Unmanned Systems

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Captain Joe Beel

Commanding Officer
SPAWAR Systems Center Pacific

Distribution Statement

Unmanned Systems: A Top Priority In The U.S. Defense Strategy

*"Emphasize advanced capabilities, such as Special Operations Forces and **new technologies like intelligence, surveillance and reconnaissance (ISR), unmanned systems**, and cyberspace capabilities."*

Source: *DoD 2012 Defense Strategic Guidance Report*
Sustaining U.S. Global Leadership: Priorities For 21st Century Defense

Unmanned Systems: A Critical Part of DoD's Acquisition Strategy

"… *warfighters value the* ***inherent features of unmanned systems****, especially their* ***persistence, versatility, and reduced risk to human life****."*

"Unmanned systems provide ***diverse capabilities*** *to the joint commander to conduct operations* ***across the range of military operations****…"*

Source: *Unmanned Systems Integrated Roadmap 2011-2036*

Unmanned systems… A Key Focus Area for the Joint Staff

*"Unmanned technologies are on the rise, and they're **gaining importance** not only **in terms of effectiveness**, but also in terms of their **versatility and value**. In an era of fiscal constraint or a new fiscal environment, a platform that offers those traits will almost always be the right one in which to invest."*

General Martin E. Dempsey's Chairman Joint Chiefs Of Staff (CJCS) Remarks at the 2012 Joint Warfighting Conference and Exposition in Virginia Beach, VA. Wednesday, May 16, 2012

Unmanned Systems: A Chief Tenet Of The CNO's Warfighting Strategy

*"Unmanned systems in the air and water will employ greater autonomy and be fully integrated with their manned counterparts. **The Navy will continue to dominate the undersea domain using a network of sensors and platforms - with expanded reach and persistence from unmanned autonomous systems."***

Source: *CNO Tenets as outlined in the Chief Of Naval Operations [Admiral Greenert's] Sailing Directions*

Navy Requirements – Unmanned Systems for increased reach, Warfighting effectiveness

- *Pervasive* coverage
- *Persistent* forward presence
- *Persuasive* power projection

Made by Rafael Defense Systems, the Protector Unmanned Naval Patrol Vehicle was deployed as far back as 2005. Image courtesy of Rafael Advanced Defense Systems.

In support of Navy requirements: ONR's Long Term Autonomy Goals

- Human Interaction
- Perception and Intelligent Control
- Scalable Collaboration
- Intelligent Architectures

Near Term	Mid-Term	Far-Term	
Individual or small numbers of systems, low ops tempo, moderate manning, simple environments	**Increased operational envelope, autonomous planning & control with reduced need for human intervention**	**New operational concepts, longer term missions with much more effective manning**	**Human/Machine & Machine/Machine Teaming, More Distributed C2, New Mission & Tactics**

Information Dominance Roadmap: Candidates for Automation/Autonomy in Battlespace Awareness

Fuse Essential Combat Information	Understand the Operating Environment	Enable Informed, Decisive Action
Streamline Tasking, Planning and Direction	Develop a Shared, Relevant Real-time COP / CMP	Increase Warfighting Options
Advance Sensor Development Across All Domains	Understand and Predict the Physical and Virtual Environments	
Fully Automate Processing, Fusion and Product Delivery	Understand Capabilities and Intentions of Allies, Adversaries and Neutrals	

Source: Information Dominance Roadmap – Battlespace Awareness, Advanced Capabilities (2020 – 2028)

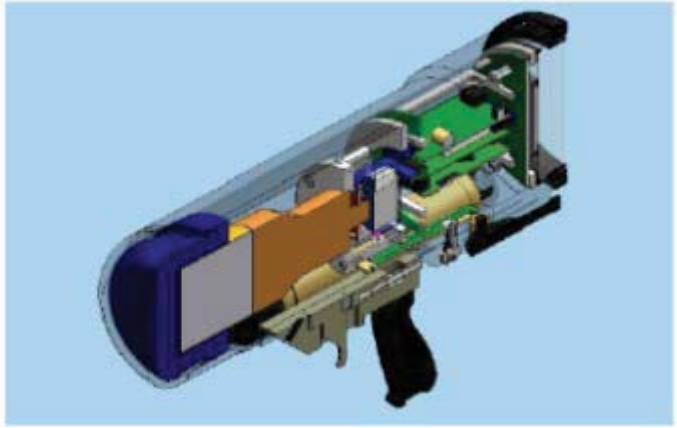
Autonomy, Sensing, Data Assessment, Perception

