates our operational hurricane awareness and preparation status.
6. A Stereomaster Microscope & Monitor was purchased for the entomology laboratory to facilitate and speed up the mosquito identification process. Also, to assist with our educational outreach programs by updating our multimedia technology.
7. To improve trapping results 3 new CDC Updraft Canopy mosquito traps were purchased for surveillance.
8. To improve efficiency and safety of chemical storage a new addition to chemical storage facility was built.
9. The purchase of a new fork lift to assist in moving chemicals and other heavy cargo at the main BMCD facility.
10. A 500 gallon fuel tank for emergency purposes and hurricane preparedness was purchased..
11. A hydraulic lift was purchase for the BMCD maintenance shop to facilitate working on all vehicles.

BMCD Financial Report

Budget: Our Fiscal Year is from October 1 to September 30. Budget for 05-06 cost is \$1,805,852.48. Local tax funds amount to: \$1,590,903.41 and State Tax Funds: \$18,924.60. Reserves: \$222,521.90.

Budget Summary: Total revenue and cash balances: \$1,585,965.82. Total expenditures, cont. & reserves: \$1,438,763.45.

Fund: The District contracted with the Navy Base for \$200 per hour sprayed. For two months of service rendered the Navy Base paid the Beach Mosquito Control District a total of \$2450.

Years of Employment Awards went to: Mr. Thomas E. Bass and William E. Valdez (Skip) for 10 years of loyal service to the district. They received a pen and pencil set. Mr. Edward C. Hunter, Jr. and Mr. Riley F. Jordan received a bonus of \$200 for their 30 years plus of loyal service to the District.

Policy: The District has updated the employee manual. Also the accrual of hours per pay period increased with years of service.

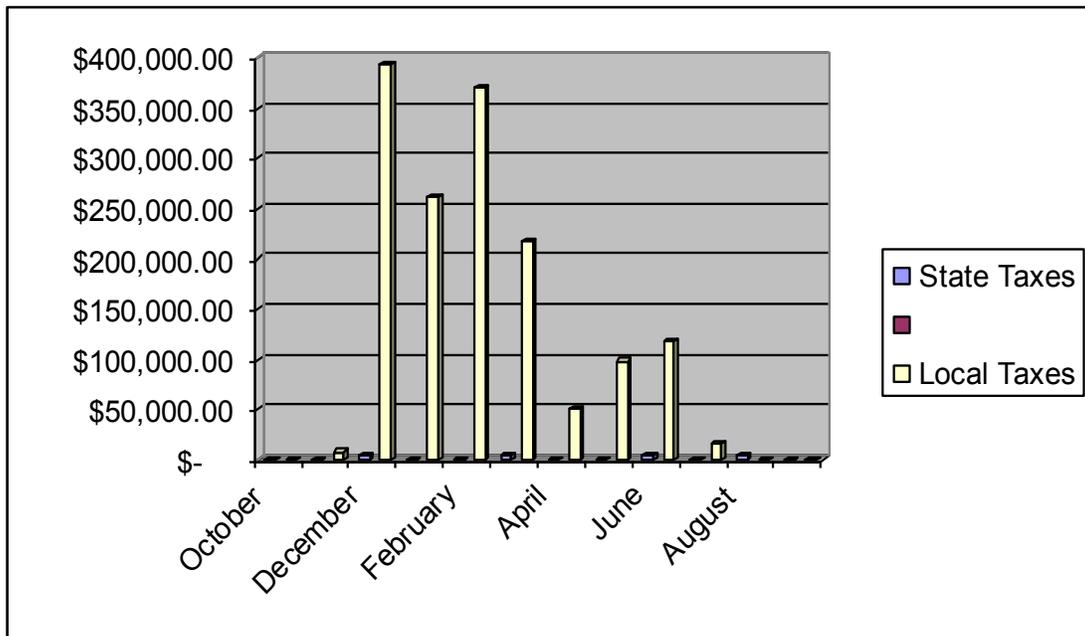
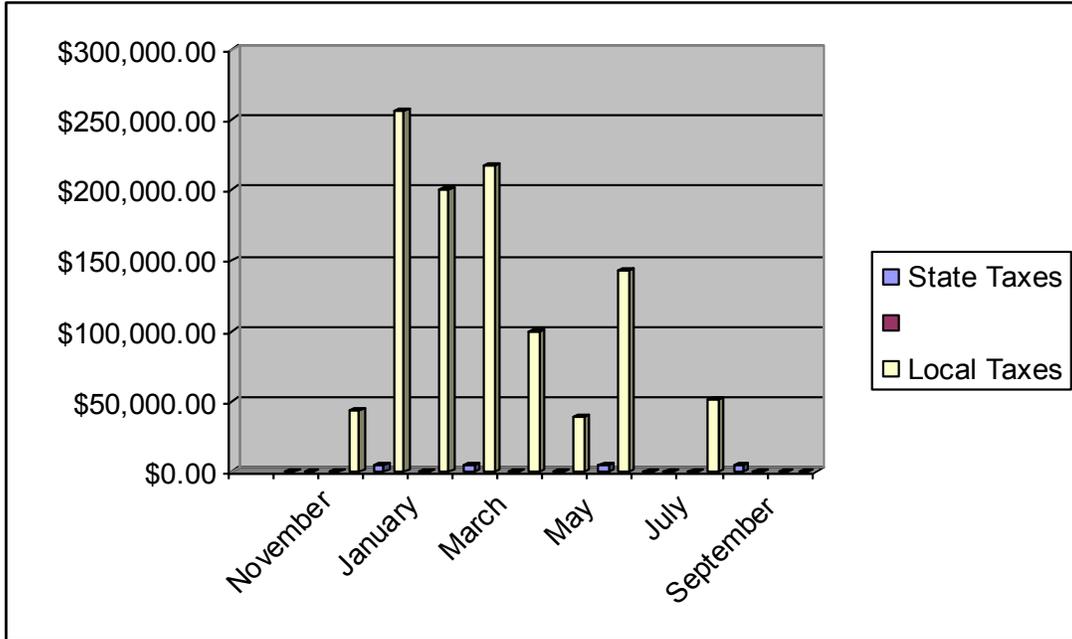
Insurance: Continued contract with all of the same insurance policies and coverage's remained the same.

Contracts: Renewed Contract with Reliable copy and traded in our Copy/Fax machine to upgraded equipment. Renewed Contract with the Auditor and changed it to renew contract every 3 years.

Inventory: All BMCD chemical products and equipment are conducted monthly.

Safety: Safety committee which involves everyone in the District, held 4 quarterly meetings in which several safety issues were discussed. Some of the main issues included in the 1st quarters meeting were the acknowledgements of the safety that the District has shown in the areas of helicopter safety and forklift safety. The 2nd quarter was more detailed areas of forklift safety. The 3rd quarter introduced more helicopter safety. The final quarter of the year was more of an overview. on a little bit of everything; kitchen safety, tool and equipment safety, vehicle cleanliness and making sure the gate is secure at all times.

BMCD Monthly Fiscal Tax Revenues



BMCD Consolidated Financial Statement

BEACH MOSQUITO CONTROL DISTRICT

CONSOLIDATED FINANCIAL STATEMENTS -- LOCAL FUND(\$) -- 2005-2006

REVENUE	\$1,566,983.60
EXPENDITURES	\$1,403,522.28
EXCESS OR (DEFICIT)	\$163,461.32
BEGINNING CASH BALANCES	\$170,969.90
ACCRUAL/CASH ADJUSTMENT	\$0.00
ENDING CASH BALANCES	\$350,642.06
RESERVES:	
FUTURE CAPITAL OUTLAY	\$100,000.00
SICK/VACATION LEAVE	\$22,521.90
CASH FORWARD	\$100,000.00
TOTAL RESERVES	\$222,521.90

BEACH MOSQUITO CONTROL DISTRICT

CONSOLIDATED FINANCIAL STATEMENTS -- STATE FUND(\$) -- 2005 - 2006

REVENUE	\$18,982.22
EXPENDITURES	\$35,241.17
EXCESS OR (DEFICIT)	(\$16,258.95)
BEGINNING CASH BALANCES	\$25,054.57
ACCRUAL/CASH ADJUSTMENT	\$0.00
ENDING CASH BALANCES	\$136.73
RESERVES:	
TOTAL RESERVES	\$0.00

Surveillance

Surveillance is an essential link to a successful mosquito control program. It's the first line of defense. Daily information is collected from the field, recorded and carefully analyzed. The data gathered determines the most efficient and best environmental method(s) to be used for managing daily district operations.

There are two main areas of surveillance Larval and Adult. Both have to do with the life cycle of the mosquito. There are 4 growth stages to the mosquito. The egg, larva (with 4 instar steps), pupa and adult. Ideally it is best to locate larval activity and treat it immediately. This prevents the mosquito larvae from developing into the pesky and possible viral transmitting adult mosquito.

