

MARITIME

Agenda

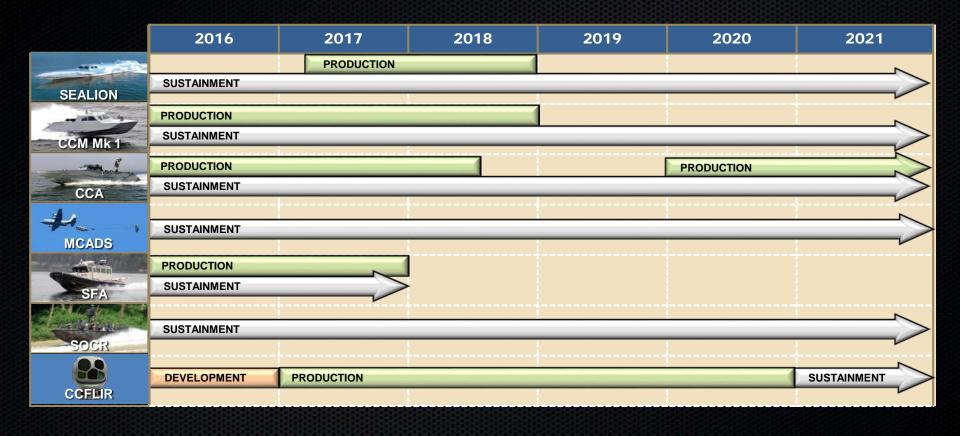
Surface Objectives

- NSW Surface Craft Roadmap
- Program Efforts and Technology Areas of Interest
- Diving Objectives
 - Program Efforts and Technology Areas of Interest
- PMS 340 Objectives
 - SDV to SWCS
 - Program Efforts and Technology Areas of Interest
- PMS 399 Objectives
 - DDS Modernization
- Undersea Objectives
 - DCS Acquisition Program Overview
 - Technology Demonstrators
 - Program Efforts and Technology Areas of Interest
- Open Forum Questions



MARITIME

NSW Surface Craft Roadmap



Combatant Craft Assault (CCA)

- Medium range, maritime assault, interdiction, insertion, and extraction platform
- Provides expanded range, speed, and payload capacity over existing Naval Special Warfare Combatant craft of similar size



ACQUISITION STRATEGY

• Existing Sole Source Contract

PERIOD OF PERFORMANCE

• FY13 through FY19

MILESTONES

• IOC: FY15

• FOC: FY17

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

FUNDING

• FY16 through FY21

- US Marine Inc. (OEM)
- SOFSA / Lockheed Martin (CLS)

Combatant Craft Medium (CCM) MK 1

- Multi-role surface combatant craft with the primary mission of inserting and extracting SOF in medium threat environments. CCM is a partial replacement for the Mk V SOC and NSW RIB
- Envisioned as an essential step in providing a modern, agile, adaptive, and operationally capable maritime craft as a force multiplier within the SOF structure



ACQUISITION STRATEGY

Full and open competition completed

PERIOD OF PERFORMANCE

• FY15 through FY21

MILESTONES

• IOC: FY15 • FOC: TBD

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

FUNDING

• FY16 through FY21

CURRENT CONTRACT/OEM

• Vigor Works (OEM)

- SEALION provides long range insertion capabilities for SOF personnel. Supports limited coastal patrol and interdiction
- SEALION II overhaul contract awarded FY15



ACQUISITION STRATEGY

- Two craft transferred from Navy, one currently in overhaul
- · Third craft in market research phase

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

PERIOD OF PERFORMANCE

• FY16 through FY21

FUNDING

FY16 through FY21

MILESTONES

• IOC: **FY14** • FOC: **FY18**

- Vigor Works (OEM)
- SOFSA / Lockheed Martin (CLS)

Security Force Assistance Craft (SFA)

- Commercial-off-the-shelf (COTS) combatant craft used to train with partner nations in coastal line patrol and interdiction operations
- Procurement via GSA; currently in life cycle replacement phase





ACQUISITION STRATEGY

• Commercial-Off-The-Shelf (GSA)

PERIOD OF PERFORMANCE

• Through FY17

MILESTONES

IOC (Small): FY11
FOC (Small): FY12
IOC/FOC (Large): FY13

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

FUNDING

• FY16 through FY17

- Safe Boats International (Small)
- Limited GSA Competition (Large)

Special Operations Craft Riverine (SOCR)

 Short range insertion and extraction of SOF and waterborne special reconnaissance in a riverine and/or near-shore littoral environment





