

SEAOWL

TURNKEY UNMANNED SYSTEM SOLUTION



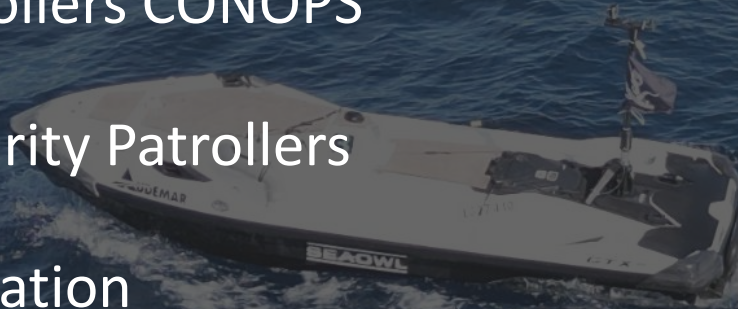
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Summary

- ❑ 1 – Coastal and offshore assets protection
- ❑ 2 – Autonomous Patrollers CONOPS
- ❑ 3 – Autonomous Security Patrollers
- ❑ 4 – Ground Control Station
- ❑ 5 – Safety and Cybersecurity management
- ❑ Annex – Typical security patroller mission



Coastal and Offshore assets protection

Turnkey autonomous security patrollers

- SeaOwl proposes turnkey solutions to **improve the Safety and Security** around offshore assets
- SeaOwl rely on **most advanced technologies** in autonomous navigation and maritime surveillance
- Inspear Unmanned Surface Vehicle has been developed and deployed for the protection of **TOTAL Energies offshore asset** (FSO Unity in Nigeria)
- Inspear proposes solutions for remote and autonomous unmanned vessels, including civilian and military payloads



