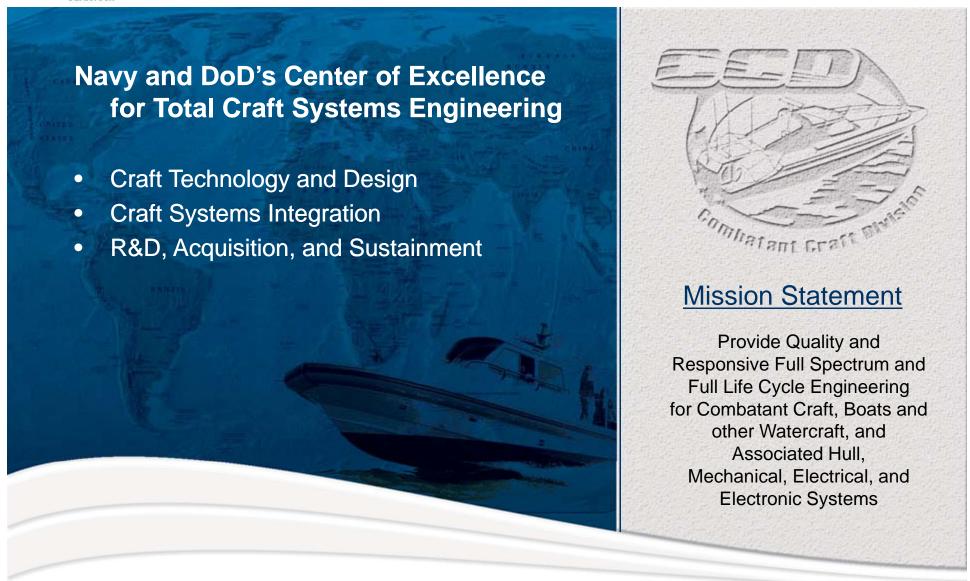


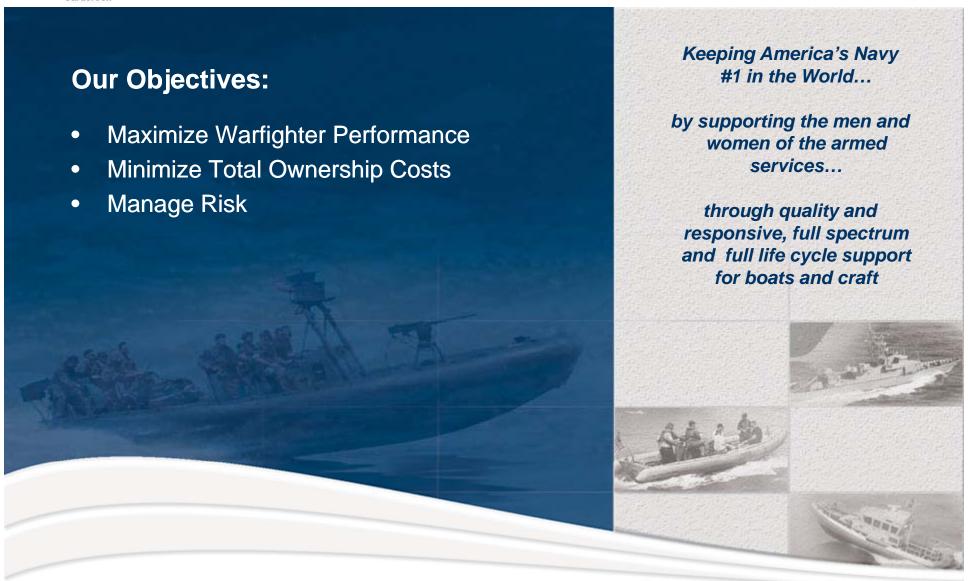


### **Mission**



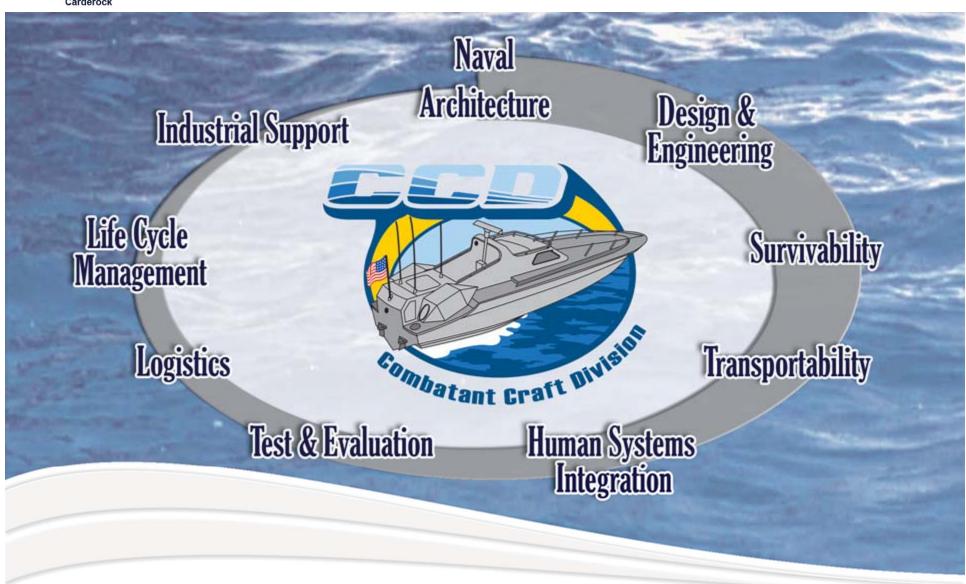


# **Objectives and Service Offerings**



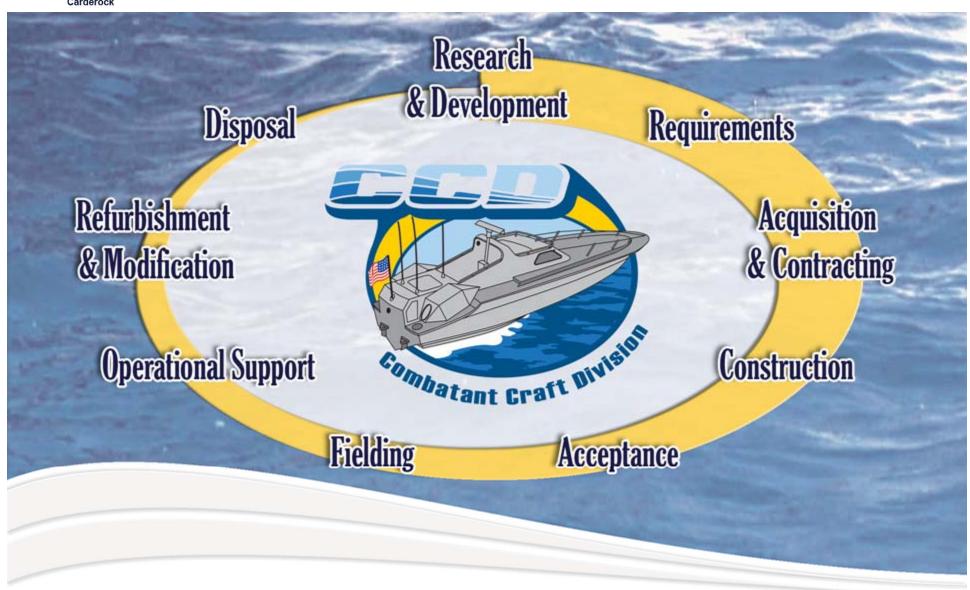


# **Full Spectrum**





# **Full Life Cycle**





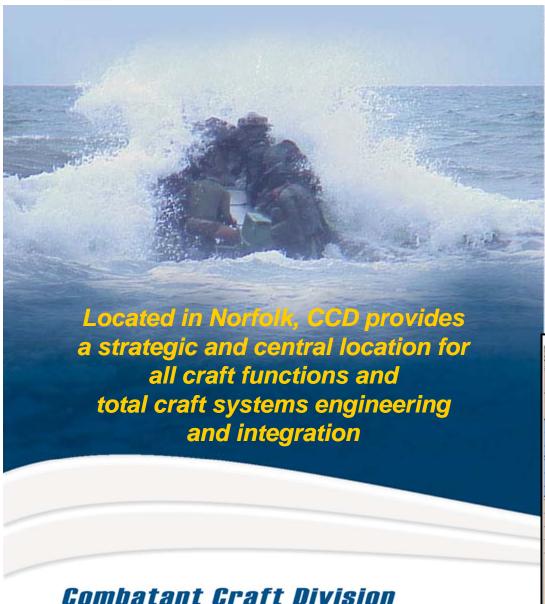
# Origin & History





# Strategic Location

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Close proximity to numerous commands and facilities

