

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE



CAPT Kate Dolloff
PROGRAM EXECUTIVE OFFICER



MARITIME



Agenda

- **Maritime Portfolio Overview**
- **S&T and R&D Objectives**
- **Surface Objectives**
- **Diving Objectives**
- **PMS 340 Objectives**
- **PMS 399 Objectives**
- **Undersea Objectives**
- **Open Forum Questions**

Organizational Chart

CAPT Kate Dolloff
Mr. Mark Williams

CAPT(S) Brian O'Lavin

CAPT John Newton



CCA
CCH
CCM
CCFLIR
PBL
SFA
SOCR
MCADS




DCS
Technical Support
DDS



DCS
S351



Combat Diving



SDV
SWCS

CDR Keith Oswald

Mr. Jim Knudson

CAPT Chad Muse

Program Executive Office Maritime (M)

UNDERSEA SYSTEMS



SEAL Delivery Vehicle



Dry Deck Shelter

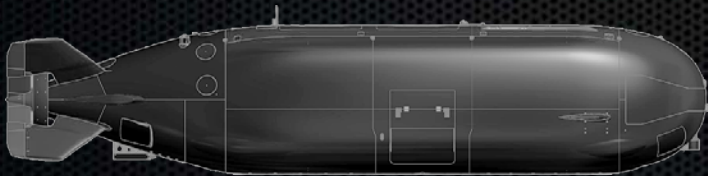


Shallow Water Combat Submersible



SOF Combat Diving

S351



Dry Combat Submersible

SURFACE SYSTEMS



Combatant Craft Assault



Combatant Craft Heavy



Special Operations Craft - Riverine



Combatant Craft Medium Mark 1



Maritime Craft Air Delivery System



Security Force Assistance Large



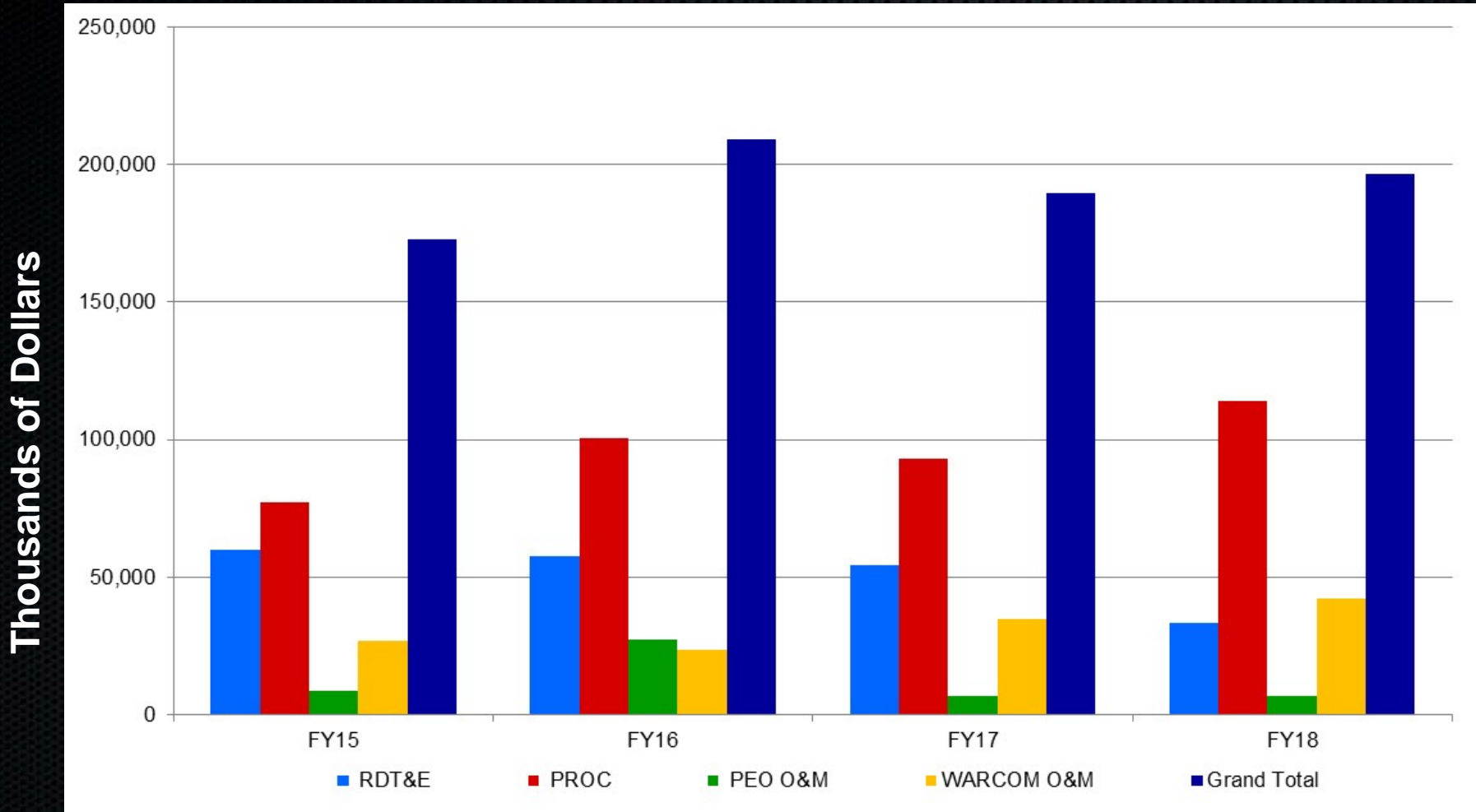
Combatant Craft Forward Looking Infrared 2