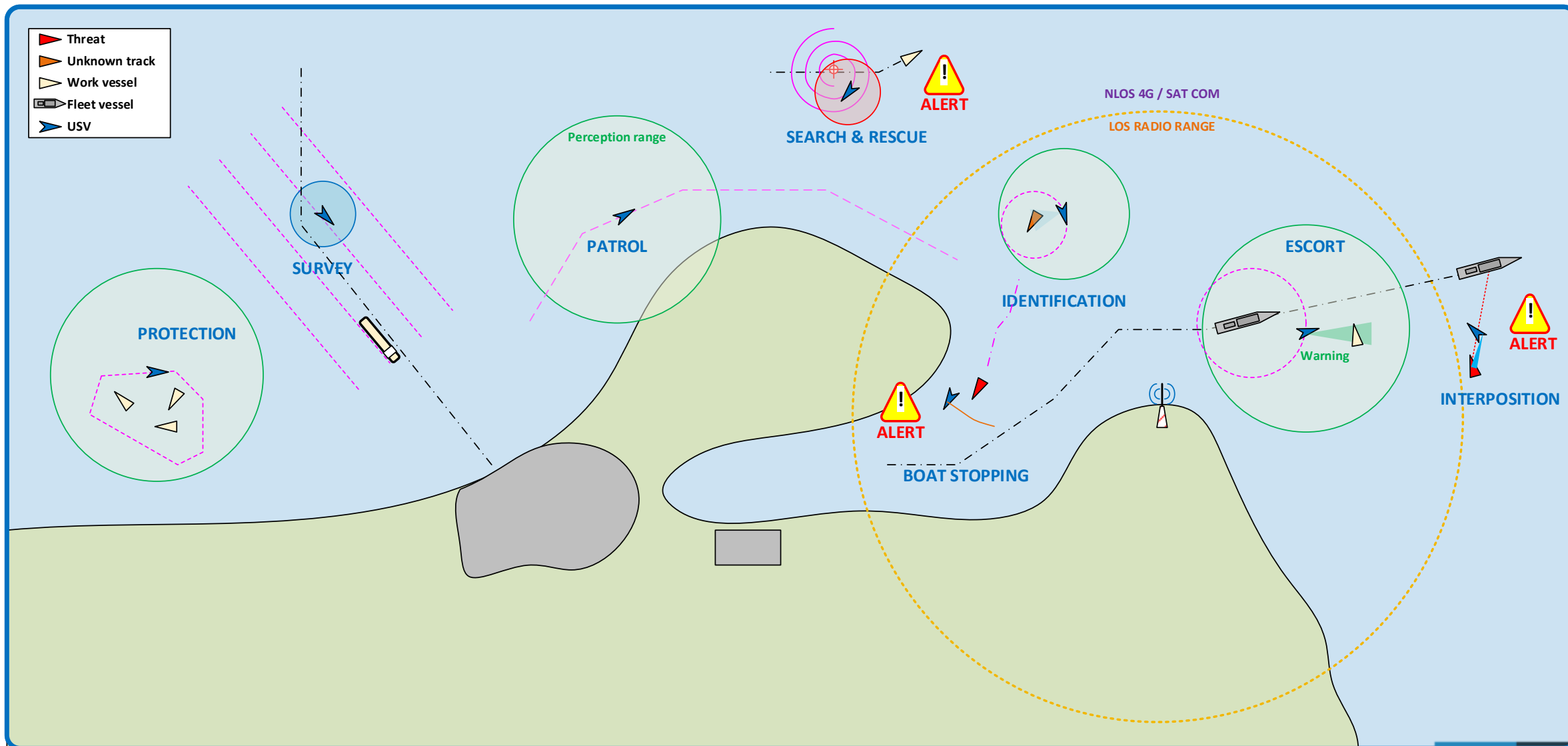
INSPEAR - 2022
Patroller - Nigeria



BELUGA - 2024
Military - France

SEABORG - 2025
Underwater activities - France

Autonomous Patrollers CONOPS



Autonomous Patrollers CONOPS

Autonomous missions

- Patrolling – Detection and Identification
 - **Patrol:** Coastal or sea surveillance through defined tracks
 - **Identification:** Short range inspection (camera) of unknown vessel
 - **Survey:** Check for any object or oil leakage on the area
- Surveillance – Extension of local detection capability
 - **Escort:** Escort of any protected vessel, with one or several USV
 - **Protection:** Protection of a set of moving vessels by turning around
 - **Hovering:** Low consumption and long-range deployment of the USV for passive detection
- Rapid response – Active protection of the assets
 - **Interposition:** Deter and obstruct the approach of a threatening vessel
 - **Boat stopping:** Catch / damage (non-lethal) the threatening vessel
 - **Search & Rescue:** Deploy search sensors and rescue systems close to a MOB emergency alert



Autonomous Security Patroller

Agnostic approach of the platform

- SeaOwl does not design its own platforms, but **rely on existing sea proven vessels** to provide the best solution for each customer
- SeaOwl has made connections with the best European shipbuilders:
 - **Maritime Partner** – Norway Sillinger – France
 - Zodiac Milpro – France
 - Anytec – Latvia
 - Etc.
- Once chosen with the customer, SeaOwl ensures the integration on the ship of its autonomous navigation system
- Provided ships come with a Class Notation and all the necessary regulation (including ELOT EN ISO 6185-4 E2 2018)



Autonomous Security Patroller