- Navy

- Army

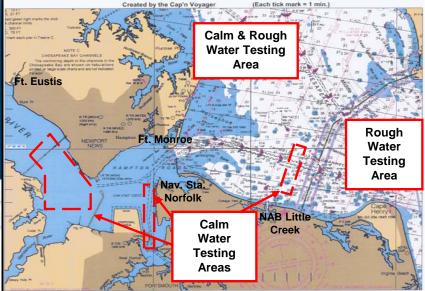
- Specwar

- Marine Corps

Chesapeake Bay and adjacent ocean waters are representative of littorals worldwide

Access to all ranges in the Joint Atlantic and Chesapeake Ranges Cooperative (JACRC)

CCD unique test facilities at Naval Station Norfolk and Patuxent (Pax) River





## **Boats and Craft vs. Ships**

Carderock

# Boats and craft are typically much more sensitive to seemingly minor changes in areas such as:

- Stability
- Performance
- Seakeeping

- Safety
- Reliability
- Maintainability
- Signatures

- Structural Integrity
- Transportability
- Interchangeability
- Supply Support
- Durability





Tightly integrated systems engineering is essential



# **Technical Authority**

- Dean Schleicher, NAVSEA 05D4, is the Warranted Technical Authority for Combatant Craft and Boats
- CCD has provided direct Technical Authority support for boats and craft since 1967
- Engineering Agent / Authority designations from NAVSEASYSCOM, US Army TACOM, and MARCORSYSCOM
- Setting standards and design methods
  - Developed over 20 industry-adopted design and construction standards and methods
  - Collaborated with ABS on High Speed Naval Craft Guide





## **Spectrum of Functional Expertise**

Carderock

# **Experienced Personnel Enhance Program Success**

- 150+ naval architects, engineers, logisticians, technicians, and support personnel
- Meritorious Civilian Service Awards
- DAWIA certifications
- 20+ licensed professional engineers
- 25+ post-graduate degrees
- Patents
- High level of experience, competency, and expertise

- Licensed boat operators
- Multiple successful projects with a proven track record
- Apprentice approach to mentoring with increasing levels of responsibility



# **Spectrum of Craft Expertise**

- Standard boats to high performance advanced craft/vessels
- 5 feet to more than 300 feet in length
- Steel, aluminum, composite, wood, and inflatable
- Diesel, gas turbine, propeller, and water jet propulsion
- Basic commercial systems to state-of-the-art military systems
- Off-the-shelf engines to militarized high output engines
- Manned and unmanned
- Displacement, semi-displacement, planing, wave piercing, surface effect, small-waterplane-area twin-hull (SWATH), monohull, multi-hull, and other specialized and one-of-a-kind hull forms
- Land, sea, air transport; air drop; launch and recovery via davit, ramp, and crane



# Joint Service Support

# **DoD Boat and Craft Experts**

- Maximize boat / craft lessons learned across DoD community
- Combine resources for improved efficiency
- Transfer technology between services
- Minimize redundancy





# **Global Support**





# **Teaming and Integration**





## **Teaming / Integration**

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Monitoring, Rudder, Throttle, Transmission Control

Weather

Cameras

Radio

Link

E-net Switch

Flight Recorder



### Results

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"I can say without hesitation if we hadn't had the SURCs, a number of our Marines would be wounded or worse over the last 75 days."

### Maj Dan Whittnam, CO Small Craft Co.

"The boats are like homes for seven months...the boats have never failed a mission or task they've been put up to and we've never had to quit, saying 'something happened to one of our boats'."

### Color Sgt. Matthew R. Tomlinson, Br. RM

"I want to say thanks so much for all your support during my tour at ATG and while in the fleet as well. What you guys provide is simply amazing and the Sailors can better do their jobs because of you and your team."