"We've demonstrated the ability to employ more modern unmanned systems, including autonomous underwater vehicles… to hunt for and detect mines…"

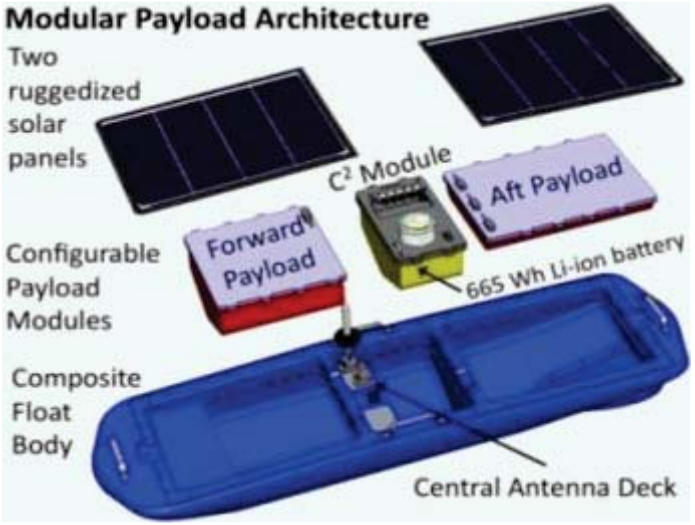
Vice Admiral John W. Miller, Commander, U S Naval Forces Central Command, United States Fifth Fleet, following 30-nation international mine counter-measures exercise, SEP 2012

Mk18 Swordfish being deployed and recovered during recent maritime exercise in the Arabian Gulf

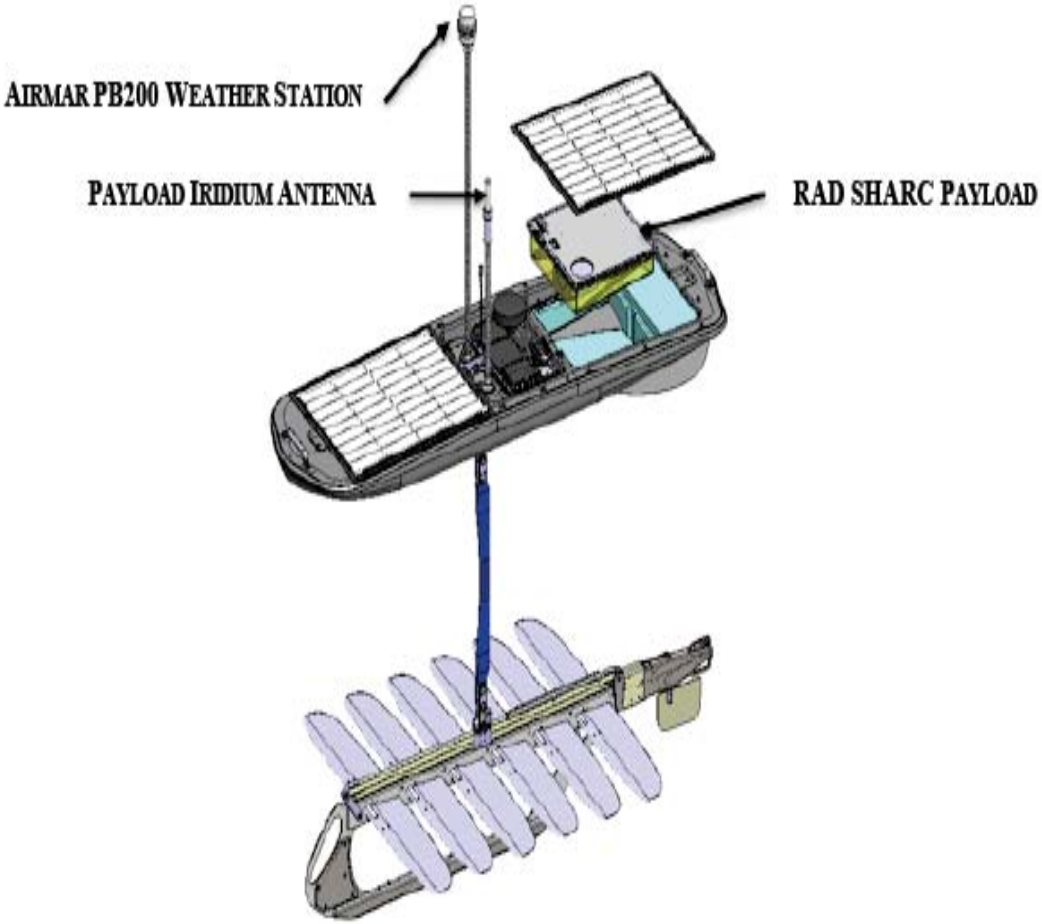
Autonomy, Sensing, Data Assessment, Perception



