



U.S. Navy Aerial Target Systems

Presented to 46th Annual NDIA Symposium

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10 October 2008



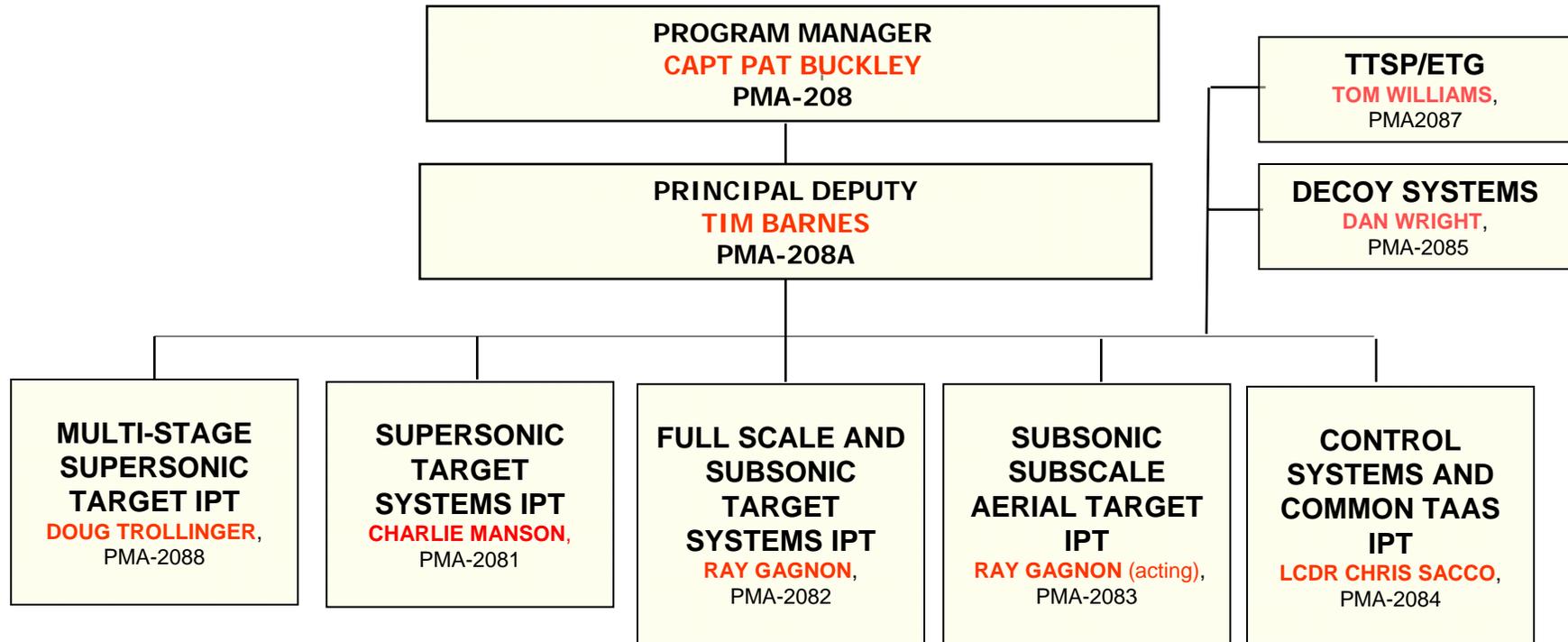
Outline



- Organization
- Product Line
- Operating Sites
- Supersonic Targets
- Subsonic Targets
- Full Scale Targets
- Target Control System
- Summary



PMA-208 AERIAL TARGET & DECOY SYSTEMS PROGRAM OFFICE 2008





PMA-208 Product Line



<p>Supersonic</p>  <p>GQM-163A</p>  <p>AQM-37C</p>  <p>MSST (development)</p>	<p>Full Scale & Subsonic</p>  <p>BQM-34S</p>  <p>BQM-74E</p> <p>QF-4</p> 	<p>Miscellaneous</p>  <p>QLT-1C</p>  <p>COMMON TA/AS</p>  <p>THREAT SIMULATION</p>  <p>TDU-32</p>  <p>SNTC</p>
<p>Decoys</p> <p>TALD</p>  <p>ITALD</p> 		



Operating Sites



- VC-6 decommissioned
- NAVAIR conducting East Coast ops



GQM-163A Supersonic Sea Skimming Target





Supersonic Targets

Requirement Drivers

- Sea Skimming Supersonic Target
- High-Diver Supersonic Target
- Multi-Stage Supersonic Target



GQM-163A Program Status



- Prime Contractor: Orbital Sciences Corporation
- Operations to date (5):
 - 6 October 2005 (1)
 - 12-13 June 2007 (2)
 - 12 December 2007 (2-stream raid)
- *** Next operation anticipated December 2008 (stream raid)
- Developing augmentation to current flight termination system