Advanced navigation system (All USV)

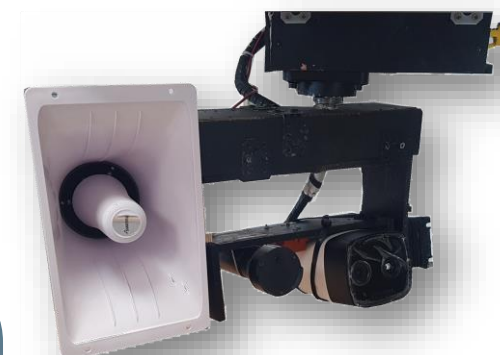
- Environment sensing
 - **Operator's remote lookout** – 6 day and thermal cameras (360° cover), 1 gyrostabilized camera
 - **Autonomous target detection and tracking** – Radar, Lidar, video stream AI, AIS, Radio Frequency sensors fusion
- Autonomous navigation
 - **SeaOwl autonomous guidance** developed for Security and Safety missions
 - **Colregs compliant autonomous avoidance** algorithms, witnessed by French Bureau Veritas
- Communication depending on local situation
 - **Harbor / Short range communication** – up to 12 NM: Dedicated secured radio link
 - **Coastal range communication** – up to 5 NM from shores: 4G/5G VPN secured access point
 - **Deep sea range communication** – No limit: SatCom VPN secured receiver
 - Mixed solutions is possible to improve resilience of the communication
- [USV] classification notation from certification body BV France



Autonomous Security Patroller

Payloads

- Deterrence payloads
 - **Watercannon**, up to 100 m range @ 12 bars with auto tracking
- Capture payloads
 - **BCB Buccaneer system** – Rope launcher @ 150 m range for propeller locking
- Detection payloads
 - **FLIR M400 XR** – Long range optronic / thermal camera
 - **Deterrence Tower** – Gyrostabilized platform embedding:
 - Daylight / thermal camera with autonomous IA tracking / pointing
 - Long Range Acoustic Device, up to 500 m, auto adjustable on target
 - Dazzling laser, 100 or 500 m range, auto adjustable on target
 - EWF antenna for sensing and jamming
 - **UAV** – A waterproof UAV can be deployed from the USV to increase its detection range on shore and tracking capability at sea

