WR SYSTEMS

EXCELLENCE THROUGH INNOVATION

# Solutions for Evolving Missions

## UNMANNED SYSTEMS

Known for our commitment to deliver next-generation technologies to the fleet and trusted for over 24 years to support Navy navigation worldwide, W R Systems, Ltd. (WR) is an expert integrator for Unmanned Surface Vehicles (USVs).

## WR Experience

**WR leverages decades of experience with command and control (C2) and navigation systems from inception to sustainment. This informs our engineering support of navigation, vessel control, and payload integration in the unmanned domain.**

- Autonomy Verification and Validation (V&V)
- Navigation and Vehicle Control Systems
- Command and Control (C2)
- Internal Monitoring and Self Assessment (Health Monitoring)
- Sensor Integration and Situational Awareness
- Payload Integration
- Surveillance
- Unmanned Maritime Autonomy Architecture (UMAA) Compliance
- Unmanned Aerial Sensor Launch and Recovery
- Underway Refueling
- Ground Vehicle Launch and Recovery
- Minesweeping Operations

## Unmanned Surface System Support

**WR delivers on unmanned requirements for the US Navy, US Marine Corps, and NATO.**

- Marine Corps Long-Range Unmanned Surface Vehicle (LRUSV)
- Marine Corps Universal messaging for Autonomous Communication (UMAC)
- Navy High-Volume Long-Range Precision Strike (HVLRPS)
- Navy USV Third-Party Targeting (3PT)
- NATO USV C2 and Communications Software

# WR's FairSeas Geospatial Navigation Software Suite

Flexibility and extensibility that enhances vessel navigation in the unmanned systems domain.

## G-Arc

A maritime navigation Software Development Kit (SDK) used as a modular kernel with Machine Learning (ML) and Artificial Intelligence (AI) real-time analytical processing to support unmanned system requirements including:

- Autonomy
- Geospatial data processing for navigation grade accuracy
- Hydrographic and sensor data integration for situational awareness
- Advanced contact management correlation

## DataHub

A real-time sensor data processing service that connects, collects, organizes, records, and distributes sensor data to other clients.

- Clients customize/receive preferred information without the burden of low-level sensor interfacing.
- Multiple DataHubs connect to form an "Organization"—a data distribution family of systems with redundancy configurations.
- Organizations tailored to include any combination of land-based and vessel-based instances.
- Configurable for secure Authentication and Authorization; option to enable data encryption.

## Unify

A hydrographic web mapping service application for distribution of both legacy and the new S-100 hydrographic data products for maritime navigation.

- Integrates in unmanned operational centers to distribute hydrographic information to C2 applications, providing a navigation grade operational picture of area of operation.

## Port Voyager

An Under Keel Clearance (UKC) port traffic management application that can provide an additional operational picture with certified hydrographic data within an unmanned operational center.

- Integrates with C2 applications for localized or distributed situational awareness.

FairSeas G-Arc is currently being used to develop: a UMAA compliant solution for AIS transmission control for USVs; a 100 route optimization for fuel economy and safety; a sensor-data-fusion engine; a USV autonomy control module; a 4D S-100 rendering engine; and a head-up display on Smartglasse.

**FairSeas Application Areas:**

- Harbor and coastal navigation
- Real time data collection and synchronization-navigation
- Inland and coastal electronic navigation
- C2 Solutions
- Charting services and analysis
- Search and Rescue (SAR)
- Voyage Data Recording (VDR)
- Vessel Traffic Services (VTS)
- Training and simulation

NAVIGATION - SAFETY - TRUST

FAIRSEAS

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