

MOSQUITO MANAGEMENT AND STORMWATER DEVICES

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Presentation Overview

- **Stormwater management and mosquitoes**
 - Above ground
 - Below ground
- **Mosquito larvae**
 - Sampling
 - Identification
 - IPM options
- **Recommendations**

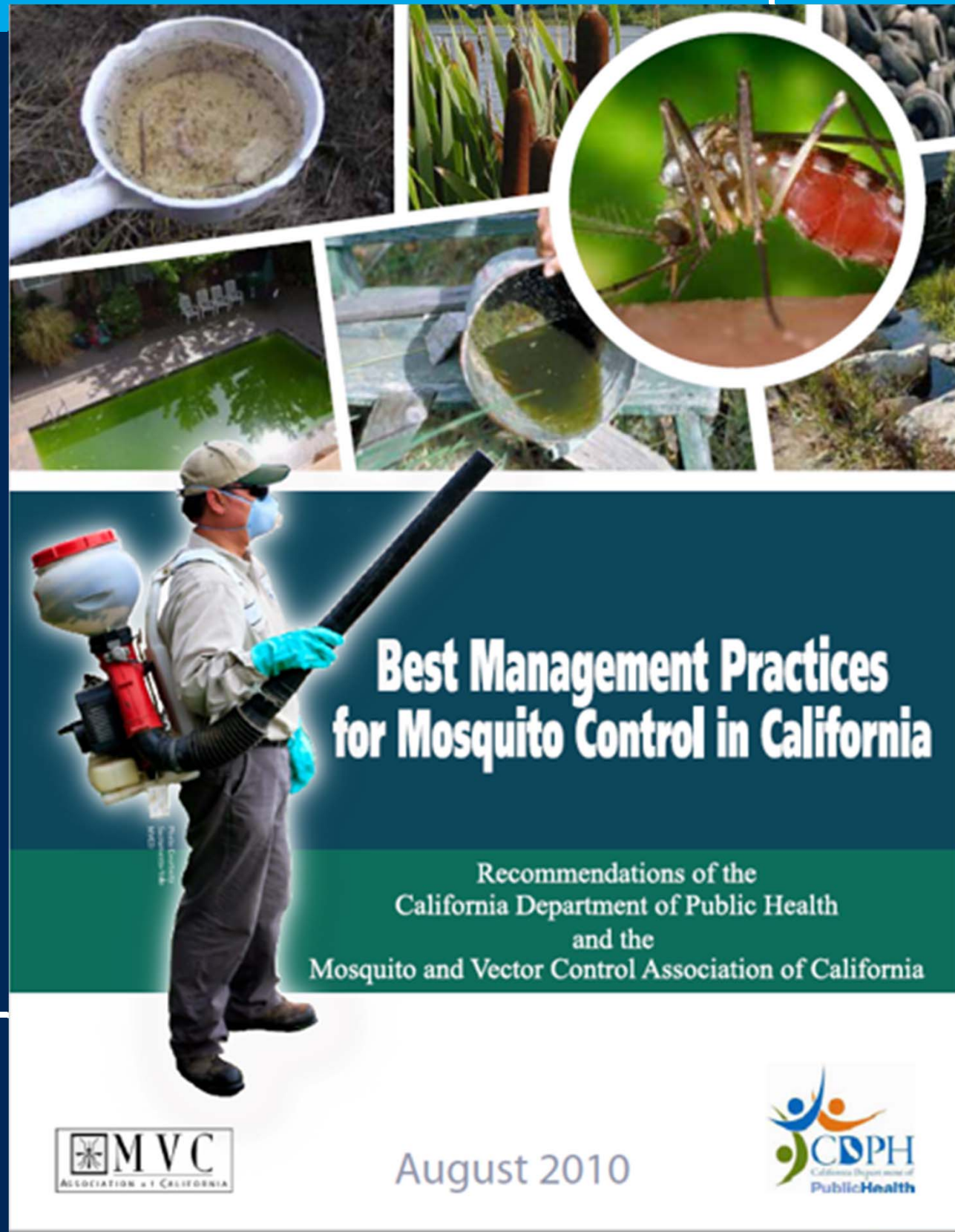


STORMWATER MANAGEMENT SYSTEMS



- Conveyance
- Infiltration
- Structural devices





RESOURCES

GUIDELINES AVAILABLE ONLINE

<http://bit.ly/BMPmosquito>





STORMWATER: STRUCTURAL TREATMENT DEVICES

- Vegetated swales
- Dry detention basins
- Ponds and constructed wetlands
- Media filtration devices
- Trash capturing devices

FLOODED BMPs



GENERAL STORMWATER MANAGEMENT MOSQUITO CONTROL BMPs

Manage sprinkler and irrigation systems

Avoid intentionally running water into stormwater systems by not washing sidewalks and driveways, washing cars on streets or driveways, etc.