ACQUISITION STRATEGY

Sustain Current Fleet

PERIOD OF PERFORMANCE

• FY16 through FY21

MILESTONES

• IOC: FY03

• FOC: FY08

POINT OF CONTACT

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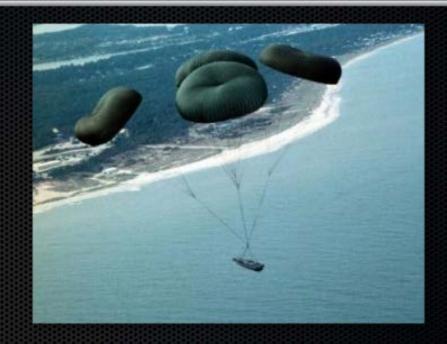
FUNDING

• FY16 through FY21

- US Marine Inc. (OEM)
- SOFSA / Lockheed Martin (CLS)

Maritime Craft Aerial Delivery System

- Provides NSW RIB with a rapid global deployment capability from C-130, C-17, and C-5
- Consists of a platform, mechanical and pyrotechnic releases, parachutes, and NSW RIB MOD kit



ACQUISITION STRATEGY

Capability Sustainment

PERIOD OF PERFORMANCE

• FY16 through FY18

MILESTONES

• IOC: FY00

• FOC: FY00

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

FUNDING

• FY16 through FY21

- Airborne Systems
- Carleton Life Support

Combatant Craft Forward Looking Infrared

 Increased performance, stabilized, internally cooled visual augmentation system with high definition, day color, low light, and infrared cameras with integrated laser range finder / pointer; ruggedized for maritime use



ACQUISITION STRATEGY

- Full and Open Competition completed FY15
- Utilized COTS technology

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

PERIOD OF PERFORMANCE

- 5-year period of performance
- Follow-on 5-year option

FUNDING

• FY16 through FY21

MILESTONES

• Milestone B FY15

• IOC: FY17

• FOC: FY20

CURRENT CONTRACT/OEM

• FLIR Systems, Inc.

Combatant Craft Mission Equipment (CCME)

- A rapid response capability to support SOF combatant craft systems and subsystems. CCME explores solutions to support emerging requirements in support of maritime SOF missions
- Marinizes existing TRL 6+ technologies (technology refresh) to correct system deficiencies, improve asset life, and enhance mission capability



ACQUISITION STRATEGY

 Marinize High TRL Technologies across the family of combatant craft through BAAs, SIBRs, and existing government contracts

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

PERIOD OF PERFORMANCE

Varies

FUNDING

• FY16 through FY21

MILESTONES

Varies

- Kongsberg Defense Aerospace
- SPAWAR Atlantic
- NAVAIR

Technology Areas of Interest

- SATCOM on the Move
- Communications (wireless, LPI/LPD)
- Improved Antenna Technology
- Enhanced Radar Systems
- Active Ride Control
- Shock & Vibration Mitigation
- Survivability Enhancement
- Underwater Mapping

- Remote Weapons Station Integration
- Precision Guided Munition Integration & Certification
- Advanced Weapons
- Extended Range Operations
- Improved Navigation Systems& Electronic Charts
- Enhanced Armor (lightweight)
- Threat Awareness / Warning



Propose Your Technology

1. USSOCOM RFI TE16-4 Technical Experimentation SOF Maritime Surface Systems (FedBizOpps.gov, RFI closes 2 June 2016). Technology Readiness Level (TRL) between 3-6. Proposed experiments may be between a half day and two days in duration and may be conducted in unimproved expeditionary-like conditions.

Experiment date: 19 - 23 September 2016

Theme: SOF Maritime Surface Systems

Location: Joint Base Little Creek, Little Creek, VA

Areas of Interest:

- C4ISR
- Propulsion Systems
- Maritime Inflatable Structures
- Personal Protection
- Craft Protection
- Night Vision Goggle / Display
- Targeting Technologies
- 2. Submit briefing to SOF AT&L Technology & Industry Liaison Office (TILO)

