AOC
Engineering Solutions

AUTONOMOUS MARITIME SYSTEMS

We don't build the vessels. We make sure they work.

Independent engineering, integration, and test support for unmanned surface vessels: from interface requirements and production-line inspection to ship integration, launch-and-recovery CONOPS, and at-sea demonstration. Because AOC doesn't compete to build unmanned vehicles, our assessments are OCI-free by design, and program offices can act on them.

120+
Navy T&E events for unmanned maritime systems

750+
Small USVs inspected in production, acceptance and warranty

10+
Autonomous mission scenarios executed at UNITAS 2025

7
Manufacturing Readiness Assessments of USV builders

100%
sUSV recovery across 5+ shipboard events after the crane upgrade

Who this is for

Navy program offices that need an independent technical agent and the industry around them: USV builders preparing for production, payload and command-and-control developers integrating with a host ship, launch-and-recovery equipment makers, and yards fitting autonomy into working vessels.



Production oversight

We inspect the boats as they are built.
750+ small USVs inspected in production, acceptance and warranty against ABS, ABYC, ISO and CFR rules welding, hardware securing, wiring, trailers and shipping packaging. Technical expert to DCMA during acceptance; DCMA inspectors trained by AOC.

Manufacturing Readiness Assessments

Can the builder actually scale? Seven MRAs completed on a proven 60-day process.
Independent assessments of USV builders, aluminum, fiberglass, HDPE, engine, and integration sites; scored against DoD TRL and MRL criteria: production plans, supply chain, workforce, quality, capital, and business systems.

Ship integration & interface control

The interface between vehicle and ship, clearly defined and documented
Author of the Interface Control Document governing ship-to-USV, UUV and UAV interfaces (1,000+ traced requirements); led the working group that brought several developers' vehicles into one integration path.

Launch & recovery

Solving the Challenges of Unmanned Launch and Recovery
NSWC Panama City Launch, Recovery and Handling IPT; Launch and Recovery System strength upgrade for a fully fueled USV to NAVSEA OP-4; CONOPS test plans for 8- to 32-boat operations on both LCS variants.

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Woman-Owned Small Business

AUTONOMOUS MARITIME SYSTEMS

Communications, C2 & navigation

The link the mission lives on.
Designed and installed the LCS GPS repeater so USVs complete pre-mission checks before launch; developed and verified antennas, radio cabinets and the classified network link on both LCS variants; demonstrated stand-off control of small USVs at UNITAS 2025.

CONOPS & demonstrations

We write the concept, then prove it at sea.
Planned and executed two multi-vehicle autonomy exercises at UNITAS 2025, with more than ten mission scenarios across multiple contractors and agencies, briefed to flag-level leadership; safety plans and risk matrices for 7+ major test events, 2022–2025.

Prototyping & support equipment

From concept to hardware on the pier.
A USV launcher developed for LCS; shipboard handling cart and power mover requirements; an at-sea reload method demonstrated at full scale; a modular console adapter kit with ten production-ready systems delivered.

Engineering analysis

Keeping vehicles in test.
Hull-damage and structural-strength analysis that kept vehicles operating with minimal downtime; failure-mode analysis tracing launch-and-recovery damage to root cause; laydown analysis holding weight and stability compliance.

Proof in practice — Independence-variant stern fender

To protect watercraft during launch and recovery on the Independence-variant LCS, AOC assessed impact velocity and energy, selected the material, prototyped and demonstrated the fender, produced the ship installation drawings, drafted the risk message for Government release and provided on-site engineering at the test event. Rated Exceptional for quality in CPARS on the NSWC Carderock contract.

Why program offices bring us in

- OCI-free by design. Because AOC does not compete for vehicle production, our technical assessments remain independent of the builders we evaluate.
- There since day one. AOC has supported unmanned and modular integration on LCS since 2002 and maintains the interface baseline the fleet uses today.
- The documentation is operational: test plans, procedures, IV&V forms and risk matrices in the format your program office already uses.

Platforms & tools

Platforms. sUSV1 · sUSV2 · MCM USV · Tsunami · Knifefish UUV · MQ-8 / MH-60 aviation integration · LCS Freedom and Independence variants, ESB, ESD, and EPF

Engineering tools.
SolidWorks, AutoCAD, Inventor, Rhino, Orca3D, GHS, NavCad, OPTIMOOR, FEMAP and NX Nastran, Cameo/MagicDraw, Innoslate, DOORS, Python with OpenCV, Excel VBA, SQL,and Blender

Certified Woman-Owned Small Business (SBA / WBENC) · Secret facility clearance · ~40 staff, all cleared Secret, 2 PEs · CMMC Level 2
Prime: NSWC Carderock HM&E OSA & Systems Engineering · GSA OASIS+ Small Business · SeaPort-NxG · CAGE 1W6Y9

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