RETHINKING Offshore infrastructures
for energy transition

Ilaria Antoncecchi

LEAD of Sealines Start-Up Action
Italian Ministry of Economic Development
(DGISSEG)
ilaria.antoncecchi.ext@mise.gov.it

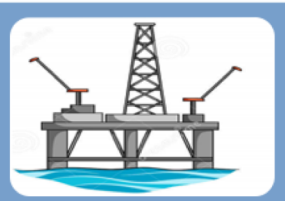
blueMed Research and Innovation for blue jobs and growth in the Mediterranean Area

SEALINES
the network

7 Countries
5 Administrations
7 Research Centers
8 Private Companies

SEALINES
targets for BLUEMED challenges

promotion of an **international offshore safety network:**
crosscutting action for **international cooperation** between scientists, stakeholders, policy and decision-makers and civil society (**Challenge A**)



definition of a case study:
governance of maritime space and **marine resources** in the Mediterranean (**challenges E1, E2 and D1**): on **sustainable management and efficient use of sealines** assuring **transition from traditional maritime economic to blue growth activities**

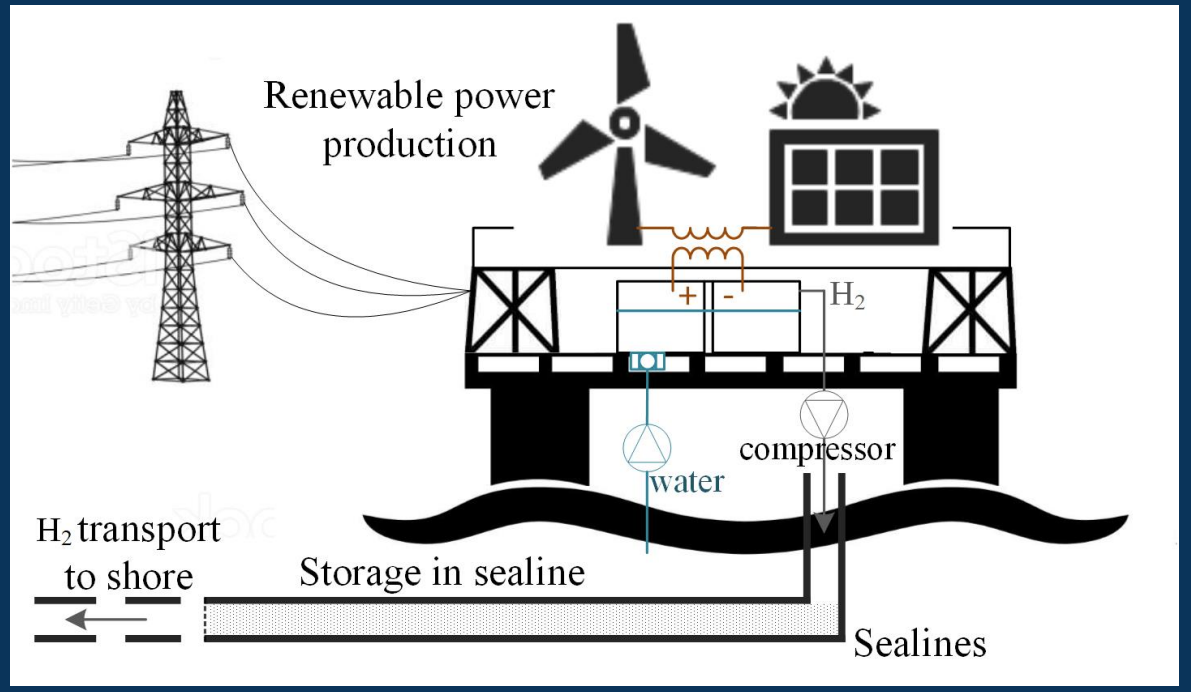
implementation of innovative methods and technologies for monitoring:
understanding pollution impacts, mitigation and remediation in the Mediterranean Sea" and "**Forecasting the Mediterranean Sea dynamics and climate**" (**challenges A2, B1**)

train for blue professionals :
high education program (**challenges A4**)

A research hub for an integrated green energy system: reusing Sealines for H2 storage and transport

Main objective: innovative solutions for reusing an inactive offshore gas platform and its associated infrastructures as a scientific research hub, where an integrated energy system and innovative environmental monitoring methods are envisaged