LT Ed Quinones, Afloat Training Group, Norf

We are trusted stewards of taxpayer funds



# **Project Examples - Navy**





# **Project Examples - SPECWAR**





# **Project Examples – Marine Corps**





# Project Examples – Coast Guard





# **Project Examples - Army**





### **Project Examples – FMS**

Carderock

# Acquisition Engineering to PEO Ships PMS325F Foreign Military Sales Program – Supporting America's Global Maritime Partnership Strategy

**Colombia (Counter Narcotics)** 

Djibouti

**Egypt** 

Israel

Jordan

Kuwait

**Oman** 

**Philippines** 

Iraq

- Patrol Boats
- Troop Carriers
- Missile Craft
- Rigid Inflatable Boats
- Fast Interceptor Boats

Utility Boats

- Tug Boats
- Landing Craft
- Force Protection Boats

"The United States will continue to be the security partner of choice, and the Navy will tailor our partnership efforts to be both affordable and appropriate."

> ADM Jonathan Greenert, Chief of Naval Operations



# **Multi-Agency Craft Conference**

Carderock

# Hosted by CCD, MACC is the premier DoD craft conference in the country

- SYSCOM sponsorship
- Inaugural event 1998
- Over 1000 attendees, 200 industry exhibitors
- Full scale in-water demonstrations

Articles written in ABYC and Zodiac newsletters and Boating and Workboat magazines



The
Multi-Agency Craft
Conference

TBD
JEB LC
Virginia Beach, VA

https://www.navalengineers.org/events/in dividualeventwebsites/Pages/MACC2014In terest.aspx



## **Summary**

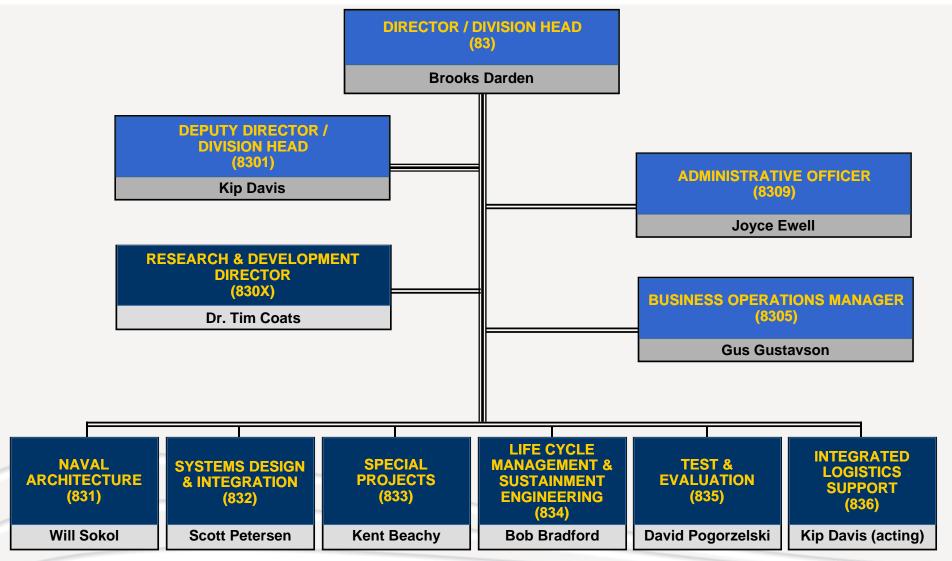






# **CODE 83: Organizational Chart**





# Carderock Division Organization

Chief of Staff

(Code CSO)

Kathy Stanley

**Commanding Officer** 

(Code 00)

**CAPT Richard Blank** 



As of April 2015

Color Codes:

Commanding Officer

Ship Systems Engineering Station

(Code 01)

**CAPT Walter Coppeans** 

Philadelphia

West Bethesda (includes Detachments) and Philadelphia

West Bethesda (includes Detachments)

Office of Counsel (Code 00L)