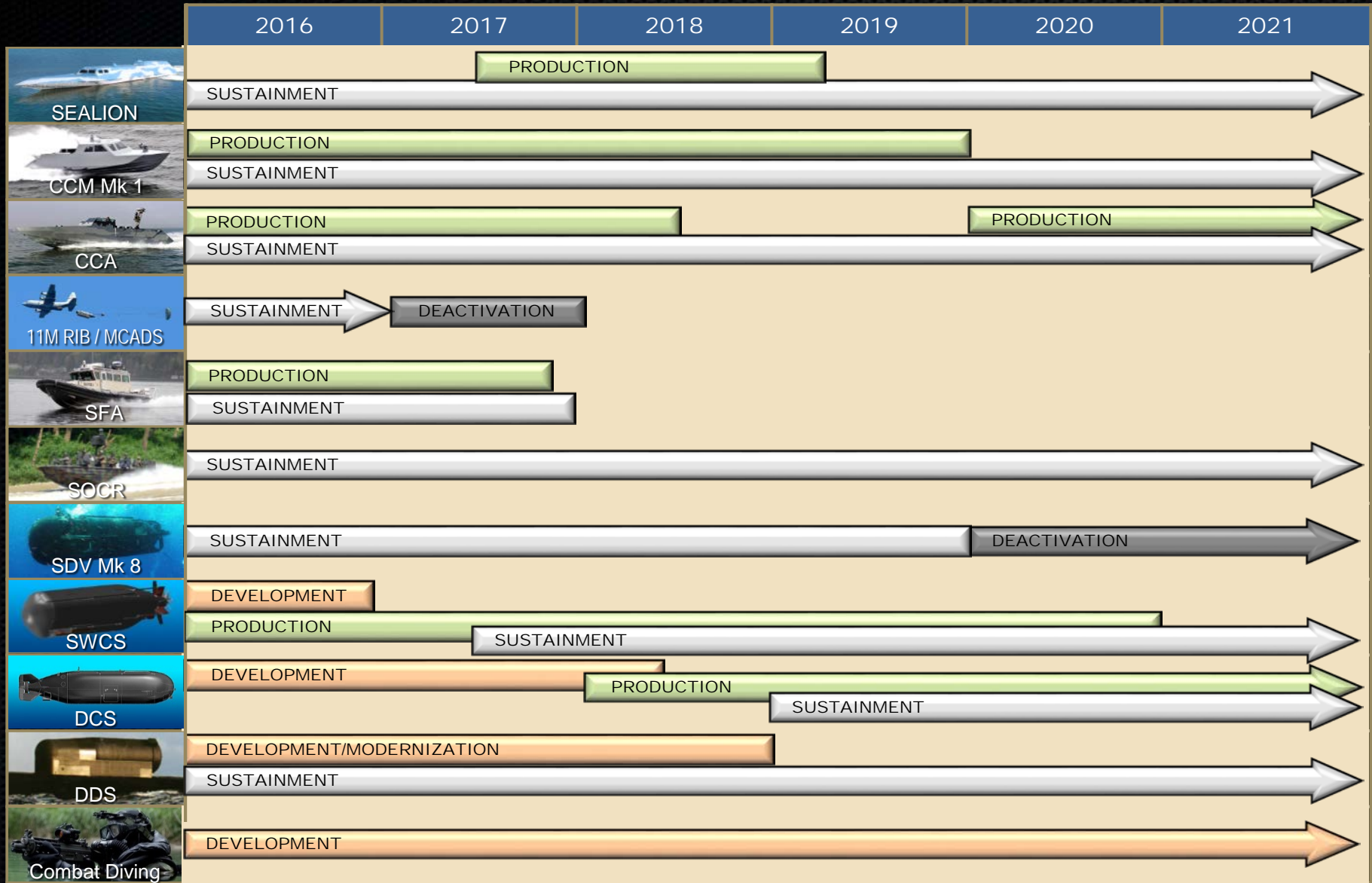
Security Force Assistance Small

Portfolio Overview

ACQUISITION



NSW Craft Roadmap



Agenda

- **S&T and R&D Objectives**
 - Cross-Portfolio Technology Areas of Interest
- **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**

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

Mr. John Bailey
CHIEF ENGINEER



MARITIME



Cross-Portfolio Technology Areas of Interest

UNCLASSIFIED

- **Combat Diver Enhancement**
- **Endurance**
- **Command, Control, Communications, Computers, Intelligence, Surveillance, & Reconnaissance (C4ISR)**
- **Payloads**
- **Situational Awareness**
- **Signature Management**
- **Survivability**

Opportunities

ACQUISITION

- **Broad Agency Announcements (BAA) & Requests For Information (RFI)**
 - **USSOCOM Science & Technology (S&T) Directorate**
 - **Rapid Innovation Fund (RIF)**

- **Office of the Secretary of Defense Programs**
 - **Small Business Innovation Research (SBIR)**
 - **Small Business Technology Transfer (STTR)**
 - **Foreign Comparative Test (FCT)**

- **Cooperative Research And Development Agreements (CRADAs)**



Opportunities

ACQUISITION

- Collaborative Efforts with Government Laboratories, University Affiliated Research Centers, Federally Funded Research & Development Centers, Land Grant Universities, etc
- USSOCOM S&T Technical Experimentation Events
- USSOCOM Acquisition Agility Events - SOFWERX
- USSOCOM S&T Technology Scouting
 - www.vulcan-SOF.com
- Technology & Industry Liaison Office – TILO



Agenda

- **S&T and R&D Objectives**
 - Cross-Portfolio Technology Areas of Interest
- **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**