Larval Surveillance

During the breeding season our team of mosquito technicians travel throughout the district daily checking for new larval activity at current locations and possible new sites. This year created more challenges for our technicians because the Panama City Beach area is experiencing developmental growing pains and breeding areas are changing. A record of all ground, aerial surveillance sites and treatment is kept at the BMCD office.

Progress for 2006: Our district established an aerial larval surveillance program. The helicopter assisted with locating large pockets of standing water and flood prone areas. These sites are more visible and treatable from the air. The aerial surveillance program increased the ability to successfully treat more remote acreage of problematic mosquito breeding sites. This aided in reducing the number of complaints regarding mosquitoes. This July this program was suspended temporarily due to the lack of rainfall.

Each potential breeding site is inspected both pretreatment and post-treatment to ensure the effectiveness of the larvicide treatment.

Adult Surveillance

The 2006 adult trapping began on March 1st and ended on December 1st 2006. Our district uses several surveillance trapping methods to monitor the local mosquito population. This data is collected and compiled daily to record the mosquito population. The number of mosquitoes trapped is significant because it determines if treatment is necessary. In addition it concludes the impact the treatments are having in the area. This season consisted of 114 trapping days/ nights. An estimated 11,000 miles were traveled for the placement and retrieval of surveillance traps.

New additions to our adult trapping program were 3 new canopy traps to update and retire the old models. Our laboratory is now equipped with a new stereomaster microscope with monitor. This facilitates & speeds up the identification process of mosquitoes and is a great form of media for our educational outreach program.

Sentinel Chicken Flocks

BMCD began the Arbovirus seasonal blood serum sampling this year on 5/2/06. Blood serum samples were collected for 21 weeks between the months of May and September. A grand total of 378 blood serum samples were taken, prepared and sent to the State of Florida Arbovirus Laboratory in Tampa for testing. A total of 1,950 miles were traveled to collect samples and maintain the flock with feed and water. Once again this year no members of the sentinel flocks were diagnosed positive for mosquito borne viruses.

RAMP Testing

In the fall of 2004 our district purchased a RAMP (Rapid Analyte Measurement Platform) system. This system allows our facility to accurately test pools of vector species for arboviruses. The remainder of 2004 was a learning period for operating the equipment properly. In 2005 no RAMP tests were ran. From June through October 2006 thirty-three RAMP test were completed. All results were negative. Since our district experienced drought conditions and collected a lower number of targeted species (Culex) this limited the number of tests that we were able to conduct.

Special Surveillance

This past year BMCD conducted two research surveillance studies. The first one was a mosquito dispersal study and the other a barrier control study.

St. Andrew Mosquito Dispersal Study

In 1999 we acquired the appropriate permits and received permission from St. Andrew's State Park to conduct a mosquito dispersal study. The objective of this study was to determine if mosquitoes breeding in the park were migrating to areas outside the park thus affecting the residential areas. Years of drought conditions prevented us from testing. The first study and only study ran in 2005. The test began with the capturing and marking of mosquitoes from St. Andrew's State Park. After being dusted with a bright fluorescent powder the mosquitoes were immediately released at the capture site. Night time traps were set throughout possible targeted residential areas outside of the park to hopefully capture marked mosquitoes from the park. No marked mosquitoes were caught. Once again due to dry weather conditions the test wasn't conducted in 2006. In 2007 we hope to have another go at it!

Frank Brown Park Barrier Treatment Study

A barrier treatment is the process of treating the perimeter of a designated area to set up a protective boundary from the pest. We chose this area for our tests because of the high recreational activity and ideal mosquito breeding sites.

BMCD purchased the Buffalo Turbine Spray System to improve the quality of outdoor recreational activity in the district for our citizens. We wanted to get efficient quality results with our Barrier Treatment Program. This July the BMCD team of mechanical and laboratory technicians began conducting a research project under the direction of Dr. Jane Barber of Florida Agricultural and Mechanical University to establish guidelines for standard equipment efficacy. Beach Mosquito Control District is establishing the future protocol for this piece of valuable mosquito control equipment. We will be continuing on with the research in the 2007 season. The targeted areas that have improved the quality of outdoor recreation are: Frank Brown Park Recreational facility (Walking Trail, Athletic Fields, Spectator Stands etc.) and Arnold High School Campus and recreational facilities.

Special Surveillance Continued

Arnold High School Barrier Treatment Study

In April 2006 the Arnold High School Campus was the site selected for our barrier treatment study. This site is surrounded by a heavily wooded area and marshy terrain bordering a bay. The campus was effected by a constant large population influx of Black Salt Water Marsh Mosquitoes.

This was accomplished using the buffalo turbine spray system combined with TalstarOne. The product TalstarOne was sprayed on the perimeter of vegetation. To monitor the effect and success of the treatment an updraft trap was placed both inside and out the treated area. Even though the traps were placed in different types of vegetation and the number of mosquito species changed these traps aided in determining the duration of the treatment.

Updates in procedures may include: Assigning a traps (gravid & updraft) permanently inside the high school campus and just provide resting boxes located in the wooded area outside the barrier treatment zone.

Summary of the BMCD Mosquito Season

Even though our district experienced extreme dry weather conditions this past season the number of mosquitoes recorded for our area were above average. This was due to the increase of Black Salt Marsh Mosquitoes (*Ochlerotatus taeniorhynchus*) invading our district. The strong northerly winds blew their flight route into the northeastern part of our district. In addition the wind driven high surf along the bay coastline assisted with the hatching of millions of eggs lying just above the shoreline waiting for the optimal hatching conditions to occur.

Expected Future Changes

Surveillance will need to be expanded into the northern part of the district. As rapidly as Panama City Beach is developing there is a need for increasing our surveillance and maintaining the pace. New additional trapping sites will be added as well as older ones eliminated because of development.

A larger domestic program will be necessary with the increase growth in population. Domestic mosquitoes are those that are raised in populated areas with the assistance of unnecessary standing water providing perfect breeding sites. Some examples are: flower pot dishes, pet bowls, kiddie pools, rain gutters and other assorted open containers that have the ability to hold standing water. District personnel will inspect complaint areas in search of the source for container-breeding mosquitoes. Next the citizen is informed of the inspection results and is instructed about preventive measures. If they are unavailable a friendly door hanger with check list is provided along with helpful literature.

Beach Mosquito Control District's Educational Outreach Programs

Great strides have been made during this past fiscal year in educating the general public on mosquito ecology, prevention, source reduction and safety. Mosquitoes effect the economy and quality of life for everyone of all ages in Northwest Florida. Therefore, we want to provide well rounded and informative programs.

This year we taught our Mission Mosquito Classes to kindergartener through 7th grade students. Each class raised laboratory viral free mosquitoes in emerging jars and kept grade appropriate observational journals. They learned about the importance about mosquito control, prevention and safety. Each class had a small but important homework assignment. Every student joined the Mission Mosquito team and received a simple check off list of possible breeding sites. Their job was to go around the outside of there home with an adult in search of standing water and dump it out appropriately. Our slogan was " Spot, Stop Mosquito Breeding". Just Dump It Out!

The third weekend in October we participated in St. Andrew's State Park Nature's Gallery. We had a large tent complete with many different types of exhibits and hands on activities for children and adults to enjoy. Educational literature was also available. The majority of our visitors were amazed at what all mosquito control involves. The most common comment was: "We thought that you only sprayed mosquitoes."

Future Programs

To speak at more facilities, functions, or home owner associations. We will be speaking at St. Andrew's State Park on March 11th, 2007, Camp Helen State Park (yet to be announced) and we have been cordially invited back to participate again at the Nature's Gallery in October of 2007. We will try to participate in the Children's Festival at Gulf Coast Community College. Unfortunately Kid's Fest was cancelled due to severe weather last year..

