NDIA Special Missions Symposium

Mr. Victor S. Gavin
Executive Director
Littoral and Mine Warfare

Role, Products & Services

- Originally established in 1992 as PEO Mine Warfare (PEO MIW)
- Realigned as *PEO Littoral and Mine Warfare (PEO LMW) OCT 2002* assigning increased responsibility for Undersea and Littoral Warfare programs
- PEO LMW designs, delivers and maintains the systems, equipment and weapons needed by the warfighter to dominate the littoral battle space and provide the *Warfighter Assured Access!*

18 years of "culture"

SOCOM

Naval Special Warfare
PMS 340
CAPT(s) T. Gajewski

NECE

Anti-Terrorism/ Force Protection (Afloat)
PMS 480
CAPT J. Day

C-IED and EOD
PMS 408
CAPT J. Neagley

USE

Maritime Surveillance Systems
PMS 485
CAPT J. Ferrer

Unmanned Maritime Vehicle Systems
PMS 406
CAPT D. Ashton

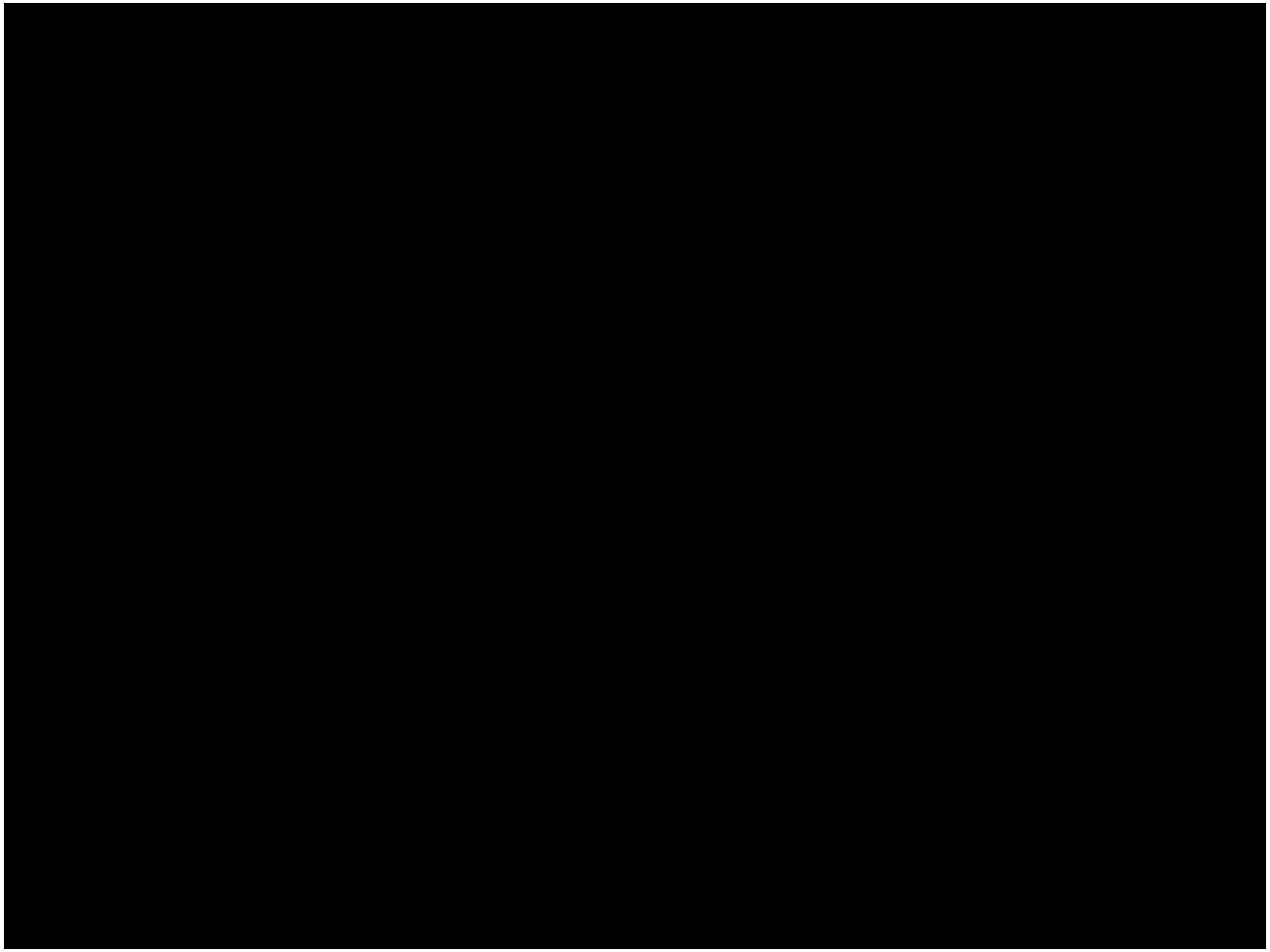
SWE

Remote Mine Hunting System
PMS 403
Mr. Steven Lose

Mine Warfare Systems
PMS 495
Ms. D Carson-Jelley

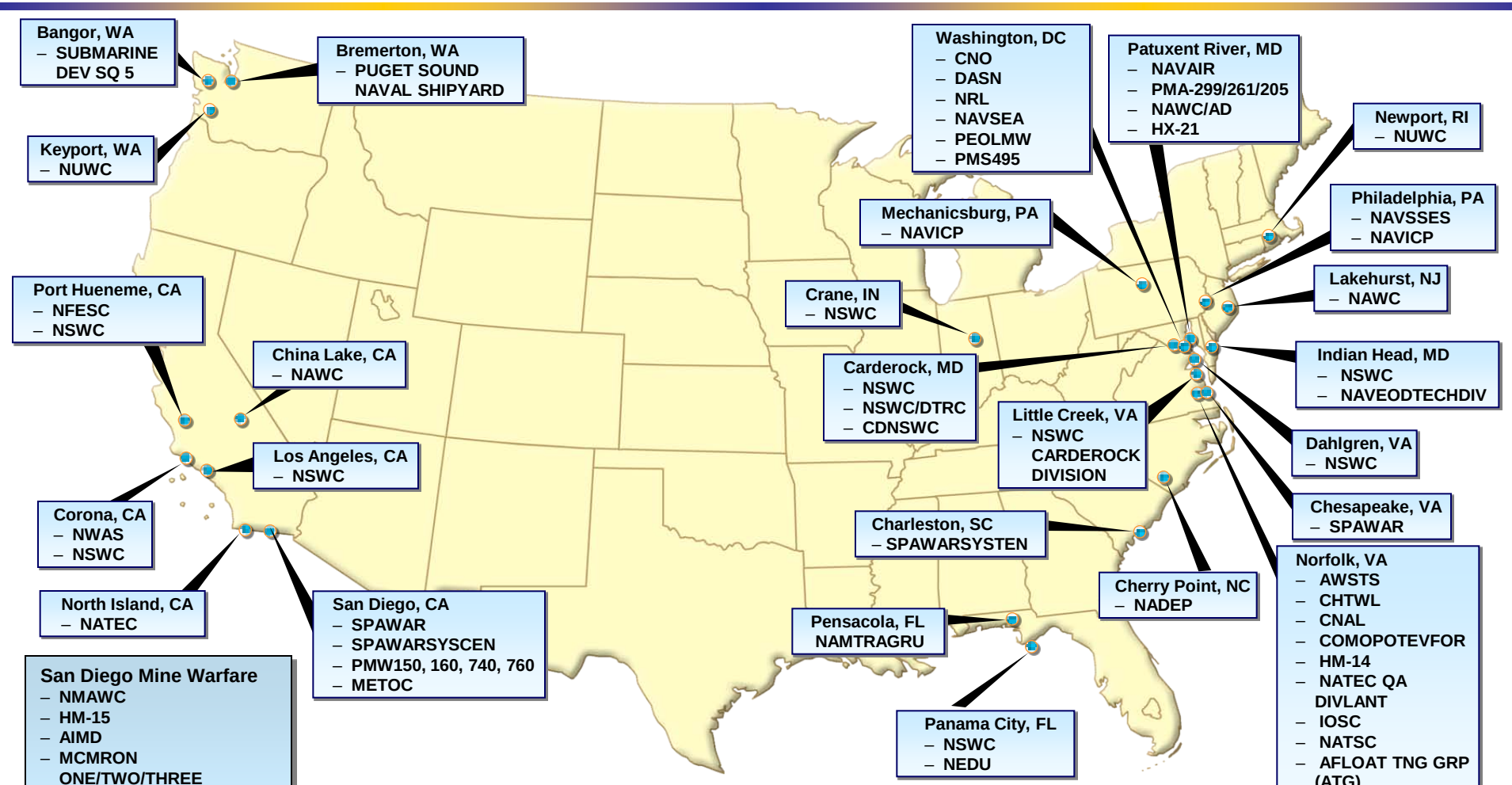
LCS Mission Packages
PMS 420
CAPT J. Ailes

PEO LMW – This is Who We Are



PEO LMW Government Partners

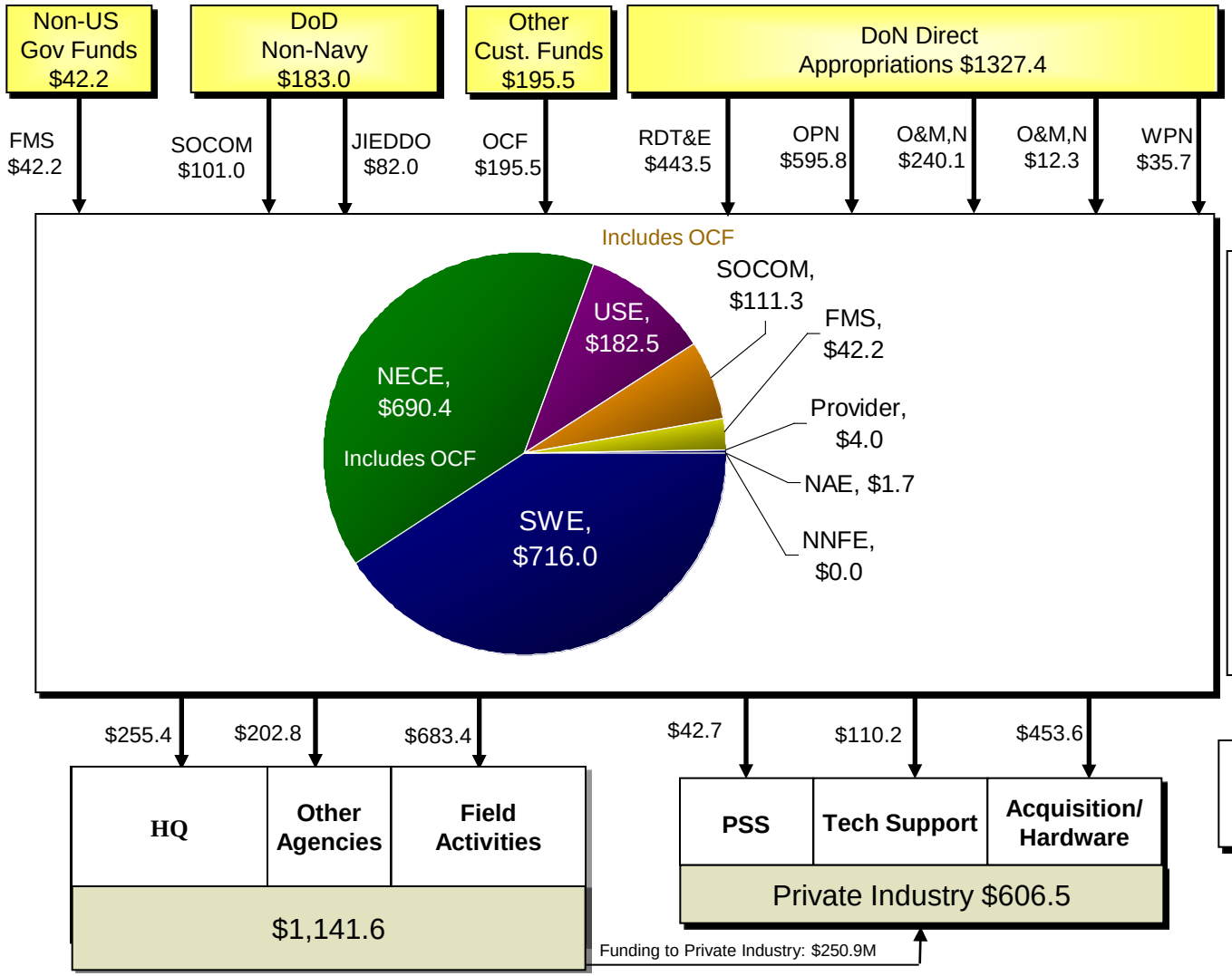
Working with Government activities in 11 different states and the District of Columbia.