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

CDR Brian O'Lavin

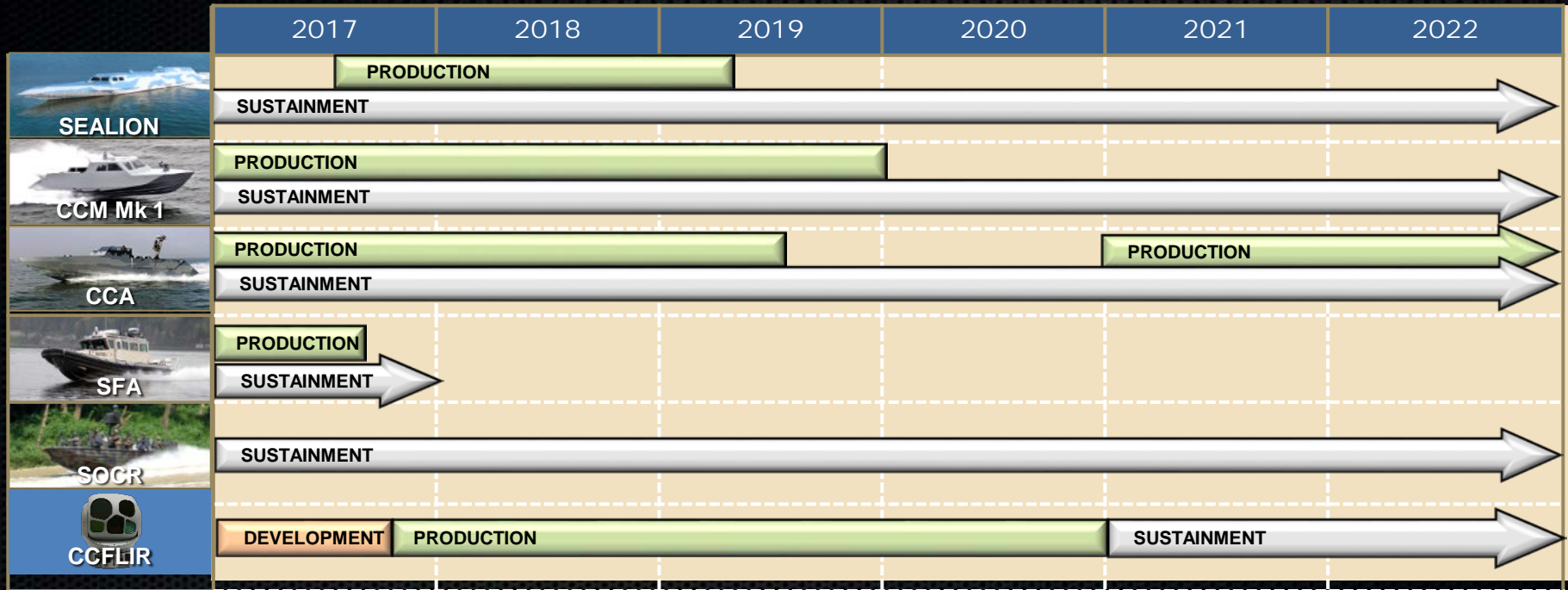
PROGRAM MANAGER
SURFACE SYSTEMS



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

- Post-production and contractor logistical support

PERIOD OF PERFORMANCE

- FY13 through FY19

MILESTONES

- First delivery: Dec 2013
- IOC: FY15
- FOC: FY19

POINT OF CONTACT

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

FUNDING

- PROC: FY12 through FY22
- O&M: FY13 through FY22

CURRENT CONTRACT/OEM

- 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
- Contractor logistical support

PERIOD OF PERFORMANCE

- FY15 through FY22

MILESTONES

- IOC: FY15
- FOC: TBD

POINT OF CONTACT

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

FUNDING

- PROC: FY15 through FY18
- O&M: FY16 through FY22

CURRENT CONTRACT/OEM

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

Combatant Craft Heavy (CCH) SEALION

- 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 proposal evaluation

PERIOD OF PERFORMANCE

- FY16 through FY22

MILESTONES

- IOC: FY14
- FOC: FY19

POINT OF CONTACT

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

FUNDING

- PROC: FY15 through FY17
- O&M: FY15 through FY22

CURRENT CONTRACT/OEM

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

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

PERIOD OF PERFORMANCE

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

MILESTONES

- | | |
|---------------|------|
| • Milestone C | FY17 |
| • IOC: | FY18 |
| • FOC: | TBD |

POINT OF CONTACT

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

FUNDING

- PROC: FY16 through FY22
- O&M: FY15 through FY22

CURRENT CONTRACT/OEM

- FLIR Systems, Inc. (OEM)

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

PERIOD OF PERFORMANCE

- Varies

MILESTONES

- Varies

POINT OF CONTACT

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

FUNDING

- RDTE Only FY16 through FY22

CURRENT CONTRACT/OEM

- SPAWAR Atlantic
- NAVAIR
- NSWC-CD
- NAWC-AD

Technology Areas of Interest

- **SATCOM on the Move**
- **Communications (wireless, LPI/LPD)**
- **Improved Antenna Technology**
- **Enhanced Radar Systems**
- **Active Ride Control**
- **Shock & Vibration Mitigation**
- **Precision Guided Munition Integration & Certification**
- **Extended Range Operations**
- **Improved Navigation Systems & Electronic Charts**
- **Enhanced Armor (lightweight)**
- **Threat Awareness / Warning**
- **Underwater Mapping**

Agenda

- **S&T and R&D Objectives**
 - Cross-Portfolio Technology Areas of Interest
- **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**

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

Mr. James Knudson

PROGRAM MANAGER
SOF COMBAT DIVING



MARITIME



SOF Combat Diving

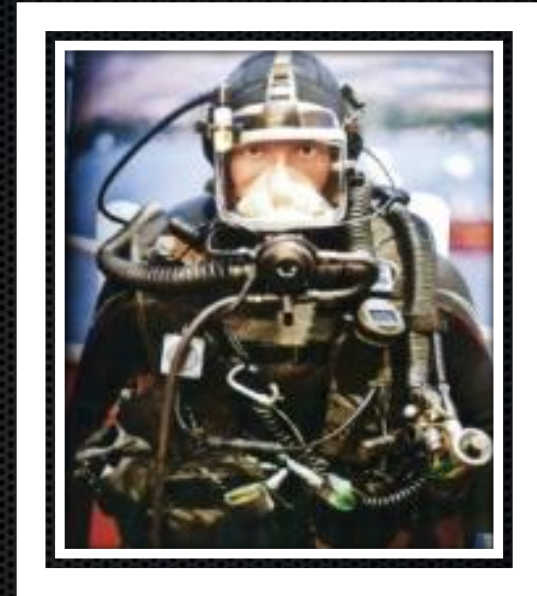
- **Program Objectives**

- 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

- SOF Combat Diving (SOF CD) will support the individual diver as well as their integration into all PEO Maritime systems
- 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



