Sentinel – Tactically Relevant Biologically Inspired Profiling Maritime Device for Surface/Subsurface SOF/Intel Missions

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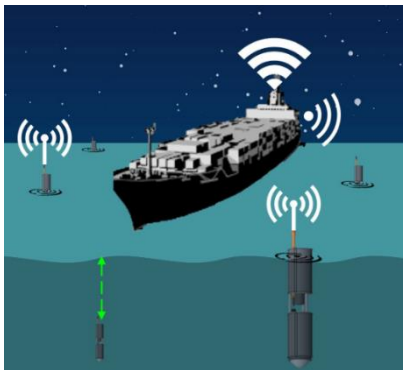

Topic Number: N18A-T025

SYSCOM: Office of Naval Research (ONR)
www.onr.navy.mil

Program Sponsor: ONR, CODE 34

Other Potential Programs:
TVS/RSTA, HFTTL, Unit Specific Special Requirements

Current TRL: 5

Projected TRL: 7 / Q3 2023

Keywords:
ISR, Maritime, SOF, MILDEC, Profiler, Modularity, Data

THE CHALLENGE

A marine submerging and surfacing capability to vary surface presence and collect tactical intelligence in the air, water, and air-water interface domains in maritime environments. A device is needed to provide ISR to SOF in the areas of harbor survey, HFTTL (hostile force tagging tracking and locating), and spoofing/jamming.

THE INNOVATION

Sentinel is a maritime device that operates both at, and below, the surface of the water. Designed to autonomously, or when triggered, travel up and down in the water (a "profile"), these 'profilers' collect and transmit data in support of Military Deception (MILDEC), data repeating, or other tasks. This solution is perfect for subsea and seabed warfare, spoofing, or other clandestine data collection operations as they can "spoof and disappear".

Sentinel can: collect data at or below the surface (payload dependent [e.g., pattern-of-life, RF survey, acoustic survey, other]); act as communications node (above or below the waterline); be pre-positioned by dropping over side of boat, by divers or by SDV, and free-float or anchored; be combined with others for dispersed coverage; and be triggered/programmed in several different ways (timing, GPS geofence, triggered acoustic [diver, UUV, etc.], passive acoustic via approaching vessel(s)).

THE NAVY BENEFIT

Sentinel's differentiators include a lower cost than comparable profilers (3-5X less expensive), clandestine data collections with the potential for data backhaul and scuttle, payload modularity, and multiple deployment approaches (surface, air, underwater, and manned/unmanned). Sentinel has the capability, stealth, and programming flexibility required for Special Operations Forces missions. After deployment in Operating Area (OPAREA) hours to weeks before an operation/collection, Sentinel enables successful diver operations, vessel intercept, and UAS operations in the area. Next generation ISR is supported via data collection at varying depths in the water, at the surface, or any combination thereof.

THE FUTURE

Boston Engineering is pursuing a staged release of the Sentinel platform inclusive of continued R&D in combination with relevant demonstrations for validating user feedback. The team is interested in supporting DoD and prime contractors with prototypes (and eventually fieldable systems) in support of novel maritime Concept of Operations (CONOPS). This includes engineering support in marinization of terrestrial sensors/CONOPS for inclusion in Sentinel kits.

Innovation Center at 2022 Navy Gold Coast

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