Fiscal Year 2018-2019 Operational Summary

Except for one passing hurricane, no extreme weather events or disease threats were experienced this year. On September 4, 2019 Hurricane Dorian skirted the coast of Flagler County but did not cause any damage and dropped an amount of rain typical of a heavy rain event but nothing approaching an emergency. Flagler County has experienced some contact with hurricanes three out of the past four years.

Inland species populations were moderate due to the lack of extreme rain events. The first half of FY 18-19, from October to April was relatively quiet with *Culex nigripalpus* and *Anopheles spp.* Comprising most of the daily trap numbers. Coquillettidia perturbans emerged in Spring, as this species typically does, starting in late-March but persisted longer than usual into May with additional aerial adulticide treatments in response. One dry-period occurred from early May until mid-June. Typical nuisance flood-water mosquito species *Aedes infirmatus* and *Psorophora columbiae* were almost non-existent until July.

Salt marsh species were also less abundant which may partially be attributed to increased efficacy in larviciding due to several years of mapping and evaluation efforts using the ESRI Collector app to gather real-time data in the field which was begun in 2015 and has been refined since.

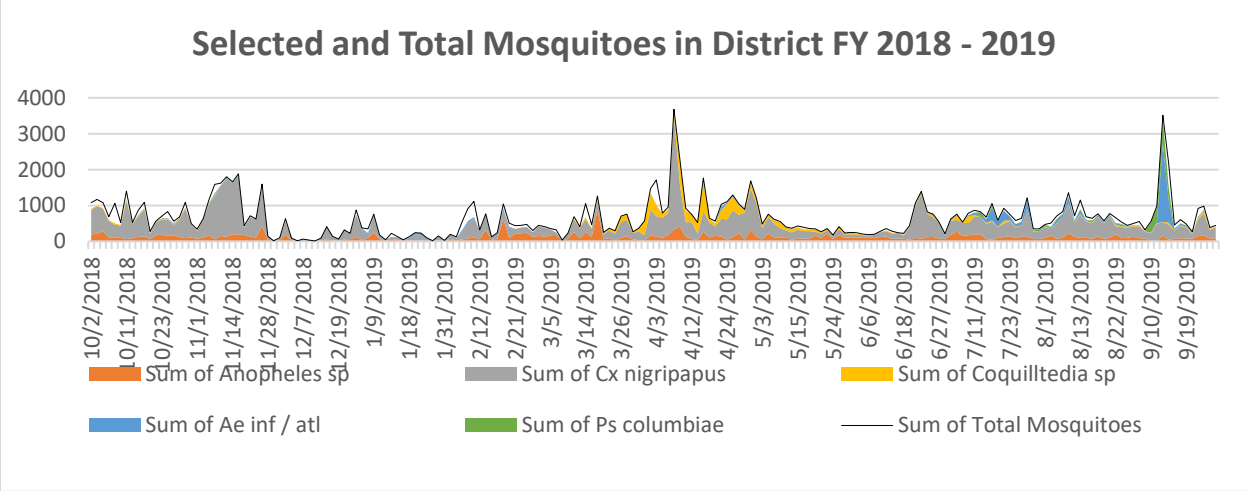

Figure 1: Total mosquitoes caught daily using a network of traps located within the District. Prevalent species are represented as stacked-area chart below a line graph of sum total population.

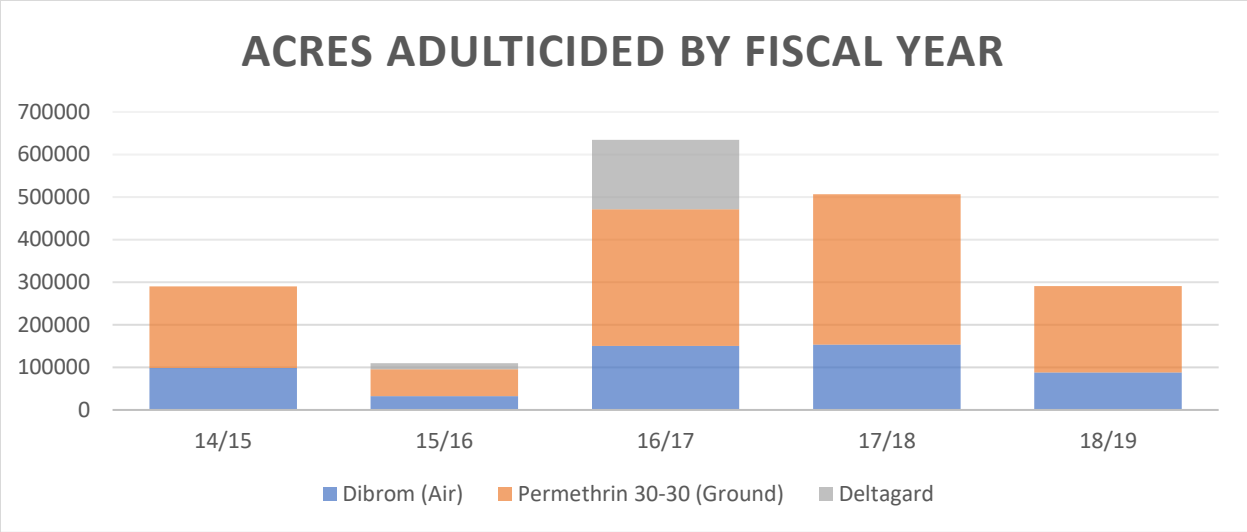

Figure 3: Past five years total annual acres treated with adulticide in stacked bar chart by product.

