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WP 2 Innovative and transformative changes in SMEs and Blue Economy sea jobs

A 2.2 Info days and exchanges on innovative services for Aquaculture and small-scale fishing

D2.2.1 Info days package for Aquaculture and small-scale fishing – First Info Day

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Edited by Franca Sangiorgio and Alberto Basset
PP5 – University of Salento

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1. Introductory summary

Within the framework of the project's communication, outreach and capacity-building activities, an Info Day and Exchange event was organised with a specific focus on aquaculture and small-scale fisheries as key components of the Blue Economy. The initiative targeted SMEs, aquaculture operators, small-scale fishers, sectoral organisations and related service providers, with the objective of increasing awareness of the project's aims, planned actions and opportunities arising from cross-border cooperation within the Blue Economy framework.

The event served as a cross-border platform for knowledge exchange and stakeholder networking, bringing together economic actors, public authorities, research institutions and innovation stakeholders active in the Blue Economy. Discussions and exchange sessions addressed shared challenges and opportunities across the participating regions, including sustainability and technological innovation for SMEs, innovation, and environmental sustainability, pollution, biosecurity.

Through the promotion of mutual learning, cooperation and stakeholder engagement, the Info Day and Exchange contributed to strengthening the competitiveness, sustainability and resilience of aquaculture and small-scale fisheries, supporting the development of a more integrated and sustainable Blue Economy in the programme area, in line with Interreg priorities and objectives.

2. Event description

Date: October 21, 2025

Location:

Dubrovnik, Croatia

Format:

In-person for Croatian SMEs, hybrid format for international participants

The Info Day dedicated to SMEs in the Small-Scale Fisheries and Aquaculture Sectors was successfully held as part of the project's broader stakeholder engagement and innovation support actions. Conceived as a key milestone within the project's outreach strategy, the event brought together experts, entrepreneurs, innovation facilitators, and institutional representatives to explore strategic themes essential for the sustainable growth and long-term competitiveness of these sector.

Throughout the sessions, participants were introduced to the following topics:

1. **Challenges, Resilience, Sustainability and Technological Innovation for Small-Scale Fisheries SMEs**

with the following presentations:

- Eel management plans: status of European eel fisheries along the eastern Adriatic coast
- Sustainable seas: awareness of the water footprint in Mediterranean fisheries
- Current status and future prospects of Croatian fisheries
- Management plans for small-scale coastal fisheries: comparison of experiences
- Digital traceability platforms and remote monitoring systems for fisheries
- The evolution of coastal fisheries: from climate and social changes towards a possible new management model

2. **Cross-Fertilisation Session – Innovation in the Small-Scale Fisheries Sector**

   SMEs shared experiences and participants and speakers had opportunities for discussion and exchange during this session.

3. **Environmental sustainability, carrying capacity, pollution, biosecurity, resource constraints, technological and innovation gaps, and support for SMEs in the aquaculture sector**
   with the following presentations:

- Blue economy or grey future? The impact of mariculture on the marine environment – Adaptation strategies to pollution
- Bivalve translocation in aquaculture – Production optimisation: challenges, risks and management strategies
- Innovative solutions for waste management
- Invasive species in aquaculture: critical issues and possible solutions
- EMFF funding for sustainability and resilience and other financing instruments
- Smart infrastructures for aquaculture: adaptation to and management of climate change

4. **Cross-Fertilisation Session – Innovation in the Small-Scale Fisheries Sector**

This was a match-making session with exchange and collaboration activities among enterprises, start-ups and young graduates.

The event was organized under the coordination of the University of Dubrovnik (PP8) with LP – Delta 2000.

The Info Day took place in a highly collaborative environment that fostered networking and active participation, strengthening connections among aquaculture operators, SMEs, service providers, research organisations, and public authorities. By delivering targeted insights and practical guidance tailored to the aquaculture sector, the Info Day contributed to enhancing the capacity of SMEs to innovate, adapt, and remain competitive within a rapidly evolving and sustainability-driven aquaculture market.

To support dissemination and further knowledge sharing, the presentations (PPT slides) are reported and the full recording of the event is attached.

3. Agenda

The event agenda including the topics is provided below.

