Mosquito Species Collected

- Identified 1.09 million adults specimens and 67K larvae
- 38 species identified

<table>
<thead>
<tr>
<th>Species</th>
<th>Adults collected</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Culex restuans</em></td>
<td>428,816</td>
</tr>
<tr>
<td><em>Culex pipiens</em></td>
<td>398,624</td>
</tr>
<tr>
<td><em>Aedes albopictus</em></td>
<td>100,553</td>
</tr>
<tr>
<td><em>Aedes japonicus</em></td>
<td>29,626</td>
</tr>
<tr>
<td><em>Culex pipiens-restuans</em></td>
<td>28,848</td>
</tr>
<tr>
<td><em>Aedes vexans</em></td>
<td>14,572</td>
</tr>
<tr>
<td><em>Aedes triseriatus</em></td>
<td>11,013</td>
</tr>
<tr>
<td><em>Culex salinarius</em></td>
<td>9,670</td>
</tr>
<tr>
<td><em>Coquillettidia pertubans</em></td>
<td>7,194</td>
</tr>
<tr>
<td><em>Aedes trivittatus</em></td>
<td>5,926</td>
</tr>
</tbody>
</table>
### West Nile Virus Mosquito Testing

- Tested 828,028 specimens in 16,935 pools
- *Culex spp.* represented 90% of specimens collected (Emphasis on gravid traps)

<table>
<thead>
<tr>
<th>Species</th>
<th># tested</th>
<th># positive</th>
<th>MIR</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Culex pipiens</em></td>
<td>356,699</td>
<td>1,151</td>
<td>3.23</td>
</tr>
<tr>
<td><em>Culex restuans</em></td>
<td>356,497</td>
<td>241</td>
<td>0.68</td>
</tr>
<tr>
<td><em>Aedes albopictus</em></td>
<td>74,484</td>
<td>11</td>
<td>0.15</td>
</tr>
<tr>
<td><em>Culex pipiens</em>-restuans</td>
<td>24,921</td>
<td>46</td>
<td>1.85</td>
</tr>
<tr>
<td><em>Culex salinarius</em></td>
<td>5,321</td>
<td>4</td>
<td>0.75</td>
</tr>
<tr>
<td><em>Culex erraticus</em></td>
<td>3,606</td>
<td>3</td>
<td>0.83</td>
</tr>
<tr>
<td><em>Aedes japonicus</em></td>
<td>3,255</td>
<td>1</td>
<td>0.31</td>
</tr>
<tr>
<td>Other species</td>
<td>3,245</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
WNV Non-mosquito Testing Results

- 15 positive dead birds/60 tested
- 6 positive horses
- 16 human cases
Other Arbovirus Testing Results

• La Crosse
  – tested ~2,500 specimens of *Ae. japonicus*
    and ~2,200 *Ae. triseriatus* – all negative

• Zika
  – tested ~65,000 specimens of *Ae. albopictus*
    – all negative
Pennsylvania West Nile Virus Control Program
BG Sentinel Sites in 2016

Legend
- BG Sentinel Collection
Pennsylvania West Nile Virus Control Program
Counties with *Aedes albopictus* collections in 2016

Legend
- County with Albopictus collection in 2016
Aedes albopictus

Statewide Average *Aedes albopictus* Collection

![Graph showing the Statewide Average Aedes albopictus Collection.](image)

- **Albopictus Average**
- **MMWR**: 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43
- **Albopictus Average**: 8.32 8.34 8.42 14.39 23.64 29.46 32.54 40.08 45.58 49.58 50.69 56.25 42.65 40.08 39.9 23.59 28.08 29.1 28.08 23.59 29.1 25.38
- **R² = 0.7221**
Zika Cluster Response

• Zika Clusters – 13 Reported – 10 responses
• Cluster is:
  – 2 or more viremic individuals
  – 1 radius
  – 2 weeks
• Vector Response included:
  – Habitat reduction
  – Larval and adult control
  – Public education
Black Fly Suppression Program

Program Goal

“To reduce adult black fly populations below pest level, using environmentally compatible methods, during the spring through fall recreational season in participating counties across the Commonwealth of Pennsylvania.”

>3,000,000 citizens benefit from program each year
Target Black Fly Species
(Only 4 of 53 PA species)

- *Simulium jenningsi*
  Malloch
- *Simulium luggeri*
  Nicholson & Mickel
- *Simulium fibrinflatum*
  Twinn
- *Simulium anchistinum*
  Moulton & Adler
2016 Black Fly Control Effort

- 40 Participating counties
  - 36 in 2015
  - 34 in 2014
- 48 Waterways included in contracts
- Aerial control operations started April 11, ceased operations from early June to July 1 ($2.2 million vs. $1.6 available in Sp.2017)
- Resumed control operations July 1 through August 2
- 48,052 gallons of Bti used Statewide
2016 Black Fly Control Effort

- Larval/Pupal samples = 2,185
- Adult samples = 3898, avg. of 10.16 adults/sample
Contract Costs PER GALLON OF APPLIED BTI
2014 to 2017

2012 - 2014
• SUSQUEHANNA BASIN = $56.91
• DELAWARE BASIN = $67.40
• OHIO BASIN = $69.32

2015
• SUSQUEHANNA BASIN = $67.99 (20%) ▲
• DELAWARE BASIN = $86.85 (29%) ▲
• OHIO BASIN = $98.90 (43%) ▲

2016
• SUSQUEHANNA BASIN=$69.55 (2.3% ▲)
• DELAWARE BASIN = $88.41 (1.8% ▲)
• OHIO BASIN = $116.70 (18% ▲)

2017
• SUSQUEHANNA BASIN=$74.55 (7.2% ▲)
• DELAWARE BASIN = $92.41 (4.5% ▲)
• OHIO BASIN = $118.75 (1.8% ▲)
2019 MAMCA Meeting
Hilton Harrisburg, Pennsylvania
March 26-28, 2019
Questions/Comments