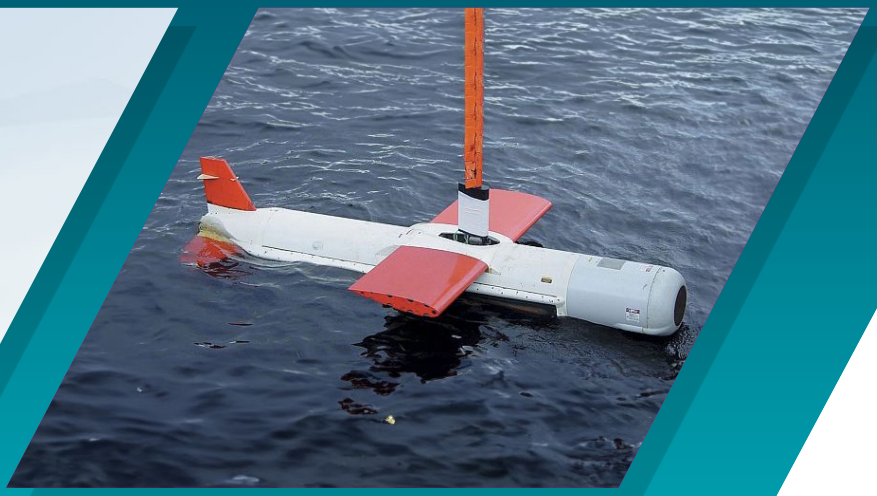
MARITIME SENSOR CAPABILITIES

Areté is an advanced science and engineering Employee-Owned Small Business that provides innovative sensing solutions — from scientific discovery through prototyping to production. Areté's smart systems include active and passive sensors, real-time processing, software, and complex algorithms that operate from seafloor to space.



Areté

DISCOVER. DEVELOP. DELIVER.

PILLS – Pushbroom Imaging LIDAR for Littoral Surveillance

- **TRL:** 9
- **Discriminators:** Low-SWaP, high resolution, accuracy.
- **Production:** Currently low-rate, can ramp up.
- **SWaP:** 40” l x 11” w x 8” h, installed 45 lbs, 224W.
- **Status:** ONR and NAVIAR Test Bed and commercially used by Fugro (RAMMS).
- **Description:** PILLS is a low-SWaP airborne LiDAR providing bathymetric capabilities utilizing Arete’s Streak Tube Imaging LIDAR (STIL) technology. PILLS is capable of hydrographic survey with an alternate mission capability.

EDEX – Expendable Data Exfiltration

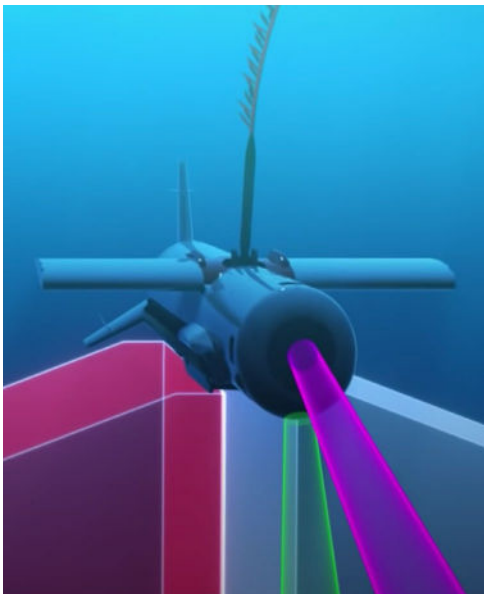
- **TRL:** 8
- **Discriminators:** Platform-agnostic, covert data exfiltration device and salvage tag. Deep water variant is available.
- **Size:** 6.5” h x 1.75” diameter. Self-powered.
- **Status:** SBIR Phase III with ONR.
- **Description:** EDEX acquires data from the underwater platform’s interface electronics wirelessly. EDEX ascends to the surface and delivers data either via SATCOM or RF LOS and then scuttles.

STRIDR – Sea-Trekking Rechargeable Instrumented Drifter

- **TRL:** 8
- **Discriminators:** Low cost, customizable rechargeable sea drifter.
- **Production:** Full rate.
- **Size:** 16" h x 5” diameter (folded), 6.6 lbs., 84 Wh. Self-powered.
- **Status:** Qualified by DARPA, not currently deployed.
- **Description:** The STRIDR™ system is a small, low-cost Lagrangian drifter with a customizable suite of sensors and on-board processing that produces a variety of environmental measurements.