GQM-163A meets all Supersonic Sea Skimming T&E requirements



MA-31 – Program Closure

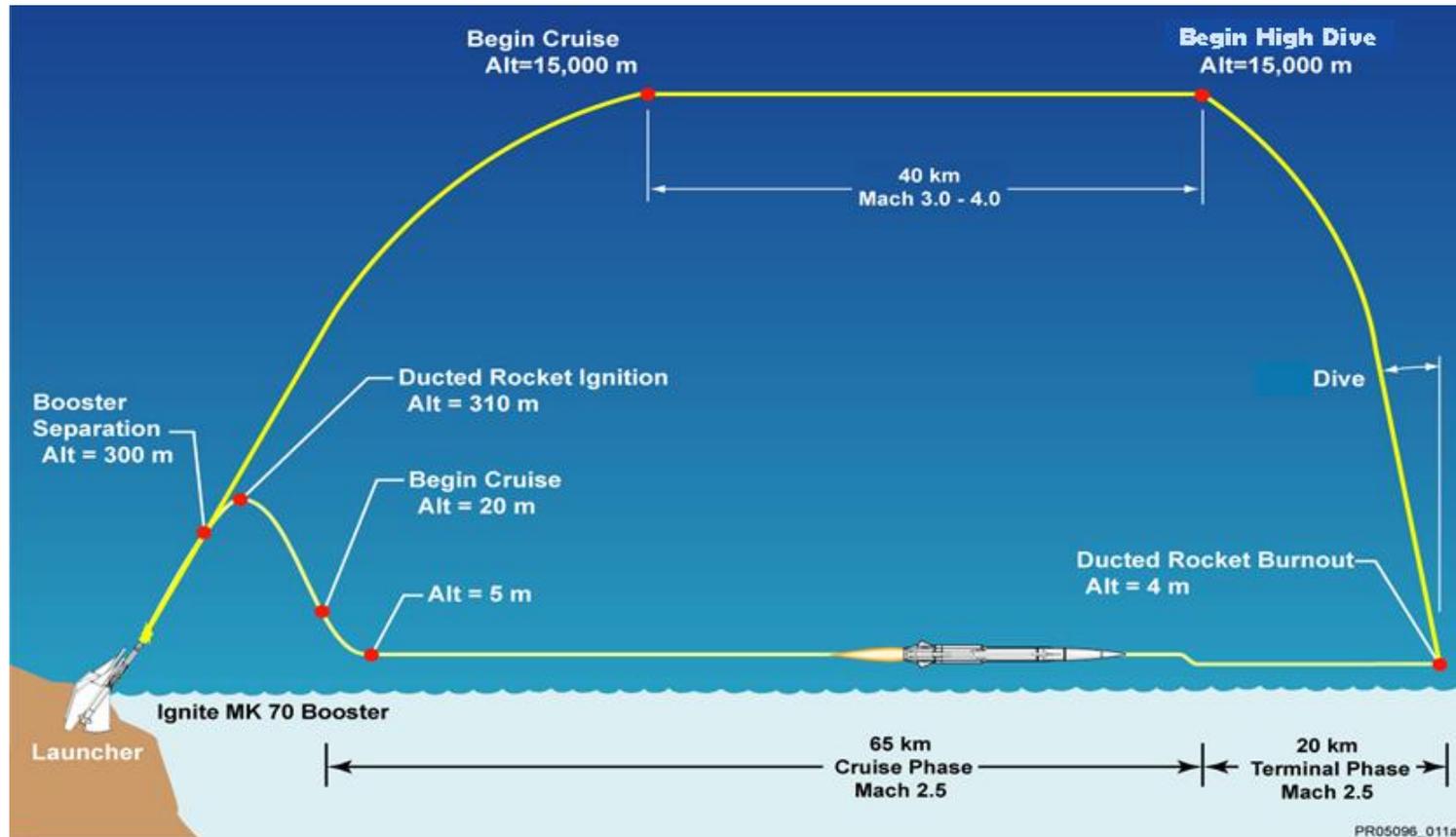


- Conducted Joint Navy (LPD-18) & Army (Patriot) operation in December 2007 at Pt. Mugu range with last remaining assets
 - Program stood down





GQM-163A High Diver Demonstration



- High Diver demonstration initiated in March 2006
- Demo planned for 3rd quarter FY-09
- Sponsors working to document long term requirements



Multi-Stage Supersonic Target (MSST)



- The MSST's purpose is to emulate advanced two-stage ASCMs in support of Air Defense Weapons/Combat Systems T&E events, to include:
 - AEGIS CG Mods, AEGIS DDG Mods, LHA-6, DDG-1000, CVN-21, SSDS, CIWS, RAM Blk 2, SM-6 ERAM, ESSM, SM-2, and JSF