Inspect facilities weekly during warm weather for the presence of standing water or immature mosquitoes

Remove emergent vegetation and debris from gutters and channels that accumulate water



GENERAL STORMWATER MANAGEMENT MOSQUITO CONTROL BMPs (Continued)

Consider mosquito production during the design, construction, and maintenance of stormwater infrastructure

Design and maintain systems to fully discharge captured water in 96-120 hours or less

Include access for maintenance in system design

Design systems with permanent water sources such as wetlands, ponds, sumps, and basins to minimize mosquito habitat

Plan for routine larval mosquito inspection and control activities with the assistance of local mosquito control program



SAMPLING LARVAE

DIPPING



Holds about
400 ml





SAMPLING LARVAE

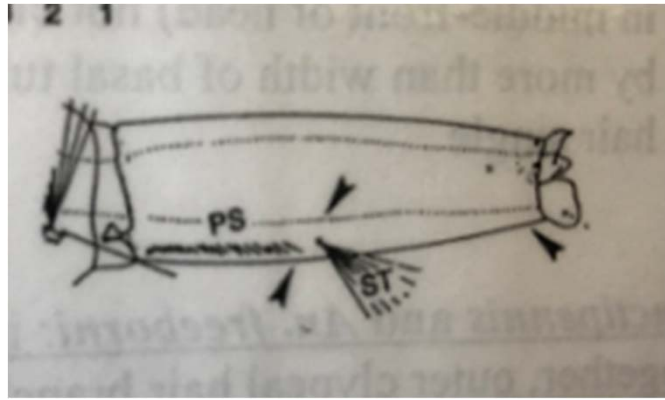
DIPPING (CONTINUED)

- Assessment of larval abundance
- Determination of species present
- Trigger for treatment
- Keep voucher specimens in WhirlPak®



LARVAL IDENTIFICATION

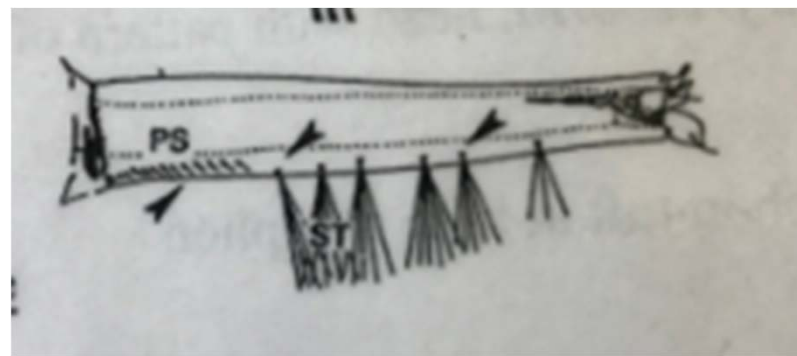
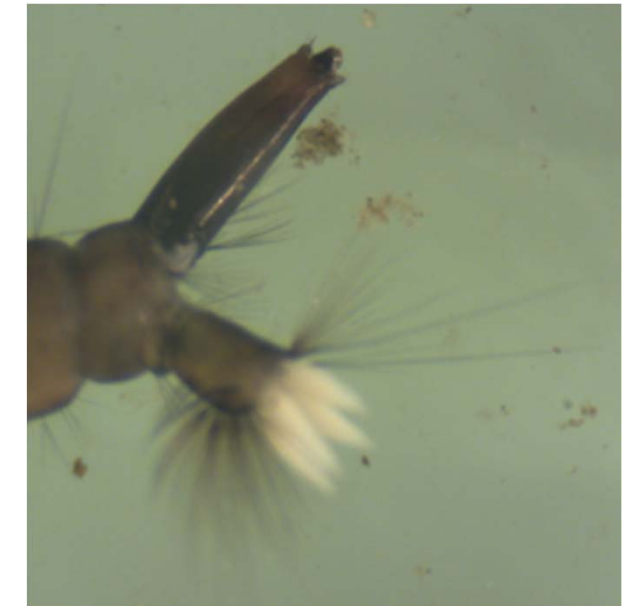
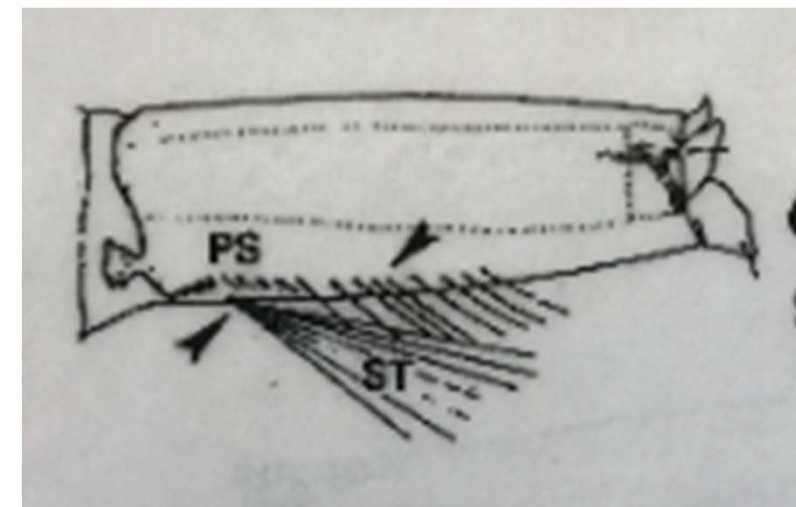
CALIFORNIA SALT MARSH
MOSQUITO - AEDES SQUAMIGER