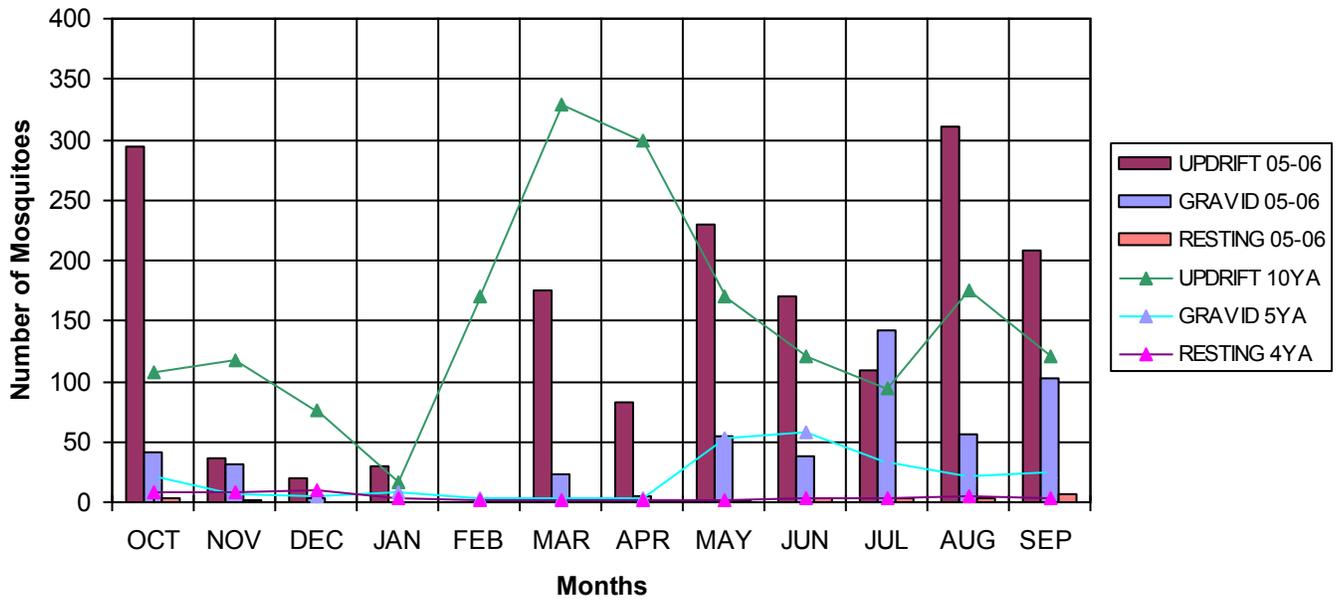
Future Goals

To add more presentations to our schedule. We would like to speak at senior citizens centers, churches, home owner association or any where that we can make a difference to "Fight The Bite". We are striving to help educate the general public on mosquito prevention and improve their quality of outdoor activities at home and recreationally.

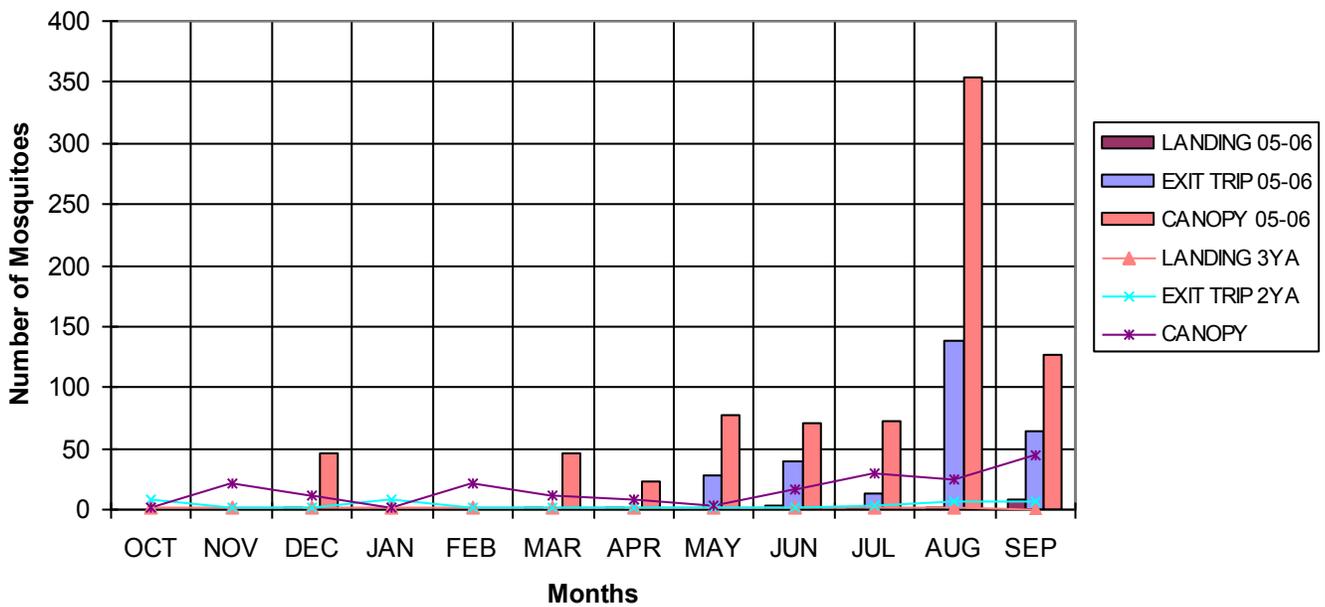
**Total Mosquito By Species
Trapped, Counted and Identified
2005– 2006**

Genus	Specie	Specie Total	Annual Total
Aedes	albopictus.....	1,199	
Aedes	vexans.....	<u>3,551</u>	
		4,750.....	4,750
Anopheles	crucians.....	34,727	
Anopheles	quadrimaculatus.....	113	
Anopheles	species.....	<u>5</u>	
		34,845.....	34,845
Coquillettidia	perturbans.....	598.....	598
Culiseta	inotnata.....	713	
Culiseta	melanura.....	9	
Culiseta	species.....	<u>12</u>	
		1,332.....	1,332
Culex	erraticus.....	610	
Culex	nigripalpus.....	12,842	
Culex	quinquefasciatus.....	19,545	
Culex	restuans.....	24,492	
Culex	salinarius.....	12,216	
Culex	species.....	1,032	
Culex	territans.....	<u>2</u>	
		70,739.....	70,739
Mosquitoes		2,729.....	2,728
Ochlerotatus	atlanticus.....	760	
Ochlerotatus	canidensus.....	9,057	
Ochlerotatus	infirmatus.....	64	
Ochlerotatus	sollicitans.....	10,556	
Ochlerotatus	species.....	2,593	
Ochlerotatus	sticitcus.....	22	
Ochlerotatus	taeniorhynchus.....	144,337	
Ochlerotatus	triseriatus.....	<u>27</u>	
		167,416.....	167,416
Psorophora	ciliate.....	7,593	
Psorophora	columbiae.....	198	
Psorophora	ferox.....	461	
Psorophora	species.....	<u>14</u>	
		8,266.....	8,266
Uranotaenia	sapphirina.....	<u>7</u>	7
TOTAL :		<u>290,083</u>	<u>290,083</u>

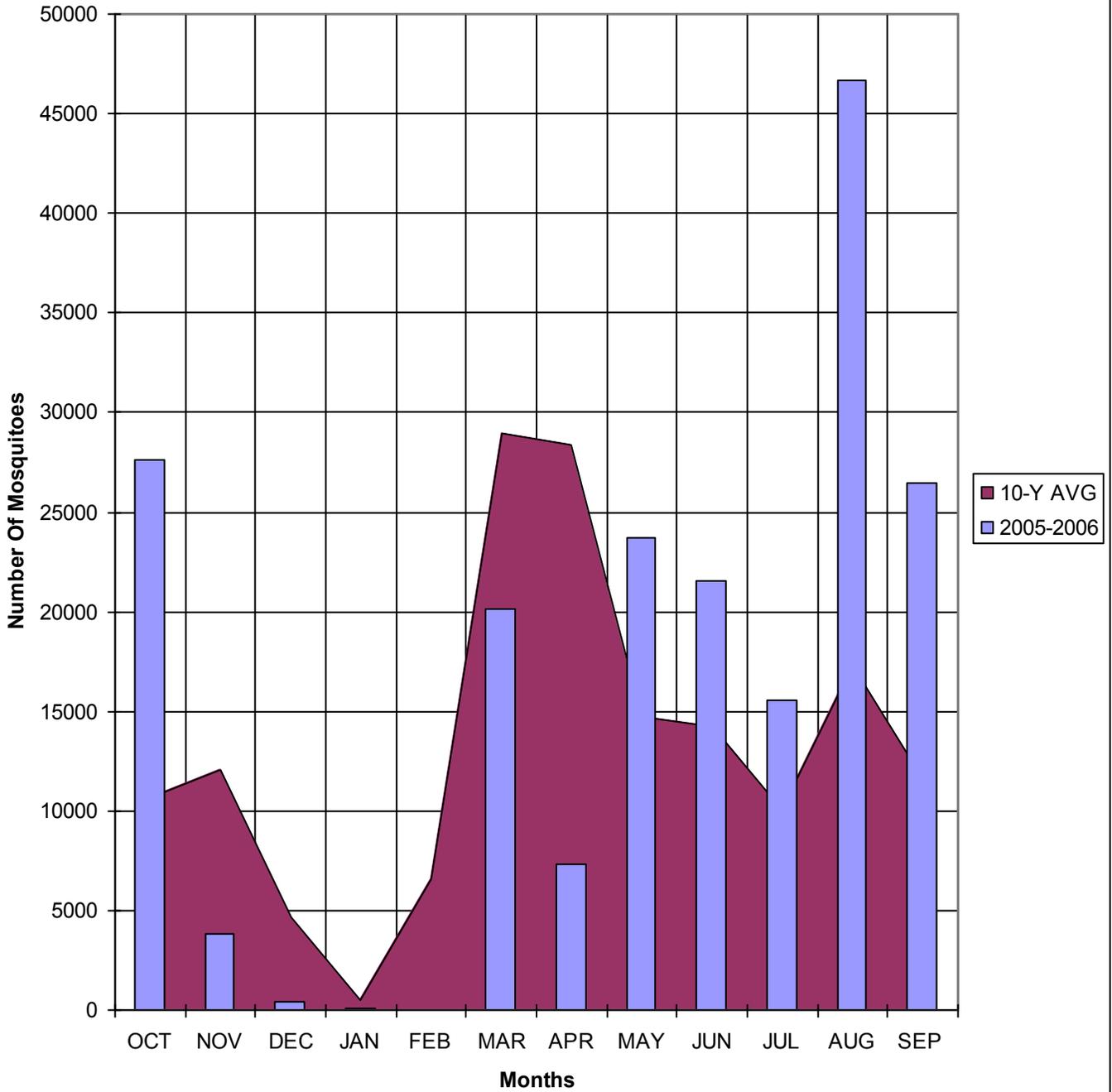
Beach Mosquito Control District Trap Average 2005-2006



