U.S. Navy Aerial Target Systems

Presented to 48th Annual NDIA Symposium

20 October 2010

New Orleans, LA

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Outline

- Product Line
- Operating Sites
- Supersonic Targets
- Subsonic Targets
- Full Scale Targets
- Target Control System
- Foreign Military Sales
- Challenges

PMA-208 Target Product Lines

Supersonic

GQM-163A

AQM-37C

ZGQM-173A Multi-Stage Supersonic Target (MSST) (development)

Subsonic

BQM-34S

BQM-74E

Sub-Sonic Aerial Target (SSAT) (development)

Full Scale

QF-4

QF-16

Mobile Land Target (MLT) (New Program)

Other/Support

Tactical Air Launched Decoys

Common Equipment / Augmentation

Threat Simulation

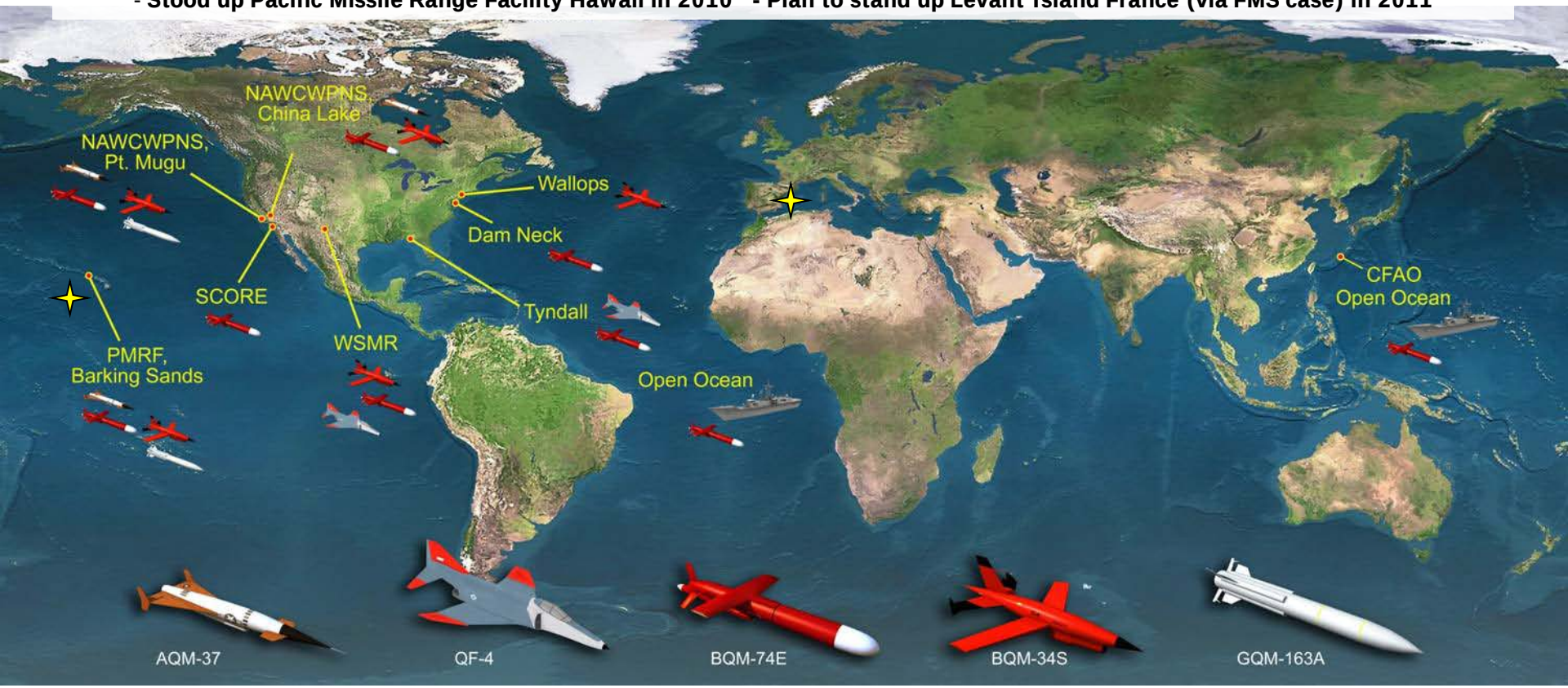
Banners

System for Naval Target Control (SNTC)

Operating Sites

GQM-163 capability at the following ranges:

- **Stood up Pacific Missile Range Facility Hawaii in 2010**
- **Plan to stand up Levant Island France (via FMS case) in 2011**



Air Launch:

BQM-34

AQM-37

BQM-74

SSAT (objective)

Ground Launch:

