The key to controlling mosquitoes is controlling the environment (Which includes people!)

- The Setting - NBVC Pt. Mugu
- The Tangled Web - INRMP and IPMP, the Acts
- The Process – Treatment, Communication
Wetlands (aka Mosquito Heaven)

48% of the base is salt marsh estuary, or fresh water wetland – 2,200 ac
The Tangled Web

- Education
- Surveillance
- Briefs
- White papers
- Treatment
- IPMP
- CWA
- NPDES
- INRMP
- MBTA
- ESA
Plans

Final Integrated Natural Resources Management Plan (INRMP)
Naval Base Ventura County
Point Mugu, California
March 2002

INTEGRATED PEST MANAGEMENT PLAN
November 2011
NAVAL BASE VENTURA COUNTY, CALIFORNIA

Prepared by
Naval Facilities Engineering Command Southwest,
San Diego, CA
INRMP

- Wetlands protection, enhancement, and restoration where necessary for support of fish, wildlife, or plants

- No net loss in the capability of the military installation lands to support the military mission of the installation
What is IPM?
A planned program, with continuous monitoring, education, record-keeping, and communication, to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, material, or the environment.

Integrated Pest Mgt Plan (IPMP) - Comprehensive, Long-range, Captures all pest mgt activities, Provides resources, Focused on IPM

IPMP

- Comprehensive, Long-range
- Captures all pest mgt activities
- Provides resources
- Focused on IPM

**Least Toxic**
- Environmental control

**Tolerate**
- Identify pests
- Develop plans/strategies
- Establish action thresholds for pests
- Monitor pest population

**Most Toxic**
- Natural/Mechanical Control
- Control pest
- Document results
- Evaluate/redesign plan

- Chemical control
The “Acts”

  - ESA, MBTA covered under INRMP
    - Biological Opinions direct actions on base
    - Avoid impacts
  - CWA = NPDES
Nov – Feb: we take a break from mosquitoes and focus on all the other irritating pests/natural resources.
Mosquito Summit (share any new ideas, products, plans; reintroduce teams, new personnel, contact info, rules of engagement); first wave of mosquito info goes out to general public and personnel;
May – October…

…and so it begins - high tides, start surveillance/treatments;

“I’m being eaten alive by swarms of mosquitoes!!!!”

Surveillance, treatment, surveillance, treatment…

Respond to complaints
Threat Assessment:
   How many bites is “eaten alive”?
   How many mosquitoes constitutes a “swarm”? 

End of Season Mosquito Summit
You Have Mosquitoes Where?

Map showing Thousand Oaks and Malibu with distances indicated.
Surveillance

Mosquito Monitoring Sites 2010
Point Mugu, NBVC

- Mosquito Monitoring Sites
Treatment

First we look for Mosquitoes

Then we treat based on what we see

Backpack spraying for adults in vegetation

Larvicide

Ultra low-volume truck mounted fog
Mosquitoes at NBVC

Salt Marsh Mosquitoes
(Aedes taeniorhynchus)

- Day biter
- Can carry WNV but not known in local population
- Life cycle in salt/brackish waters

Fresh Water Mosquitoes
(Culex sp.)

- Dawn/dusk/night biter
- Known to carry WNV
- Life cycle in fresh water
Mosquitoes NOT at NBVC
(but everyone thinks they are)

- There are 2 species of invasive Zika-carrying mosquitoes
  - Aedes aegypti
    - Yellow Fever Mosquito
  - Aedes albopictus
    - Asian Tiger Mosquito
Invasive Mosquitoes in California
(but not in our County)

Aedes aegypti and Aedes albopictus Mosquitoes in California
Updated weekly on Fridays as new infestations are detected

Aedes aegypti and Aedes albopictus Detection Sites by County/City

Alameda
Hayward
Fremont
Clovis
Fowler
Fresno
Kerman
Mendota
Sanger

Imperial
Andrade*
Brawley
Calexico
El Centro
Heber*
Holtville
Imperial
Seeley*

Kern
Arvin
Arvin

Los Angeles
Alhambra
Commerce
East Los Angeles*
Florence*
La Mirada
Los Angeles
Maywood
Montebello
Pico Rivera
South Gate
Alhambra
Arcadia
Avocado Heights*

Los Angeles (continued)
Azusa
Balboa Park
Bradbury
Covina
Duarte
El Monte
Glendora
Irwindale
La Cañada Flintridge
La Puente
Los Angeles
Monrovia
Monterey Park
Pico Rivera
Rosemead
San Gabriel
Sierra Madre
South El Monte
South Whittier*
Temple City
West Covina
Whittier*

Madera
Madera
Madera Ranchos*
Parkwood*

Orange
Anaheim
Costa Mesa
Garden Grove
Lake Forest
Mission Viejo
Orange

Orange (continued)
Santa Ana
Huntington Beach
Los Alamitos
Santa Ana

Riverside
Coachella
Riverside
San Jacinto

San Bernardino
Colton
Montclair
Upland

San Diego
Bonita*
Chula Vista
El Cajon
Escondido
Imperial Beach
Oceanside
San Diego
Spring Valley*
Tecate*
Vista
Carlsbad
San Diego

San Mateo
Atherton
Menlo Park

Tulare
Exeter

*Unincorporated Census-Designated Places

Serving the Fleet, Fighter and Family in Ventura County
Outdoor Water Sources

Can Breed In This Much Water!
Indoor Water Sources
Breeding Sites

1) Discarded Cans / Plastic containers
2) Bottles
3) Coconut husks, sea shells, decor
4) Tires
5) Barrels
6) Water storage tanks
7) Plant axils
8) Roof gutters
9) Flower pot saucers
10) Broken bottles
11) Holes in constructions blocks
12) Cracks in block walls

Any natural or human-made container/depression capable of holding 1 Tablespoon of water
How NOT to Dress
Request Help

- Send in a Maximo request (work order) to ask for someone to come out and assess the mosquito issue around your work area.
- Be specific about how many mosquitoes are seen and where are they most prevalent.
- Contact your housing authority to check for leaks in the area, fix leaks, and treat mosquitoes around your residence.
Summary

- Mosquito, Zika, White Papers
- Coordination on and off base
- Web Sites: CDC, CDPH

Clear message on Integrated Pest Management protocols and thresholds
- What constitutes a “swarm”? 
- How many bites/day are acceptable? 
- Who is responsible for...
  - Protecting children from getting bitten
  - Protecting adults from getting bitten
  - Looking for sources of fresh water breeding sites
QUESTIONS

- Any Questions?