ACQUISITION STRATEGY

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

PERIOD OF PERFORMANCE

- The current funded period is FY16 through FY22

MILESTONES

Various based on project

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

POINT OF CONTACT

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

FUNDING

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

CURRENT CONTRACT/OEM

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

SOF Combat Diving Notional Schedule

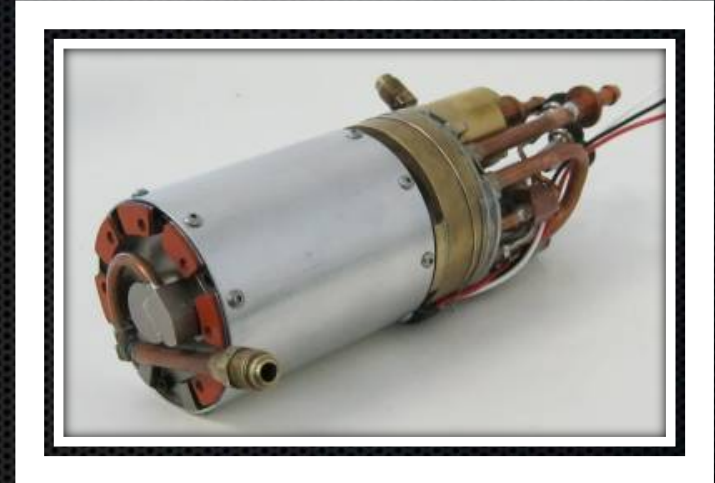
Activity	FY16				FY17				FY18				FY19				FY20				FY21				FY22			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Maritime Environmental Protection *Previously Reported as Free Diver Heating /Cooling System and Compact Multi-Diver Heating System Development, Integration, & Test Procurement	★ Transition from S&T				CDD																							
	Dev, Mfg, Integration, & Test												Next Gen - Product Development															
	EDM, Integration, & Test												Next Gen - Product Development															
Diver Propulsion *Previously Reported as Propulsion Power Interface and Diver Maneuverability Development, Integration, & Test Procurement	★ Transition from S&T				CDD																							
	Dev, Mfg, Integration, & Test												Next Gen - Product Development															
	EDM, Integration, & Test												Next Gen - Product Development															
Diver Navigation *Previously Reported as Situational Awareness (Communications and Navigation Accuracy) Development, Integration, & Test Procurement	Transition from S&T ★				CDD																							
	Dev, Mfg, Integration, & Test												Next Gen - Product Development															
	EDM, Integration, & Test												Next Gen - Product Development															
Diver Communication *Previously Reported as Situational Awareness (Communications and Navigation Accuracy) Development, Integration, & Test Procurement	Transition from S&T ★				CDD																							
	Dev, Mfg, Integration, & Test												Next Gen - Product Development												Production			
	EDM, Integration, & Test												Next Gen - Product Development															
Underwater Breathing Apparatus (UBA) Diver Survivability	Dev, Mfg, Integration, & Test																											
Component Level O&M Diver System Sustainment													Sustainment															

Combat Diver Big 4

- **Survivability**
 - Increased environmental protection
 - UBA improvements with reduced breathing resistance
 - Increase duration
 - Reduce operator signature (noise)
- **Maneuverability**
 - Individual and multi-diver capability
 - Highly maneuverable
 - Modular
 - Flexible delivery capability (sub, ship, A/C)
- **Communications**
 - 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
- **Navigation**
 - GPS tracking from the water column
 - “Blue Force Tracker” undersea
 - Modular

Current Efforts

- 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 (SBIR) effort with subsequent transition to SOF Combat Diving POR in FY16
 - Unmanned testing completed February 2016
 - Manned testing ongoing



Current Efforts

- **Rotinor Blackshadow 730**

- Provides single / multi-diver underwater propulsion
- High performance jet propulsion
- Virtually silent and emission-free
- Manned testing on-going



- **Shark Marine Navigator**

- Provides location via Sonar or GPS
- Gives diver immediate feedback on O2 level, depth and location
- Manned testing planned April 2017



Agenda

- **S&T and R&D Objectives**
 - Cross-Portfolio Technology Areas of Interest
- **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**

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

CAPT Chad Muse

PROGRAM MANAGER – PMS 340
NAVAL SPECIAL WARFARE

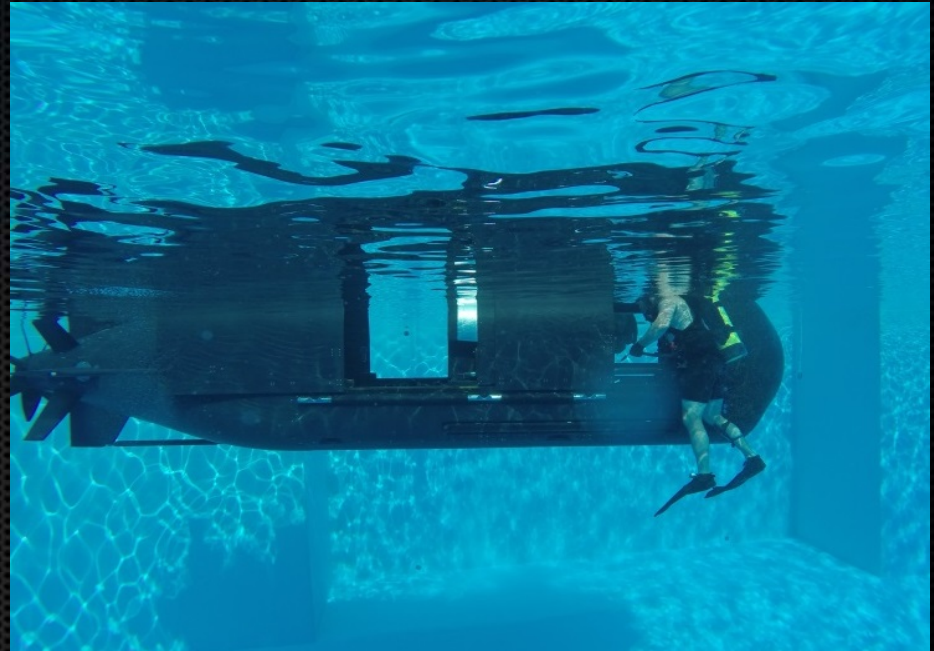


MARITIME



Shallow Water Combat Submersible (SWCS)