Office: (813)826-9482

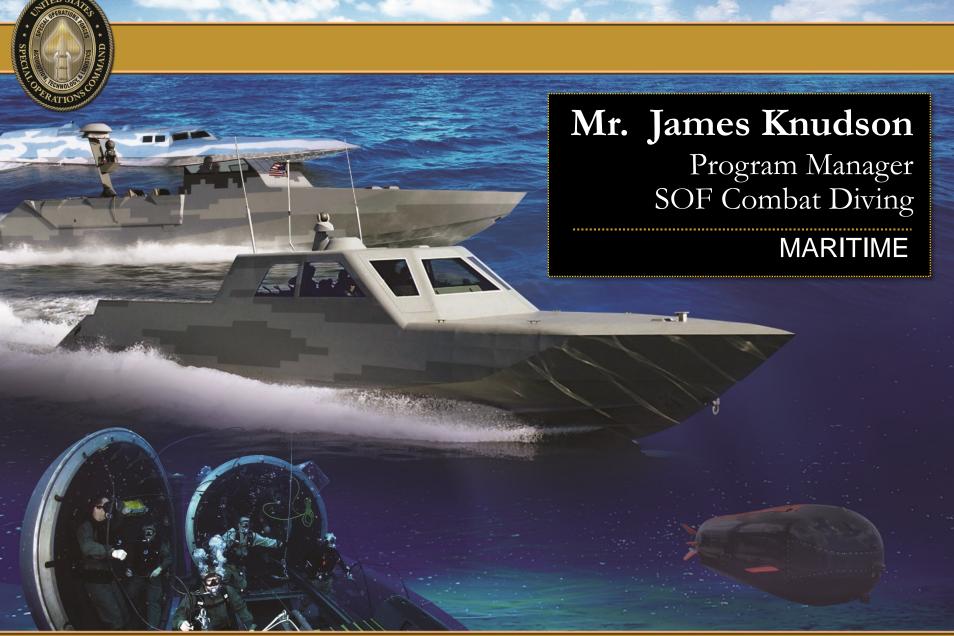
Email: Tilo@socom.mil

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MARITIME

SOF Combat Diving



- Program Objectives
 - To provide for the modernization and advancement of engineering, manufacturing, testing, development, and transition of SOF peculiar diving technologies to the end users. The plan is to provide capabilities to all USSOCOM components
- Technology Development Strategy
 - To elevate commercial technologies modifying them as necessary to make them SOF unique in order to expedite the development process and save on overall costs.

FY16 New Start

- SOF Combat Diving (SOF CD) will function as a system of systems to develop SOF peculiar diving equipment for the SOF Combat Diver
- Planned efforts target equipment such as, life support, diver maneuverability, employment of weapons, diver navigational and situational awareness
- In addition, SOF CD supports the overall plan for Undersea Mobility involving wet or dry submersibles



 Utilization of existing contracts, other government agencies, and new contracts competitively selected

POINT OF CONTACT

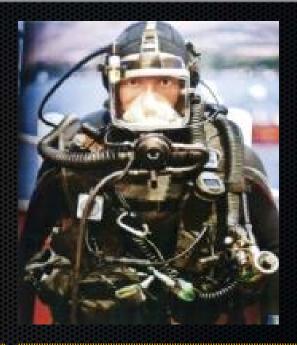
 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

PERIOD OF PERFORMANCE

• The current funded period is FY16 through FY22

FUNDING

- RDT&E: FY16 through FY21
- PROC: FY17 through FY22



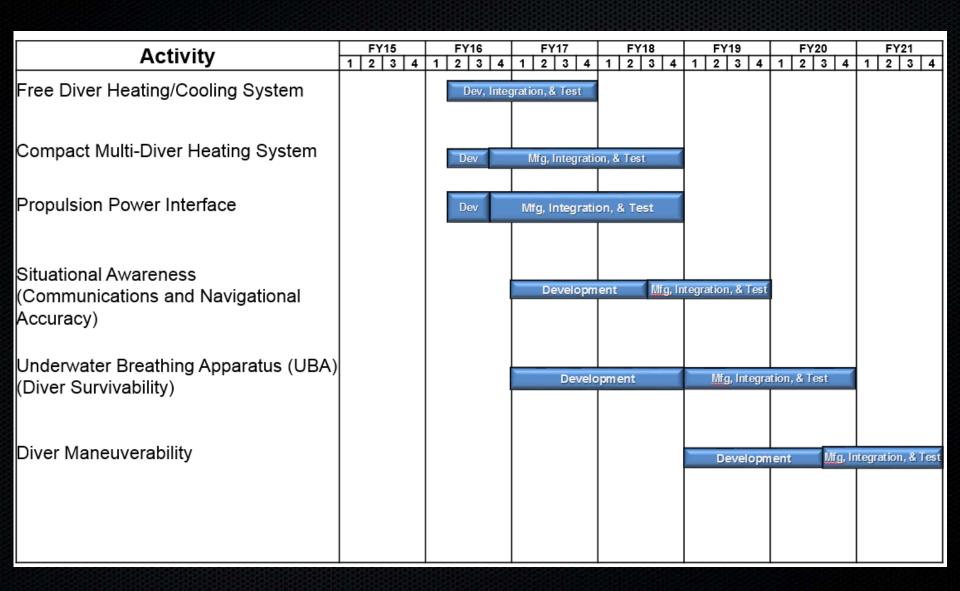
MILESTONES

Various based on project

- Current Free Diver Heating System:
- First delivery: MAR 2016
- IOC: 4QFY17
- FOC: 4QFY21