AN/PDR-78 Underwater Gamma Detector



RAD SHARC



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Autonomy, Sensing, Data Assessment, Perception

- Fully autonomous, long-endurance, land-launched
- Advanced sensing for littoral environments

Large Displacement Unmanned Undersea Vehicle (LDUUV)

Interoperability, Command and Control – Missions Systems Lead To Navy's UAS Program

Command and Control - Added Capability for USAF Global Hawk

- **Reach-back kits** - can now fly Global Hawk anywhere in the world, from Beale AFB
- **Dual Channel Control Ops** - doubled the number of Global Hawks that can be controlled in-theater

Autonomy, Command and Control, Interoperability Intelligent Behaviors, Communications

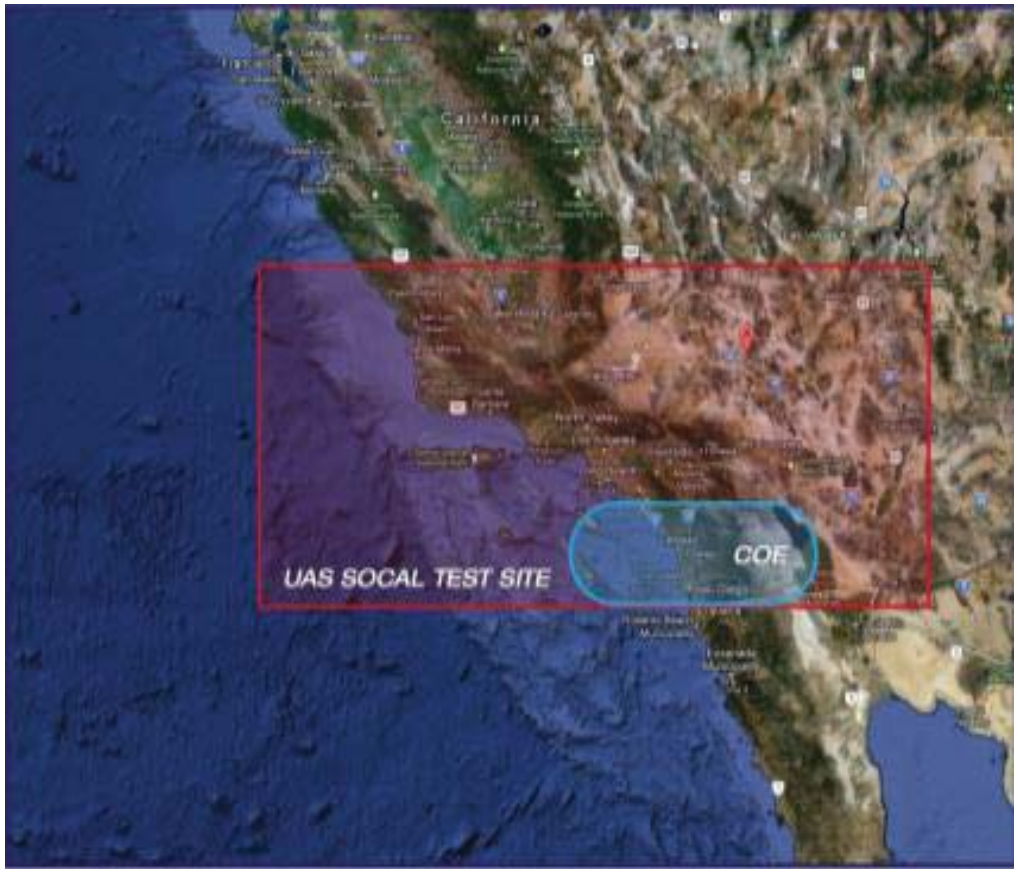
- More autonomous
- More survivable
- More reliable
- Extended comms
- Extended mission durations
- Improved dexterity
- Obstacle
    - Climbing Stairs
    - Exploring tunnels

