2025 Wolbachia Male Release Project Update Workshop

Florida Keys Mosquito Control District
Marathon Office
503 107th Street
Marathon, FL 33050

November 13, 2025 1:11 pm

The Board of Commissioners of the Florida Keys Mosquito Control District held a 2025 Wolbachia Male Release Project Update Workshop on November 13, 2025, at the FKMCD Marathon Office.

Present Were: Phillip Goodman, Chairman; Dr. Stanley Zuba, Vice Chair; Bette Brown, Secretary/Treasurer; Brandon Pinder, Commissioner; Jill Cranney, Commissioner; Andrea Leal, Executive Director; Hunter O'Connor, Board Attorney; Dirk Smits, Board Attorney.

Employees Present Were: Mikki Coss, Director of Operations; Lauren Bouchard, Director of Finance; Chad Huff, Public Education & Information Officer; Michael Behrend, Director of Human Resources; Deanna Darias, Executive Assistant; Tony Nunez, Chief Technology Officer; Rochele Miller, Purchasing Agent/Financial Analyst; Robert Lee, Director of Aerial Operations; Larry Hribar, Director of Research; Catherine Pruszynski, Research Biologist; Heidi Murray, Research Biologist; Stephanie Faucett, Research Biologist.

Invited Guests Present: None.

Approval of Agenda: *Chairman Goodman asked the Board if there were any corrections or additions to the agenda, hearing none, the agenda was unanimously* approved.

Community Input: None.

Chairman Goodman announces the purpose of this workshop is to discuss updates from the 2025 Wolbachia male releases throughout the Keys.

Discussion: In 2025, the Florida Keys Mosquito Control District conducted its first full-scale release of Wolbachia-infected male mosquitoes, marking the first time this product was available as a registered tool in Florida. Executive Director Andrea Leal noted that this milestone allowed the team to fully integrate Wolbachia into their operations without the restrictions of experimental use permits, enabling them to collect meaningful data to guide future decisions. The releases targeted three 20-acre high-density *Aedes aegypti* hotspots in the Middle and Upper Keys and were conducted in partnership with MosquitoMate using WB1 males. Each site was paired with a control site, and staff made efforts to maintain consistent inspection and adulticide treatments across all locations. Releases began in June, following an initial hatch in May, with 12,000 males released twice weekly at each site, totaling 72,000 per week. The team used BG traps and ovicups to monitor adult populations and egg viability. They faced challenges such as shipping delays, tube caps loosening, and initial noncompliance with live-animal handling protocols by FedEx, which occasionally resulted in mosquito mortality. Despite these obstacles, most releases were successful, and public concerns were minimal, limited to visible congregations of harmless male mosquitoes at one location.

Preliminary results from the Wolbachia program demonstrated mixed effectiveness. High populations of saltmarsh mosquitoes and frequent adulticide treatments likely influenced the outcomes. In Key Largo, there was an 18% reduction in *Aedes aegypti*, while Plantation Key showed no detectable reduction due to issues with the spray routes. The Middle Keys site achieved the most significant reduction at 68%. Release numbers met the minimum recommended levels, and staff suggested that higher release densities or fewer adulticide treatments could improve results. However, costs were high—approximately $1,000 per acre—raising concerns about the program's scalability, especially for larger areas such as the

entire Florida Keys. These findings represented an initial assessment, and more robust statistical analyses were underway to further evaluate treatment effects.

To better assess Wolbachia male competitiveness, Research Biologist Catherine Pruszynski introduced a field-mated female assay. This method addresses the limitations of traditional monitoring tools such as ovicups and BG traps, which cannot directly measure mating. Field-collected Aedes aegypti females were separated, blood-fed, and individually isolated to lay eggs. Hatched eggs indicated mating with wild-type males, while unhatched eggs suggested Wolbachia mating or natural background sterility. Despite challenges such as high saltmarsh mosquito populations, skip oviposition behavior, and some mortality during processing, over 8,000 females were collected, with 238 producing sufficient eggs for analysis. Results showed significant Wolbachia mating only at Plantation Key (1 in 4 females), while the Middle Keys and Key Largo exhibited lower rates (6% and 1 in 15, respectively). The assay highlighted the challenges of field studies, including low sample sizes, background sterility, confounding effects of adulticide use, and labor-intensive processing. Nevertheless, it provided complementary insights to traditional monitoring methods and helped determine whether Wolbachia males were successfully reaching wild females.

The Board discussed the operational and scientific challenges of field trials, noting that laboratory studies alone cannot replicate real-world conditions, where factors such as rainfall, adulticide applications, and mosquito behavior all influence outcomes. Staff emphasized the importance of initiating releases earlier, ideally before the rainy season, maintaining consistent sites year-to-year to reduce variability, and refining monitoring methods, including the potential use of spermatheca dissections to confirm mating. Overall, public response was largely positive, and the team will continue analyzing data and refining strategies to determine the most effective approach for future Wolbachia releases in 2026.

Adjourn: There being no further business to come before the Board, the meeting was adjourned.

Respectfully submitted,

Andrea Leal
Executive Director

Board of Commissioners
Florida Keys Mosquito Control District

Phillip L. Goodman, Chairman

Bette Brown, Secretary-Treasurer

For additional information, please refer to www.keysmosquito.org.