PEO LMW Manages 226 Separate Programs!
2-ACAT 1; 8-ACAT II; 14-ACAT III; 69-ACAT IV and 133 Non-ACAT Programs of Record

Funds Flow by Appropriation

(FY10 $M)



TOTAL INFLOWS: $1,748.1

FY09 $2,141.8

Resource Sponsors

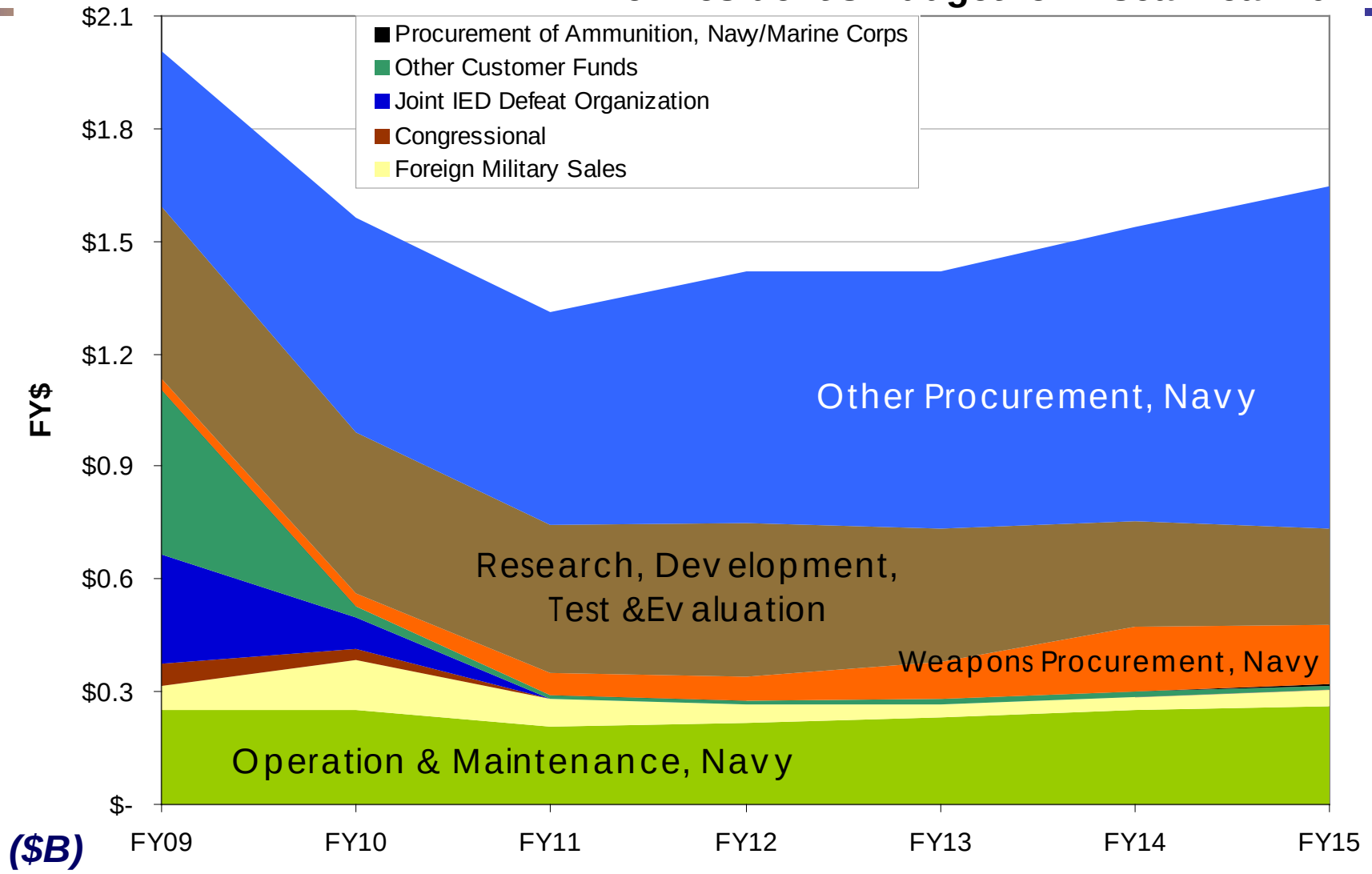
• N85	$675.2M
• N86	$360.9M
• N87	$182.5M
• N88	$ 0.9M
• N4	$106.5M
• N61	$ 0.3M
• FMS	$ 42.9M
• SOCOM	$101.0M
• JIEDDO	$ 82.0M
• OCF	$195.9M