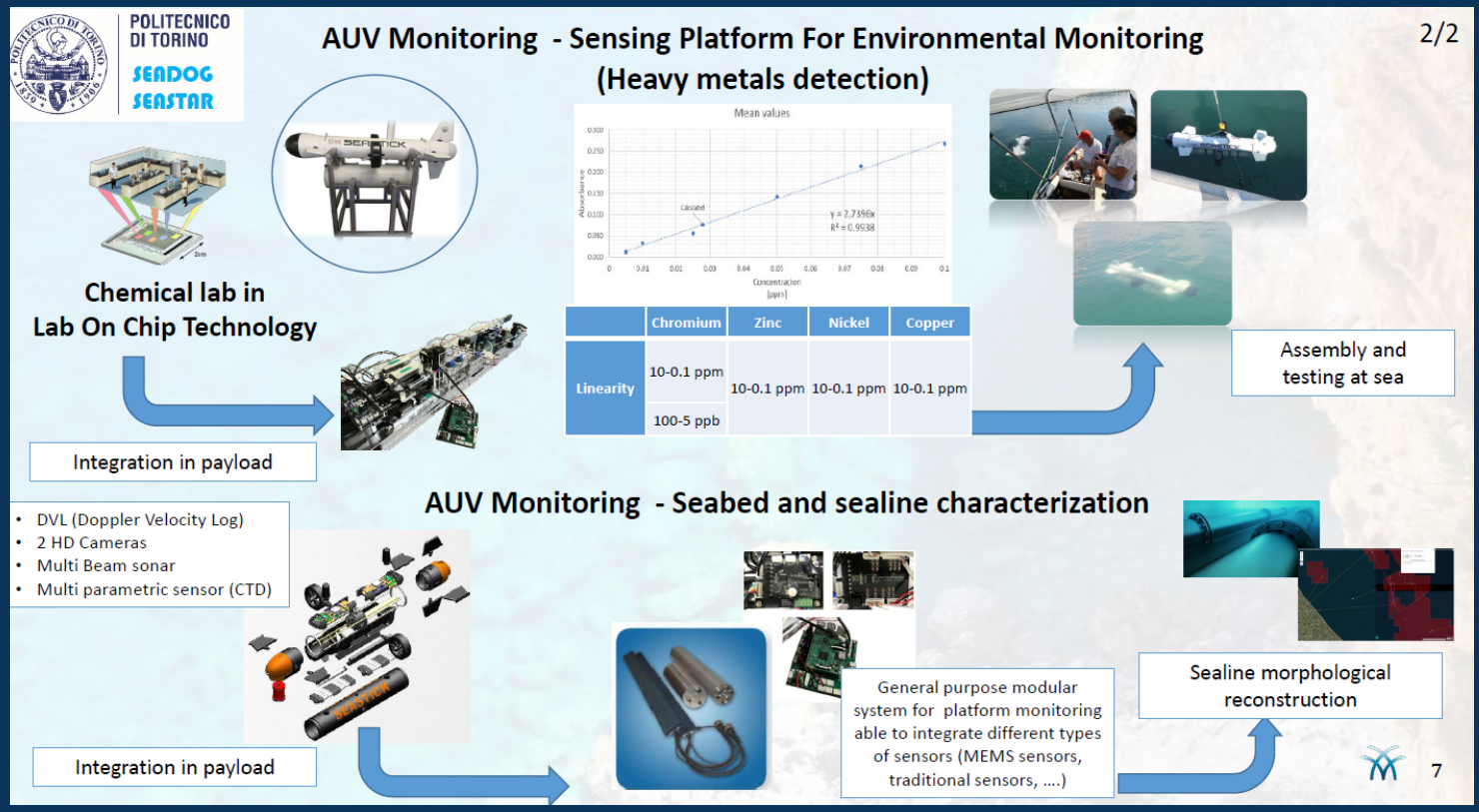
Methods: study of the engineering solutions on a pilot case for the combined production of solar and wind energy coupled with **hydrogen** production from seawater electrolysis. The study analyzes the potential for storage and transport on land of the produced hydrogen using the sealines connected to the platform.



Innovative Monitoring of Hydrocarbons Seepage and Leakage

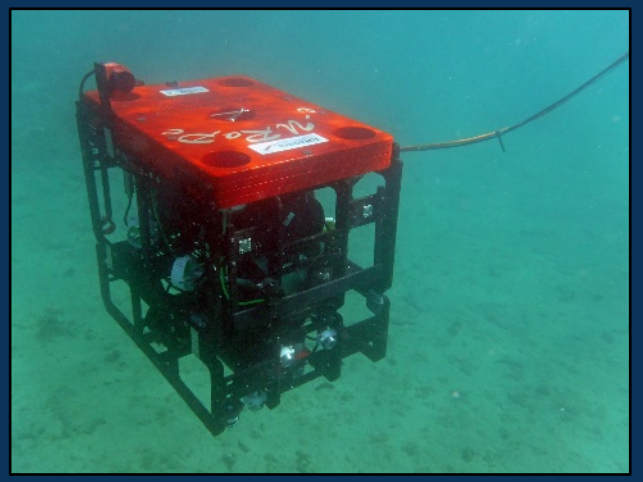
UPH2O chemical sensor installed on board an autonomous underwater vehicle (AUV)