Autonomy, Command and Control, Intelligent Behaviors, Sensing

- Sensor and perception systems
- Custom radar tracking algorithms for small-boat maneuverability
- Digital nautical charts imported into world model
- Collision avoidance systems

San Diego Region as a Center of Excellence for Unmanned Systems

- SOCAL/San Diego ideal location
- San Diego established leader in unmanned systems technology
- San Diego and SSCPAC established partnerships
- SSCPAC only warfare center in major Fleet concentration area



*FAA intends to designate six areas nationwide as UAS Test Sites. San Diego Region Coalition joining with a coalition from China Lake area to submit a bid for a SOCAL designation. **Source: SDMAC Report***

Takeaways

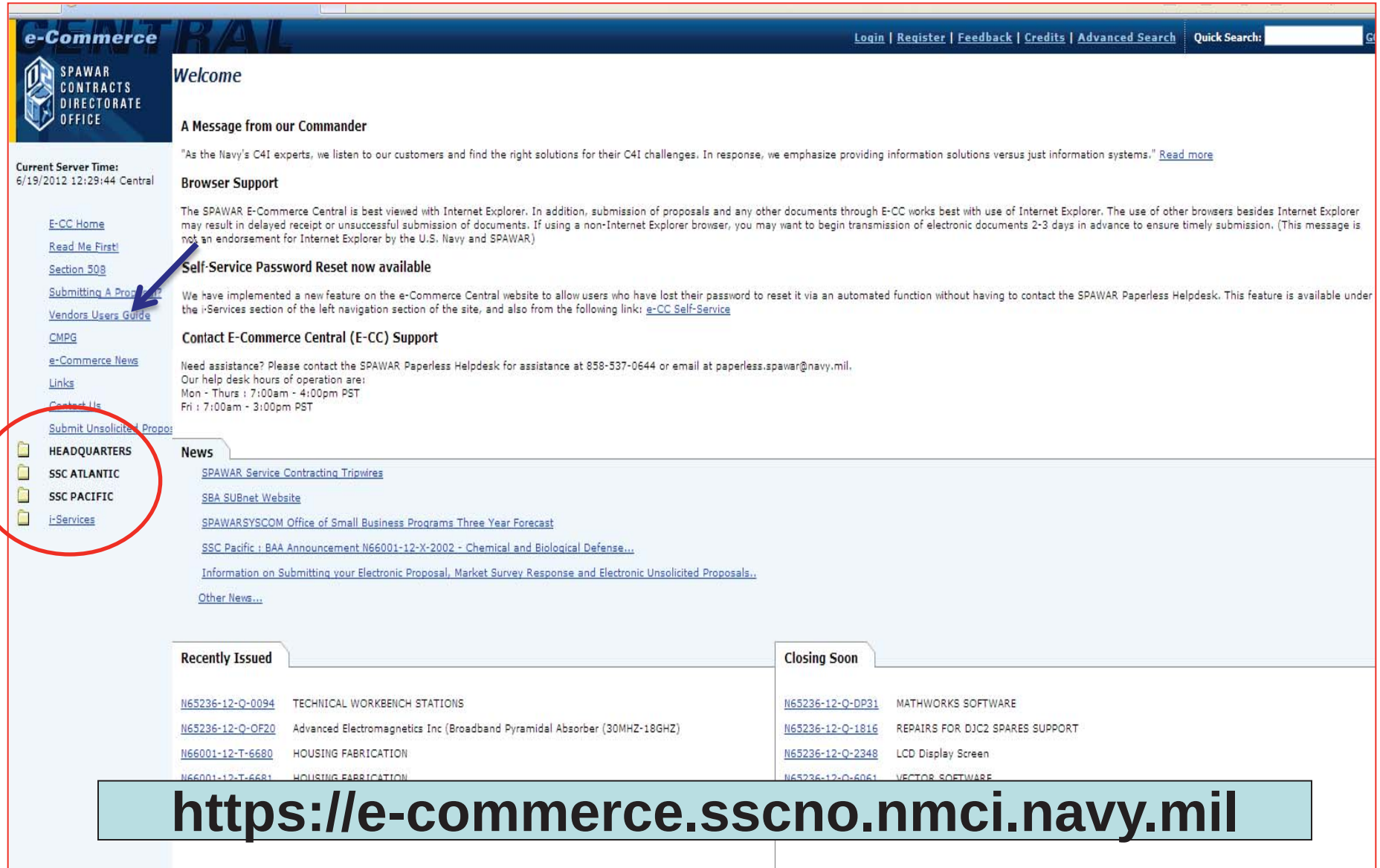
- San Diego and SSCPAC have proven expertise
  - Extensive Domain experience (air, land, surface, underwater)
  - Appropriate infrastructure in place
  - Location, location, location
  - Strong Fleet/Warfighter relationships
- Future, shared success
  - Continued collaboration
  - Emphasis on simplicity, rigor
  - Development of platform agnostic systems
  - Use of modular designs, open architecture