- DLA Troop Support, Philadelphia, PA
- · Advanced Diver Solutions, Virginia Beach, VA
- Rini Technologies, Oviedo, FL
- Aqua Lung, Vista, CA

SOF Combat Diving Notional Schedule



Current Effort

Rini Free Diver Heating System

- Provides active thermal regulation utilizing a small heat pump
- Battery operated; diver mounted
- Circulates heated water through a tube suit worn by the diver under their wet or dry suit allowing them to operate untethered
- Started as a Small Business
 Innovation Research (SIBR) effort with subsequent transition to SOF Combat Diving POR in FY16
- Unmanned testing completed
 February 2016
- Manned testing to occur in July 2016



Future Efforts and Events

Diver Survivability

- Thermal protection
- UBA improvements with reduced breathing resistance
- Increase duration
- Reduce operator signature (noise)
- Underwater Propulsion
 - Jet Boots
- Communications and Navigational accuracy
 - GPS tracking from the water column
 - Smart phone capabilities in the water column
 - Diver situational awareness both in and out of the water column
 - Communications to and from divers and all host/support platforms both in and out of the water column

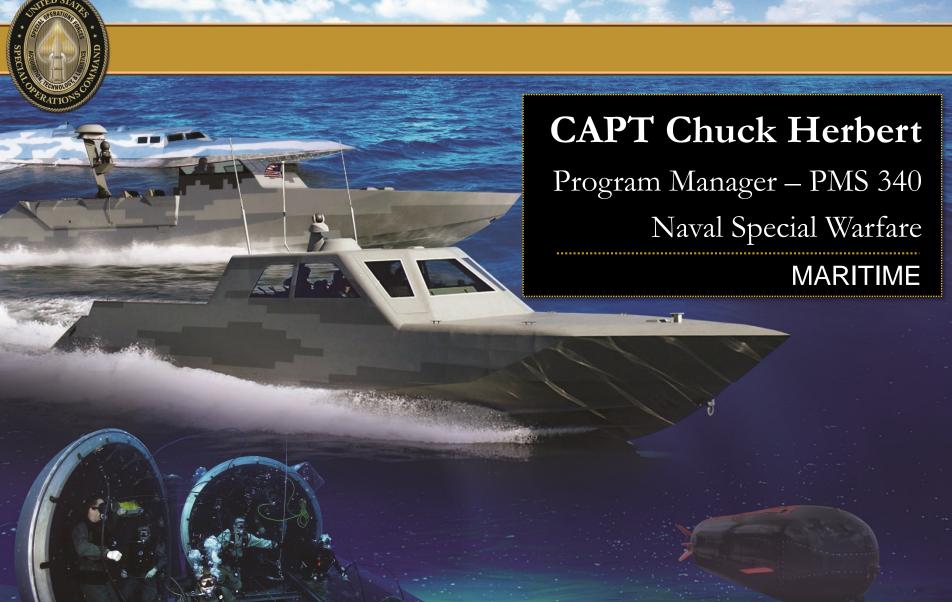
SOFWERX Technical Diving Event

- Focus on commercial practices for technical diving in deep cold water scenarios
- What UBAs and other equipment are used?
- What is the diving dress?
- What duration dives are they capable of?
- What are the safety procedures before, during, and after?

