Combatant Craft Division

Division Overview

Approved for Public Release
Navy and DoD’s Center of Excellence for Total Craft Systems Engineering

- Craft Technology and Design
- Craft Systems Integration
- R&D, Acquisition, and Sustainment

Mission Statement

Provide Quality and Responsive Full Spectrum and Full Life Cycle Engineering for Combatant Craft, Boats and other Watercraft, and Associated Hull, Mechanical, Electrical, and Electronic Systems
Objectives and Service Offerings

Our Objectives:

- Maximize Warfighter Performance
- Minimize Total Ownership Costs
- Manage Risk

Keeping America’s Navy #1 in the World…

by supporting the men and women of the armed services…

through quality and responsive, full spectrum and full life cycle support for boats and craft

Combatant Craft Division
Full Spectrum

Naval Architecture
Design & Engineering
Survivability
Transportability
Human Systems Integration
Test & Evaluation
Logistics
Life Cycle Management
Industrial Support
Combatant Craft Division

Combatant Craft Division
Full Life Cycle

Research & Development
Requirements
Construction
Acquisition & Contracting
Acceptance
Fielding
Operational Support
Refurbishment & Modification
Disposal

Combatant Craft Division
In 1967 NAVSEC HQ established authority for combatant craft design and testing at NAVSECNORDIV

- 1980 NAVSEA Detachment Norfolk
- 1982 SEABAT
- 1992 BRAC Carderock, NSWC
Located in Norfolk, CCD provides a strategic and central location for all craft functions and total craft systems engineering and integration.

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 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
• 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

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

Combatant Craft Division
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

Combatant Craft Division
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

Support for over 10,000 boats, craft, and life rafts worldwide

Combatant Craft Division
Teaming and Integration

**NSWC Dahlgren**
- HERO / Rad-Haz

**Aberdeen Proving Ground**
- Smoke on Boats

**NSWC Crane (WSERSB Dahlgren)**
- Small Arms & Mounts
- ROSAM
- MARFLIR
- Mines

**NSWC Panama City**
- RIB L&R from LCAC
- MK V - SDV L&R

**Combatant Craft Division**
We integrate diverse expertise from various commands into a total system for the warfighter.
Results

In Recent Years...

- **Dozens**  New craft & systems technologies evaluated & integrated
- **Hundreds**  New craft fielded
- **Thousands**  Fleet support actions

Current Inventory...

- **450+**  Army watercraft in service
- **3,000+**  Navy boats and craft in service
- **7,500+**  Life rafts in service

“We are trusted stewards of taxpayer funds

“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*
Project Examples - SPECWAR

SOC-R

NSW RIB

CCA

CCM
Project Examples – Coast Guard

CB-LRI II

RB-M

CPB RIB

64 SEV

Combatant Craft Division
Project Examples - Army

BEB

LSV-7

ST

BD

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

<table>
<thead>
<tr>
<th>Countries</th>
<th>Boats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia (Counter Narcotics)</td>
<td>• Utility Boats</td>
</tr>
<tr>
<td>Djibouti</td>
<td>• Tug Boats</td>
</tr>
<tr>
<td>Egypt</td>
<td>• Landing Craft</td>
</tr>
<tr>
<td>Israel</td>
<td>• Force Protection Boats</td>
</tr>
<tr>
<td>Jordan</td>
<td>• Patrol Boats</td>
</tr>
<tr>
<td>Kuwait</td>
<td>• Troop Carriers</td>
</tr>
<tr>
<td>Oman</td>
<td>• Missile Craft</td>
</tr>
<tr>
<td>Philippines</td>
<td>• Rigid Inflatable Boats</td>
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<tr>
<td>Iraq</td>
<td>• Fast Interceptor Boats</td>
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</tbody>
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"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
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/individualeventwebsites/Pages/MACC2014Interest.aspx
Summary

- **Historical**
  - Providing continuous Combatant Craft support for more than 40 years

- **Mission**
  - Serve as the DoD's center of excellence for boats and craft and related systems and technologies

- **Technical Authority**
  - Direct support to NAVSEA 05 designated Technical Warrant Holder

- **Experience and Expertise**
  - Hundreds of craft types designed, tested, and fielded for military use

- **Efficiency and Effectiveness**
  - Track record of satisfied customers
  - Joint Service support (lead technical agent for Navy, Specwar, Army, and Marine Corps boats and craft)
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

Business-based enterprise operating under the Navy Working Capital Fund

Critical concentration of scientists, engineers, and technicians (~11,100) with over 500 PhDs
Carderock: Provides science and engineering (S&E) and in-service capabilities in naval architecture, marine engineering for surface & undersea vehicles and ship systems

Corona: Provides S&E capability to assess the performance of weapons and combat systems independently from the unit level through force level

Crane: Provides the sustainment capability for EW, SPECWAR weapons and devices, and strategic systems components and hardware

Dahlgren: 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.