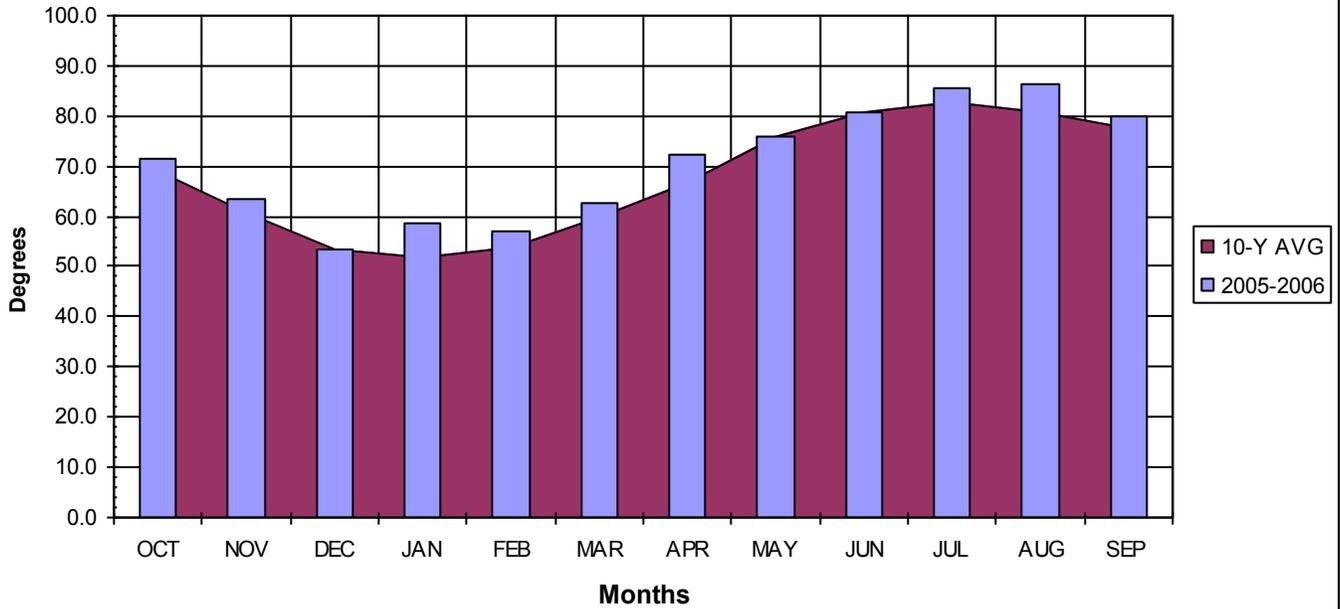
Beach Mosquito Control District Extra Sentinel Traps 2005-2006



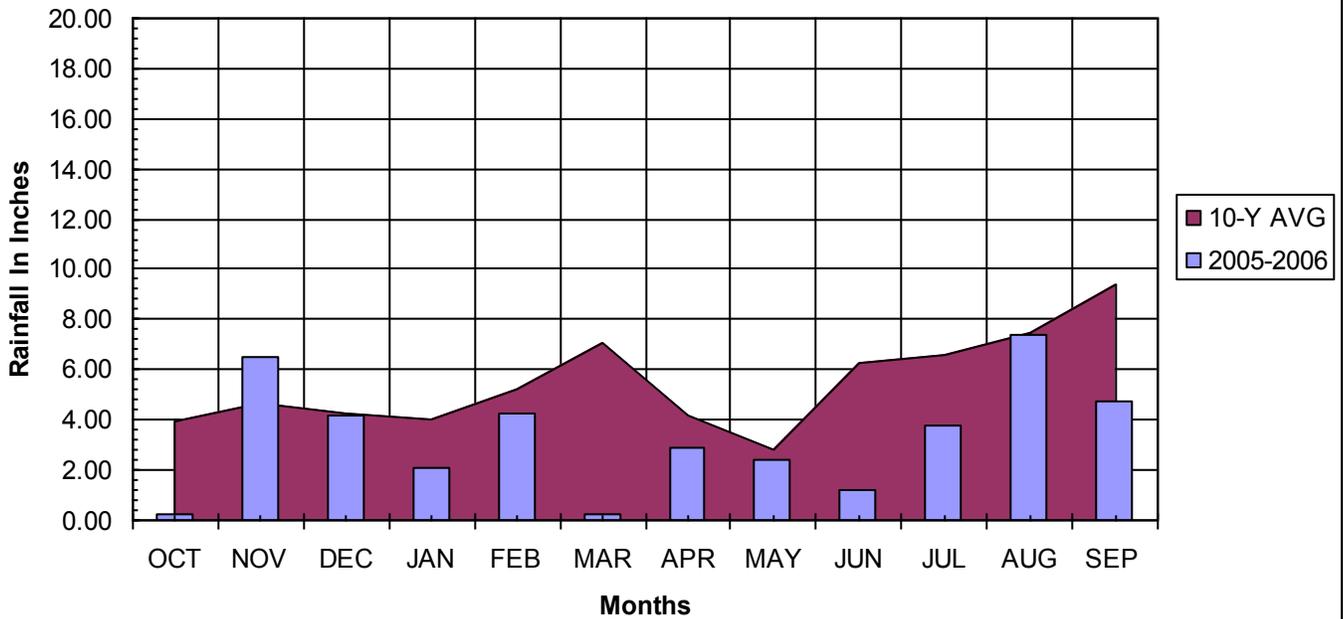
Beach Mosquito Control District Total Mosquitoes 2005-2006



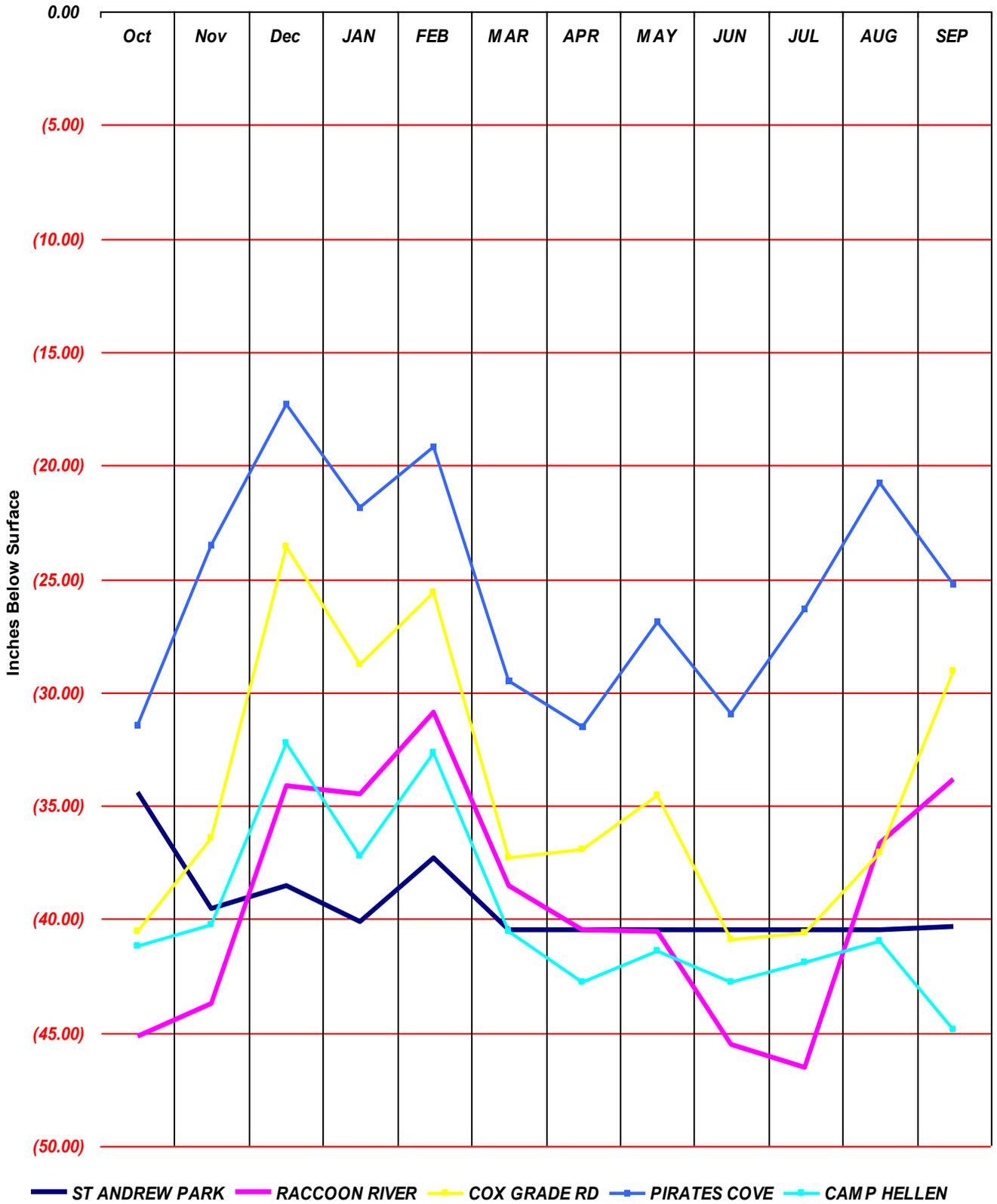
Beach Mosquito Control District Average Temperature 2005-2006