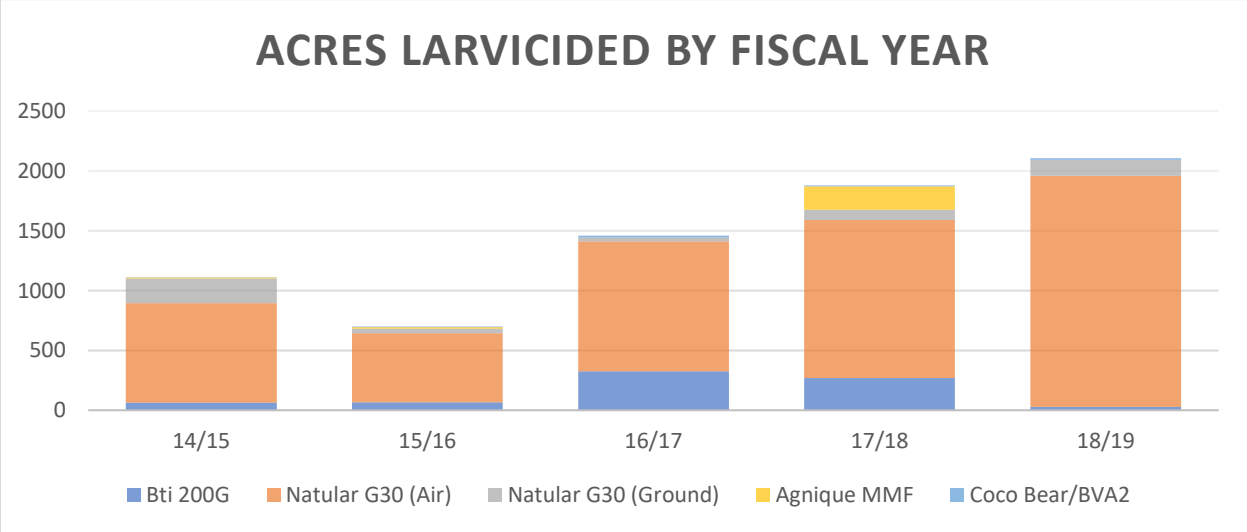

Figure 3: Past five years total annual acres treated with larvicide in stacked bar chart by product.

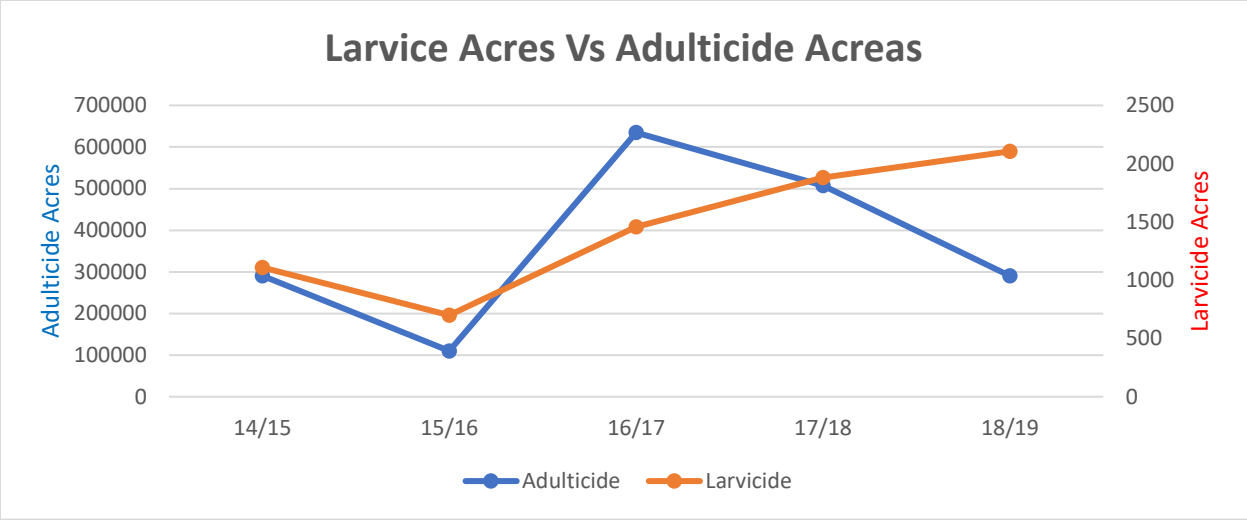

Figure 4: Total Acres treated by adulticide versus total acres treated by larvicide on line graph with separate y-axes.