MSST will satisfy requirements of the Threat-D Target System CDD



Threat D - Multi-Stage Supersonic Target



- Acquisition (ACAT IV-M) – PEO(U&W) MDA
 - *Draft RFP posted & Industry Day held in July 2007*
 - Request For Proposal (RFP) released November 2007
 - Proposals received in February 2008
 - Milestone B & SDD contract award made in August 2008
 - Contract award was protested and is under GAO review. Anticipate GAO decision no later than December 2008.
- SDD effort will lead to follow-on contract for Low Rate Initial Production and Full Rate Production
- Initial Operational Capability planned for FY14



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
- **Out of production system**
 - Last Delivery Dec 2001
- **Historically have conducted approximately 10-15 operations per year (~ half FMS)**
- **Low fidelity high-diver**





Subsonic Targets

Requirement Drivers

- High fidelity Subsonic Target
- Special configuration Subsonic Targets



BQM-74E



- **Production**

- Training and T&E workhorse
- Final procurement planned FY09

- **Missions:**

- High fidelity Anti-Ship Cruise Missile (ASCM) Surrogate
- Low-fidelity A/C simulator
 - Altitude: 7 ft – 40 Kft
 - Endurance: 68 min
 - Ground Launch; Shipboard Launch;
 - Air Launch: C-130, Gulfstream, F-16

- **Product improvements**

- Programmable semi-autonomous waypoint navigation
 - Selectable Lost Carrier Sensitivity from waypoint to waypoint
 - Return to Recovery Area
 - FY10 fielding planned

- **Prime contractor – Northrop Grumman**

Current Inventory ~ 267

FY06 Ops/Expenditures – 235/62

FY07 Ops/Expenditures – 158/52

FY08 Ops/Expenditures – 220/66



Target does not adequately represent many key characteristics of today's threat ASCMs



Alternative Subsonic Flight Demonstration



- Navy strategy to verify wider range of potential subsonic targets that could potentially fulfill Navy needs
- Composite Engineering, Inc. (CEi) of Sacramento, CA flew first demonstration in September 2007
 - Design based on Air Force BQM-167A
 - Five flight demonstrations completed
 - Last flight completed on 20 February 2008
- Successful demonstration program was key enabler to support full and open competition strategy for the next generation Subsonic Aerial Target (SSAT)





Subsonic Aerial Target (SSAT) Requirements



- ONI threat assessment update performed
- Weapons Systems Sensitivity Study completed by Johns Hopkins University Applied Physics Laboratory
 - Determined that existing Navy subsonic targets could not be modified to achieve needed performance attributes
- Navy requirements sponsor leading CDD requirements working group
 - CDD in formal staffing
 - Planning for a final CDD to be signed in Nov 08



Subsonic Aerial Target (SSAT) Acquisition Approach



- Strategy is to have industry modify an existing subsonic target to achieve Navy SSAT requirements
 - Estimating an ~24 month late stage System Development & Demonstration (SDD) effort
- RFI released to gain insight into industry perspective
 - SDD: time needed, cost ROM & technical drivers
- 21 October 2008 Industry Day
- Draft RFP planned for release prior to Industry Day
- Final SDD RFP planned for release in late Nov 08 to support 3rd quarter FY09 ACAT IV(M) Milestone B and contract award
 - Dependent on CDD approval and cost affordability analysis
- Planning for two priced production options & contractor logistics support option on development contract



BQM-34S



- **Sustainment**
 - Maintain required inventory
- **Missions**
 - Low fidelity A/C simulator
 - T&E workhorse – special configurations
 - Open Loop Seeker (OLS) integration
- **Product Improvements**
 - UIAU integration:
 - 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 OPTEMPO
- **Prime contractor – Northrop Grumman**

Current Inventory ~ 200

FY06 Ops/Expenditures – 19/2

FY07 Ops/Expenditures – 14/3

FY08 Ops/Expenditures – 12/0



Target does not adequately represent many key characteristics of today's threat ASCMs



Full Scale Targets

Requirement Drivers

- High fidelity 4th & 5th Generation Aerial Targets
- Moving Land Targets
- UAV Targets



Full Scale QF-4/QF-16



- QF-4 - Air force led program
 - Operating at Tyndall & White Sands Test Ranges
 - Air Force existing contract runs thru Lot 15 (FY09)
 - Navy procured five in FY08 & Plans to procure five in FY09
 - Air force plans to award new contract for two lots in FY-10 & FY11
 - Last deliveries in FY13 from procurements in FY-11
- AST QF-16 Air force led program
 - Replacement for the QF-4
 - Navy providing requirements inputs and RDT&E funding to Air force
 - Navy to participate in TEMP development and Source Selection
 - IOC 3QFY15
 - ~15 years of production at 25 A/C per year