Beach Mosquito Control District Rainfall 2005-2006



Beach Mosquito Control District Subterranean Waterline 2005-2006





BMCD's Annual Chemicals and Application Usage For Mosquito Control

The following pages will contain important data and charts containing the following information:

- A. Map of BMCD'S Treatment Zones
 - 1. Service Requests and Complant Summaries for October 2005 - September 2006
- B. Total Number of Breeding Sites Per Spray Zone
 - 1. Environmental Totals Per Zone
- C. Truck Adulticiding Mission Summary from October 2005 - September 2006
 - 1. Chemical Usage
- D. Truck Larviciding Mission Summary from October 2005 - September 2006
- E. Aerial Adulticiding and Larviciding Summary for October 2005 - September 2006
- F. Mechanical Specialist Report
- G. Dog Fly Surveillance Data
- H. BMCD Ditch Cleaning and Flow Management
 - 1. Equipment used for operation
- I. Herbicide Chemical Usage
- J. The 3 Different Aerial Test Programs Executed
 - 1. Acreage Covered Per Test
 - 2. Type of Chemical and Amount Used
 - 3. Total Flight Hours Per Mission

Beach Mosquito Control District's Customer & Professional Service

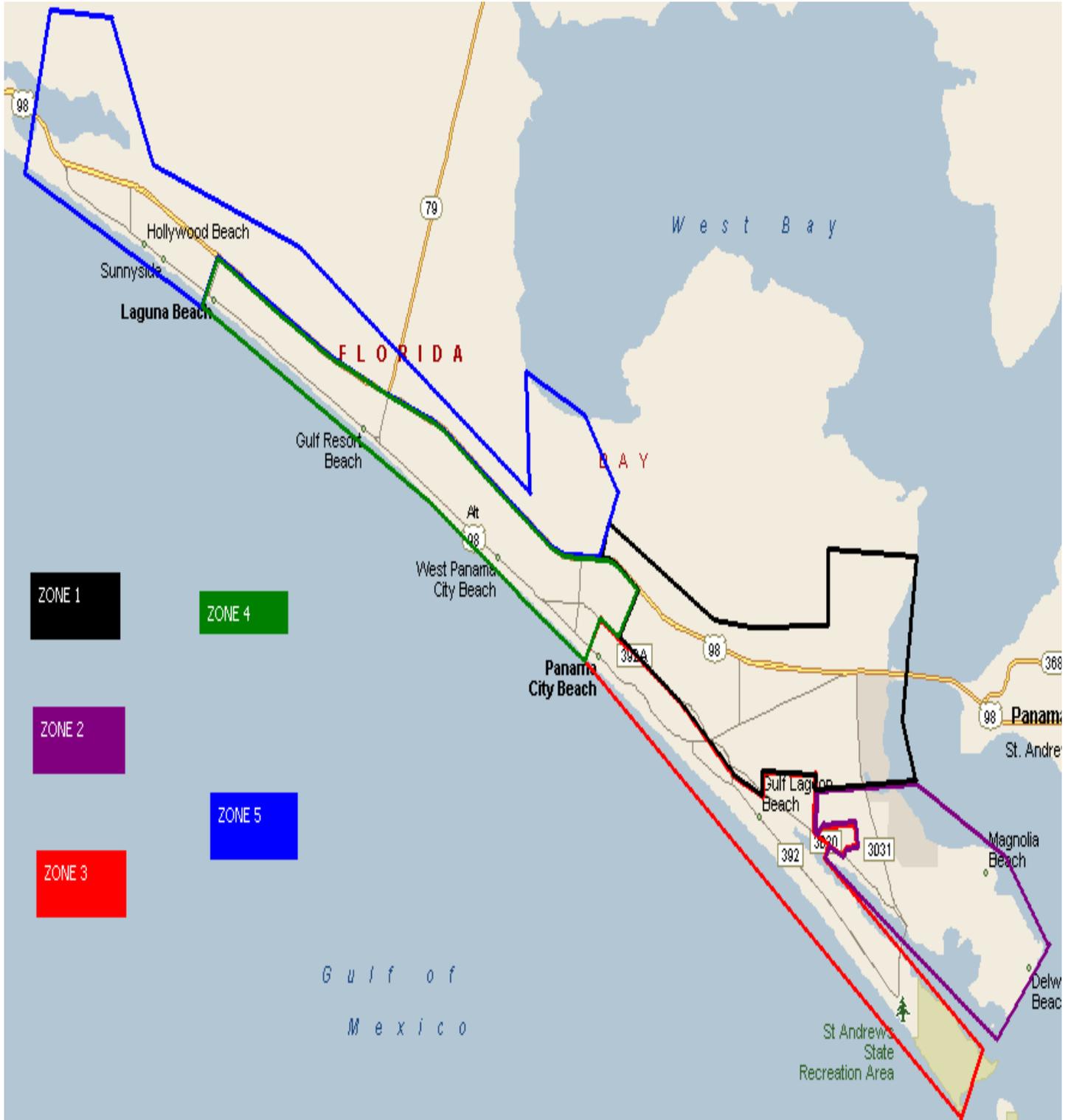
We take great pride in offering our District top notch mosquito control services. Our personable and highly skilled staff makes the difference in customer satisfaction. Each member holds and maintains their Florida Public Health and Pest Control License.

The majority of BMCD's service requests are received by telephone. However, they are also requested via e-mail or by the inspector/spray technician while working out in their designated zone.

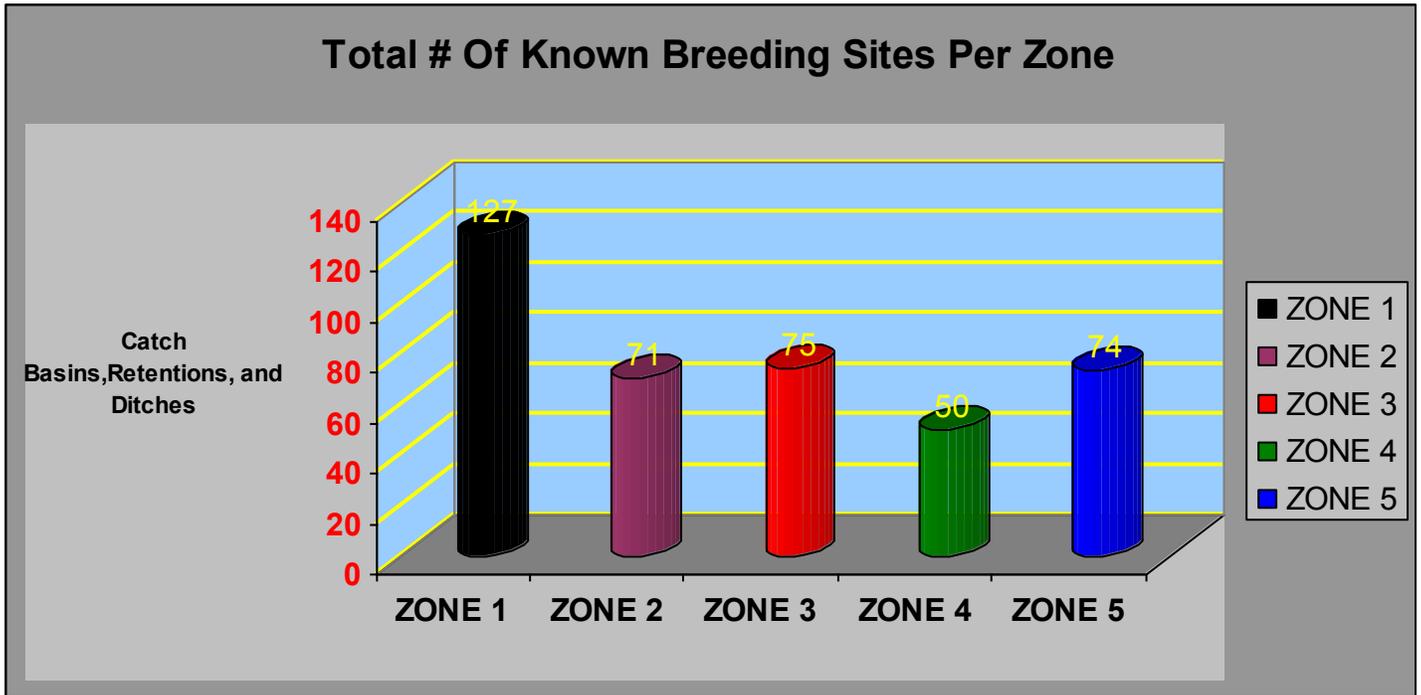
No matter how the service requests are received...they are responded to courteously, promptly and with importance.