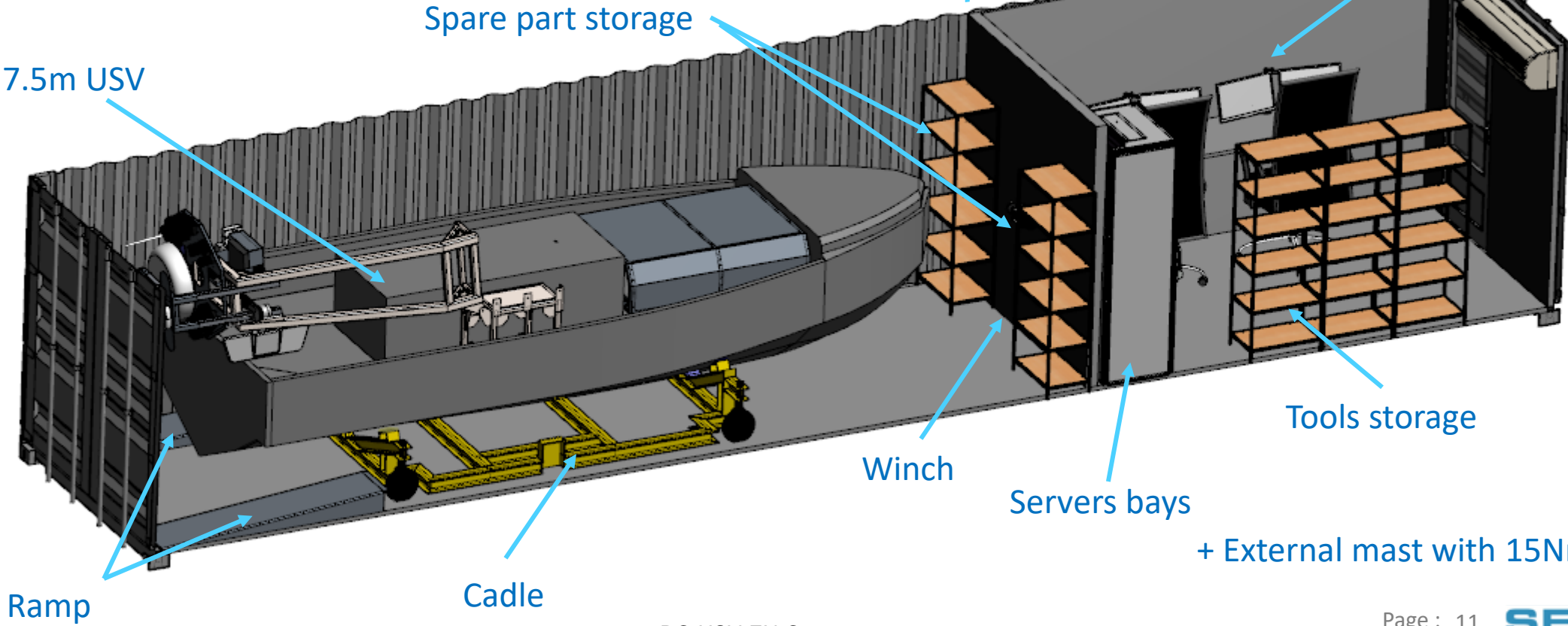


Ground Control Station - Turnkey USV transportable

Equipped transportation 40'' container

Sheltered Control Center - SCC
Isolated and Air-conditioned

2 VMAS/DMAS Workstations



Ground Control Station - Turnkey USV transportable

Based on 7,5m SeaOwl Standard USV with Alusafe platform and on the right, specific equipment.