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MARITIME

Shallow Water Combat Submersible (SWCS) UNCLASSIFIED

- Next generation free-flooding wet combat manned submersible to transport Special Operations Forces (SOF) personnel and equipment in hostile waters for a variety of missions
- SWCS replaces the current SDV Mk 8, Mod 1 vehicle



ACQUISITION STRATEGY

- Full and open competition
- Contract awarded in 2011

PERIOD OF PERFORMANCE

• June 2011 - September 2019

MILESTONES

Initial Operational Capability in 2017

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

FUNDING

• RDT&E: FY10 to FY22

• Procurement: FY14 to FY19

• O & M: FY14 to FY22

CURRENT CONTRACT/OEM

• Teledyne Brown Engineering, Inc., Huntsville, AL

SEAL Delivery Vehicle (SDV)

- Current wet manned submersible that transports Special Operations Forces (SOF) personnel and their combat equipment in hostile waters for a variety of missions
- SDV Mk 8, Mod 1 vehicle is in sustainment and experiencing challenges with technology obsolescence



ACQUISITION STRATEGY

In Sustainment

PERIOD OF PERFORMANCE

 SDV MK8 Mod 1 service life extension program: 1992-2020

MILESTONES

In Sustainment

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

FUNDING

• O&M through FY20

CURRENT CONTRACT/OEM

 Naval Surface Warfare Center – Panama City Division, Panama City, FL

Technology Areas of Interest

- High energy power solution to replace existing Mk 89 silver-zinc battery cells
- Organic sensor capabilities
- Non-organic diver thermal systems

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MARITIME

Dry Deck Shelter (DDS)

- The DDS is a certified diving system that attaches to modified Host Submarines. The program provides material safety certification, maintenance, modernization (Field Changes) and minor modifications for the DDS
- Maintenance and modernization contract includes:
 - Restricted Availabilities (RAVs) Interim Maintenance and Modernization periods, conducted every 18 – 24 months
 - Regular Overhauls (ROHs) Full Maintenance and Modernization periods, conducted Every 120 months
 - Field Change Engineering, Fabrication, Assembly, Test and Installation

ACQUISITION STRATEGY

- DDS Maintenance Contract (open competition)
- Contract awarded in 2013
- Total Contract Value: \$99.8M

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

PERIOD OF PERFORMANCE

• July 2013 – July 2018

FUNDING

• O&M, RDT&E and PROC

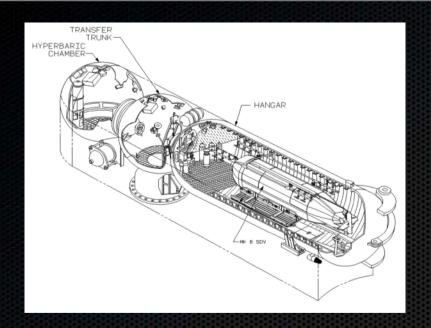
MILESTONES

• 6 DDS retire from 2042 through 2051

CURRENT CONTRACT/OEM

 Oceaneering International Inc. – Marine Services Division (OII-MSD)

Dry Deck Shelter (DDS)

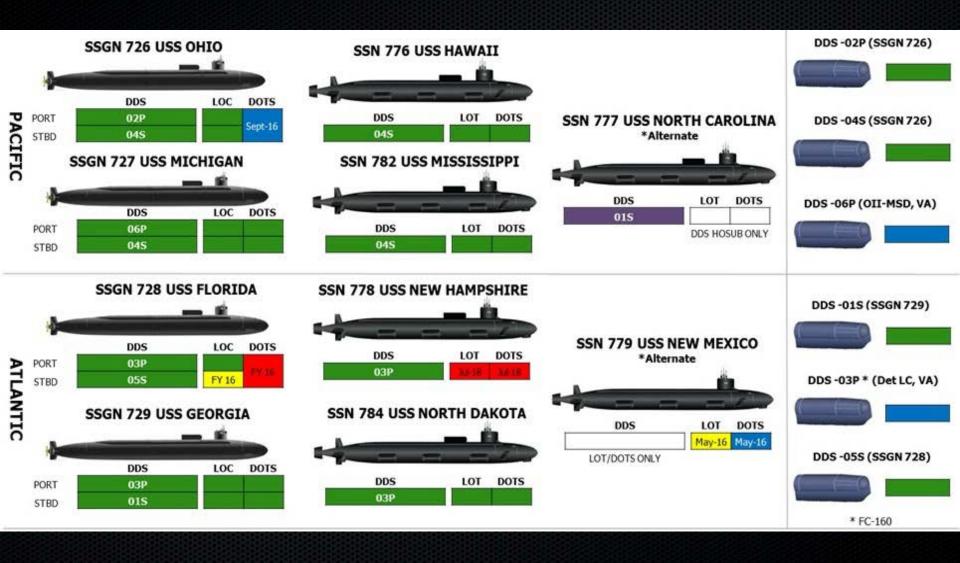


Mock- Up



- Supports SEAL Delivery Vehicle (SDV), Shallow Water Combat Submersible (SWCS), Combat Rubber Raiding Craft (CRRC) and equipment for rapid mass swimmer lock-out
- Employed by VIRGINIA Class and OHIO Class SSGN submarines
- Transportable by sea, air, and land
- 6 DDS in service with Service Life ranging from 2042 through 2051