Neaclesa Anderson

CERO

(Code 00N) John Wilson

**EOSH** (Code 006)

Andrew Giagnacova

Security (Code 105) Lawrence Pugliese

**Small Business** (Code 00K) Irene Katacinski Business Departments

Division Technical Director

(Code TD)

Dr. Joseph T. (Tim) Arcano, Jr

Comptroller Department (Code 01)

**Bob Simpson** 

Contracting and **Acquisitions Department** 

(Code 02)

Karen Gutmaker

Corporate Operations Department

> (Code 10) Joseph Foley

**Deputy Division Technical Director** (Code TDB)

Lawrence Tarasek

Chief Technology

Officer

(Code 00T)

**Jack Templeton** 

Customer

Advocacy

(Code OCA)

Vince Wagner

Quality Management

Deputy EEO

Corporate Communications (Code 103)

Roxie Merritt

Technical Departments

Office (Code 00Q)

Frank Gerace

(Code 1014)

Occupational Safety and Health

Chief of Staff

(Code CSO)

Cheryl Diorisio

(Code 1024) Nick Kutufaris

**Environmental** (Code 1023)

Rich Cordy Security

(Code 105)

Mike Trice

Survivability, Structures, and Materials Department

(Code 60)

Michael Brown

**Signatures** Department

(Code 70) Dr. Paul Shang

**Naval Architecture and Engineering Department** 

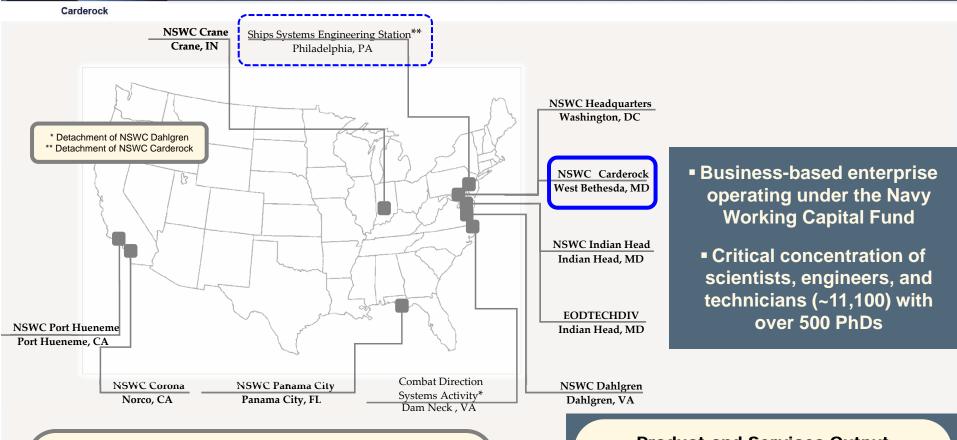
(Code 80)

Jon Etxegoien

NAVSSES Philadelphia, PA



### **Naval Surface Warfare Center Divisions**



### WFCs exist to do the things Industry:

- Won't Do (Profitability, Liability)
- Shouldn't Do (Technical Authority, Certification)
- Can't Do (Specialized Facilities)

### **Product and Services Output**

- Certified Systems
- Responses to Current and Future National Needs
- Technical Authority Advice & Decisions
  - Interoperable Warfare Systems
- Availability of Unique Military products, Facilities, and Services



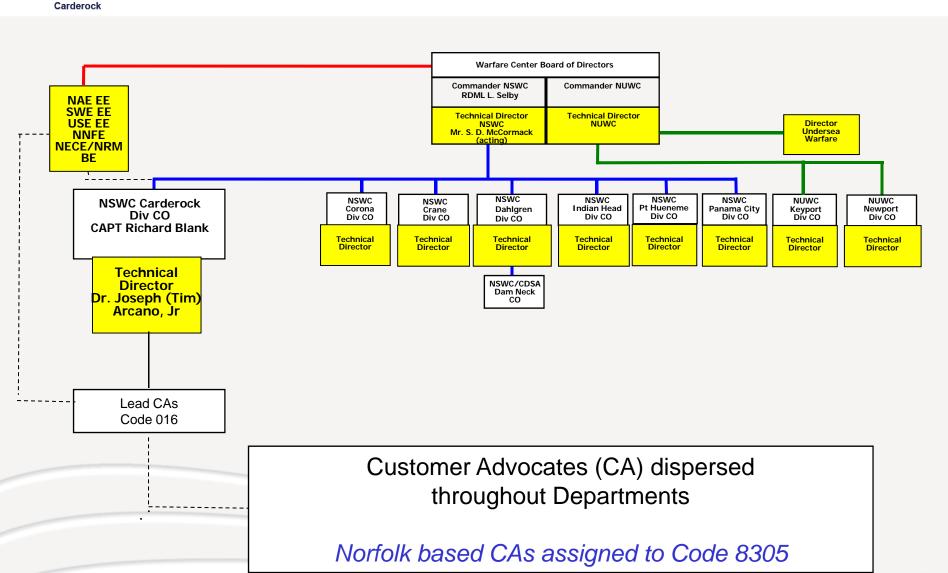
### **NSWC** Divisions (con't)