4G/5G antenna

Starlink Antenna

Deterrence Tower

Gyrostabilized platform embedding

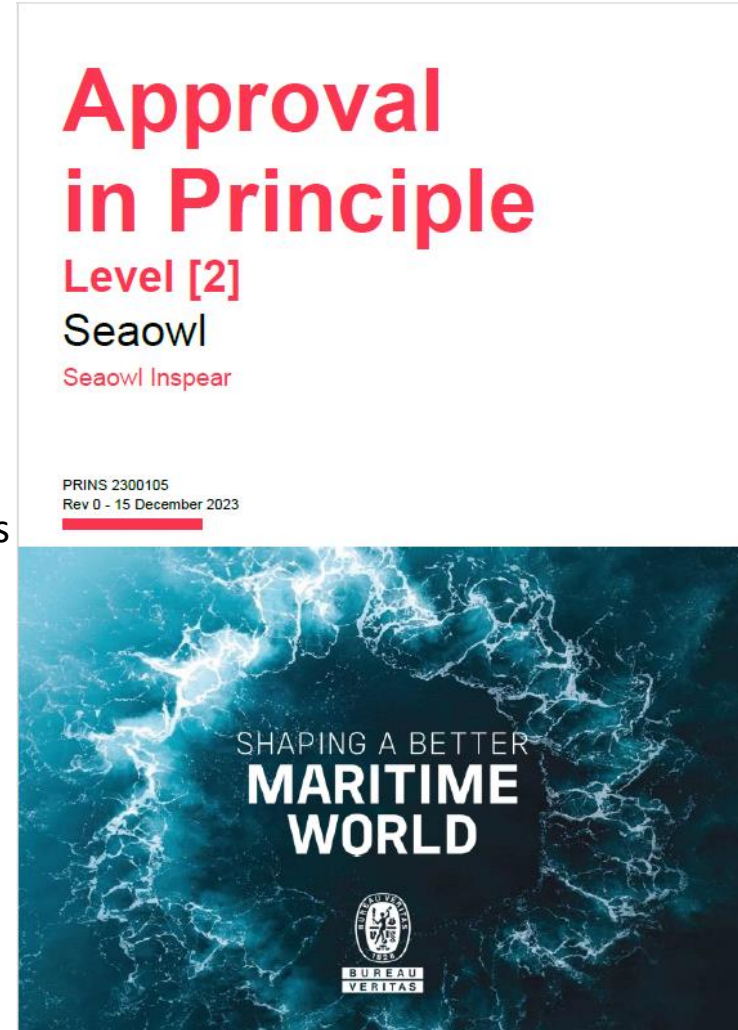
In folded-mast configuration



Safety and Cybersecurity management

Certification for Unmanned controls

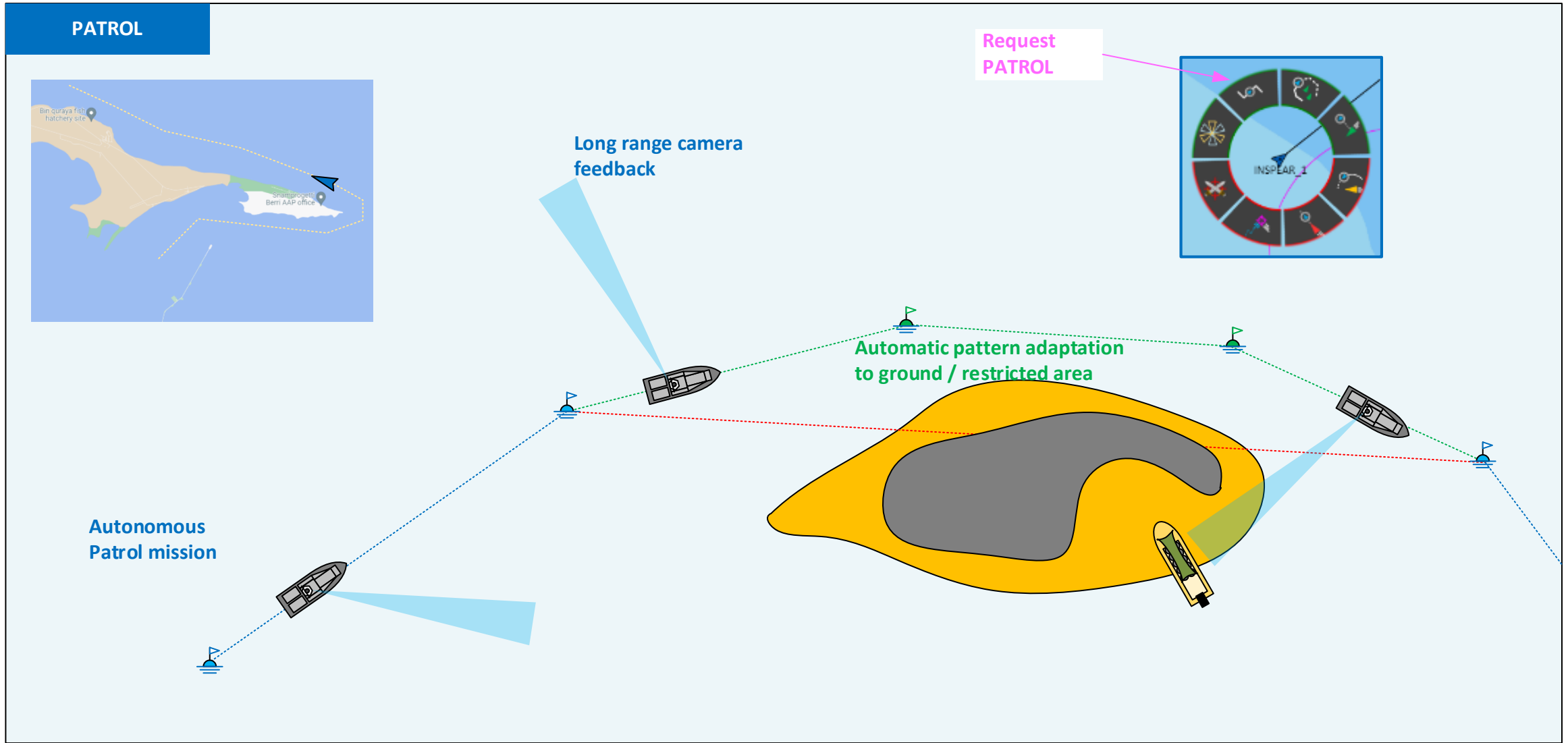
- Compliance with:
 - **UK MASS standard:** MASS Code version 7 (Summarized in procedures)
 - **NI641:** Guidelines for autonomous shipping (Leading to Approval in Principle)
 - **NR681:** Rules note on Unmanned Surface Vehicle (Witnessed proving trials)
 - **NR659:** Rules on Cyber Security for the Classification of Marine Units (Level Cyber managed)
 - **COLREGS 1978:** Collision regulation (Witnessed proving trials with BV and Total Energies)
- SeaOwl provides all the necessary documentation for exploitation:
 - **Safety Assurance Management Plan:** Defining operation procedures, rules and coordination with local authorities
 - **HAZID / FMECA:** Safety assurance analysis in line with expected operation
 - **Operating procedures:** Missions, deployment, maintenance, emergency situation, alarms management
 - **Standing orders:** Standard rules for any operation at sea
 - **Training and qualification documentation:** for **local national** USV Operator and support personnel training