SSGN & SSN SOF Status



DDS Modernization Project

Purpose:

- Establish a Submarine Large Ocean Interface (SLOI) capable of launching:
 - Larger Special Operation Forces (SOF) payloads currently under design
 - Large Displacement Unmanned Undersea Vehicles (LDUUV)
 - Testing and validating new concepts for automated Launch and Recovery

Approach:

- Incorporates four separate field changes and one ship alteration:
 - FC-167: Remotely Operated Hangar Outer Door
 - FC-168: Extended (50 inches) Dry Deck Shelter
 - FC-169: Remotely Operated Power Handling System (Track and Cradle)
 - FC-170: Remotely Operated Flood and Drain
 - VA Class Ship Alteration integrate modernized DDS

ACQUISITION STRATEGY

- Execute under DDS Maintenance Contract (open competition)
- Contract awarded in 2013
- Modernization Value: \$18.6M

POINT OF CONTACT

 USSOCOM SOF AT&L, Technology & Industry Liaison Office (TILO) (813) 826-9482

PERIOD OF PERFORMANCE

• May 2015 - April 2018

FUNDING

• RDT&E (Joint Navy & USSOCOM)

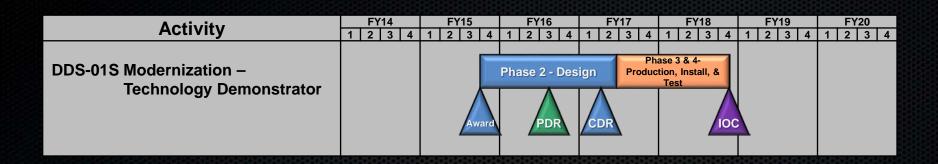
MILESTONES

- Preliminary Design Start 3QFY15
- Critical Design Review 2QFY17
- IOC 3QFY18

CURRENT CONTRACT/OEM

Oceaneering International Inc. –
 Marine Services Division (OII-MSD)

DDS Modernization Project

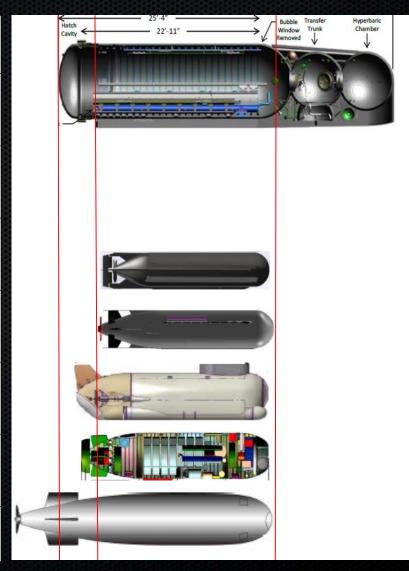


- Demonstrate a Submarine Large Ocean Interface (SLOI) capable of launching and recovering larger SOF payloads currently under development
- Execute via four DDS field changes and one VA Class SHIPALT on one DDS/HOSUB
- DDS Field Change Concept Selection is Complete; Phased PDR in progress



Current and Future DDS Payloads

System	Length	Width	Height	Dry-lbs
DDS 50"				
Extension	25', 4"	65"	65"	30,000
DDS Legacy	22', 5"	65"	68"	10,000
SDV Mk 8	21', 2"	59"	57"	5,800
SWCS	22', 5"	60"	60"	10,000
S301i	23', 9"	93.7"	73.23"	30,000
LDUUV	23', 0"	60"	60"	30,000
UOES3	31', 8"	76"	76"	39,022