Agenda – INFODAY – Settori Pesca Artigianale e Acquacoltura
21 ottobre 2025 – Studentato universitario, Dubrovnik (Croazia) e online per le imprese italiane

🕗 **08:30 – 09:00 | Registrazione dei partecipanti**
🕘 **09:00 – 09:30 | Saluti istituzionali**
– Collegamento dall'Italia: Saluti istituzionali
– In presenza a Dubrovnik:
• *Marijana Pećarević* – Prorettrice, Università di Dubrovnik
• *Sanja Tomšić* – Professoressa e coordinatrice del progetto BLUESLINKS per PP8

🎯 **Nuove rotte per le PMI della pesca artigianale e dell'acquacoltura – Sostenibilità, innovazione tecnologica, digitalizzazione, tutela e ripristino della biodiversità**

09:30 – 11:30 | Sessione 1: Sfide, resilienza, sostenibilità e innovazione tecnologica per le PMI della pesca artigianale
🎙️ Relatori:
• *Branko Glamuzina* – Professore UNIDU – Piani di gestione dell'anguilla: stato della pesca dell'anguilla europea lungo la costa adriatica orientale
• *Tatjana Dobroslavić* – Professoressa UNIDU – Mari sostenibili: consapevolezza dell'impronta idrica nella pesca mediterranea
• *Mato Oberan* – Presidente della Gilda della Pesca – Stato e prospettive della pesca croata
• *Fabio Fiori*, Coopmare (esperto coinvolto da LP DELTA 2000) – Piani di gestione della pesca costiera artigianale: confronto tra esperienze
• *Massimo Bellavista*, Lega Coop Emilia Romagna (esperto LP DELTA 2000) – Piattaforme di tracciabilità digitale e sistemi di monitoraggio remoto per la pesca
• *Marco Francese*, Shoreline Experts (esperto PP2 POLOAA) – L'evoluzione della pesca costiera: dai cambiamenti climatici e sociali a un possibile nuovo modello gestionale

🎤 **11:30 – 12:00 | Tavola rotonda e Q&A**

🔄 **12:00 – 13:30 | Sessione di cross-fertilizzazione – Innovazione nel settore della pesca artigianale**
– Condivisione di esperienze da parte delle aziende
🍽️ **13:30 – 14:30 | Pranzo di networking**
– Opportunità di confronto tra partecipanti e relatori

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Strada del Mezzano, 10 – 44020 Ostellato (FE) Tel. 0533 57693-4 Fax 0533-57674 www.deltaduemila.net – e-mail: info@deltaduemila.net
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14:30 – 16:30 | Sessione 2: Sostenibilità ambientale, capacità di carico, inquinamento, biosicurezza, vincoli sulle risorse, gap tecnologici e di innovazione, supporto alle PMI nel settore acquacoltura

Relatori:
• *Ana Bratoš Cetinić* – Professoressa UNIDU – Economia blu o futuro grigio? L'effetto della maricoltura sull'ambiente marino – Strategie di adattamento all'inquinamento
• *Kruno Bonačić* – Professore UNIDU – Traslocazione dei bivalvi in acquacoltura – Ottimizzazione della produzione: sfide, rischi e strategie di gestione
• *Vlasta Bartulović* – Professoressa UNIDU – Soluzioni innovative per la gestione dei rifiuti
• *Vadis Paesanti*, Fedagripesca Emilia Romagna (esperto LP DELTA 2000) – Specie invasive in acquacoltura: criticità e possibili soluzioni
• *Valentina Zambetti* (esperta PP3 Confcoop Veneto) – Finanziamenti FEAMP per sostenibilità e resilienza e altri strumenti di finanziamento
• *Pietro Giorgio Tiscar* (esperto PP4 FLAG CT) – Professore di Microbiologia Veterinaria, Università di Teramo – Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici

16:30 – 17:30 | Tavola rotonda e Q&A
– Discussione aperta tra esperti, imprese e stakeholder
– Sessione di domande e networking
– Call to Action: Come accedere ai servizi BLUESLINKS

17:30 – 18:30 | Sessione di cross-fertilizzazione – Innovazione nel settore della pesca artigianale
– Sessione dedicata al match-making
– Attività di scambio e collaborazione tra imprese, startup e giovani laureati

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4. List of presentations

Below is a list of the speakers' presentations, available in full in the following pages.

Marco Francese

Pietro Giorgio Tiscar

Vadis Paesanti

5. Marco Francese, Shoreline cooperative company (by PP2 PoloAA)
The Evolution of Coastal Fisheries: FromClimate and Social Change to a Possible New Management Model

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ABOUT US

Cooperative Society for Marine Environment Quality Services

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email: shoreline@shoreline.it, marfrancese@gmail.com

PEC: shoreline@pec.it

cf/p.iva 00754460327

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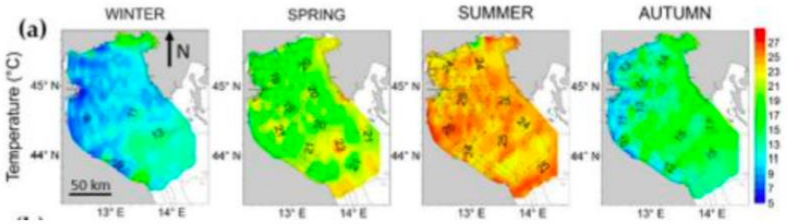
CLIMATE CHANGE: A GLOBAL PROBLEM

Climate change: The consequences of climate change, such as damage from mucilage and high temperatures, are undermining fish stocks



Sea fishing is a cause for concern due to the **reduction in** fish **species** (-50% in 15 years for small pelagic species such as anchovies) ...