TOTAL OUTFLOWS: $1,748.1

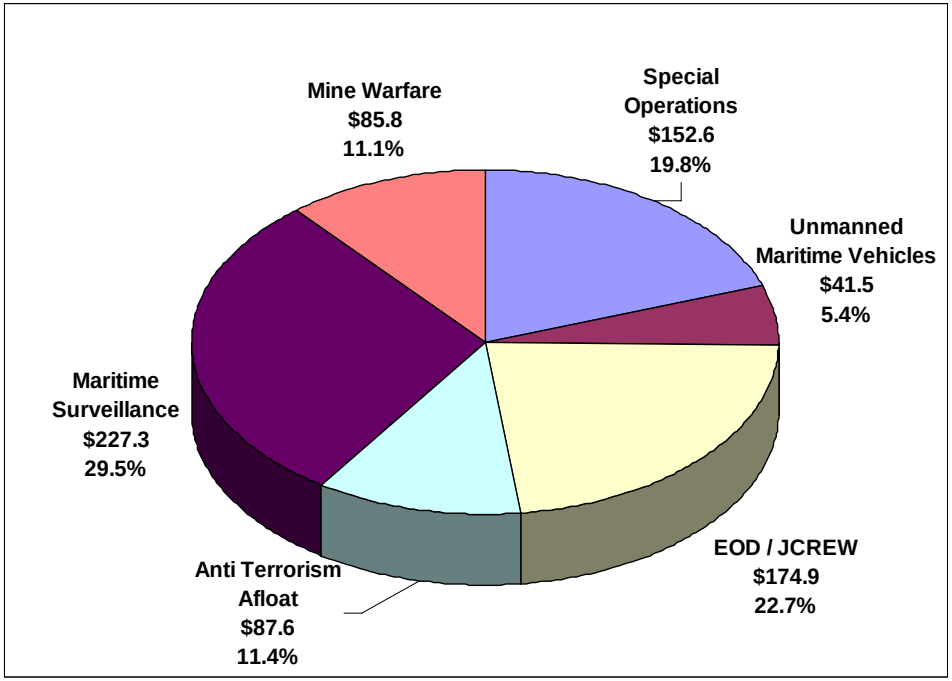
Based on FY10 Program Office QER Data

Total Obligation Authority

The President's Budget for Fiscal Year 2011



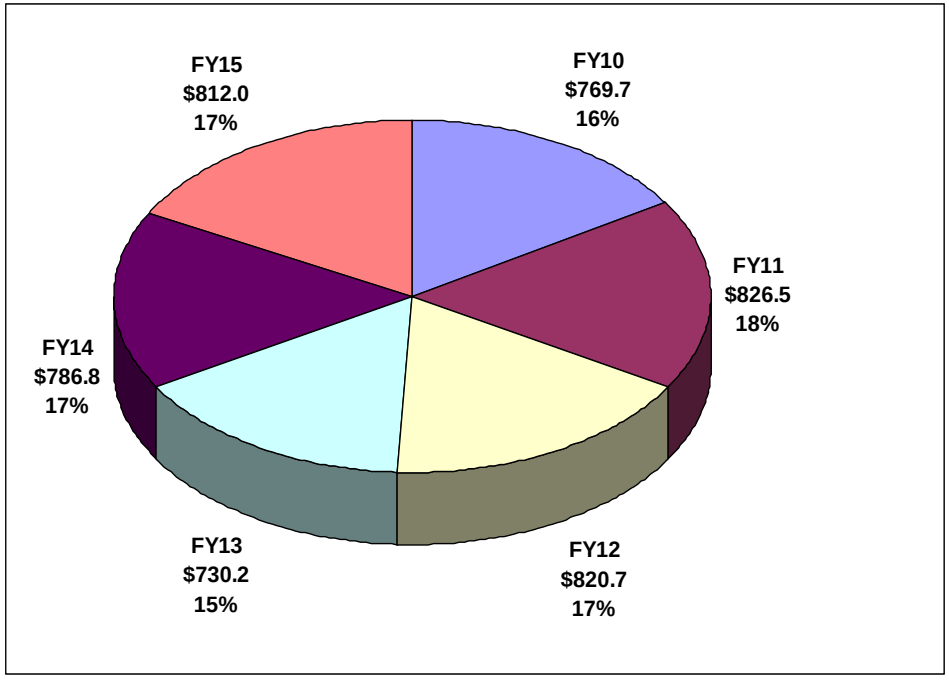