BQM-34

BQM-74

SSAT (threshold)

GQM-163

ZGQM-173 (threshold)

Ship Launch:

BQM-34

BQM-74

SSAT (threshold)

GQM-163A Supersonic Sea Skimming Target

- Prime Contractor: Orbital Sciences Corporation
- Operations to date: 6 (Targets Expended: 10)
  - 6 October 2005 (1)
  - 12 and 13 June 2007 (2)
  - 12 December 2007 (2 as stream raid)
  - 3 December 2008 (1)
  - 18 December 2008 (2 as stream raid)
  - 9 Dec 2009 (2 as stream raid)
- Demonstrations to date: 2 (Targets Expended: 2)
  - 8 June 2010 (1 as Engine-Power-Off-Demo)
  - 9 July 2010 (1 as High Diver)

*** Preparing for Orbital Front End Subsystem (OFES) DEMO in November 2010

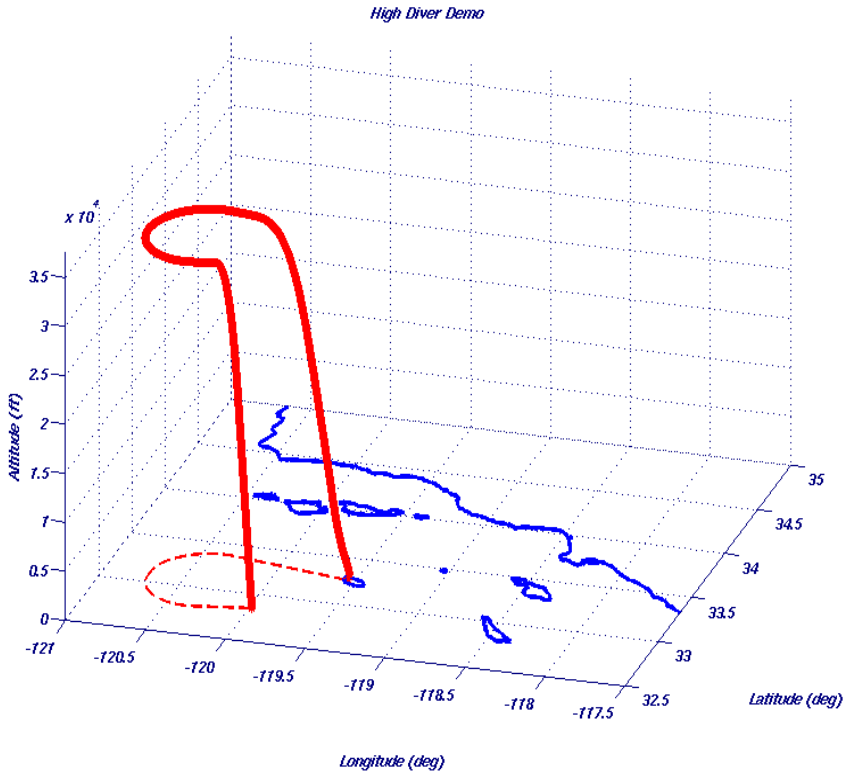
- First Pacific Missile Range Facility (PMRF) launch capability May 2010
- First launch out of U.S., planned at Mediterranean range in FY 11

GQM-163A meets most Supersonic Sea Skimming test requirements

GQM-163A
High Diver Demonstration

Successfully Completed High Diver (HD) Demonstration on 08 July 2010 on the Point Mugu Sea Test Range

- Threat Representative ASCM
- Cruise Altitude of 35,000 feet
- Cruise Speed of Mach 3.3
- 40 Degree Unpowered Dive
- Range of 110 nautical miles
- End-Point Accuracy of 6 feet
- Developing one threat representative trajectory for each launch site



AQM-37

- **Medium to high altitude supersonic cruise with dive capability**
  - Mach 2.0 – 4.0
  - Range 100 mi
  - Altitude 1000 ft – 100 Kft
  - Demonstrated TBM profiles (300 Kft, 120 nmi downrange)
  - F-16 launch platform (some challenges)

- **Out of production system**
  - Last Delivery Dec 2001
  - 56 AQM-37C in inventory; 30 AQM-37D (USAF flight clearance needed – FY11 schedule)
  - New GPS range tracking capability added this year (JAMI)
  - New trajectories added this year

- **Historically have conducted approximately 10-15 operations per year (~ half FMS)**
- **Low fidelity high-diver**

ZGQM-173A Multi-Stage Supersonic Target (MSST)

