Greek Pilot: Antifouling solutions on aquaculture systems in food production

3rd UNITED Online Workshop – Aquaculture Multi-Use Offshore: Technology Transfer

Evangelia Lamprakopoulou

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

15.09.2022

Greek pilot

Pilot Description

- The Greek Pilot (PATROKLOS Pilot site) is situated in the 59th km of Athens-Sounio Ave., Palaia Fokaia, Attiki, Greece, in the wider area of Cape Sounio.
- **KASTELORIZO AQUACULTURE SA operates a fish-farming unit** on floating facilities. KASTELORIZO provides the aquaculture unit and Planet Blue utilizes this marine space for its touristic diving activities.
- **Co-existence scenarios** are facilitated with the use of WINGS' monitoring and management platform, **AQUAWINGS**, that is deployed to ensure:
    - best multi-use of aquaculture and tourist activities
    - minimization of environmental impact

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

What is biofouling?

- Marine biofouling can be the undesirable accumulation of algae, microorganisms, plants and animals on artificial submerged surfaces
- Microfoulers: tiny organisms like bacteria, fungi
- Macrofoulers: barnacles, zebra mussels

Reference: Image from www.heatexchanger.guide

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

Effects of biofouling on aquaculture

- Restriction of water exchange due to the growth of fouling organisms causing net occlusion
- Disease risk due to fouling communities
- Cage deformation and structural fatigue

Isla Fitridge , Tim Dempster , Jana Guenther & Rocky de Nys (2012) The impact and control of biofouling in marine aquaculture: a review, Biofouling, 28:7, 649-669

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

Antifouling technologies

- Mechanical removal
- Hull cleaning with harsh chemicals
- Application of anti-fouling coatings to submerged surfaces

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

Greek pilot antifouling techniques

Anti fouling net coating

Special protective coating for water based nets, environmentally friendly and highly resistant.

Product specifically designed for use in marine environment for users who want to avoid the use of active ingredients / biocides.

- Provides high protection against UV radiation.
- Enhances purity and provides a significantly longer life.
- Allows in situ cleaning of nets.

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

Environmental impact

- Most effective anti fouling technologies: organotins (TBT)
- TBT very effective but toxic to non target organisms
- Compounds persist and could enter the food chain
- It has been completely prohibited
- The European Commission is proposing to give copper a R50/R53 classification, based on the 67/548/EEC directive on dangerous substances, which recognizes that copper is toxic to aquatic organisms and may cause long-term adverse effects in the environment.

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

Greek pilot antifouling techniques

Mechanical removal

Sensors that are being coated with fouling are treated with mechanical removal of microorganisms

Divers can remove biofouling in situ from the buoys

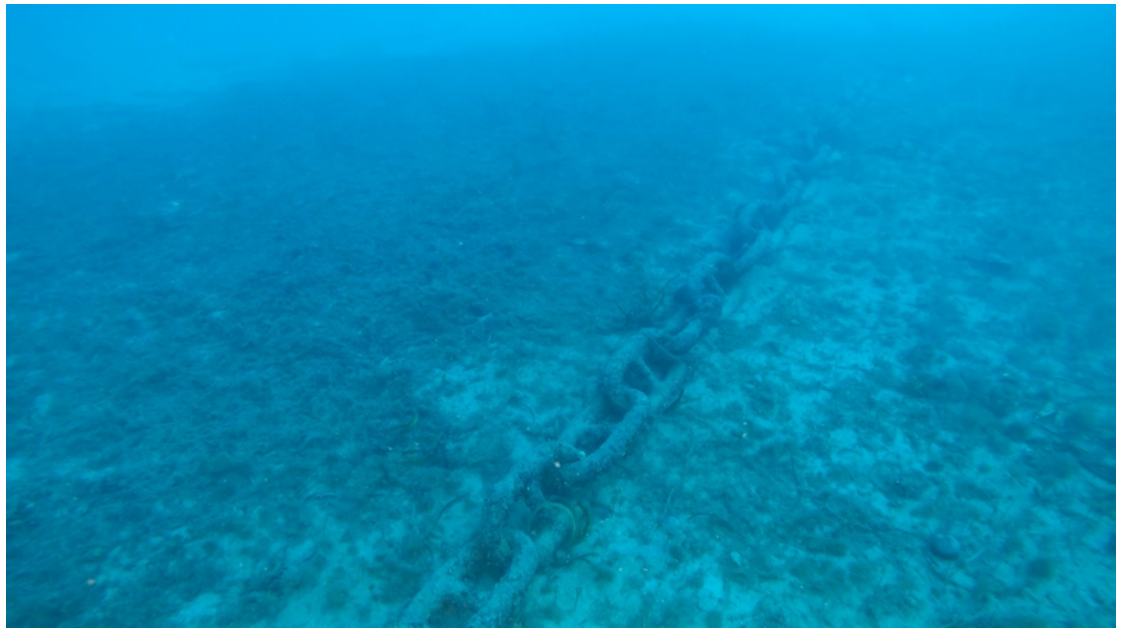
This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

Greek pilot antifouling techniques

Prevention

Sensors can provide the amount of oxygen in the water so they can warn the user when there is problem of biofouling

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915



This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

UNITED

WWW.H2020UNITED.EU

Evangelia Lamprakopoulou

elabrakopoulou@wings-ict-solutions.eu