For quick and efficient service The Beach Mosquito Control District is divided into 5 zones. The map on the following page provide customers in locating their zone when referencing the data on the following pages.

Beach Mosquito Control District's Zone Map 2005 - 2006



The chart below shows the number of breeding sites at each zone.

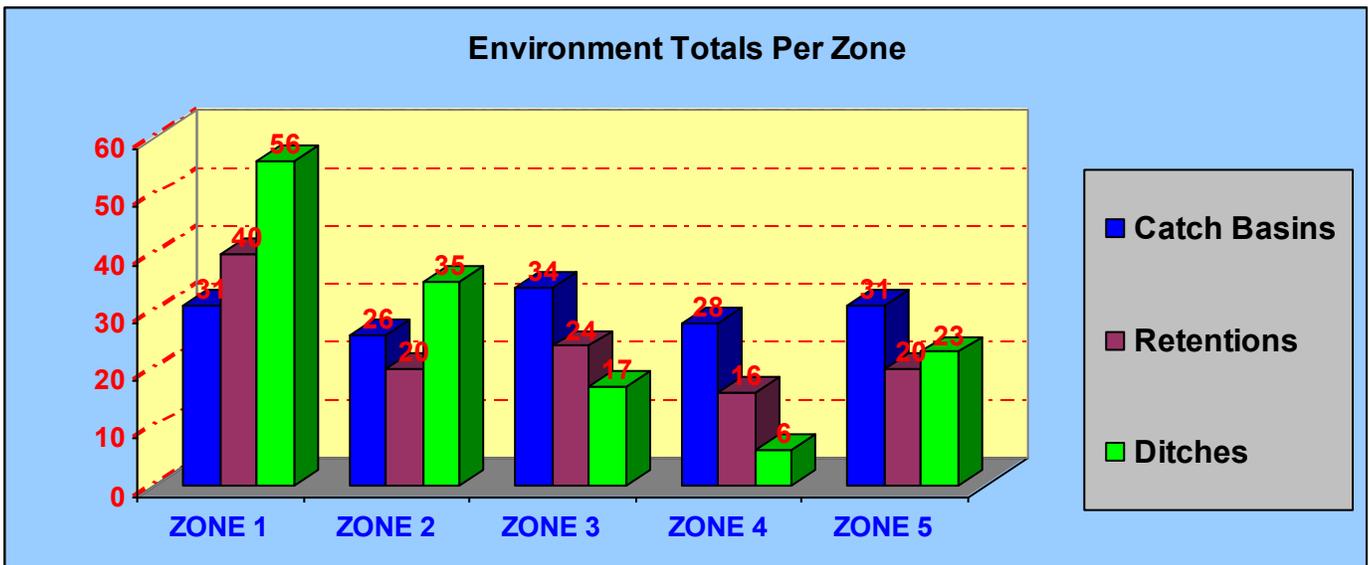


BELOW

Key: Demonstrates the 3 most common types of artificial breeding habitats.

Chart: The chart demonstrates the type & total of each artificial habitat per zone.

* This chart does not include the container breeding habitat. *



Truck Larviciding Mission Summary for October 2005 – September 2006

Chemicals used: Golden Bear Oil, 5% Skeeter Abate Pellets, Altosid XR & Vectolex WSP

Equipment used: 2 Larvicide Trucks

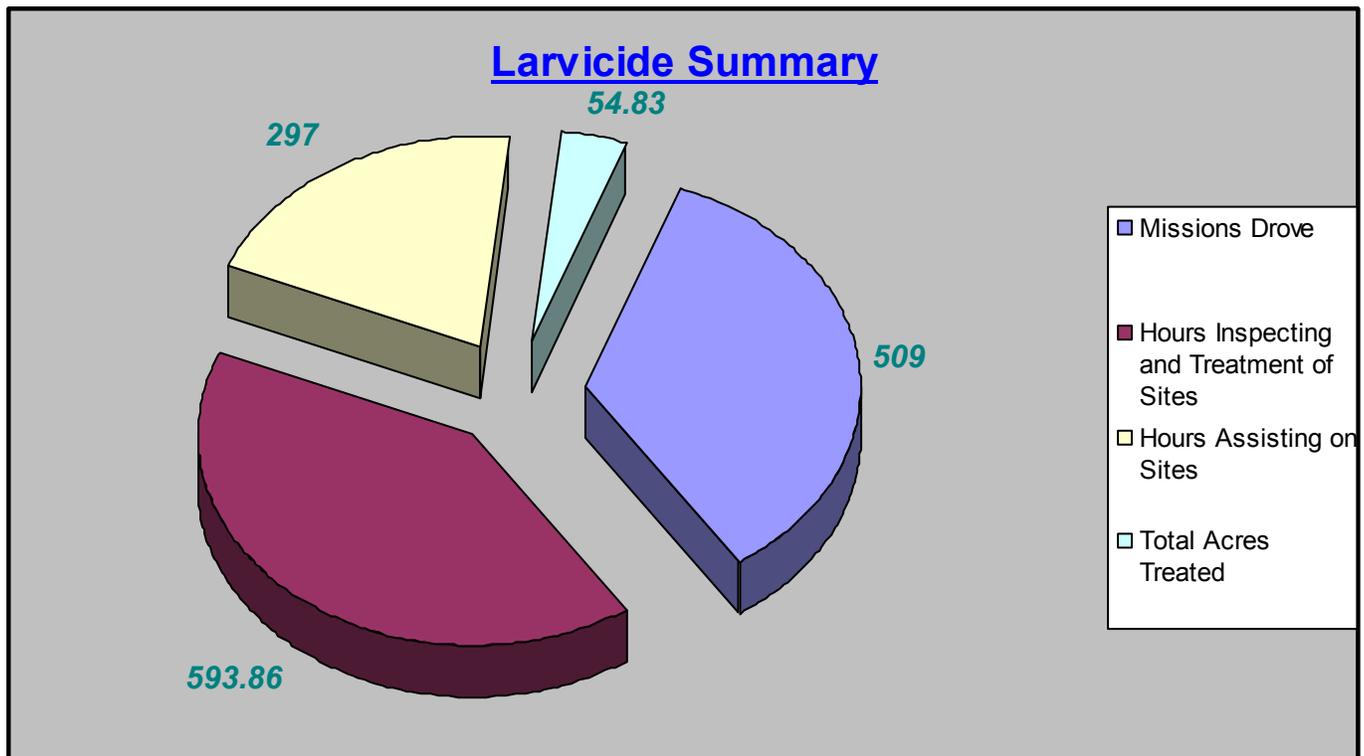
Total Missions: 509

Total Hours Inspecting & Treating: 593.86

Total Hours Assisting on Sites: 297

Total Acres Treated By Larvicide Trucks: 54.83 Acres

<u>Chemical</u>	<u>Total Amount Used</u>	<u>Total Area Treated</u>	<u>Total Applications</u>
Golden Bear	52.34 Gallons	22.03 Acres	275
5% Skeeter Abate	41 Pounds	20.50 Acres	11
Altosid XR	5,280 Briquets	1.21 Acres	270
Vectolex WSP	31 Granular Packets	1550 Square Feet	7