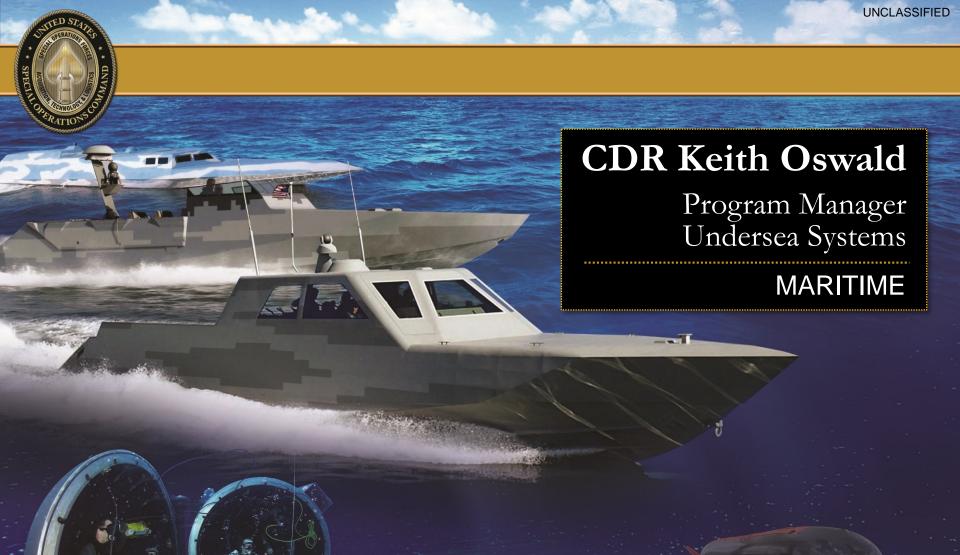
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Undersea Objectives

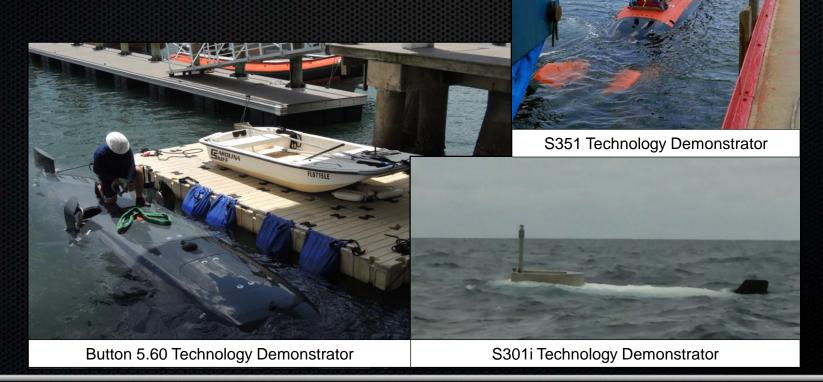
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MARITIME

Dry Combat Submersible (DCS)

- Affordable surface launched capability that satisfies current SOF maritime mobility requirements
- Protects SEALs from harsh underwater environment during insertion and extraction
- Leverages commercial building practices and safety standards



Technology Demonstrators

- Provide USSOCOM with valuable data to validate design, construction, and commercial classing methods in terms of cost, schedule and performance for a future DCS program of record
- Two Firm Fixed Price type contracts were used to design, build, and test commercially classed submersible systems
 - S301i
 - Safety Classification Certificate issued by Germanischer Lloyd (GL)
 - Validated test procedures and SOF Embarkation process, conducted pilot training, and enhanced TRLs for EO/IR and battery systems. Lease contract concluded Oct 2015.
 - S351
 - Safety Classification Certificate issued by Germanischer Lloyd (GL)
 - Accepted by the government on 19 Feb 2016. Currently undergoing characterization testing.
 - Button 5.60
 - Safety Classification Certificate issued by Registro Italiano Navale (RINA)
 - Currently concluding builder's trials prior to government acceptance.



ACQUISITION STRATEGY

 Full and Open Competition for Production Representative System with options for up to two additional systems.

POINT OF CONTACT

- USSOCOM SOF AT&L, Undersea Systems Program Management Office
- 813.826.9482 (TILO)