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- <u>Carderock:</u> Provides science and engineering (S&E) and in-service capabilities in naval architecture, marine engineering for surface & undersea vehicles and ship systems
- <u>Corona:</u> Provides S&E capability to assess the performance of weapons and combat systems independently from the unit level through force level
- <u>Crane:</u> Provides the sustainment capability for EW, SPECWAR weapons and devices, and strategic systems components and hardware
- <u>Dahlgren:</u> Provides full spectrum S&E capabilities for surface ship weapons system integration up to and including force level, missile defense, strategic systems and related areas of Joint and Homeland Defense
- **EOD Tech:** Provides capabilities in ordnance disposal technology, urgently focusing on tools and personnel to counter IEDs.
- <u>Indian Head:</u> Provides full spectrum S&E and industrial capabilities for energetic systems and energetic materials from concept through scale-up to limited production and operational deployment for Naval, joint, and homeland defense applications
- •Panama City: Provides full spectrum S&E capabilities for mine warfare systems, mines, special warfare systems, diving and life support systems and other warfare systems used in the littorals.
- <u>Port Hueneme</u>: Provides T&E, in-service engineering & logistics and integration capabilities for surface ship weapons, combat and warfare systems and be the primary interface with the surface force for the in-service work of the Warfare Center (WFC).



# **Warfare Center Organization**





### **Leadership Areas – Technical Capabilities**

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### **SYSTEMS DESIGN**

Mission System Integration (Weapons, Diver Support) Launch and Recovery Transportability Human Factors

### SUSTAINMENT ENGINEERING

Direct Fleet Support
Trouble Desk
Boat Inspection
Alterations
Configuration Management
Life Raft Facility Certification
Maintenance Availabilities
Repair & Service Contract

### **NAVAL ARCHITECTURE**

Hull Forms
Stability
Structures
Materials
Maneuvering
Hydrostatics
Seakeeping
Hydrodynamics
Arrangements
CFD & FEA

### ELECTRICAL - ELECTRONICS ENGINEERING

C4ISR Integration
Lighting
Power Generation and Distribution

### SIGNATURES REDUCTION, DESIGN INTEGRATION

Radar, Thermal, EO/VIS, Magnetic, Acoustic
Threat Assessment Integration
Survivability Enhancements
(Camouflage, Obscurants)
Signature Measurement Coordination /
Detectability Testing
Awareness, Training & Mission Planning

### LOGISTICS

Boat Inventory Management
Technical Data Repository
Training
Provisioning
RAM Analysis
Supply Support
Technical Manuals
Maintenance Development
Supportability Planning

### **MARINE ENGINEERING**

Propulsion
Machinery
Firefighting
Noise Control
Damage Control
Auxiliary Systems

### **TEST & EVALUATION**

Full Scale and Craft Systems
Performance / Seakeeping
Operating Environments
Developmental Testing
Worldwide Deployability
Early Operational Assessments

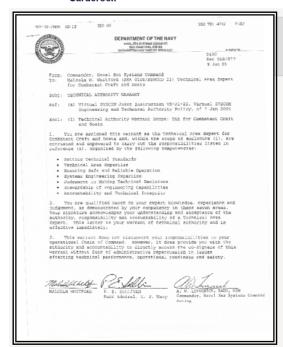
### **ACQUISITION ENGINEERING**

Analysis of Alternatives
Cost Analysis
SOW / SPEC
Smart Buyer
Market Surveys
Risk Assessment
Source Selection
RFP Development
Safety Assessment
Acquisition Strategy / Planning