- Replicates a family of multi-stage supersonic ASCM Threats
  - Subsonic cruise with transition to supersonic terminal phase
- Program in Engineering & Manufacturing Development phase (EMD)
  - MS B completed August 2008
  - EMD contract awarded to Alliant Techsystems Incorporated (ATK), Woodland Hills, CA
  - EMD effort planned at 4.5 years
  - Planned Initial Operational Capability in FY14
- Program Status
  - Program designated nomenclature ZGQM-173A
  - Activities completed
    - System Requirements Review (SRR) Jun 09
    - Integrate Baseline Review (IBR) Jul 09
    - System Functional Review (SFR) Dec 09
    - Software Specification Review (SSR) Mar 10
    - Preliminary Design Review (PDR) Apr 10
  - Activities planned
    - Contractor prototype (EEU#2) Flight Nov 10
    - Critical Design Review (CDR) Feb 11

BQM-34S

- Prime contractor – Northrop Grumman
- Sustainment
- Missions
  - Low fidelity A/C simulator
  - T&E workhorse – special configurations
    - Open Loop Seeker (OLS) integration
  - Launch: ground, ship, air
- Product Improvements
  - Integrated Avionics Unit (UIAU) integration fielded Oct 09:
    - Replace existing autopilots with UIAU from BQM-74
    - Common avionics, radar altimeter, Support Equipment with current production BQM-74E
    - Address obsolescence issues
    - Reduced logistics
    - Allows for performance growth if required
    - 25 retrofits planned to support expected operations

Current Inventory ~ 204
FY06 Ops/Expenditures - 19/2
FY07 Ops/Expenditures - 14/3
FY08 Ops/Expenditures - 12/0
FY09 Ops/Expenditures - 4/1
FY10 Ops/Expenditures – 12/1

Great T&E “Truck” but does not adequately represent many of today’s threat ASCMs

BQM-74E

Current Inventory ~ 339
FY06 Ops/Expenditures - 235/62
FY07 Ops/Expenditures - 158/52
FY08 Ops/Expenditures - 231/68
FY09 Ops/Expenditures - 207/46
FY10 Ops/Expenditures - 181/44

- Prime Contractor: – Northrop Grumman
- Production
  - Training and T&E workhorse
  - Final delivery ***Dec 10***
- Missions:
  - High fidelity Anti-Ship Cruise Missile (ASCM) Surrogate
  - Low-fidelity A/C simulator
  - Launch: ground, ship, air
- Product improvements
  - Programmable semi-autonomous navigation
    - Selectable Lost Carrier Sensitivity from waypoint to waypoint
    - Return to Recovery Area
    - Planned fielding FY11

Target still adequately represents many but not all threat ASCMs

Requirement for New Subsonic Target

- BQM-34 and BQM-74 no longer represent all modern subsonic threats
- Previous attempts to replace were unsuccessful (1999-2007)
- AOA / Sensitivity Study completed Apr 2008
  - Identified key performance attributes required for combat systems testing
  - Determined threat equivalency boundaries for key performance attributes
  - Determined that existing Navy subsonic targets could not be modified to achieve needed performance attributes
  - Study accepted by stakeholders (OSD(DOT&E), ASN(IWS), PEO(IWS), and OPNAV N43/N91 sponsors as Analysis of Alternatives (AoA)
- Navy decision to proceed with a new acquisition program called Subsonic Aerial Target (SSAT)

Subsonic Aerial Target (SSAT) Acquisition Approach

- Acquisition Strategy is to have industry modify an existing subsonic target to achieve Navy SSAT requirements rather than develop from scratch
- Contract Strategy is full and open competition including:
  - Cost-Plus Incentive Fee (CPIF) contract for Engineering and Manufacturing Development (EMD) phase
  - Two Firm, Fixed Price (FFP) production options
  - Two Cost-Plus Fixed Fee (CPFF) Contractor Logistics Support (CLS) options
- RFP released Dec 2009
- Proposals received Mar 2010
- Contract award expected 1st quarter 2011

Currently in Source Selection

Potential subsonic target inventory gap as SSAT transitions to production

QF-4/QF-16
Full Scale Aerial Targets

- Provides Threat Representative Target capabilities to meet Title 10 Live Fire T&E for weapons systems
- QF-4 Full Scale Aerial Target
  - A/F led procurement
  - A/F provides operational services at Tyndall & WSMR
  - Navy procurements from USAF began FY03
    - 5 targets to be delivered in Oct from FY08 buy
    - 5 targets to be delivered in FY11 from FY09 buy
    - FY10 last Navy buy of 2 targets to be delivered in FY12
  - Navy trading QF-4's for BQM-167's to support (N)WSEP
    - 1 QF-4 Traded for 4 BQM-167's in FY08
    - 3 QF-4's traded for 10 BQM-167's in FY10
- QF-16 Follow-on
  - Air Force led development with Army/Navy participation
  - Air Force awarded EMD contract to Boeing St.Louis 8 Mar10
  - Low Rate Initial Production buy 3QFY13
  - Full Rate Production 1QFY14
  - Planned Initial Operational Capability in FY15