Truck Adulticiding Mission Summary

October 2005 – September 2006

Chemicals used: Malathion ULV & Biomist 30 - 30

Equipment used: 5 Spray Trucks

Total Mission: 206

Total Hours Treating: 683.2

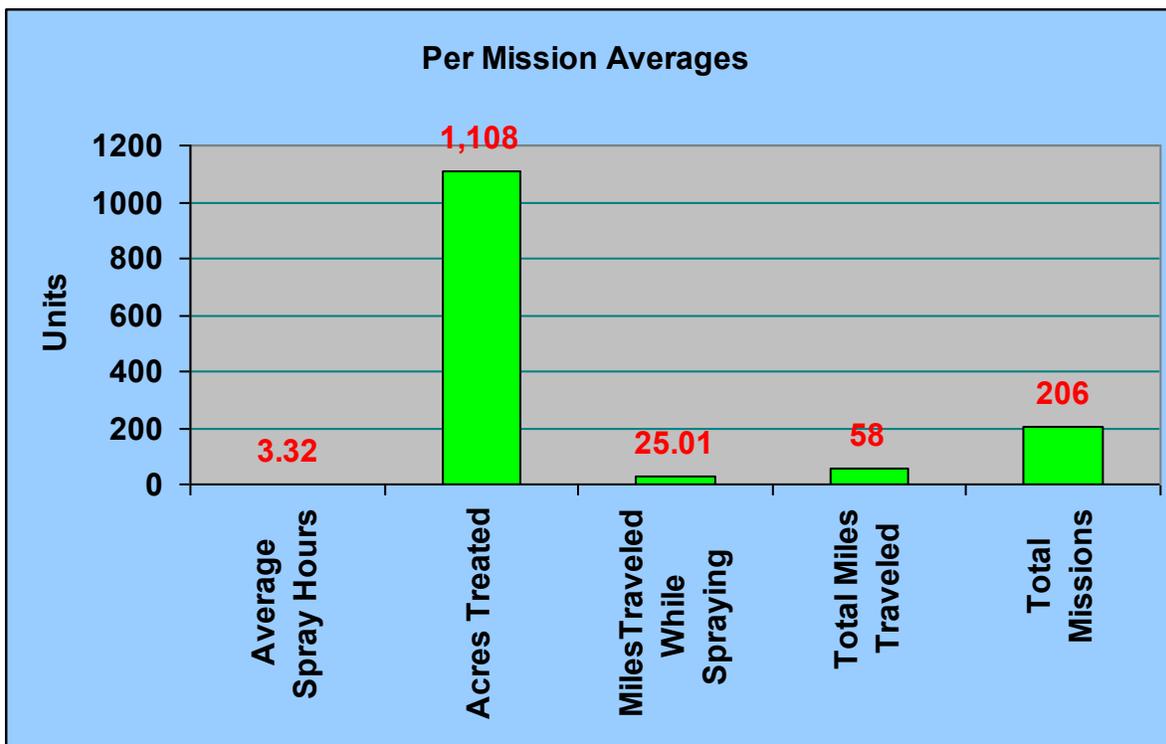
Total Hours Training: 80

Total Miles Traveled Spraying: 5,142.4

Total Acres Treated: 228,187

Total Miles Traveled For Routes: 11,870

<u>Chemical Name</u>	<u>Amount Used</u>	<u>Total Applications</u>	<u>Total Coverage</u>
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Aerial Adulticiding & Larviciding Summary

October 2005 – September 2006

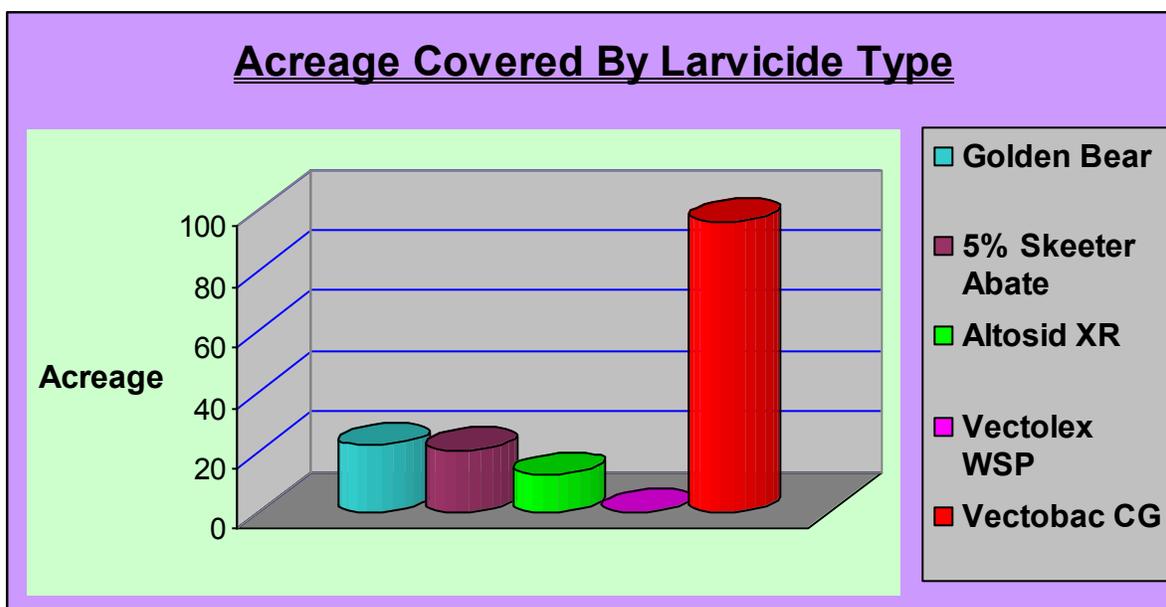
ADULTICIDING MISSIONS

Chemical Used: Dibrom Concentrate
Equipment: OH-58C Bell Helicopter
Missions: 7
Total Flight Time: 12.12 hours
Total Acres Treated: 92,653.67
Total Dibrom Used: 293 gallons

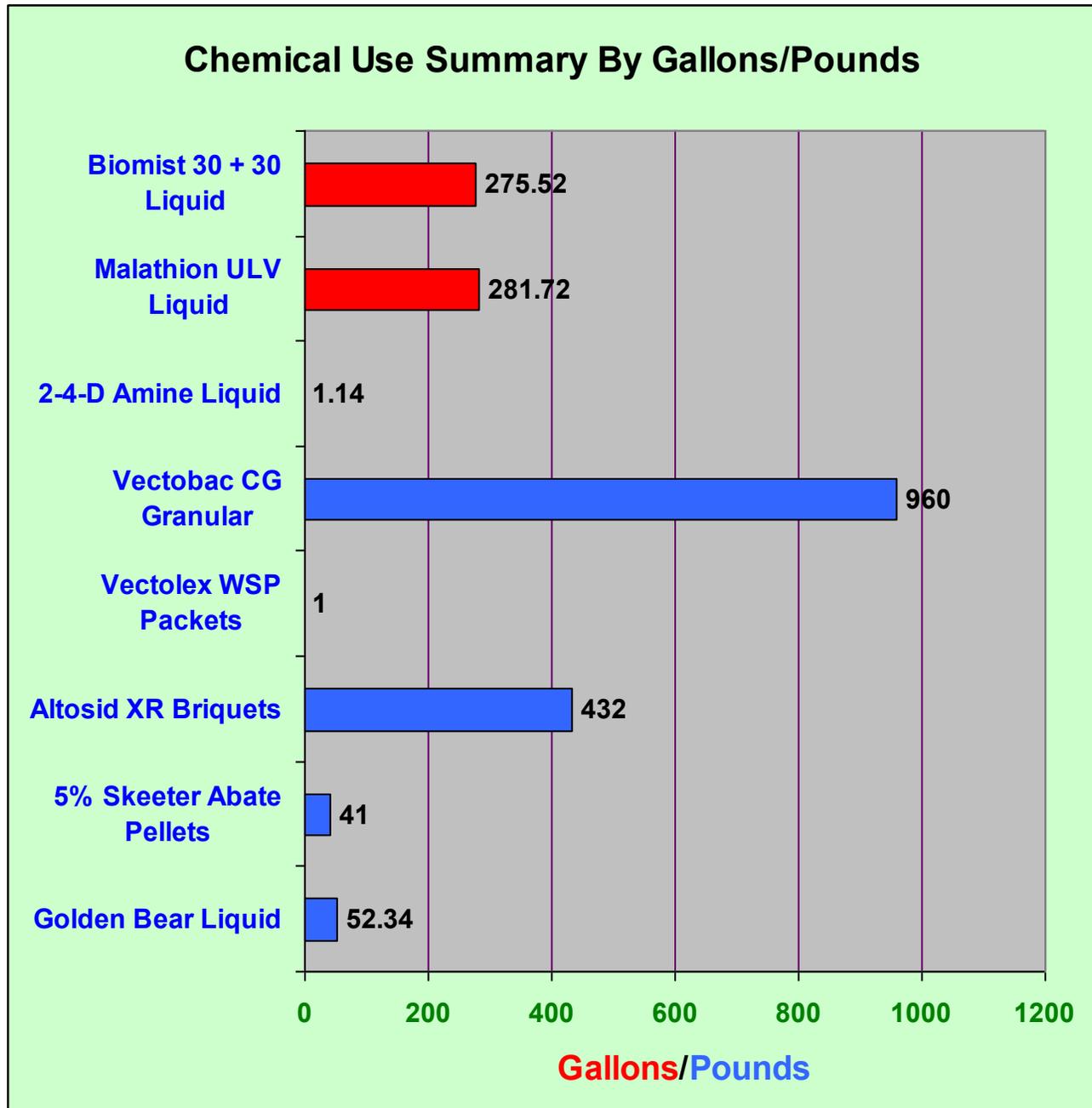
LARVICIDING MISSIONS

Chemical Used: Vectobac CG Granular
Equipment: OH-58C Bell Helicopter
Missions: 1
Total Flight Time: 2 hours
Total Acres Treated: 96
Total Vectobac Used: 960 pounds

Total Acres of Aerial Applications: 92,749.67



Beach Mosquito Control District Chemical Summary 2005 - 2006



Mechanic Specialist Report

BMCD's large inventory consists of a variety of pieces of equipment. Each is used for many important tasks. Therefore, we must follow and maintain a ridged and daily maintenance schedule. Our department is always working and striving together to improve our crew's and equipment's efficiency by performing regular maintenance, calibration, modification or updating of all systems. This also involves the continual educational training of the mechanical team. The mechanical team is also responsible for the instruction of equipment protocol for new employees, updating veteran employees with new technology and providing assistance to other mosquito control districts or companies with calibration or other mechanical issues.