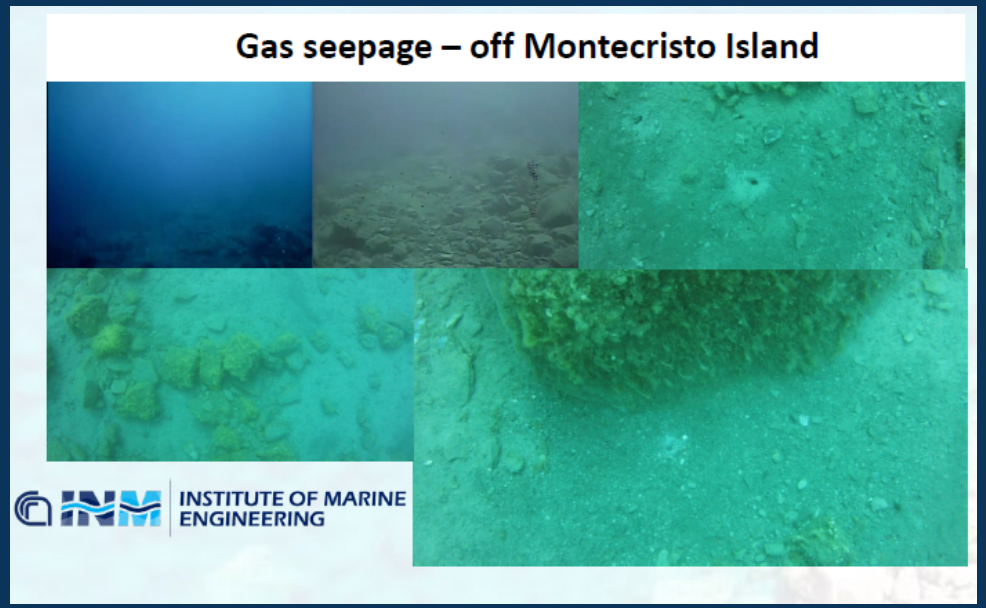
This sensor uses Lab-On a-Chip microfluidic technologies for fluid and flow management in situ analysis of the water samples



Innovative Monitoring of Hydrocarbons Seepage and Leakage

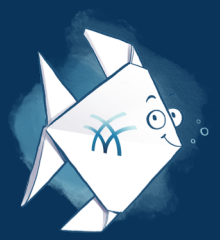
Remotely operated vehicle (ROV) e-URoPe (e-Underwater Robotic Pet) equipped with geophysical and geochemical sensors, which would enable high resolution and space and time repeatability of the underwater measurements





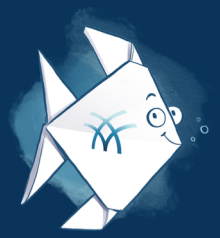
Main results

- *Overview of the current international regulation on decommisioning and reuse of offshore infrastructures*
- *Existing offshore infrastructures may provide added value in exploiting renewable energy generation* ***(132,800 kWh/year by renewable may produce 27,700 Nm3/year of H2 in safe conditions);***
- *Innovative approach to test a possible reuse of an oil and gas platform as a research hub to integrate and test a renewable energies offshore system (also ancillaries facilities as the sealines)*
- *Existing sealines for transport and storage of pure H2 produced by renewable energy* ***is technically and economically feasible (for Sealines type 1 the upper limit of 330 bar correspond to a 23 kg/m3 H2 density and 1852 kg H2 stored).***



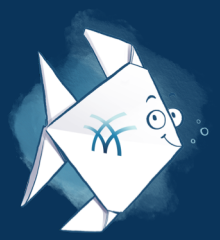
Main results

- ***H2 transportation and storage*** *using the existing sealines results* ***the most convenient scenario (about 0.9 Meuro);***
- *Application of* ***innovative technological solutions for monitoring*** *environment and geohazard represents* ***a new opportunity to guarantee safety condition*** *and to* ***prevent environmental impacts;***
- *Indirect benefits:* ***companies reputation supporting energy transition policies****;*
- *The proposal represents a positive example of "Blue Economy";*



Further scale-up

- *Supporting the definition of a common international regulatory framework*
- *Application on a strategic tests on Real Cases supporting energy transition*
- *Boosting international expansion of the network;*
- *Implementing new cooperation program*



THANKS FOR YOUR ATTENTION

Feasibility study is available at:
http://www.bluemed-initiative.eu/wp-content/uploads/2020/06/SEALINES-FEASIBILITY-STUDY-1.pdf

More info on BlueMed Start-up Actions at http://www.bluemed-initiative.eu/the-startup-actions/
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