PERIOD OF PERFORMANCE

• TBD

FUNDING

- RDT&E: FY16 FY18
- PROC: FY18 FY19
- O&M: FY19+

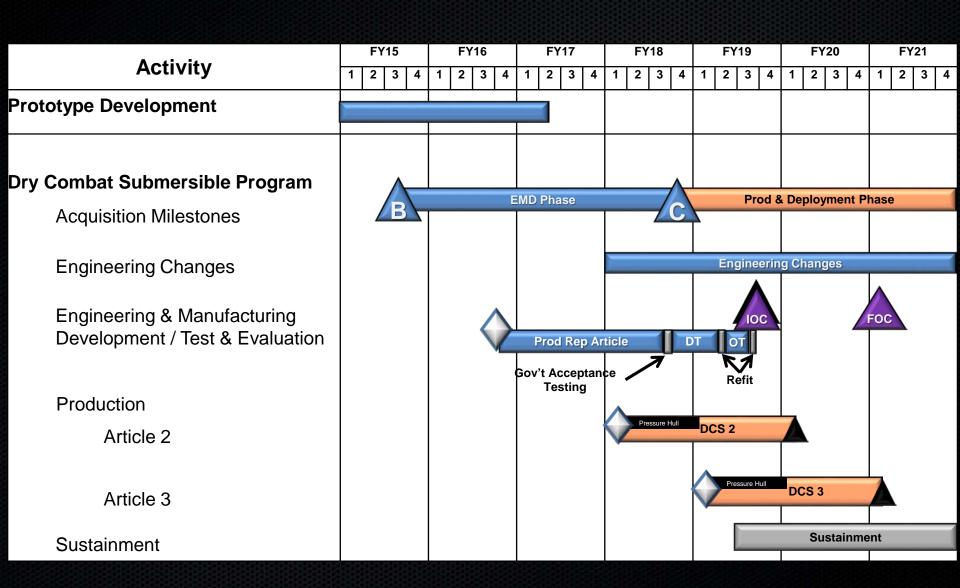
MILESTONES

- RFP issued Oct 2015
- Proposals received January 2016
- Anticipate contract award in June 2016
- IOC planned 3rd Qtr FY19
- FOC planned 1st Qtr FY21

CURRENT CONTRACT/OEM

• TBD

DCS Program Notional Schedule



Technology Areas of Interest

- Immersive Training
- Advanced Sensors & Electronics
 - Low Angle, Pressure Tolerant SATCOM Antenna
 - Undersea Video Systems
 - Pressure Tolerant, Compact Sensors
 - Undersea Navigation Accuracy
 - Submerged Velocity Sensors
- Advanced Power & Energy
- Improved Payloads
 - Automated Anchoring Systems
 - External Modular Payloads
 - 3-5" Diameter Multipurpose Launch Tube
- Signature Management
- Automated Host Vessel Launch and Recovery
- Component Size, Weight, and Power Reduction

S351







ACQUISITION STRATEGY

- USSOCOM BAA used to award system design and construction competitive contracts
- Leverage existing technology, practices and standards used by the international commercial submersible industry

POINT OF CONTACT

- USSOCOM SOF AT&L, Undersea Systems Program Management Office
- 813.826.9482 (TILO)

PERIOD OF PERFORMANCE

• June 2012 - Dec 2016

FUNDING

- Budgeted RDT&E
- FY14 FY16

MILESTONES

- Vessel accepted by the government on 19 Feb 2016.
- Currently undergoing characterization testing

- Submergence Group, LLC (Prime) Chester, CT
- MSUBS (Builder) Plymouth, UK

Button 5.60





Crew: 2 SOF Pilots Cargo: 4 SOF PAX

ACQUISITION STRATEGY

- USSOCOM BAA used to award system design and construction competitive contracts
- Leverage existing technology, practices and standards used by the international commercial submersible industry

POINT OF CONTACT

- USSOCOM SOF AT&L, Undersea Systems Program Management Office
- 813.826.9482 (TILO)

PERIOD OF PERFORMANCE

• Dec 2012 - May 2016

FUNDING

- Budgeted RDT&E
- FY14 FY16

MILESTONES

- Completing builder's trials
- Anticipate government acceptance April 2016

- General Dynamics/Electric Boat (Prime) - Groton, CT
- GSE (Builder) Zingonia, Italy

Risk Reduction Initiative (\$301i)

- Operational diver lock-out dry commercially classed submersible leased from Lockheed Martin Corporation
- It enabled the Program Office to validate technology readiness, safety certification and test & evaluation processes for a future DCS capability
- Increases the fidelity of the DCS development process while simultaneously reducing DCS program risk





ACQUISITION STRATEGY

- Lease enables the rapid access to a commercially classed dry submersible
- "Sunshine Clause" Within the lease contract w/LM allows USSOCOM to review the IACS classing process

POINT OF CONTACT

- USSOCOM SOF AT&L, Undersea Systems Program Management Office
- 813.826.9482 (TILO)

PERIOD OF PERFORMANCE

November 2013 – Oct 2015

FUNDING

- Congressional Plus Up RDT&E
- FY14 FY16

MILESTONES

USG personnel completed the following with the prime contractor:

- Validated test procedures and SOF Embarkation process
- SOF familiarization and pilot training
- Enhanced TRLs for EO/IR and battery systems

- Lockheed Martin, Riviera Beach FL (Lease Prime)
- Submergence Group LLC , Chester CT (Operator)
- MSUBS Ltd. Plymouth, UK (Builder)

Questions

