



Unclassified

# **Targets Transformation**

## **NAVAIR 5.3**

### **Threat / Target Systems Department**

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# Outline

- **TTSD Mission**
- **TTSD History**
- **Where we work and Scope of Work**
- **Overview of major target systems**
- **2 specific examples of “Making it real”**
- **Where we are going & why**



# TTSD Mission

**OUR MISSION IS TO EMULATE THREATS FOR WEAPONS AND EW SYSTEMS TEST AND EVALUATION AND TO SUPPORT EXPERIMENTATION AND FLEET TRAINING**



*UNDERSTANDING THE CRITICAL MASS  
Generic/Surrogate/Validated/Replica  
(Cost Effective Fidelity For T&E & Training)*



# Point Mugu – Over 65 Years as the Navy’s First Target Operating Site

1945 CNO establishes requirement for missile test center. Navy pilotless aircraft unit based in Mojave, CA.

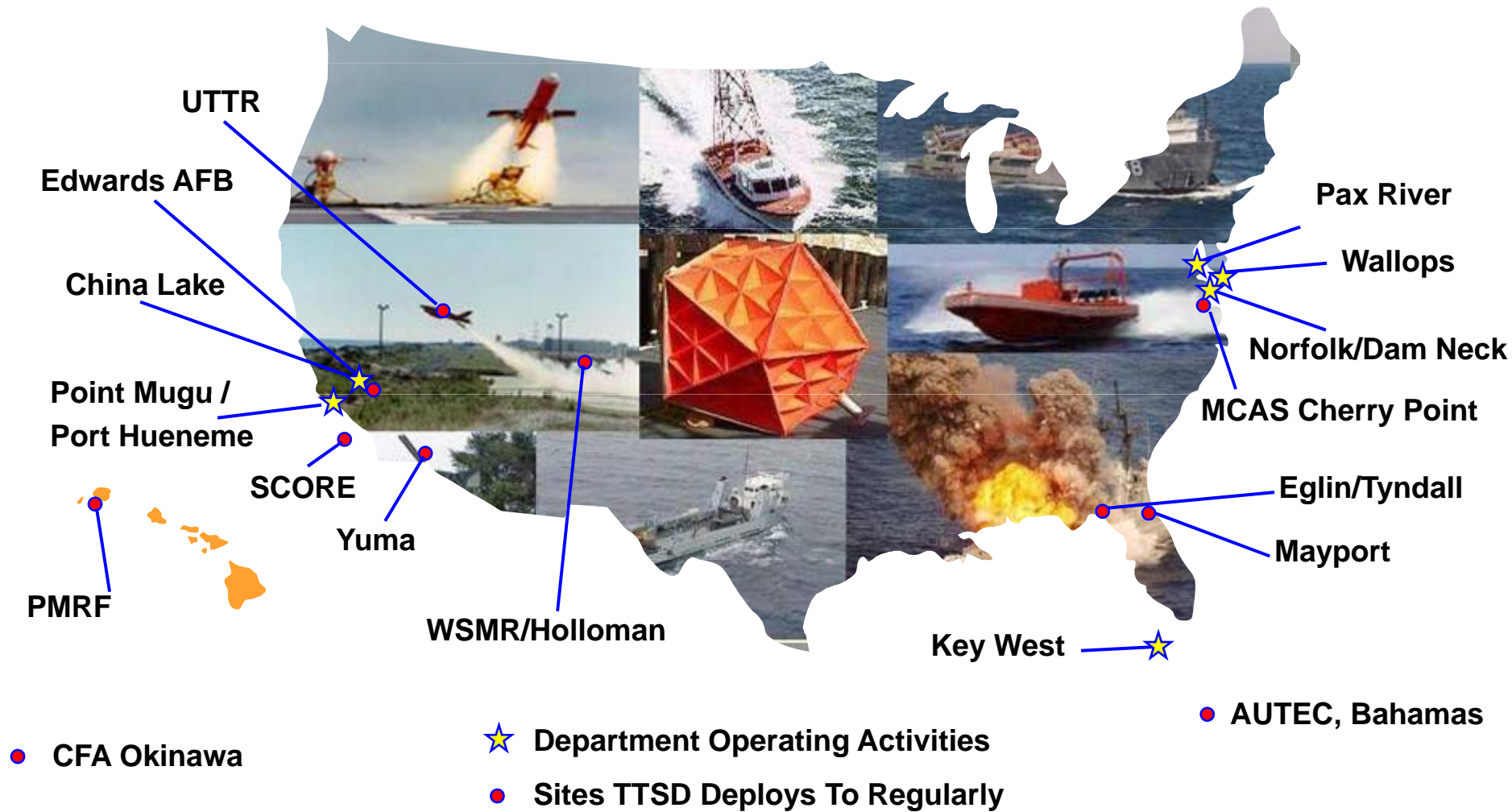
1946 PAU moves to Point Mugu. December 13, 1952 first direct hit intercept of Navy Sparrow missile against QB-17 on Sea Range.

1991 NAVAIR consolidates target development / test at WD.





# TTSD Operating Sites



# Aerial Targets





# Seaborne Targets

## Seaborne Powered Targets





Public Release

# Shoot-able Remote Threat Ground Target

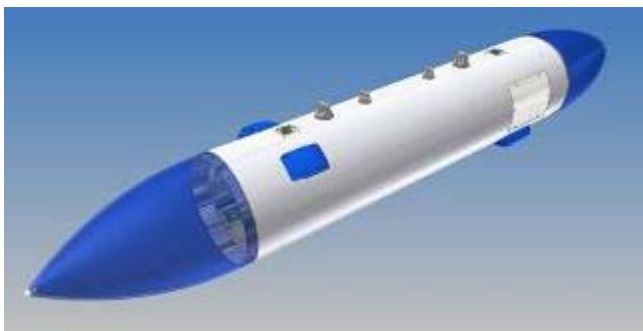


**SRTGT towing a Jeep shape**





# Threat EW & Radar Simulation





# Target Transformation



**AOB  
System on  
BQM-34**





# TTSD Employment of Swarming Tactics



- **East Coast – 12 manned vessels in multiple groups/waves**
  - Currently working toward 15+ vessels both manned and unmanned
- **West Coast – 15+ unmanned vessels in multiple groups/waves**



# Seaborne Swarming Operations



- **Sept 28 – Iran announces deployment of 3 squadrons of Bavar-2**
  - Emphasizes comm suite, payload capacity and mounted machine gun...and manned operation.

