Fraunhofer
OceanScan Marine Systems & Technology
Port of Ravenna
ISSNOVA Institute for Sustainable Society and Innovation
RB
PROBOTEK
RAFAEL ADVANCED DEFENSE SYSTEMS LTD.
CNT Technologies
DDR&D From Vision To Mission
hcmr INSTITUTE OF OCEANOGRAPHY
MANIBUS
DBS DRONOM BUREAU OF SHIPPING
TEL AVIV UNIVERSITY
HELLENIC MEDITERRANEAN UNIVERSITY
EUROPEAN DYNAMICS
Marinha
FUNDACIÓN VALENCIAPORT
saes Innovating_Developing_Protecting
Lavrion Port Authority S.A.
UNIVERSITY OF WEST ATTICA
MINISTRY OF MARITIME AFFAIRS AND INSULAR POLICY

Funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or REA Neither the European Union nor the granting authority can be held responsible for them.

Funded by the European Union

Project coordinator: Sabine Trupp

sabine.trupp@emft.fraunhofer.de

Project dissemination manager: Raffaella Russo

russo@issnova.eu

UNDERSEC

Underwater Security

UnderSec Consortium is a multidisciplinary group composed of 22 partners from 11 different countries

Follow us on our official channels

www.undersec-project.eu

Undersec_eu

undersec-eu-project

Protecting ships and maritime infrastructures against illegal acts

Funded by European Union

The project in brief

Ships, maritime infrastructures and the whole marine ecosystem need to be sufficiently protected against possible illegal acts, by also fostering underwater security and assuring secure navigation. UnderSec is dedicated to enhancing maritime and underwater security. The project involves a consortium of experts, research institutions, and technology partners, aiming to develop a comprehensive underwater security solution.

The objective

UnderSec aims to develop a comprehensive underwater security system for maritime assets and infrastructures using multimodal sensors and robotic assets.

The Pilots

	Isolated ship's first layer of protection	Port's or critical i nfrastructure's first layer of protection (off and at the port entrance) with fixed sensors/assets	Port's/ critical infrastructure's and ship's second layer of protection (searching/ scanning on demand) with robotic	Ship's, port's and critical infrastructure's third layer of protection (suspicious object classification, manipulation) with robotic response assets
1	•Detection and deterrent action against illegal/ unauthorised underwater access to ship's hull by diver intruders			
2		•Detection of illegal/ unauthorised underwater access, of a submerged towed object, to port's entrance from the waterside •Detection of possible submerged/ towed/ illegal/ dangerous incoming object (explosives) to port's entrance from the waterside •Detection, through fixed sensors, and deterrent action against illegal/ unauthorised underwater access by diver and/ or Underwater Vehicle intruder to port's entrance from the waterside • Suspicious object detection on ship's hull, through fixed sensors, while the ship enters the port		
3			•Detection, through patrolling robotic assets, and deterrent action against illegal/ unauthorised underwater access by diver and/ or Underwater Vehicle intruder to port's entrance from the waterside •Searching/ scanning with robotic assets, and detection of suspicious object, lying on the seabed, at port's entrance or inside the port •Searching/ scanning with robotic assets, and detection of suspicious object, attached on the port's docking places foundation • Searching/ scanning with robotic assets, and detection of suspicious object attached/ strapped to ship's hull	
4				•Suspicious object detected, lying on the seabed, at port's entrance or inside the port, recognised and classified as dangerous explosives' package •Suspicious object, hidden inside a water inlet of ship's hull, recognised and classified as narcotics' package •Suspicious object detected, on ship's hull, recognised and classified as "narco-torpedo" •Dangerous object (explosives' package) manipulation (capturing, collection and securely moving away) by robotic asset

UnderSec relies on four Real-life Pilot Use Cases (PUC) scenarios that will be the basis for the demonstration, testing and evaluation of all UnderSec system's capabilities and capacities.

The technical framework

The UnderSec system employs a layers-based approach, comprising "Horizontal" Layers of Protection Technologies and "Logical" Layers of Data Management and Exploitation. The former organizes components for specific underwater security tasks, while the latter ensures proper data management, governance, analysis, and exploitation.