COOL WEATHER MOSQUITO/WINTER MARSH
MOSQUITO - CULISETA



PUPA



WESTERN ENCEPHALITIS
MOSQUITO - CULEX TARSALIS



LIMITED OPTIONS

MANAGING IMMATURE MOSQUITOES



INTERGRATED PEST MANAGEMENT (IPM) OPTIONS:

- Device modification
- Biological control
- Larviciding

LIMITED OPTIONS

MANAGING IMMATURE MOSQUITOES



BIOLOGICAL CONTROL

- Mosquitofish best in permanent ponds
- Aquatic predators of mosquitoes (dragonflies, diving beetles, etc.)
 - Recently flooded areas – mosquitoes are “r-strategists”
 - No commercially available options

LIMITED OPTIONS

MANAGING IMMATURE MOSQUITOES

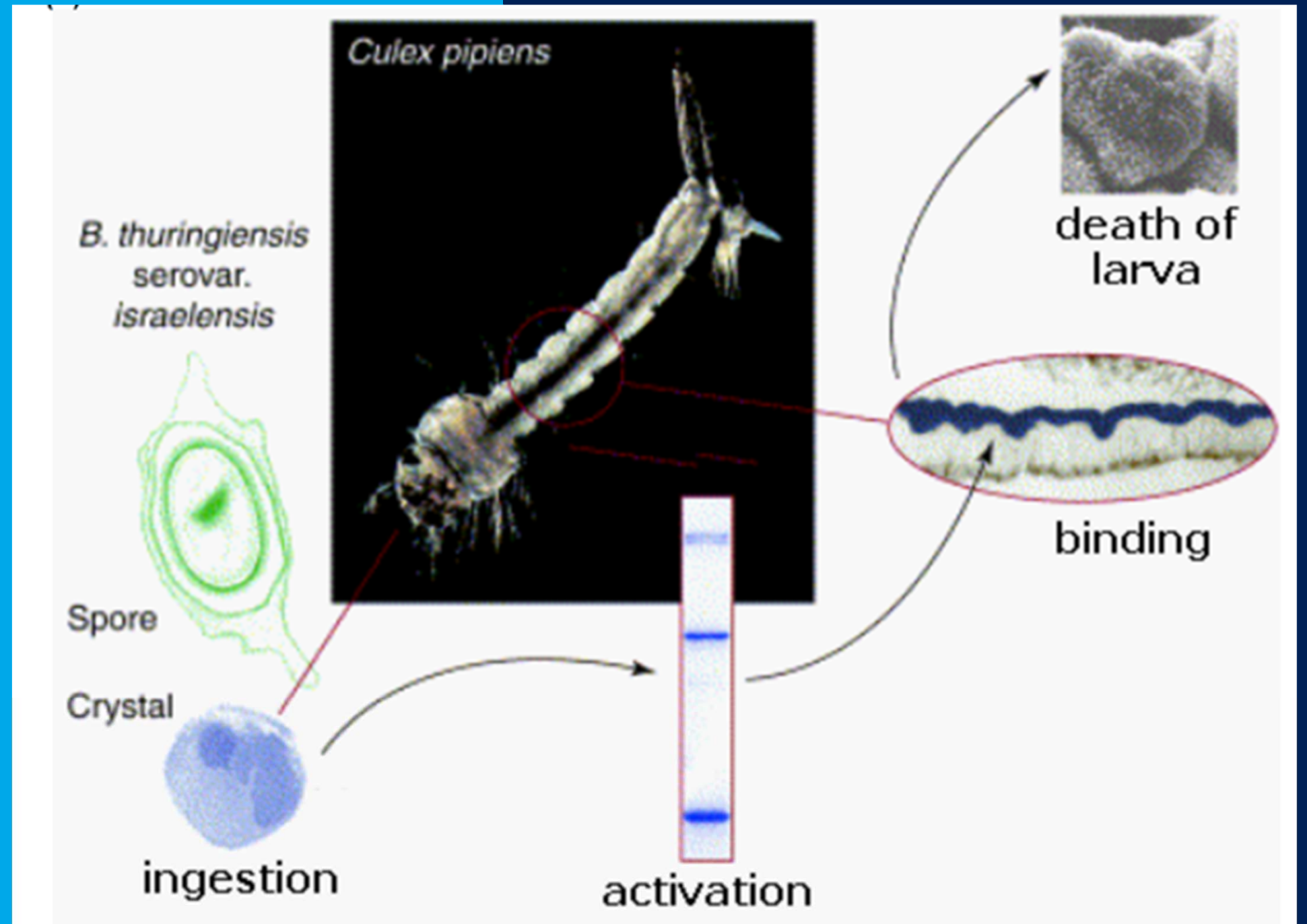


LARVICIDING

- *Bacillus thuringiensis var. israelensis* (BTI) – “mosquito dunks”
 - Best option for selective reduction in mosquitoes or midges
- *Lysinibacillus sphaericus* – live spores may recycle
- Altosid (Methoprene)