PEO LMW Operational TOA



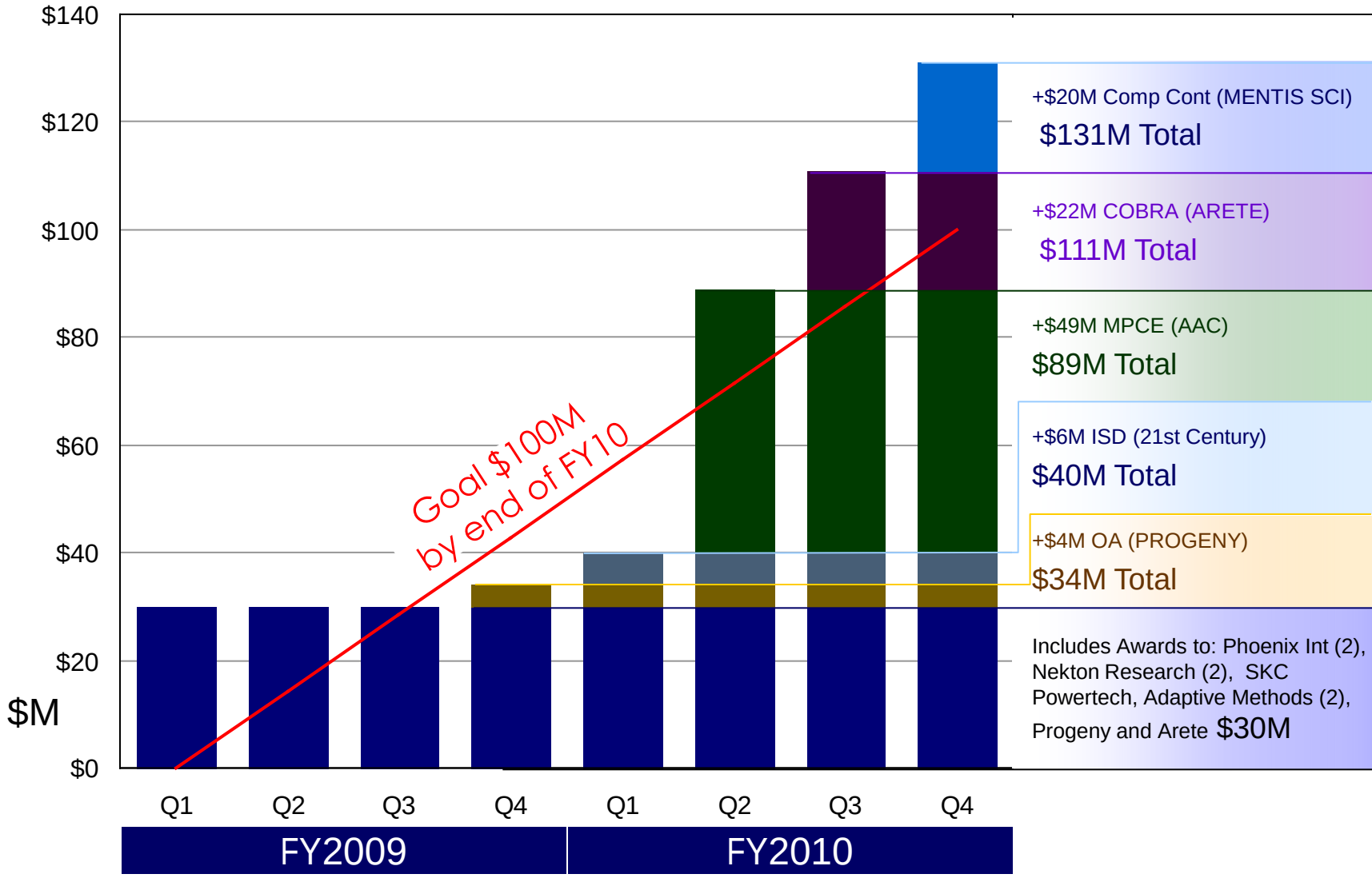
TOA By Warfare Area FY10

~ 50% of LMW TOA is for Operational Fielding

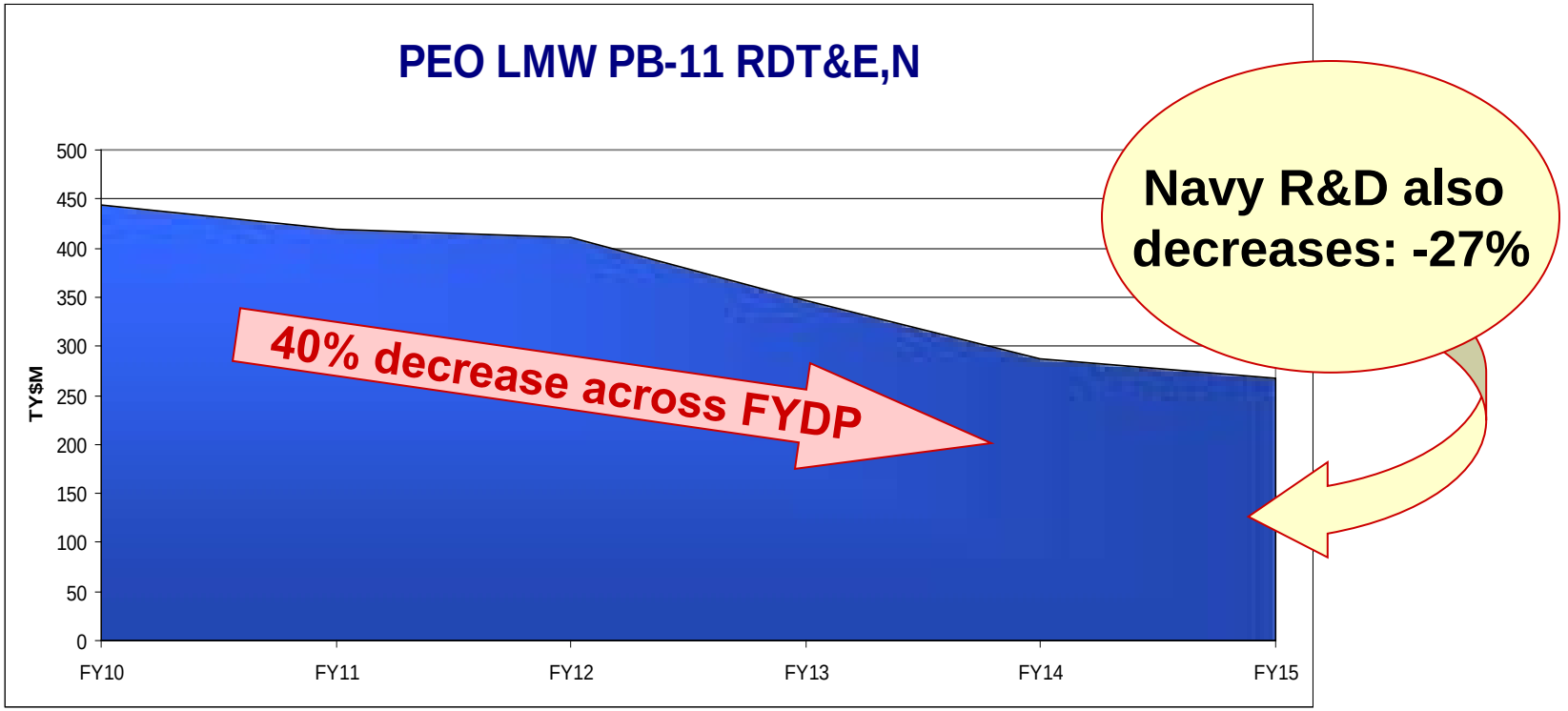
TOA Over the FYDP



PEO LMW SBIR's (Contract Ceiling)