Distribution Statement

TEAM SPAWAR OSBP WEBSITE

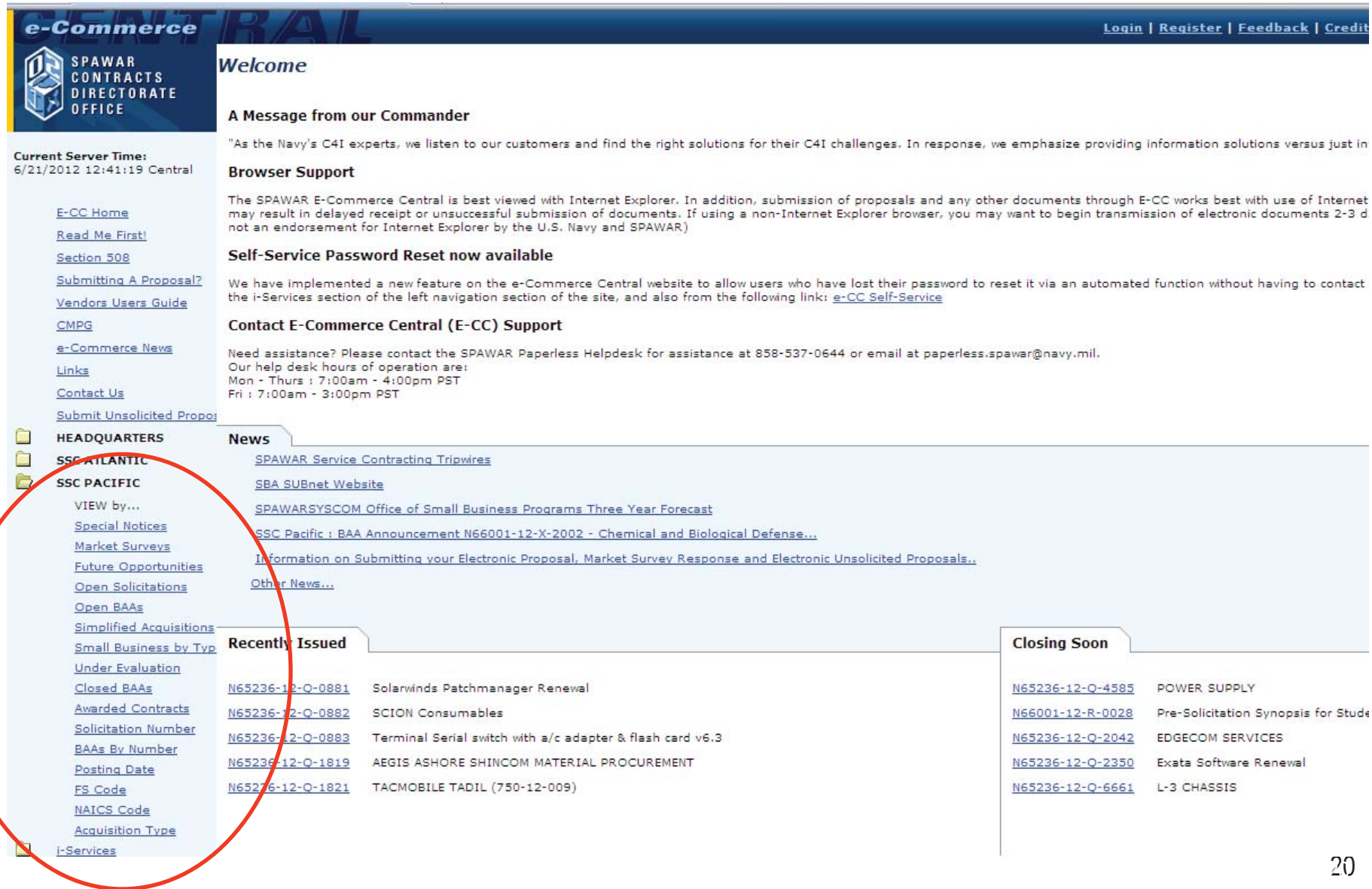
http://www.public.navy.mil/spawar/Pages/SmallBusiness.aspx