Typical Security Patrollers mission

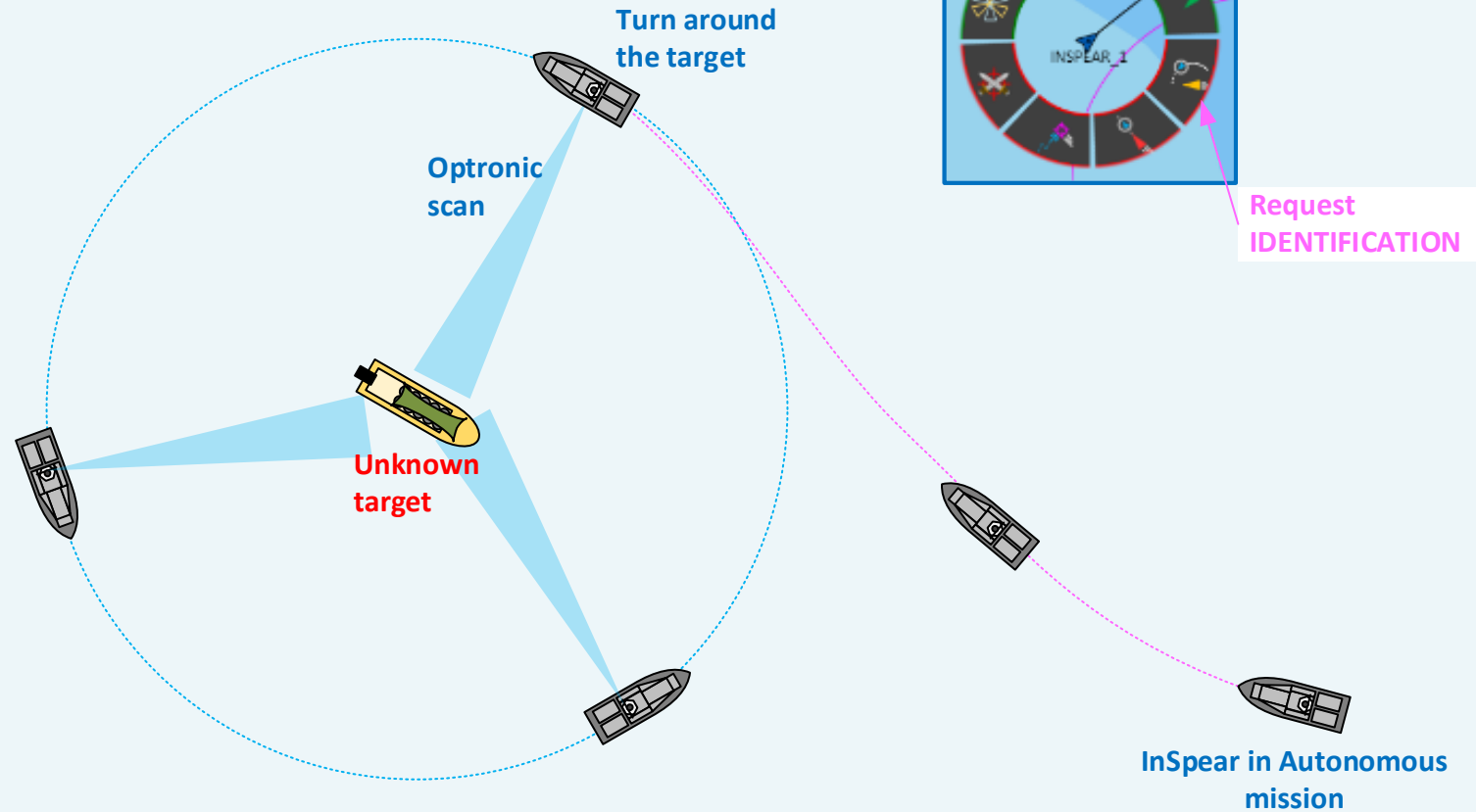
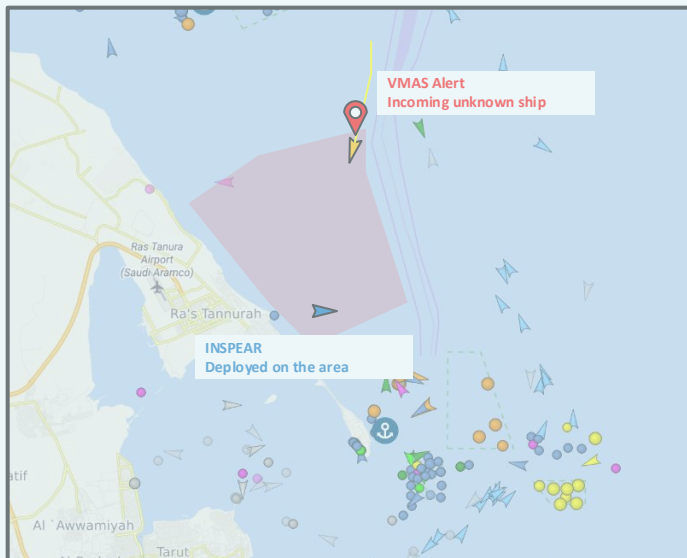
Annex