- 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 – April 2020

MILESTONES

- Initial Operational Capability in 2018

POINT OF CONTACT

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

FUNDING

- RDT&E: FY10 to FY22
- Procurement: FY14 to FY22
- 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

Agenda

- **S&T and R&D Objectives**
 - Cross-Portfolio Technology Areas of Interest
- **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**

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

CAPT John Newton

PROGRAM MANAGER – PMS 399
UNDERSEA SOF MOBILITY



MARITIME



Dry Deck Shelter (DDS)

- The DDS is a certified diving system that attaches to modified 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
 - Configuration Changes (a.k.a. Field Changes) include Design, Fabrication, Assembly, Test and Installation

ACQUISITION STRATEGY

- DDS Maintenance Contract (open competition)
- Contract awarded in 2013

PERIOD OF PERFORMANCE

- July 2013 – July 2018

MILESTONES

- Mod DDS production start Jan 2018
- Re-compete contract award July 2018
- 6 DDS retire from 2042 thru 2051

POINT OF CONTACT

- NAVSEA PMS399
- Tommy Beals, 202-781-0518

FUNDING

- O&M, RDT&E and PROC

CURRENT CONTRACT/OEM

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

DDS Program Cont.

- Program Office Team (PMS399):
 - Program Manager: Capt. John Newton
 - Deputy Program Manager: Mr. Grant Thornton
 - Principal APM: Mr. Tommy Beals
- Prime Contractor: OII-MSD, Chesapeake VA
- DDS Planning Yard:
 - Portsmouth Naval Shipyard
 - Manager/POC: Mr. Greg Brashear
- DDS Design Agent:
 - Portsmouth Naval Shipyard
 - Manager/POC: Mr. Rob Remsen

DDS Product Improvements

- Product improvements planned – potential for industry participation
 - External Camera System With Display On Host Sub (HOSUB)
 - Interior Communication System between DDS and HOSUB
 - Ground Fault Detector
 - Power Distribution Panels
 - CO2 Scrubber Heater
 - Payload Docking Sonar System
 - Data Transfer between DDS and HOSUB

Modernized DDS Project

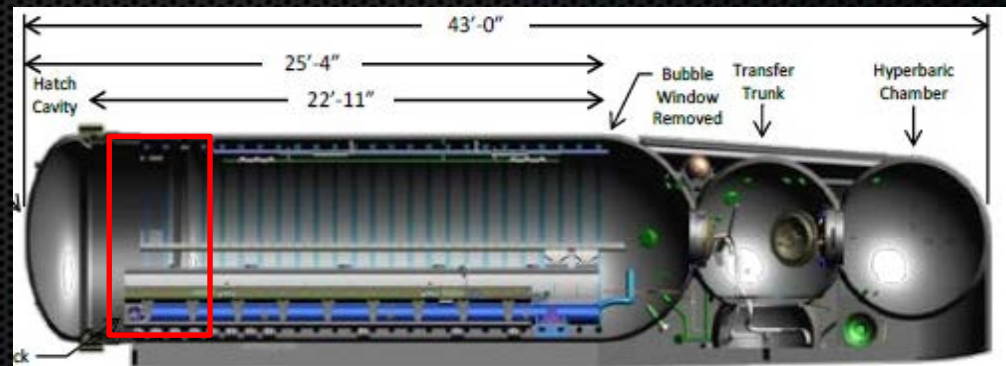
Modernized DDS

Configuration Changes

- Field Change (FC) 167 – Remotely Operated Hangar Outer Door (HOD)
- FC 168 – Extend Shelter Hangar 50 inches
- FC 169 – Increased capacity Payload Launch and Recovery System
- FC 170 – Remote Control from the Host Submarine

Modernized DDS Objectives

- Increase payload volume by 30%
- Increase weight capacity by 300%
- Remote hangar operation from Virginia Class host submarine
- Reduce risk to host submarine
- Reduce operator fatigue