- Sufactants or oils – contrary to mission
- Formulation choice - liquid vs granules
- Natular or Spinosad – used in man-made sites
 - Derivative of bacterium, *Saccharopolyspora spinosa*

LARVICIDING

BTI MODE OF ACTION



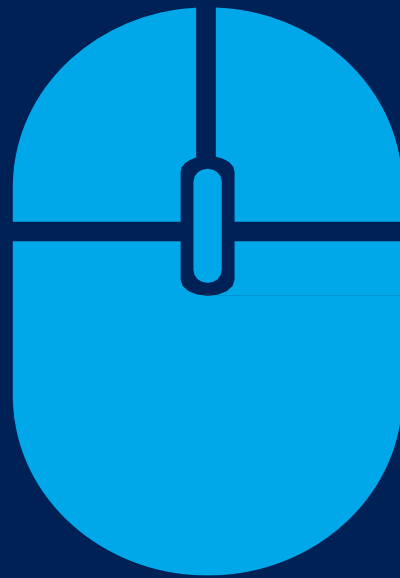


RECOMMENDATIONS

- Belowground sump or basin should be completely sealed (besides inlets/outlets)
- Design belowground sumps with equipment for dewatering
- Stock ponds/constructed wetlands with mosquitofish when possible
- Steep edges in ponds
- Vegetation management
- Provide access for inspection/treatment
- Contact Vector Control for assistance



CONTACT US



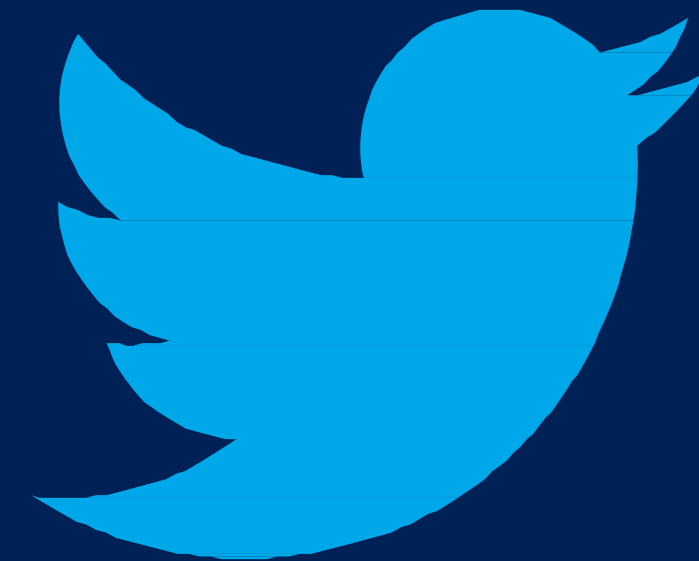
ONLINE

Visit SCCVector.org



CALL

408-918-4770
Open M - F
7:30AM - 4:30PM



TWITTER

Recieve alerts and resource links
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**THANK
YOU!**