Navy Moving Land Target (MLT)



- MLT program transferred from PMA-205 to PMA-208 2007
- Navy identified need for a threat representative training MLT to replace QLT-1C
- Navy leveraged the Shootable Remote Threat Ground Target (SRTGT) OSD T&E demonstration initiative to identify a potential baseline configuration to support acquisition of a training MLT
- PMA-208 recommended the current requirements document be reviewed to update evolving training requirements and to include T&E needs
 - Necessary to preclude requirements creep

Acquisition plans on hold pending update of Navy MLT requirements



MLT Acquisition Approach



- FY08 Activity
 - Risk Mitigation: Using existing funding to procure additional SRTGTs through China Lake to support initial Fallon and Yuma training needs while requirements are refined
 - Gives T&E & Training Target Sponsors a chance to synchronize efforts
- Ongoing requirements analysis to capture training and T&E needs
 - Needed to support acquisition efforts
 - Planning for requirements to be documented in early FY-09
- Planning for FY09 full and open competition for MLT
 - Possible strategy:
 - Procure training variant
 - Provide contractual options for enhanced equipment procurement to meet T&E requirements
 - or-
 - Government modifies/augments vehicles as needed to support T&E needs

Planning to release a draft RFP prior to an Industry Day to be held in early 2009



Target Control System



System for Naval Target Control UHF 360 – 380 MHz



Current: SNTC System



- COTS Product (Micro Systems, Inc)
- UHF 435–450 MHz
- Controls BQM-74/34 aerial targets as well as HSMST and QST-35 seaborne targets
- Low transponder cost
- 200 nmi line of sight
- 330 nmi via Relay
- Supports Training and T&E

Near Term: SNTC System UHF 360-380 MHz Modification

- Currently constrained as a “Secondary User” on a not to interfere basis
- Frequency shift will result in “Primary User” status in a military designated frequency band limiting the possibility of interference and target loss
- New frequency assignment will allow for future growth in bandwidth
- All original capabilities retained.

Requirements analysis effort initiated to document long term target control needs



Target System Challenges

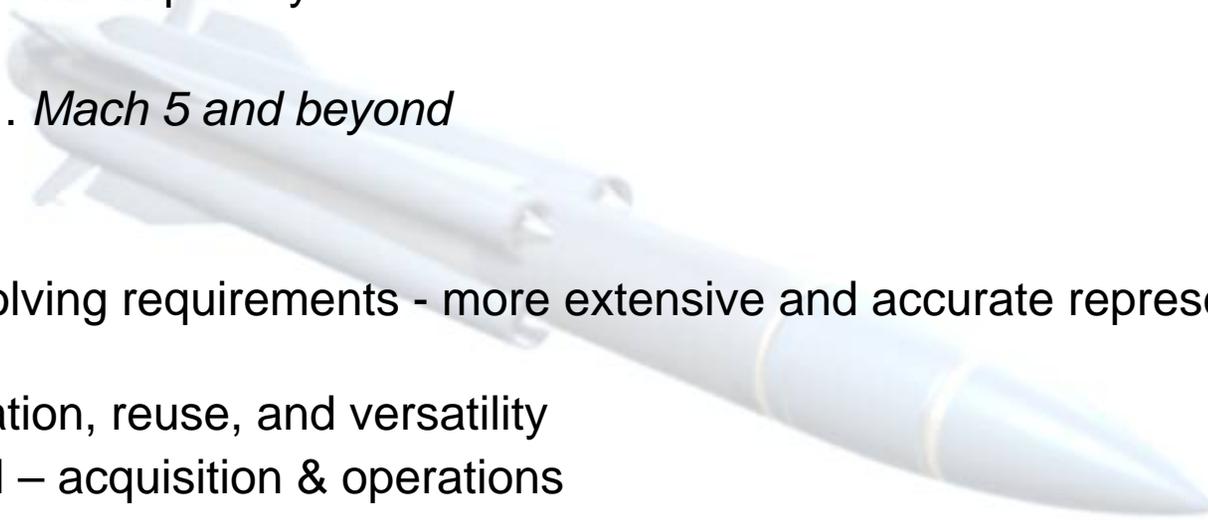


Evolution of the threats

- Supersonic dive
- Anti-ship ballistic cruise missile
- Asymmetric threats
- Enhanced threat capability
- Stealth
- Scramjet . . . *Mach 5 and beyond*

Programmatic

- Meeting evolving requirements - more extensive and accurate representation of threat
- Reconfiguration, reuse, and versatility
- Cost control – acquisition & operations
- Obsolescence
- Inventory management





Targets . . . Often the Underdog . . .



The threats will continue to evolve. The Navy Target Team will continue to work with all stakeholders and our Industry partners to provide required threat representations to meet the needs of developmental testing, operational evaluation and Fleet training.



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

“Just Targets”