Realities in Challenging Fiscal Environment



- Fiscal Constraints Are Real
- Budgets Will Reduce

Science and Technology Priorities

- Unmanned Systems
- Sensors, Communications and Common Control
- Safe and Efficient Energy
- Very Shallow Water Mine Countermeasures
- Automation Detection/Classification

LCS Mission Modules

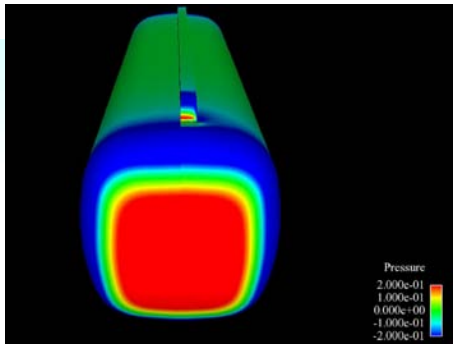
Maritime Security Module

- **Two (2) 11-meter Rigid Hull Inflatable Boats (RIBs)**
- **Two (2) 20-ft TEU berthing containers**
  - 6 Sailor berthing with stowage for VBSS AEL & personal gear
- **One (1) 10-ft TEU head/shower container**
  - 2 toilets, 2 sinks, 1 shower
- **VBSS Allowance Equippage List (AEL)**
  - **Standard Navy VBSS AEL for the SUW MP**
- **Shipboard small arms allowance provides weapons**
- **SUW MP is manned to 19 Sailors (1 OIC)**
  - **Cross-trained for VBSS teams and RIB crews**

Naval Special Warfare Programs

Riverine Outfitting - Procurement and delivery of Small Arms and Visual Augmentation Systems (VAS) Equipment

Shallow Water Combat Submersible - Free-flooding submersible used to transport NSW Operators and their equipment in support of underwater clandestine operations. The SWCS vehicle will have greater crew and cargo capacity, improved life support, extended range and improved electronics/sensors over the existing MK 8 Mod 1 SDV.



Challenges	Opportunities
Shallow Water Combat Submersible Submitted for Consideration: SDV CDU RTT Dustless Aerogel Coating SOCOM (pending) Multi-Diver heating and cooling Puncture. Abrasion and Fire Retardant Protective Suit ONR (Pending) Multi-Fuel engine Development	SWCS RFP let 24 March 10: Competitive Procurement Q4/2011 FY 11 DAC & FCT Topics FY11 S&T Efforts SBIRs/STTRs

Explosive Ordnance Disposal (EOD) & Counter-RCIED Electronic Warfare (CREW)

JSEOD Programs - Provides RDT&E, procurement, life cycle support, and continuous improvement of specialized systems, equipment, and procedures required to support the EOD mission.

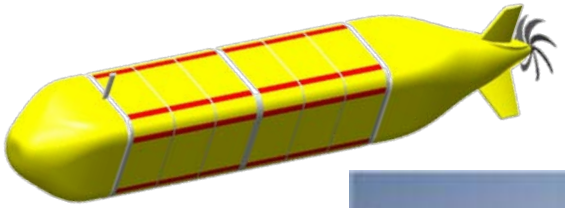
Underwater EOD - Provides systems /equipment in support of EOD Maritime-Homeland Defense (M-HLD) mission, Small Unmanned Undersea Vehicles (UUVs) for EOD Mine Countermeasures (MCM) and the M-HLD missions and EOD Life Support/Salvage systems.

JCREW Programs - Counter Radio-Controlled IED Electronic Warfare to disrupt enemy command and control RF communications associated with IEDs

Challenges	Opportunities
EOD	**EOD**
Open architecture environment	SBIR/STTR projects
Common interfaces/controllers for unmanned systems	Advanced EOD Robotic System Competitive Development contracts
CREW/"comms" compatibility	AEORS - planned for 3Q FY 11
Rapid development/fielding for OEF and OIF	
Unmanned system autonomy	
Reduction of hazards to EOD Technicians	**CREW**
CREW	CREW S&T (ONR), SBIR projects
Solution sets to counter rapidly evolving RC-IED threats	Technology maturation
Technology integration	Expanded innovator vendor base
Vehicle/platform integration	JCREW TI/TR via open architecture/open business
Interoperability/compatibility	JCREW 3.3 TI/TR-Industry Day Oct or Nov 10
Weight reduction	Discrete installation/appearance
Power consumption/efficiency	

Unmanned Maritime Vehicle Systems

UMV Systems (PMS406) recently established following re-designation of Remote Minehunting System (RMS) as ACAT-1D Program. PMS406 is responsible for acquisition, management and execution of UMV program portfolio (non-ACAT) unmanned undersea and surface systems. Currently Includes Surface Mine Countermeasures UUV, Large Diameter UUV and all Unmanned Surface Vehicles



Challenges	Opportunities
High Capacity Energy Sources	MCM USV: Competitive Procurement Q1/2011
Navigation, Guidance, Control	AN/AQS-20: Competitive Procurement Q3/2011
Autonomy (Obstacle/Collision Avoidance and Cooperative Behavior)	ONR Innovative Naval Prototype FY11
Robust Communications	SBIRs/STTRs
Sensor and Sensor Processing (Computer Aided Detection/ Classification)	
Common Control / Architectures	
Modular Open Systems	
Vehicle and Payload Interfaces	
Reliable Launch and Recovery from Surface Vessels and Submarines	

THEY FIGHT for US

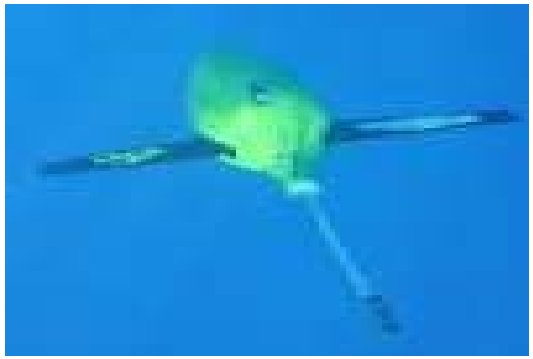
WE WORK for THEM

Questions?

