19th FKMCD-Oxitec Public Educational Webinar:
Mosquitoes & Climate Change
Tuesday, July 26th 2022
Introductions – Panelists With You Today

Andrea Leal
Executive Director
FKMCD

Kevin Gorman
Chief Development Officer
Oxitec

Meredith Fensom
Head of Public Affairs
Oxitec
FKMCD and Oxitec are hosting a series of public educational webinars to share information with residents of the Florida Keys and provide forums to answer questions.

- Webinars are open to everyone.
- Webinars are recorded and made available for everyone (published online) after the event.
- Questions relating to the webinar topic(s) will be answered during a Q&A session at the end.
- If time runs out, we accept questions in writing via florida@oxitec.com.
- All questions and answers will be treated anonymously.
Welcome to Webinar #19!

Today’s Agenda:

• Global climate change & health risks
• Evidence for a hotter, wetter future
• Climate change and invasive species
• Impacts for mosquitoes
• Your questions, answered

Documentation, resources, references, and other information are available at keysmosquitoproject.com
Global Climate Change and Health Risks

- World Health Organization predicts 250,000 more deaths globally per year due to malnutrition, vector-borne disease and heat stress
- There are impacts in other ways too including food and water availability

https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

Photo by Raphael Wild
NASA Predicts More Intense Climatic Events

- Global climate models predict hurricanes will cause more intense rainfall
- Have an increased coastal flood risk
- Hurricanes that form are more likely to be damaging
Evidence for a Hotter, Wetter Future

- The U.S., Europe and China are experiencing some of the hottest temperatures on record
- In some U.S. cities the heat has reached dangerous levels affecting millions of Americans
- In many regions wildfires are more prevalent and destructive than they used to be
Invasive Species and a Hotter, Wetter Future

• Many invasive tropical or sub-tropical species may benefit from warmer environments

• Their range is likely to expand northwards as the climate permits year-round establishment
Aedes aegypti in the United States

Aedes aegypti introduced to the Americas about 500 years ago. In the U.S. it has been spreading north and westward.

Recent History of Aedes aegypti: Vector Genomics and Epidemiology Records

The potential for Aedes aegypti in Florida and surrounding U.S. states.
Aedes aegypti in the United States

- Climate zones reflect *Aedes aegypti* prevalence
- Climate zones 1 and 2 are most at risk from Aedes-borne diseases
- Broward, Miami-Dade and Monroe are the only three counties on the mainland in climate zone 1
- *Aedes aegypti* can now be found even in part of climate zone 4
- Since 2013, it has established and expanded 20 counties in California

![Climate zones map](https://basc.pnnl.gov/images/iecc-climate-zone-map)
A Warmer Climate Means More Infectious Bites

- Higher temperatures lead to more generations per season
- Higher temperatures mean faster virus development and more infectious females
- Warmer regions will promote the spread of mosquitoes
- Higher rainfall means more places to lay eggs

Photo by Lucas van Oort
Climate Change May Affect Mosquito Hosts Too!

• Many birds and mammals are important reservoirs for mosquito-borne viruses
• Many birds serve as reservoirs for mosquito-borne viruses – such as crows, jays, robins, sparrows, finches
• The same is true for deer, squirrels, chipmunks and rabbits
• We don’t know what effect climate change could have on individual and population health of these animals

Photo by Richard Sagredo
Urbanization Compounds the Threat of *Aedes aegypti*

- *Aedes aegypti* prefers humans as hosts and is almost exclusively found in and around our homes
- Increasing urbanization and human population densities promote establishment and expansion of this potentially dangerous mosquito

Photo by Scott Webb
Biological Control using Oxitec *Aedes aegypti* Males

- **Targeted Suppression**
- **Safe, Non-Toxic, Non-Allergenic**
- **Proven Effectiveness**
- **Male-Only Releases** (male mosquitoes do not bite)
- **Traceable in the Field**
- **Self-Limiting in the Environment**

This combination of unique characteristics of Oxitec’s mosquito technology distinguish it from other mosquito control methods.
Question and Answers

Any and all questions on this evening’s topics are welcome!

(If we run out of time tonight, email florida@oxitec.com and we will attempt to answer your question if it isn’t included in the growing FAQ or post-event summary we publish online at oxitec.com/florida and keysmosquitoproject.com)
THANK YOU!
For more information, please visit us at oxitec.com/florida and keysmosquitoproject.com

Photo by Shelly Collins