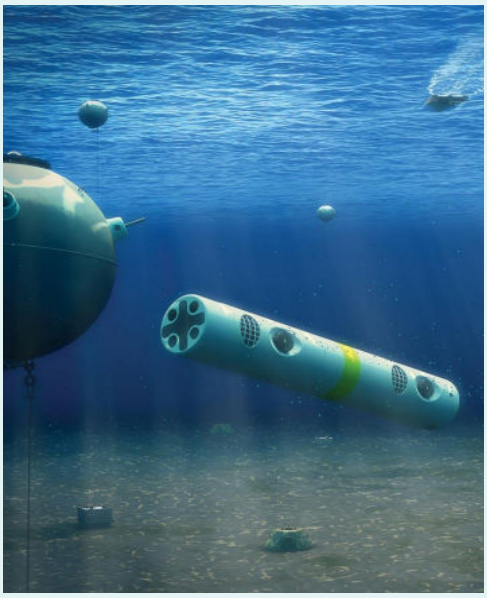
Mk18 ASP – Mk18 Advanced Sensor Package

- **TRL:** 9
- **Discriminators:** Low false alarm rate, mine, and obstacle ATR.
- **Production:** Currently in production.
- **Status:** Deployed with the U.S. Navy.
- **Description:** The Mk18 ASP provides volume mine hunting including automatic detection and classification, rapid large object localization, obstacle detection and avoidance, and large area coverage capability for Intelligence Preparations of the Operation Environment (IPOE) missions. It also includes onboard automated target recognition (ATR) and automated mission planning based on environment and objectives along a long-distance Command and Control (C2) and data exfiltration capability.



AN/AQS-20 EOID Sensor

- **TRL:** 9
- **Discriminators:** Undersea minehunting sonar system with Arete's EOID LiDAR.
- **Production:** 40 EOID LiDARs delivered to Raytheon IDS.
- **Size:** 15.5" in diameter.
- **Status:** Deployed with the U.S. Navy, IOC in 2019.
- **Description:** The AN/ANQS-20A mine hunter is designed for the detection, classification, localization, and identification of sea mines. Areté supplies the Electo-Optic Identification (EOID) and underwater Streak Tube Imaging LiDAR (STIL) assembly used for target identification.



Barracuda ATR Alogrithms, EO Processor

- **TRL:** 7
- **Discriminators:** Low SWaP, embedded video ATR.
- **Production:** Pre-LRIP.
- **Status:** EDM manufacture.
- **Description:** The Barracuda mine neutralizer provides a low-cost mine clearance capability on the MCM USV to provide rapid reacquisition, identification, and neutralization capability of sea mines from seafloor to surface. Areté provides the Electro-Optic Processor (EOP) and associated ATR algorithms.

COBRA – Coastal Battlefield Reconnaissance and Analysis

- **TRL:** 9
- **Discriminators:** Unmanned, real-time, multispectral, high-resolution, passive imaging, large search area, low false alarm rate.
- **Production:** 12 systems produced, current configuration in sustainment.
- **Status:** Deployed with the U.S. Navy IOC in CY2017. Current contract for integration on the MQ-8C.
- **Description:** The AN/DVS-1 COBRA system is a passive multispectral sensor system that is used to conduct unmanned aerial tactical reconnaissance in the littoral battlespace for daytime detection and localization of minefields and obstacles in the surf zone, beach zone, and beach exit zone prior to an amphibious assault.

Receiver Sensor Assembly
ALMDS – Airborne Laser Mine Detection

- **TRL:** 9
- **Discriminators:** High search area, active imaging, low false alarm rate.
- **Production:** 29 systems produced, currently producing system for ROK.
- **SWaP:** Single pod, 107” length, 21” diameter, 850lbs.
- **Status:** Deployed with the U.S. Navy IOC in CY2016 and some allied navies.
- **Description:** Areté supplies the Receiver Sensor Assembly containing the STIL sensors, laser timing electronics, and transmit optics. ALMDS is a laser-based AMCM high area coverage system utilizing Streak Tube Imaging LiDAR (STIL) to detect, classify, and localize surface and near-surface moored sea mines in both day and night operations. ALMDS is integrated with the MH-60S and MCH-101 helicopters to provide rapid wide-area reconnaissance and assessment of mine threats in littoral zones.

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