Back-up

UUV Challenges

Today



UUV
- Basic autonomy
- Ocean sensing/change detect
- Single mission, slow speed

Platform
- Auxiliaries
- Recover, reuse

Operations & Environment
- Irregular Warfare
- Permissive

Basic OPS in Benign Environments

Technical Challenges:

- Energy/Endurance
- Autonomy
- Contact Avoidance/Survivability
- C3/Data Exfil
- Launch & Recovery

Operational Challenges:

- Operational Concepts
- Covert Data Exfil
- ROE: Pre thru post hostilities
- Sufficient operational experience to develop/refine TTPs

Future End-State

UUV
- Full autonomy
- Warfighting – i.e. ISR & ASW
- Multi-mission, weapons capable

Platform
- Warships, ships and submarines
- Recover, reconfigure, reuse

Operations & Environment
- Irregular Warfare+ Sophisticated Adversary MCO
- Permissive, Contested, Denied

Advanced OPS in Anti-Access Environments

Mission Modularity

Containerization / Transportation

ISO Standards

Mission Module

MPCE
H/W S/W

Modularity

Mission Package Application Software

Published Seaframe to MP ICD and MPCE Architecture Reference Guide

F41 Working Group

RMS
MCM

USV
MCM

BPAUV
MCM

VTUAV
MCM
ASW
SUW

Vehicl

Mission Systems

USV ICD

AQS-20A
Mine Hunting
Mine Identification

30mm Gun

Sensor / Weapon

What is Naval Open Architecture?

Naval Open Architecture is the confluence of business and technical practices yielding modular, interoperable systems that adhere to open standards with published interfaces.

OA CORE PRINCIPLES

- ***Modular design and design disclosure***
- ***Reusable application software***
- ***Interoperable joint warfighting applications and secure information exchange***
- ***Life cycle affordability***
- ***Encouraging competition and collaboration***

OA in Smartphone Market

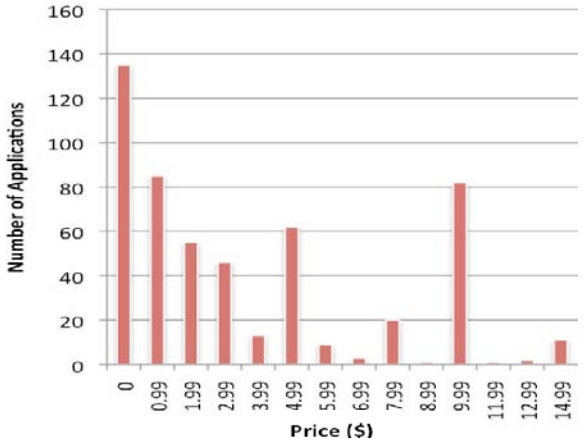
"The sum total of open source developers across the globe is fairly staggering. Imagine having that collective whole working to create interesting, helpful applications, as well as bettering the total experience with the phone. That future is what awaits the smartphone based on open source technology."

–ZDNet

"… new startups answer the call for emerging markets …"

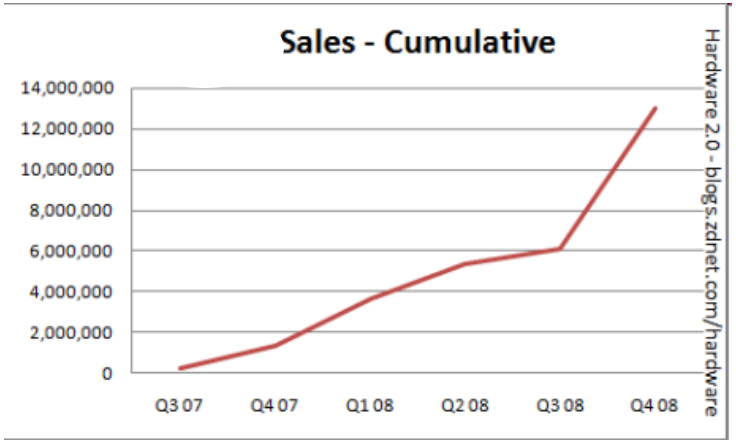
–Google News Service

If apps are cheap to develop, more can be developed and they can be sold at low costs



Cheaper and more plentiful apps, translates into more sales of apps

Cheaper and more plentiful apps puts smart phones in higher demand than other phones