•Current QF-4 Inventory 11 S/K
•FY07 Ops/Expenditures - 4/2
•FY08 Ops/Expenditures - 2/2
•FY09 Ops/Expenditures - 1/1
•FY10 Ops/Expenditures - 1/0

NAVAIR

Navy Moving Land Target (MLT)

- Navy identified need for a threat representative training MLT to replace QLT-1C
- MLT program transferred from PMA-205 to PMA-208 2007
- Navy leveraged the Shootable Remote Threat Ground Target (SRTGT) OSD T&E demonstration initiative to refine requirements, prototypes filling gap until MLTs procured competitively
- MLT acquisition approach:
  - Planning for full and open competition to purchase commercial system
  - Completed a requirements study Jun 09
  - RFI released Aug 09 (solicitation #N00019-09-RFI-0235)
  - Requirement defined in Target Capability Document (TCD) signed Sep 09
  - Designated as Abbreviated Acquisition Program (AAP) in Sep 09
  - RFP released May 2010

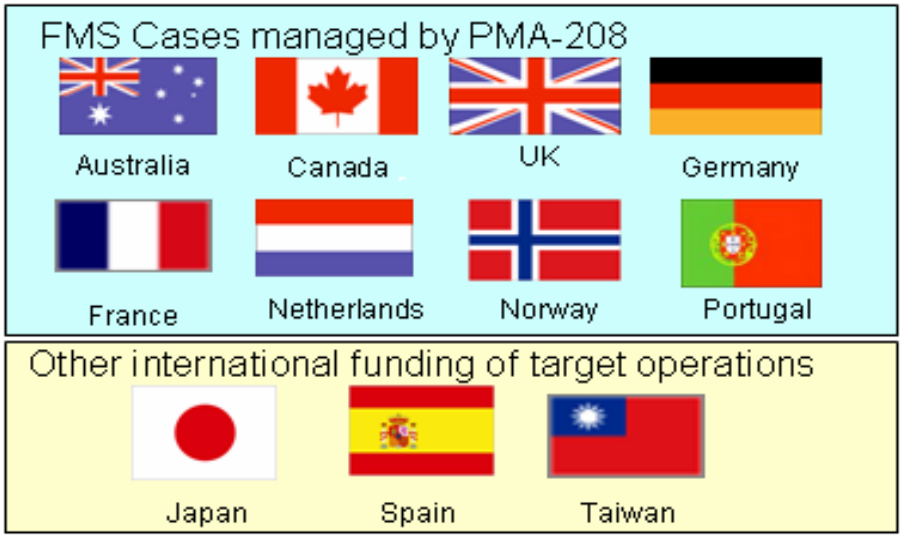
Currently in Source Selection

System for Naval Target Control (SNTC)

- SNTC
  - Prime Micro Systems, Inc
  - Controls BQM-74/34 aerial targets & seaborne targets
  - UHF 435–450 & 358-380 MHz
  - 200 nm line of sight
  - 330 nm via Relay
  - Supports Training and T&E

- Several hardware and software upgrades scheduled due to:
  - new target types
  - frequency limitations and interference
  - Information assurance requirements
  - hardware obsolescence

Foreign Military Sales (FMS)



Description

PMA-208 Hardware Case

- USN is reimbursed for Targets & TAAS expended from USN inventory in support of international operations on US ranges

Range Services Case

- Separate FMS Case to fund target presentation at US Range

Presentations on OCONUS Ranges

- Target presentations performed on foreign range

Background

PMA-208 manages 8 active cases / 1 Lease Agreement

- 6 countries / Case Values Total: $ 32M

Typical FMS Range Sites

- NAWCWD Pt. Mugu/China Lake, CA
- PMRF Barking Sands, HI
- NAWCAD Wallops Island, VA

Target System Challenges

- Keep pace with evolution of threats
  - Electronic emission, vehicle capability, other characteristics
- Develop and/or acquire new targets
  - MSST, SSAT, MLT, QF-16
- New capabilities to existing targets
  - GQM-163 high diver and OFES, AQM-37 guidance, BQM-34/74 waypoints
- Evolve target control systems
- Manage target production
- Maintain out of production targets
- Support test and training presentations
- Control cost of acquisition, maintenance, and operations
- Inventory and obsolescence management

A critical enabler to the successful development & fielding of future Naval combatants and their associated defensive weapons systems . . .

"Just Targets"

Questions?

U.S. Navy Aerial Target Systems

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