Typical Security Patrollers mission

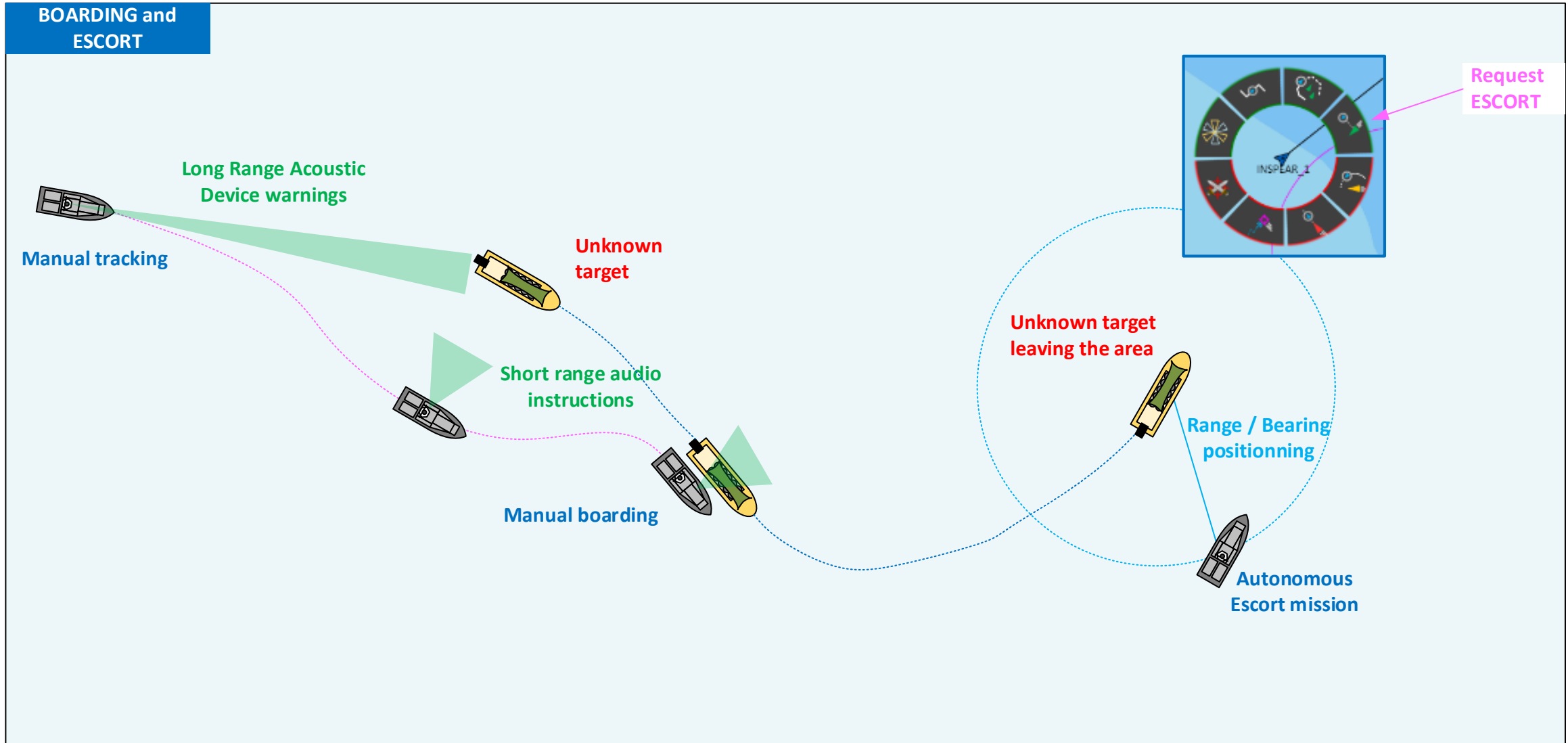


Typical Security Patrollers mission

IDENTIFICATION

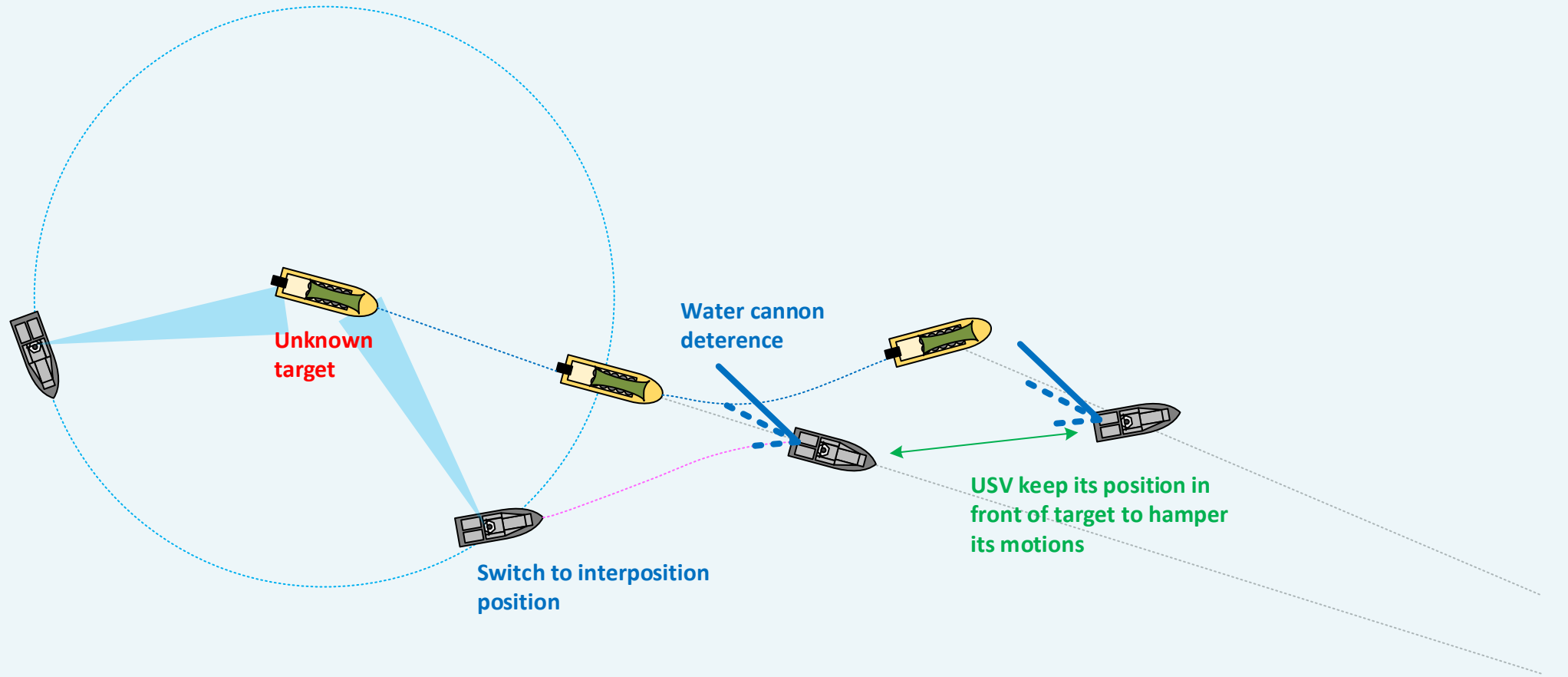