Our objective is to daily maintain and keep BMCD's equipment in optimal and efficient working condition at all times for the safety of the employees and the district. Therefore, our job is never done.

- *The Beach Mosquito Control District Maintenance Crew*

*Skip Valdez
Lee Duke*

*Maintenance Specialist
Mosquito Technician III*

Philip Harvey Mosquito Technician II

Maintenance Responsibilities For October 1, 2005 - September 30, 2006

Over **94** pieces of equipment were routinely serviced: 108 variety of tires, 68 rechargeable batteries, 22 different fluids, 22 general service jobs to vehicles plus additional annuals, 12 individual ULV spray engine systems plus 44 different repairs to equipment and vehicles.

Total annual miles traveled by all equipment is over **69,674**.

Annual Equipment operational time is **1410.6** hours.

Ground: 1 automobile, 5 pick-up trucks with customized ULV Adulticide Spray Units, 2 4x4 pick up trucks with 2 in house designed multiple spray units for larviciding and complaints, 1 minivan for surveillance, 1 large crew van, 1 4x4 gator, 1 buffalo turbine barrier spray system, 4 fueling trailers for transporting various types of fuel, 1 enclosed trailer for equipment & exhibits, 1 John Deer lawn mower, a variety of 17 small engine components and 23 different trapping devices.

Heavy: Bull dozer, excavator and a John Deer Tractor with front end loader & backhoe plus a heavy equipment trailer for transportation of this equipment.

Marine: 2 different size boats, 3 marine outboard engines and 1 boat trailer.

Aerial: 1 Bell OH58 Helicopter, 1 high pressure spray system for adulticiding, 1 granule spreading system for larviciding, 1 liquid low pressure spray system for larvicides and an in house customized modified hydraulic power pack for assisting with calibration of other support equipment.

Miscellaneous: 108 variety of tires, 68 rechargeable batteries, 22 different fluids, 22 general service jobs to vehicles both annual and additional, 12 individual ULV spray engine systems, 44 different repairs to equipment & vehicles.

Total miles equipment traveled: Over 69,674 and equipment operated over 1410.6 hours.

Mechanic Specialist Report Monthly Highlights

- October:** Received, familiarized and general check over of new 2006 E150 crew van. Studying and learning how to operate the new Buffalo Turbine Barrier Spray System. New AIMMS weather equipment being installed on helicopter. Pre-testing and calibrating of helicopter's high pressure spray system. Completed the last test run with FAMU for Bayer 2 year research project using aqua resin. Tested new fork lift. It has a 4,000 pound capability.
- November:** Serviced, repaired and overhauled our heavy equipment to be prepared for the up and coming ditching season.
- December:** Beginning annual tear down of equipment. Mechanical Specialist worked on his power point project for annual Fly-In
- January:** Continuation of annual tear down of equipment. Worked on power point presentation for the FMCA annual aerial Fly-In at Lee County Mosquito Control District. A great achievement after years of hard work: The completion of our High-Pressure Spray System for our helicopter. For the first time the BMCD helicopter participated in the 2006 FMCA annual Fly-In! We demonstrated our new in-house customized high pressure spray system and shared the technology with others.
- February:** Repair surveillance equipment: 15 carbon dioxide time release gauges, serviced & repaired 24 six volt storage batteries for mosquito traps. We repaired and calibrated equipment for a droplet test for Milton Navy Base, City of Graceville and Tyndall Air Force Base.
- March:** Our shop had a new 12,000 pound rotary lift installed. Redesigned and constructed a power assist unit (mule) for the helicopter using a newly purchased 20-140x Belle power pack. Calibrated 5 Adulticiding Spray Units and 2 Larviciding Spray Systems. Purchased night vision goggles for the pilot. Completed new chemical storage building.
- April:** Customized & constructed a hydraulic jack for the helicopter dry chemical system. Calibrated the helicopter dry chemical system. Installed and calibrated ULV spray system for Tyndall Air Force Base's new adulticiding truck. Calibrated and used Buffalo Turbine System for a barrier treatment.
- May:** BMCD received new RHI Coolant exchanger. New generator was installed for the entire facility. Designed and built a calibration unit for the Buffalo Turbine Spray System.
- June:** Recalibrated both of the larviciding truck and multi-spray units. Completed 1st, 2nd & 3rd test with FAMU using our helicopter to determine the results using permanone 30-30 as an aerial application for Bayer. Installed some hold downs, clamps and straps in the BMCD exhibition trailer to facilitate transportation of Gator, Buffalo Turbine or other items.

Mechanic Specialist Report Continued Monthly Highlights

July: Together with FAMU we began barrier treatment testing with the new Buffalo Turbine spray system spray system. We successfully completed 3 barrier treatment research tests. Received the new 500 gallon portable fuel tank. Returned our customized helicopter belly tank back to Isolair for repairs and improvement. Repeated test # 3 with FAMU for 30-30 permanence for Bayer study.

August: This month BMCD assisted in the completion of the final test for the permanone 30-30 research project designed by Dr. H. Zhong of Florida Agricultural and Mechanical University for Bayer. The Buffalo Spray System nozzles and fluids were recalibrated for barrier treatments. Six BMCD employees attended and successfully completed the state of Florida Hazardous Materials Training Course.

September: Completed the fifth test for Barrier Treatment research using the Buffalo Turbine Spray System.

New Year Projection For Maintenance Department

To complete the new chemical loading system for a high pressure ULV spray system on the helicopter.

To purchase five new vehicles to replace the high mileage trucks, one new shop truck with a better capability of hauling heavier loads and four new spray trucks.

To install and calibrate the new ULV spray systems onto the four new pickup trucks.

To replace important worn out tools and equipment.

DITCH CLEANING & FLOW MANAGEMENT

Beach Mosquito Control District is only responsible for maintaining flow management for 20 ditches. These ditches equal an area of 8.25 miles. The total number of hours maintaining these ditches for the 2005-2006 year was 384. Our district supplied the equipment and workers. The equipment used was a Kamatsu Excavator, John Deer Front End Loader/ Backhoe and International Dump Truck.

Ditching is the process of freeing up areas where water becomes stagnate and creates breeding sites for mosquitoes.

HERBICIDING OF RETENSION PONDS

Retention ponds overgrown in vegetation also creates mosquito breeding habitats. The herbicide that BMCD uses is 2 - 4 - D Amine. Total applications for this season was eleven. Total area treated was 4.81 acres. Total amount of chemical used was 1.14 gallons. The type of equipment used for the Job was a Ford F - 150 and a John Deer 4 x 4 Gator.

DOG FLY SURVEILLANCE

The dog fly season is from Mid-August through Mid-November. It can have an adverse effect on the local population of Bay County and it's tourism. Beach Mosquito Control District assists The Operational Support Facility (Dog Fly Control). During this season BMCD is responsible only for the surveillance and recording of actual landing counts at four sites. The counts are taken in weather conditions of 60 degrees or warmer and wind speeds are ten miles per hour or less. The landing counts are the determining factor for spray application to prevent infestation. The total number needed is five flies. If this total is met the Dog Fly Operational Support District Office is phoned immediately. It is their responsibility to determine to proceed with the application process.

This year BMCD conducted a total of 19 inspections at all 4 surveillance sites. The total recorded number for the season was 32. Even though the season started on time the impact wasn't as strong this past year. There were zero spray missions this year due to low surveillance numbers and down time of the aircraft due to necessary repairs.

Research

Aerial Adulticide Test Program

Beach Mosquito Control District works together with the research team at the Florida A & M University branch located in Panama City, Florida. Together with the Florida A & M staff and large chemical companies we are always striving for improving mosquito control safely and environmentally.

This years tests we were working together with the Bayer Company. This involved the recording of environmental impact, total coverage results and the successful knock down rate of mosquitoes using Aqua Reslin and Permanone.

The five main objectives for this research were:

1. Residue deposited on ground
2. Residue deposited into water
3. Toxicity of residue to mosquito fish
4. Airborne concentration
5. Evaluation of control against mosquitoes

Aqua Reslin Summary

Number of Test Missions Flown: 5
 Total Flight Hours: 9.25
 Total amount of chemical used: 45 gallons
 Total acres covered: 13,841

Permanone Summary

Number of Test Missions Flown: 4
 Total Flight Hours: 6.2
 Total amount of chemical used: 40 gallons
 Total acres covered: 9,215

- Average acreage Covered Per test = 2,768.2 Average acreage Covered Per test = 2,303.75
- Average Aqua Reslin used per test = 10 gallons Average Permanone used per test = 10 gallons

The first test conducted used 5 gallons.