SPAWAR E-Commerce Central (E-CC) Website

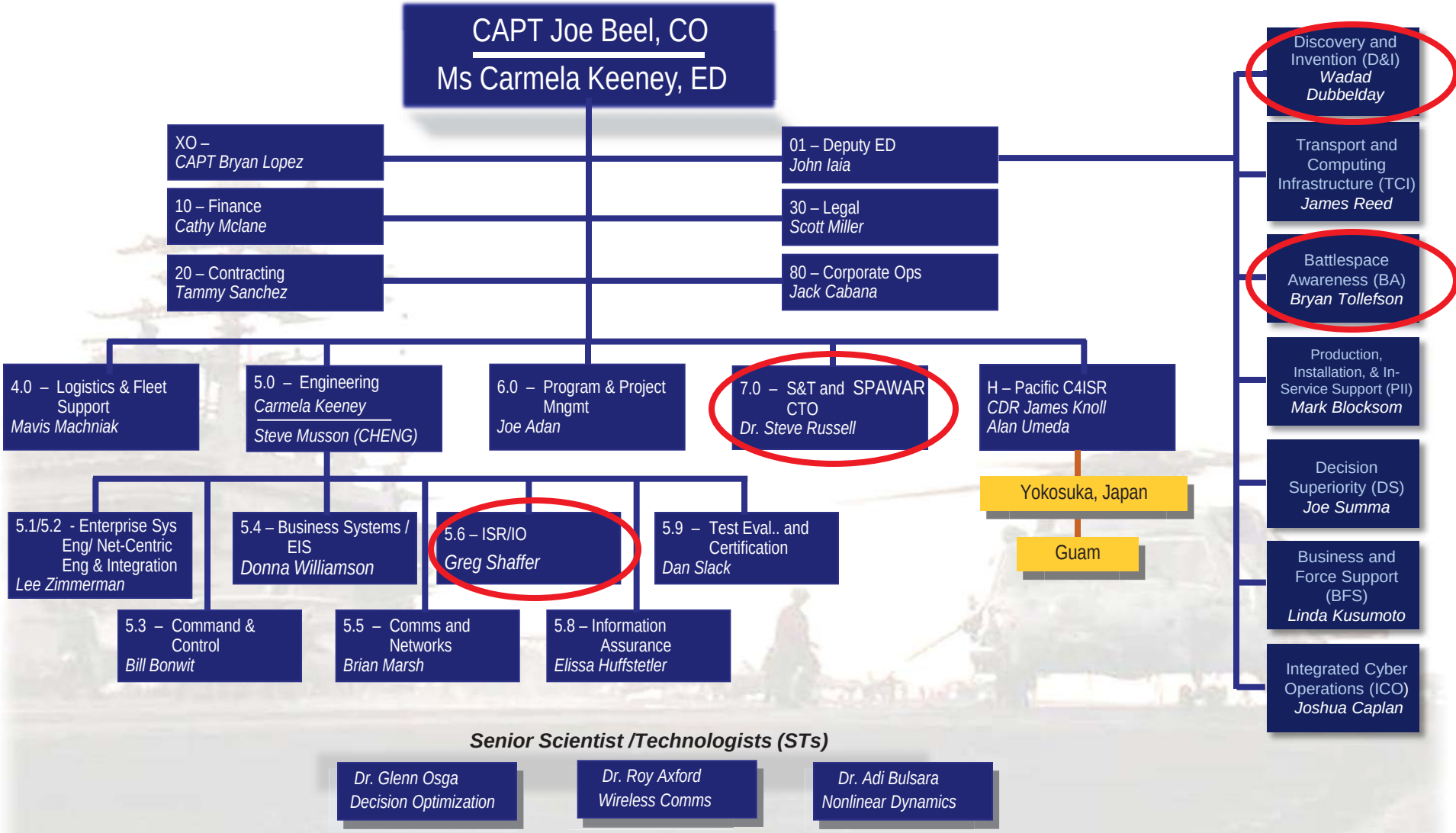


https://e-commerce.sscno.nmci.navy.mil

How To Locate A Specific SPAWAR Contract Opportunity



Org Chart


CAPT Joe Beel, CO
Ms Carmela Keeney, ED
XO – CAPT Bryan Lopez
10 – Finance Cathy Mclane
20 – Contracting Tammy Sanchez
01 – Deputy ED John Iaia
30 – Legal Scott Miller
80 – Corporate Ops Jack Cabana
Discovery and Invention (D&I) Wadad Dubbelday
Transport and Computing Infrastructure (TCI) James Reed
Battlespace Awareness (BA) Bryan Tollefson
Production, Installation, & In-Service Support (PII) Mark Blocksom
Decision Superiority (DS) Joe Summa
Business and Force Support (BFS) Linda Kusumoto
Integrated Cyber Operations (ICO) Joshua Caplan
4.0 – Logistics & Fleet Support Mavis Machniak
5.0 – Engineering Carmela Keeney
Steve Musson (CHENG)
6.0 – Program & Project Mngmt Joe Adan
7.0 – S&T and SPAWAR CTO Dr. Steve Russell
H – Pacific C4ISR CDR James Knoll Alan Umeda
Yokosuka, Japan
Guam
5.1/5.2 - Enterprise Sys Eng/ Net-Centric Eng & Integration Lee Zimmerman
5.4 – Business Systems / EIS Donna Williamson
5.6 – ISR/IO Greg Shaffer
5.9 – Test Eval.. and Certification Dan Slack
5.3 – Command & Control Bill Bonwit
5.5 – Comms and Networks Brian Marsh
5.8 – Information Assurance Elissa Huffstetler
Senior Scientist /Technologists (STs)
Dr. Glenn Osga Decision Optimization
Dr. Roy Axford Wireless Comms
Dr. Adi Bulsara Nonlinear Dynamics

Unmanned Systems POCs

Battlespace Awareness (BA)
Bryan Tollefson
553-7634 (o)

Code 5.6 - Intelligence, Surveillance, Reconnaissance, Information Operations
Greg Shaffer

Code 56400 Maritime Systems Division

Lynn Collins, Division Head
Rich Arietta, Code 56406
Todd Webber, Code 56440
Hank Turner, Code 56240

Discovery and Invention (D&I)
Wadad Dubbelday
553-3910 (o)

Code 7.0 - Science and Technology, Chief Technology Officer
Dr. Steve Russell

Code 71700 Advanced Systems and Applied Sciences Division

Martin Machniak, Division Head
Bart Everett, Code 71705
Tracy Pastore, Code 71710
Hoa Nguyen, Code 71710