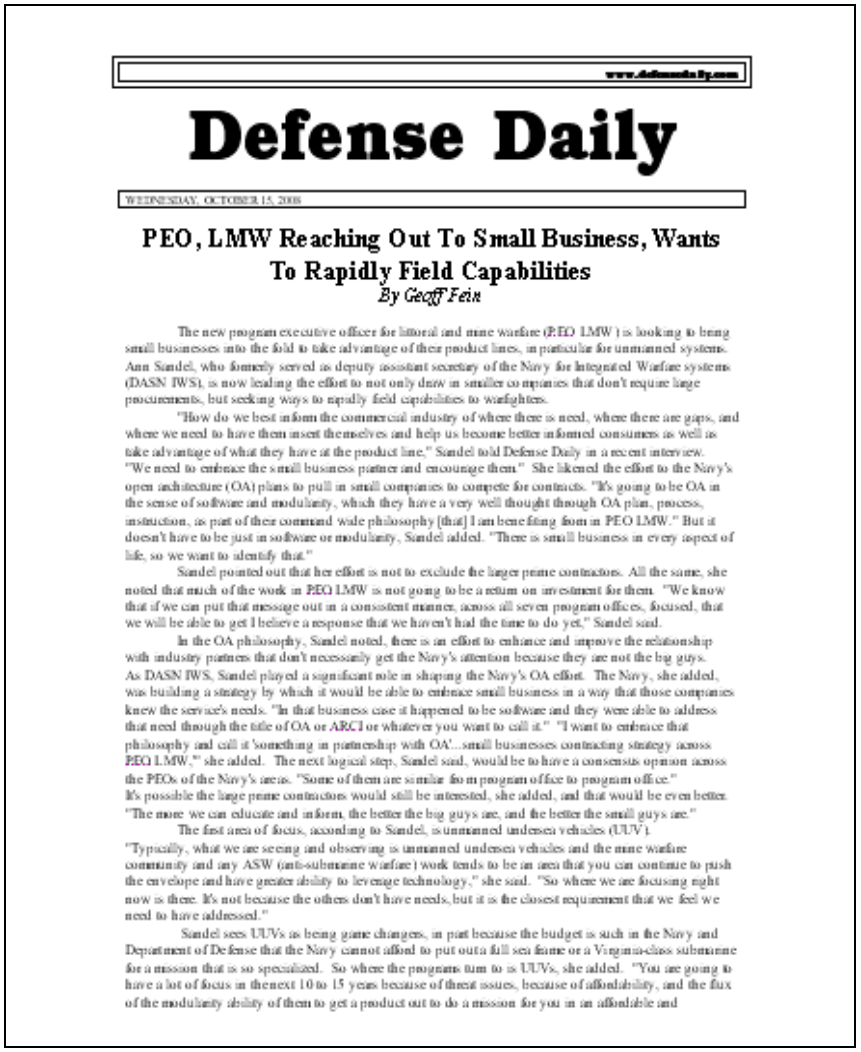


Small Business

PEO LMW Re: Small Business

- *We need to embrace the small business partner and encourage them.*
- *There is small business in every aspect of life, so we want to identify that.*
- *I am developing a small businesses contracting strategy for PEO LMW.*
- *The more we can educate and inform, the better the big guys are, and the better the small guys are.*

~ Quotes from E. Anne Sandel
Taken from Defense Daily news article
15 October 2008



www.defensedaily.com

Defense Daily

WEDNESDAY, OCTOBER 15, 2008

PEO, LMW Reaching Out To Small Business, Wants To Rapidly Field Capabilities

By Geoff Fein

The new program executive officer for littoral and mine warfare (PEO LMW) is looking to bring small businesses into the fold to take advantage of their product lines, in particular for unmanned systems. Ann Sandel, who formerly served as deputy assistant secretary of the Navy for Integrated Warfare systems (DASN IWS), is now leading the effort to not only draw in smaller companies that don't require large procurements, but seeking ways to rapidly field capabilities to warfighters.

"How do we best inform the commercial industry of where there is need, where there are gaps, and where we need to have them insert themselves and help us become better informed consumers as well as take advantage of what they have at the product line," Sandel told Defense Daily in a recent interview. "We need to embrace the small business partner and encourage them." She likened the effort to the Navy's open architecture (OA) plans to pull in small companies to compete for contracts. "It's going to be OA in the sense of software and modularity, which they have a very well thought through OA plan, process, instruction, as part of their command wide philosophy [that] I am benefiting from in PEO LMW." But it doesn't have to be just in software or modularity, Sandel added. "There is small business in every aspect of life, so we want to identify that."

Sandel pointed out that her effort is not to exclude the larger prime contractors. All the same, she noted that much of the work in PEO LMW is not going to be a return on investment for them. "We know that if we can put that message out in a consistent manner, across all seven program offices, focused, that we will be able to get I believe a response that we haven't had the time to do yet," Sandel said.

In the OA philosophy, Sandel noted, there is an effort to enhance and improve the relationship with industry partners that don't necessarily get the Navy's attention because they are not the big guys. As DASN IWS, Sandel played a significant role in shaping the Navy's OA effort. The Navy, she added, was building a strategy by which it would be able to embrace small business in a way that those companies knew the service's needs. "In that business case it happened to be software and they were able to address that need through the title of OA or ARCI or whatever you want to call it." "I want to embrace that philosophy and call it 'something in partnership with OA'...small businesses contracting strategy across PEO LMW," she added. The next logical step, Sandel said, would be to have a consensus opinion across the PEOs of the Navy's areas. "Some of them are similar from program office to program office." It's possible the large prime contractors would still be interested, she added, and that would be even better. "The more we can educate and inform, the better the big guys are, and the better the small guys are."

The first area of focus, according to Sandel, is unmanned undersea vehicles (UUV). "Typically, what we are seeing and observing is unmanned undersea vehicles and the mine warfare community and any ASW (anti-submarine warfare) work tends to be an area that you can continue to push the envelope and have greater ability to leverage technology," she said. "So where we are focusing right now is there. It's not because the others don't have needs, but it is the closest requirement that we feel we need to have addressed."

Sandel sees UUVs as being game changers, in part because the budget is such in the Navy and Department of Defense that the Navy cannot afford to put outa full sea frame or a Virginia-class submarine for a mission that is so specialized. So where the programs turn to is UUVs, she added. "You are going to have a lot of focus in the next 10 to 15 years because of threat issues, because of affordability, and the flux of the modularity ability of them to get a product out to do a mission for you in an affordable and

SBIR Snapshot

- 164 contracts under 58 topics FY2003 - FY2009
- 110 Phase I contracts ($16.6M)
- 43 Phase II contracts through 2008 topics ($33.2M)
- GOAL: $225M in Phase III contract ceilings by end of this fiscal year

We Will Exceed Our Goal!!!

Contact Information

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