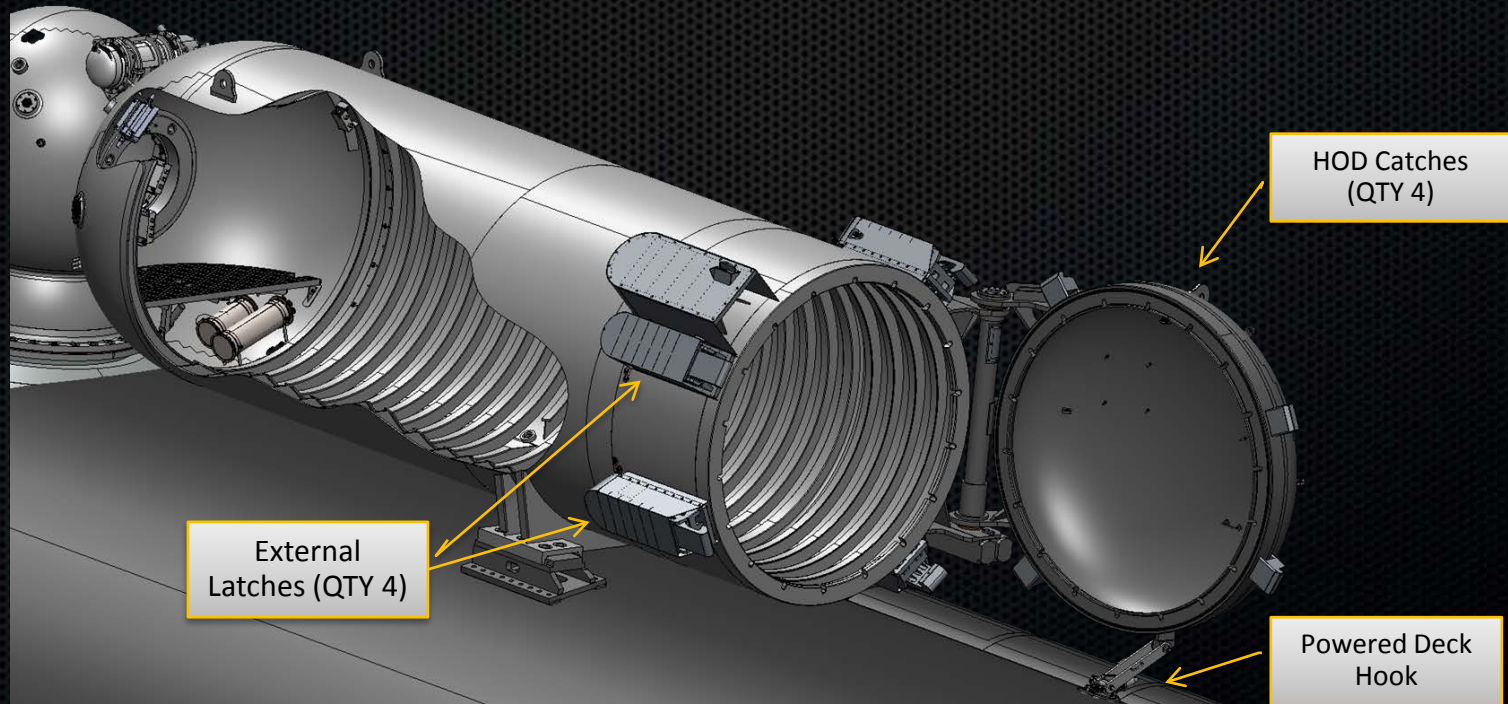


Modernized DDS

Field Changes scheduled to complete design phase in 4th QTR FY17

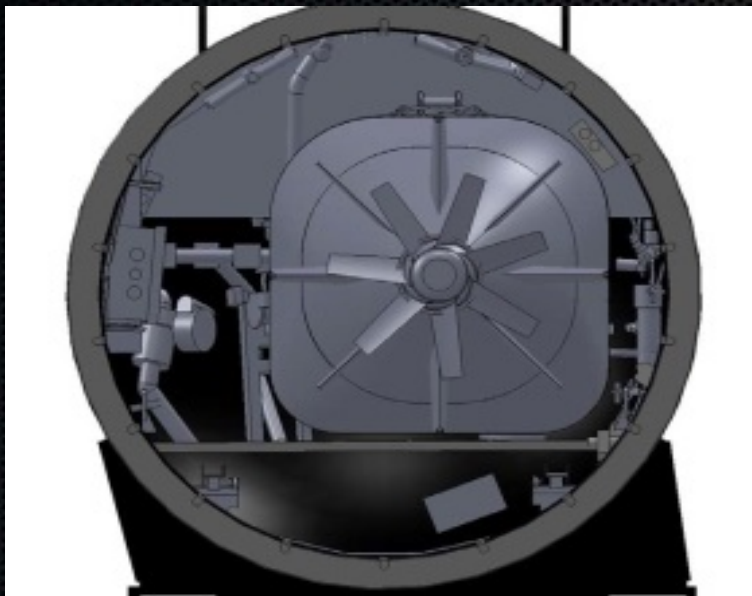
Mod DDS: Remote Hangar Outer Door Operations

- Remotely operated lock/unlock & open/close functions of HOD
- Installs the Remote Operations Control System (ROCS): a collection of hardware, FPGA electronics, and software that serves as the data transfer link and control path between the DDS Hangar and the submarine Command and Control Center

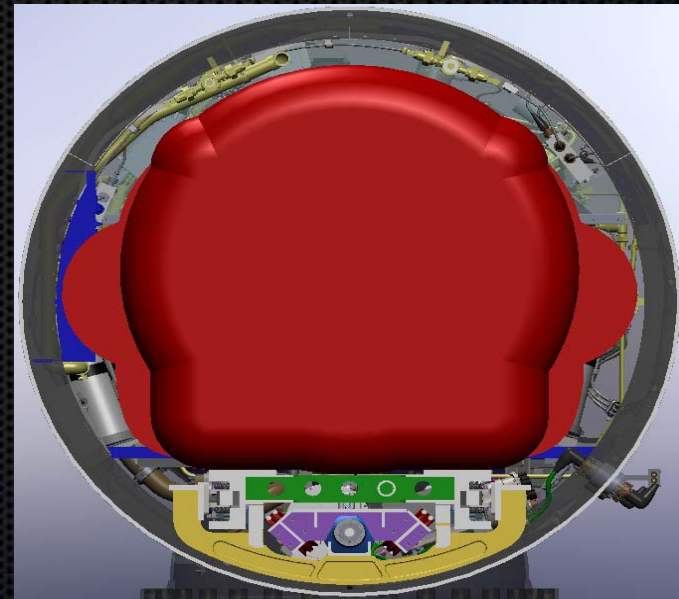


Mod DDS: Payload Volume

- Extends hangar by 50 inches
- Modifies internal hangar arrangement to increase interior volume