# **Technical Authority Warrant Scope**

#### Carderock



# Technical Authority Warrant Scope: TAE for Combatant Craft and Boats

### The scope of this warrant includes:

- Full Life Cycle/Full Spectrum/In-Service responsibilities for Combatant Craft and Boats including: Life Rafts, Patrol Coastal Ships, Seaborne Targets, High Performance Craft, other Watercraft and associated HM&E and Mission systems, subsystems and equipment
- Total platform systems engineering for combatant craft and boats, including: Mission Systems Integration; Science and Technology; Research and Development; Test and Evaluation; Design; Acquisition; Smart Buyer; Construction Technical Support; Integrated Logistics Support; Design Management; Life Cycle Management; Technology Advancement and Transfer; In-Service Engineering; Repair, Modification and Modernization support; Fleet Support; regulatory compliance throughout the lifecycle; and ensuring contract administration and oversight



# Designated Engineering and Technical Agent Responsibilities

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### **IN-SERVICE ENGINEERING AGENT (ISEA)**

Non-Commissioned Combatant Craft Non-Commissioned Boats Associated Systems & Equipment Patrol Coastal (PC) Ships Targets (QST-33, QST-35, ISTT) YTT Service Craft

### **ACQUISITION ENGINEERING AGENT (AEA)**

Non-Commissioned Combatant Craft Non-Commissioned Boats Associated Systems & Equipment Patrol Coastal (PC) Ships Targets (QST-33, QST-35, ISTT)

#### **DESIGN AGENT (DA)**

Non-Commissioned Combatant Craft Non-Commissioned Boats Associated Systems & Equipment Patrol Coastal (PC) Ships Targets (QST-33, QST-35, ISTT)

### TECHNICAL MANUAL MAINTENANCE ACTIVITY (TMMA)

Non-Commissioned Combatant Craft Non-Commissioned Boats Patrol Coastal (PC) Ships Target Craft Associated Systems & Equipment

### PLANNING YARD (PY)

Non-Commissioned Boats & Standard Craft Army WaterCraft YTT Service Craft

#### **CENTER OF EXCELLENCE**

Non-Commissioned Combatant Craft & Boats Army Watercraft

### PROGRAM AND LIFECYCLE MANAGER & ISEA

Life Rafts

ARMY WATERCRAFT R&D, ISE, DESIGN, ACQUISITION

### TECHNICAL DIRECTION AGENT (TDA)

Non-Commissioned Combatant Craft Non-Commissioned Boats Associated Systems & Equipment Patrol Coastal (PC) Ships Targets (QST-33, QST-35, ISTT)

### SYSTEM INTEGRATION AGENT (SIA)

Non-Commissioned Combatant Craft Non-Commissioned Boats Associated Systems & Equipment Patrol Coastal (PC) Ships Targets (QST-33, QST-35, ISTT) SPECWAR Low Observable Technology

### **TECHNICAL SUPPORT ACTIVITY (TSA)**

Non-Commissioned Combatant Craft Non-Commissioned Boats Patrol Coastal (PC) Ships Target Craft Associated Systems & Equipment

#### TEST AND EVALUATION AUTHORITY

Non-Commissioned Combatant Craft Non-Commissioned Boats Patrol Coastal (PC) Ships Target Craft Associated Systems & Equipment

### TECHNICAL AUTHORITY/ ENGINEERING DIRECTORATE/ R&D TECHNICAL/TECHNOLOGY MANAGER/CRAFT DESIGN MANAGER

Non-Commissioned Combatant Craft Non-Commissioned Boats Patrol Coastal (PC) Ships Target Craft Associated Systems & Equipment

#### **INVENTORY MANAGER**

**Non-Commissioned Boats & Standard Craft** 

### HIGH PERFORMANCE/HIGH SPEED SHIPS&ADVANCED MARINE VEHICLES

MOA with SEA 05D and PMS325 for SDM and other support



# **CCD Lines of Authority & Support**