Typical Security Patrollers mission

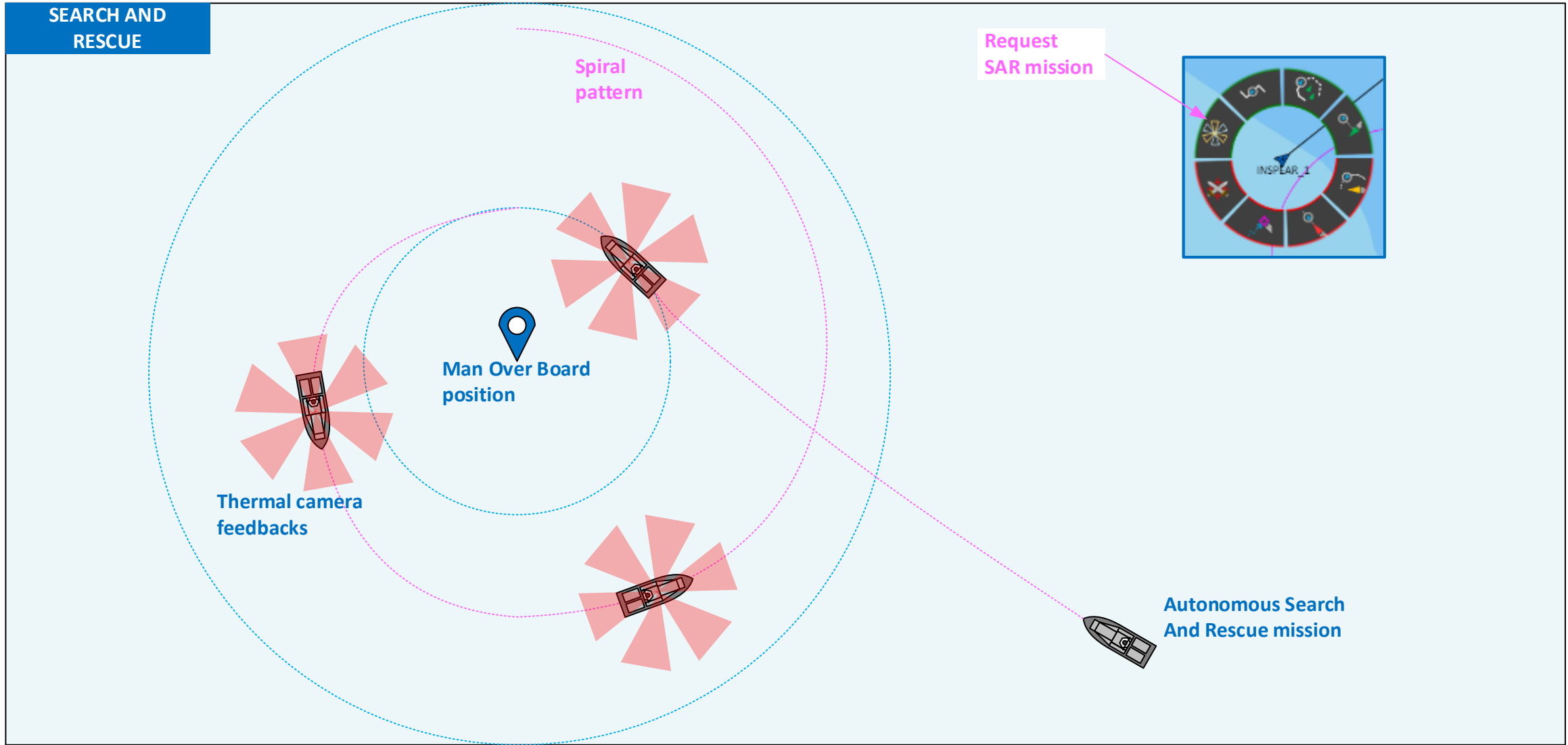


Typical Security Patrollers mission

INTERPOSITION



Typical Security Patrollers mission



THANK YOU

SEAOWL