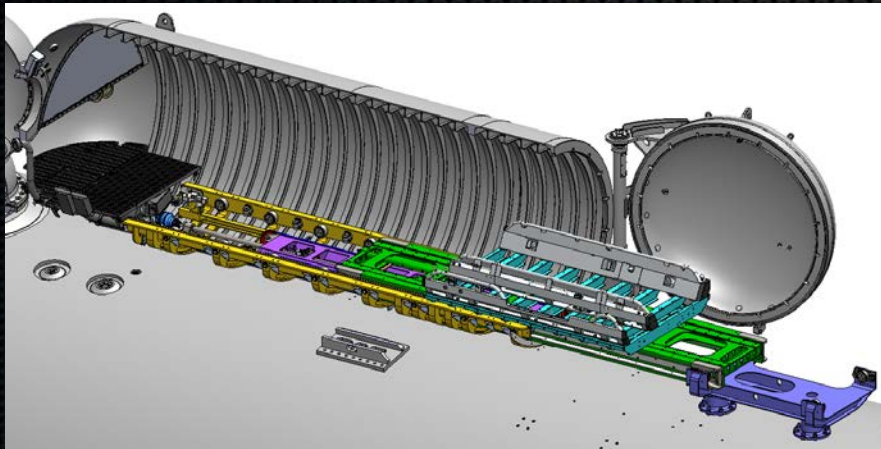
Legacy DDS with SWCS



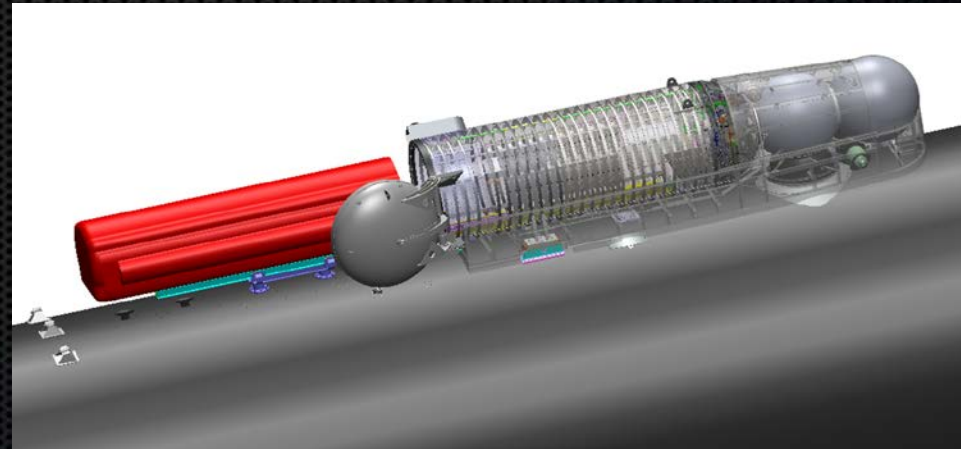
Mod DDS w/ Notional Payload

Mod DDS: Payload Launch and Recovery System

- Payload weight increase from 12K to 30K lbs
- Semi-cantilevered system – increase clearbore
- Remotely operated from HOSUB
- Compatible with existing payloads while providing support to future manned and unmanned payloads



Mod DDS P-LARS



Mod DDS w/ Notional Payload

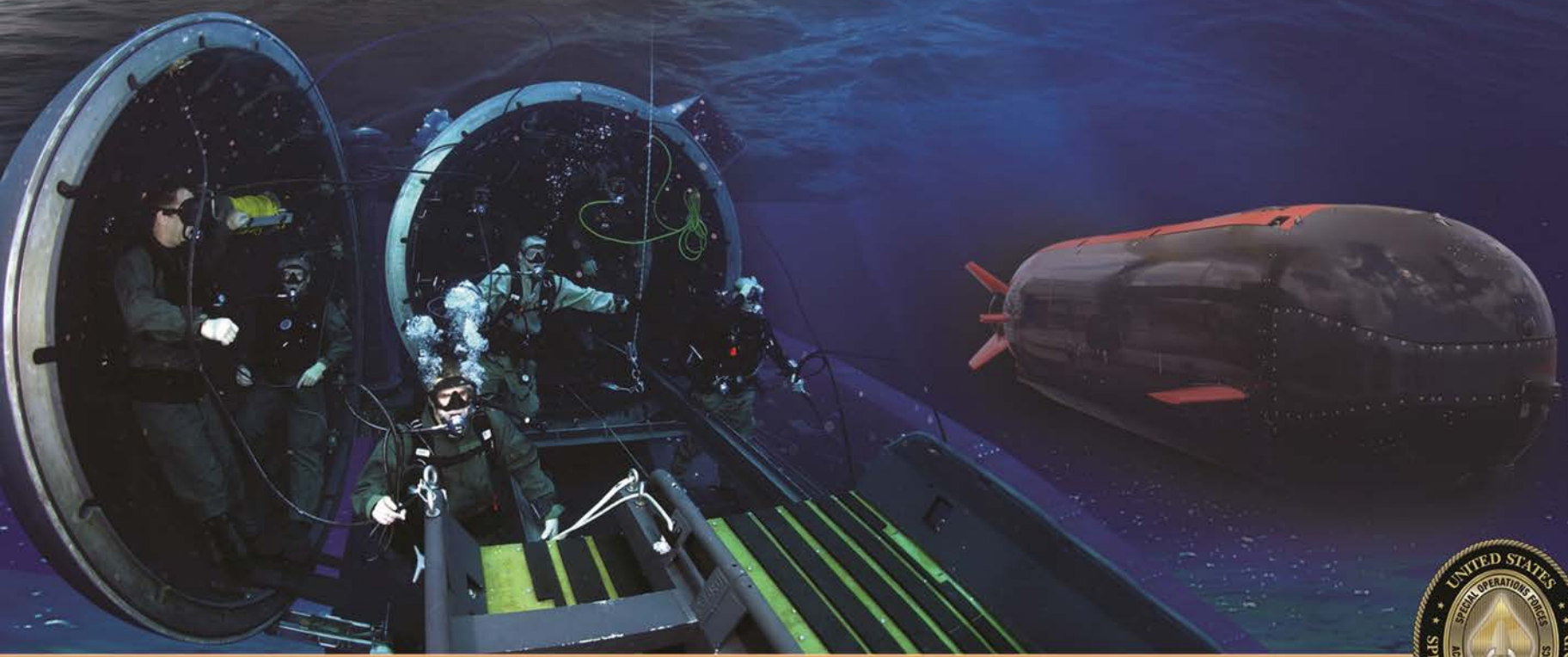
Agenda

- **S&T and R&D Objectives**
 - Cross-Portfolio Technology Areas of Interest
- **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**