Indian Head: 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.

Port Hueneme: 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).

Combatant Craft Division
Customer Advocates (CA) dispersed throughout Departments

Norfolk based CAs assigned to Code 8305
### Leadership Areas – Technical Capabilities

#### SYSTEMS DESIGN
- Mission System Integration (Weapons, Diver Support)
- Launch and Recovery
- Transportability
- Human Factors

#### ELECTRICAL - ELECTRONICS ENGINEERING
- C4ISR Integration
- Lighting
- Power Generation and Distribution

#### MARINE ENGINEERING
- Propulsion
- Machinery
- Firefighting
- Noise Control
- Damage Control
- Auxiliary Systems

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

#### 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

#### TEST & EVALUATION
- Full Scale and Craft Systems
- Performance / Seakeeping
- Operating Environments
- Developmental Testing
- Worldwide Deployability
- Early Operational Assessments

#### NAVAL ARCHITECTURE
- Hull Forms
- Stability
- Structures
- Materials
- Maneuvering
- Hydrostatics
- Seakeeping
- Hydrodynamics
- Arrangements
- CFD & FEA

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

#### 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: 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
<table>
<thead>
<tr>
<th>Designated Engineering and Technical Agent Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IN-SERVICE ENGINEERING AGENT (ISEA)</strong></td>
</tr>
<tr>
<td>Non-Commissioned Combatant Craft</td>
</tr>
<tr>
<td>Non-Commissioned Boats</td>
</tr>
<tr>
<td>Associated Systems &amp; Equipment</td>
</tr>
<tr>
<td>Patrol Coastal (PC) Ships</td>
</tr>
<tr>
<td>Targets (QST-33, QST-35, ISTT)</td>
</tr>
<tr>
<td>YTT Service Craft</td>
</tr>
<tr>
<td><strong>TECHNICAL DIRECTION AGENT (TDA)</strong></td>
</tr>
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</tr>
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</tr>
<tr>
<td><strong>ACQUISITION ENGINEERING AGENT (AEA)</strong></td>
</tr>
<tr>
<td>Non-Commissioned Combatant Craft</td>
</tr>
<tr>
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</tr>
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</tr>
<tr>
<td><strong>SYSTEM INTEGRATION AGENT (SIA)</strong></td>
</tr>
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</tr>
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<tr>
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<tr>
<td>SPECWAR Low Observable Technology</td>
</tr>
<tr>
<td><strong>DESIGN AGENT (DA)</strong></td>
</tr>
<tr>
<td>Non-Commissioned Combatant Craft</td>
</tr>
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</tr>
<tr>
<td><strong>TECHNICAL SUPPORT ACTIVITY (TSA)</strong></td>
</tr>
<tr>
<td>Non-Commissioned Combatant Craft</td>
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<tr>
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</tr>
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</tr>
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</tr>
<tr>
<td><strong>TECHNICAL MANUAL MAINTENANCE ACTIVITY (TMMA)</strong></td>
</tr>
<tr>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td><strong>PLANNING YARD (PY)</strong></td>
</tr>
<tr>
<td>Non-Commissioned Boats &amp; Standard Craft</td>
</tr>
<tr>
<td>Army WaterCraft</td>
</tr>
<tr>
<td>YTT Service Craft</td>
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<tr>
<td><strong>CENTER OF EXCELLENCE</strong></td>
</tr>
<tr>
<td>Non-Commissioned Combatant Craft &amp; Boats</td>
</tr>
<tr>
<td>Army Watercraft</td>
</tr>
<tr>
<td><strong>TEST AND EVALUATION AUTHORITY</strong></td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
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</tr>
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</tr>
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</tr>
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</tr>
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<tr>
<td><strong>ARMY WATERCRAFT R&amp;D, ISE, DESIGN, ACQUISITION</strong></td>
</tr>
<tr>
<td>Life Rafts</td>
</tr>
<tr>
<td><strong>INVENTORY MANAGER</strong></td>
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<tr>
<td>Non-Commissioned Boats &amp; Standard Craft</td>
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<tr>
<td><strong>HIGH PERFORMANCE/HIGH SPEED SHIPS &amp; ADVANCED MARINE VEHICLES</strong></td>
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<td>MOA with SEA 05D and PMS325 for SDM and other support</td>
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