**Bavar-2 (Confidence-2)**



<http://www.kansascity.com/2010/09/28/2257242/irans-guard-gets-first-squadrons.html>

Approved for Public Release

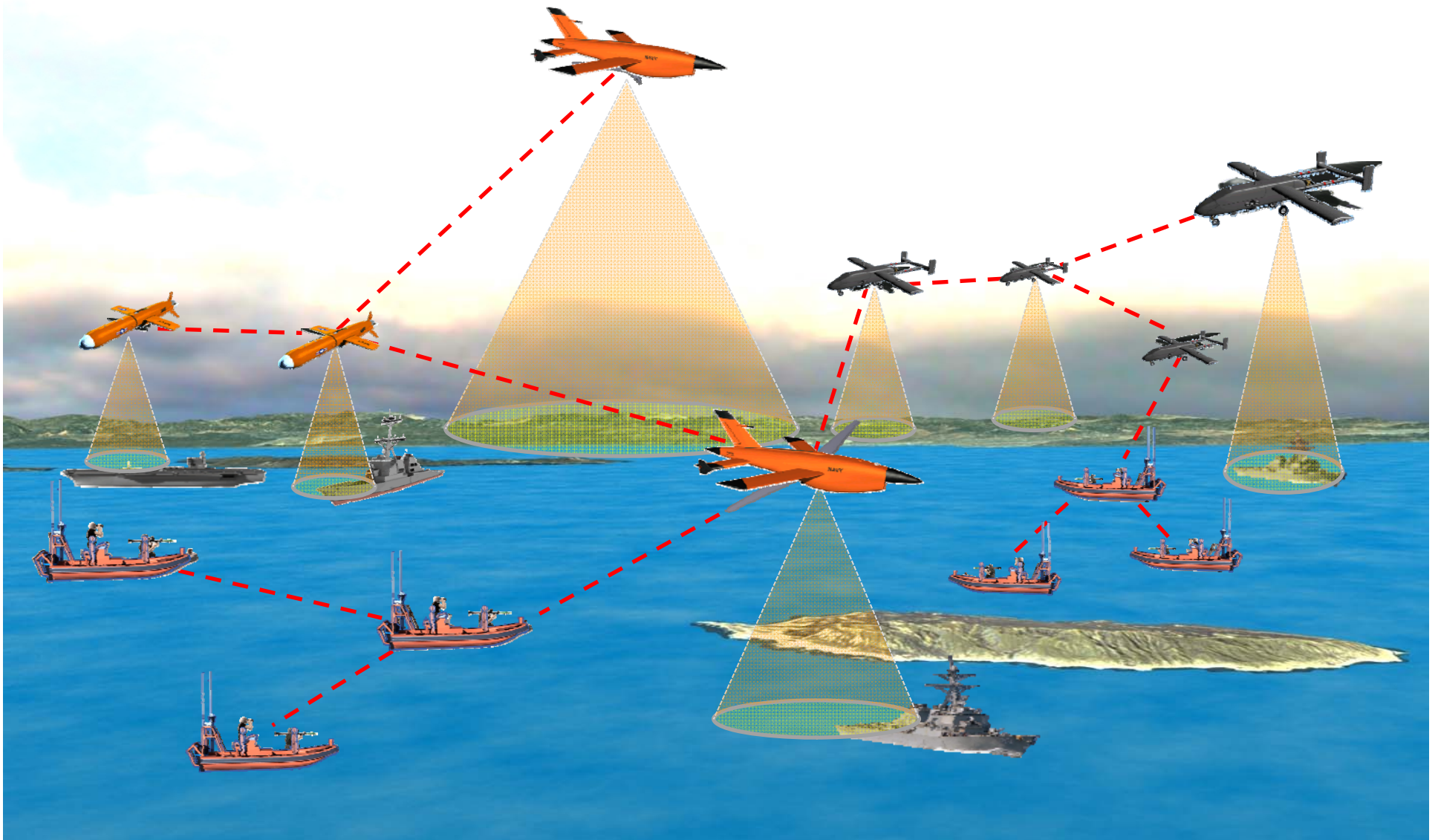


# Coordinated &/or Autonomous Swarming

- **Expect to see an increased need to conduct T&E of systems that need to Find, Fix, Track and Engage swarms of small, relatively slow, air, surface and subsurface vehicles.**
- **Also expect to see an increased desire to train the warfighter in the same kind of threat environment.**
- **These threats will most likely be a combination of manned and unmanned and will work together in a coordinated fashion with varying degrees of autonomy.**



# Coordinated &/or Autonomous Swarming





# Test Infrastructure Required for Representation of Threat Systems and Tactics

- **Target control systems will need to enable autonomous activity while providing test safety**
- **POR Target surrogates can meet these roles today, except for low, slow flyer UAS...**
- **However, industry has group 2/3 class UAS that can meet many of the vehicle requirements**
- **We bring the know how and ability to modify signatures, integrate threat EW payloads, and operate the vehicles in a complex environment.**





Questions?