SPECIAL OPERATIONS FORCES INDUSTRY CONFERENCE

CDR Keith Oswald

PROGRAM MANAGER
UNDERSEA SYSTEMS



MARITIME



Dry Combat Submersible (DCS)

UNCLASSIFIED

- 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

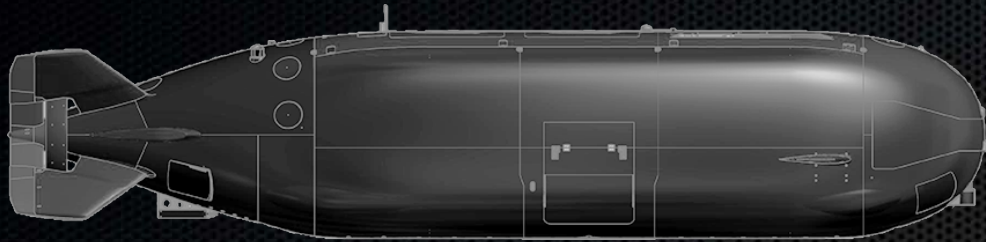


UNCLASSIFIED

DISTRIBUTION A: APPROVED FOR PUBLIC RELEASE

DCS

ACQUISITION



Pressure Hull

ACQUISITION STRATEGY

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

PERIOD OF PERFORMANCE

- 13-Jul-2016 to 13-Jul-2018

MILESTONES

- Contract awarded in July 2016
- IOC planned 3rd Qtr FY19
- FOC planned 1st Qtr FY21

POINT OF CONTACT

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

FUNDING

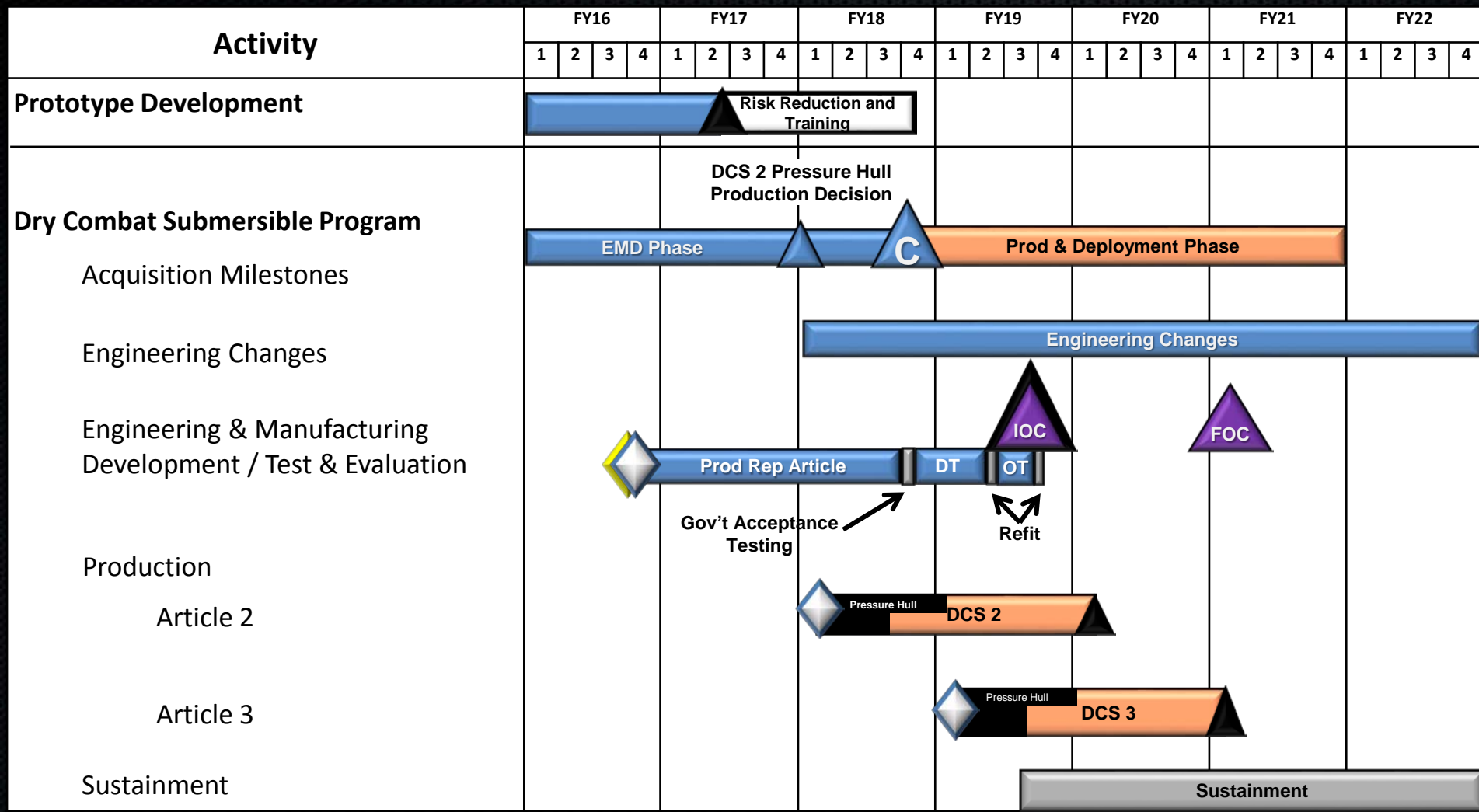
- RDT&E: FY16 – FY18
- PROC: FY18 – FY19
- O&M: FY19+

CURRENT CONTRACT/OEM

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

DCS Program Notional Schedule

UNCLASSIFIED



UNCLASSIFIED

DISTRIBUTION A: APPROVED FOR PUBLIC RELEASE

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

PERIOD OF PERFORMANCE

- June 2012 – Apr 2017

MILESTONES

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

POINT OF CONTACT

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

FUNDING

- Budgeted RDT&E
- FY14 – FY16

CURRENT CONTRACT/OEM

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

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

Questions

ACQUISITION