2018-2019	Weekly Operations LOG
Week	Synopsis
10_9_2018	Mosquito populations are low overall but *Culex nigripalpus* , a West Nile Virus vector, surged in Matanzas Woods, 1 drum aerial in response
10_15_2018	Mosquito populations have been consistently low since September.
10_22_2018	Mosquito populations have been consistently low since September.
3_18_2019	Mosquito populations have been consistently low since September
4_1_2019	Mosquito populations surged this week thanks to the contribution of the species *Coquilletidia* The temperature was finally above sixty degrees on Thursday night after ten PM to allow for spray missions to be conducted. 2 drums aerial.
4_8_2019	The majority of the mosquito population inside the District this week consisted of Culex nigirpalpus in the vicinity of Matanzas Woods. Coquilletidia peturbans remained at a much lower level than the previous week affecting primarily Quaill Hollow, Seminole Woods and Town Center. 2 drums aerial
4_15_2019	This week was again all about *Coquilletidia peturbans*. 2 drums aerial
4_22_2019	Still seeing some emergence of *Coquilletidia peturbans* from cat-tail swamps in the District although at a reduced rate.
4_29_2019	A quiet week on the mosquito front. We finished the week with a mere 500 mosquitoes as Friday's trapFor the week, the species distribution consisted of 99% permanent water species. Culex nigripalpus was the most abundant species. total.
5_6_2019	A steady decline in the population is evident in the trap data for the week.The population decline over the past two weeks can be explained by the fact that no flooding events have occurred, and the emergence of permanent-water mosquitoes has subsided as standing water has dried.
5_13_2019	Population is still holding at low levels. Approximately 50% of the sites that are inspected by helicopter in the saltmarsh are currently dry or drying down.
5_20_2019	Low levels of mosquito activity continue. Site status monitoring of 1408 sites at 79% dry (dry, always dry, muddy) and 21% of sites holding water (wet, always wet, fish present, drying down)
5_27_2019	Third week in a row of consistently low mosquito population. First pre-treatments of salt marsh areas were done on May 1
6_10_2019	The mosquito population ticked up slightly this week likely due to the increased humidity. The dry-down has been reversed with better than 80% of sites in the salt marsh holding water, up from about 50% at the lowest point Of the 1368 sites monitored on the ground in the District, 339 had gone wet this week. These sites may dry down before they can produce larvae.
6_17_2019	The mosquito population dramatically increased this week with the majority of the population being Culex nigirpalpus. A large spike in Culex spp. Is typical after a long dry spell as the runoff produced by storms is particularly nutrient rich and enables a large food stock of microorganisms for the larvae to feed on as they develop.
6_24_2019	The mosquito population returned to low numbers after limited adulticide treatments by the end of the week. Coquillettidia perturbans was the prevalent species in the South of the District and Culex nigirpalpus in the North. It was nearly the end of June before any adulticide treatments were needed in the District due to the extended dry down. Previous to this week's treatments the last time adulticiding was done was mid May.
7_1_2019	Limited adulticide applications this week due to previous rainfall with applications mainly on the periphery of the District in the North and South ends.
7_8_2019	More extensive adulticide applications this week. The population was higher and sustained for the past four weeks. The saltmarsh mosquito activity has been almost non-existent so far this season. This is despite a considerable oscillation of wet and dry periods in the saltmarsh over the past month
7_15_2019	Normal population numbers have finally returned after a prolonged dry-period. Most recently Aedes infirmatus (in blue) has showed up in our traps. 2 drums aerial
7_22_2019	This week saw a continuation of sustained moderate mosquito activity.
7_29_2019	Salt-marsh mosquitoes were actively migrating into the District this week from the South.
8_5_2019	Increase in population this week caused by Culex nigirpalpus taking advantage of standing water. Also cleaned up some migratory salt-marsh mosquitoes.
8_12_2019	Base-line population of Culex nigripalpus is the main driver of the population this week. A lack of extreme rain events has limited the production of any of the flood-water species of mosquitoes.
8_19_2019	Culex nigripalpus was trapped in sufficient quantities to justify limited treatments, but overall low activity this week. We are expecting to see flooding in the high-saltmarsh areas due to the Proxigean tide occurring on August 30.
9_2_2019	This week Hurricane Dorian threatened in the Atlantic. While it menaced for most of the week it passed just off the coast on Wednesday 9/4 and had minimal impact. No trap data was collected this week as traps were taken in from the field ahead of the storm.
9_9_2019	This week's operations were mainly in response to floodwaters from Hurricane Dorian that skirted Flagler County on Wednesday 9/4/19. Typical of flood events, seven days post storm gave rise to an irruptive growth in mosquito population. Overall, the level of rain received from the passing hurricane was not significantly more than what would be received in a week of heavy rain fall. No extraordinary measures were required in order to suppress the outbreak of adult mosquitoes 4 drums aerial
9_16_2019	There was very little mosquito activity this week and only limited spraying following last week's treatments.
9_23_2019	Treatments this week were focused on controlling Culex nigripalpus. This species is a major West Nile Virus vector and it's important to keep this population in check.
9_30_2019	More maintenance spraying of Culex nigripalpus this week. Most of the breeding sites in the District are currently dry