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CLIMATE CHANGE: A GLOBAL PROBLEM

Sea fishing is also a cause for concern due to **the invasion of alien species**.

The Gulf of Trieste has also seen an increase in the presence of these species. In addition to ctenophores, there are numerous organisms that require careful observation. Crustaceans, such as the **blue crab (Scardovari 386 tonnes in 2024)**, molluscs, bivalves, macro and micro invertebrates, most of which are little known.

At present, the **ctenophore Mnemiopsis leidyi**, also known as the 'sea walnut', is the alien species of greatest concern: it is capable of altering the development of the food chain, depriving many pelagic fish of food and preying on their eggs and larvae. In addition, the gelatinous masses clog fishing gear and nets.
Its presence in the Gulf of Trieste was first reported in 2005.

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THE FISHING INDUSTRY IN FRIULI VENEZIA GIULIA AT RISK: A SOCIAL PROBLEM

In Friuli-Venezia Giulia, the sea fishing sector is characterised by a **shrinking fleet**, with small-scale coastal fishing accounting for the majority of businesses.

The main regional **fishing ports** are located in Marano Lagunare, Grado, Monfalcone and Trieste

Fleet decline: Businesses dedicated to sea fishing have recorded a steady annual decline of **6-7% per annum** over the last six years.

Company structure: Sole proprietorships still make up the majority (over 70%), despite a steady decline.

Generational change: The steady decline in the number of companies and the prevalence of sole proprietorships indicate difficulties in generational change and in the economic stability of sea fishing companies.

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European regulations aim to reduce fishing quotas
from 2012 to 2024, the number of workers at regional level has fallen to around 60%

A European plan **designed for the large** European **seas**, but difficult to sustain in the Adriatic, which relies on small-scale fishing for 80% of its livelihood, with a fleet where boats have two or three crew members or, in most cases, only the owner/fisherman.

European sustainability: Operators are concerned about the lack of additional financial and regulatory aid for these areas, which is not forthcoming.

FISHING REGULATIONS: A LEGAL PROBLEM

In our region, it has been managed for years by **management consortia**
The activities carried out by the GAC Flag of Friuli Venezia Giulia in collaboration with municipalities, businesses and social partners have been positive.

Studies are welcome, but not the adoption of *Ballast Water* regulations to combat the entry of alien species (2004 Convention).

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Aquaculture vs. sea fishing:
Aquaculture, in particular the farming of trout and marine species such as sea bass, sea bream and bivalve molluscs, accounts for the majority of regional fish production (FVG).

The aquaculture sector should be considered **complementary to fishing** rather than a conflict of interest.

AQUACULTURE: A MARKET PROBLEM

Mussel farming in Trieste has always been a flagship of the regional fish industry.
Mariculture in the Gulf of Trieste boasts a prominent cultural tradition that has set an example throughout the Mediterranean with the first bivalve mollusc farms, the earliest of which date back to the mid-19th century in the bay of Muggia.

However, the sector is also in crisis due to health restrictions caused by **algal biotoxins** (microscopic phytoplankton organisms that produce toxins, e.g. DSP toxins), which can accumulate in the edible parts of filter-feeding molluscs.
In addition, **mussels produced in other seas and different bivalves on the market** are causing the shellfish farming industry to be in crisis.

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A SOLUTION:
THE STUDY ON SMALL-SCALE FISHERIES IN TRIESTE (by AMP Miramare)

A small percentage of fishing vessels are registered with the peripheral commands of the Coast Guard of Trieste, Muggia and Sistiana: numerically, they account for only 13.4% of the Friuli Venezia Giulia fleet, 14.7% of the total tonnage and 13.8% of the regional engine power.

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A SOLUTION:
PARTICIPATION IN THE STUDY ON SMALL-SCALE FISHERIES (by Shoreline)

A participatory process was conducted with a mix of stakeholders: fishermen, researchers, the Chamber of Commerce and protected areas.

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CRITICAL ISSUES

Reduced resources (depletion)
- Decline in resources
- Contraction of the fishing industry
- Pelagic species at risk
- Fish market: local supply does not meet demand
- Ever smaller sizes
- Lack of nutrients
- Presence of alien species that prey on juveniles

Maintaining the vitality of depleted habitats:
- Continue to protect seagrass beds
- Trawling does not lead to restoration, but to permanent degradation
- Coastal areas: restore nurseries destroyed by high temperatures and pollution

Fishing locations and boundaries
- Dynamics of marine basins to be analysed
- Fishing areas that are diverse and far from the coast: difficult to reach
- Coastal protected areas that are increasingly extensive and non-inclusiveClimate change alters water regimes

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THE REASON? THE AMP MIRAMARE MAB AREA: AN INNOVATIVE TESTING GROUND FOR THE DEVELOPMENT OF SUSTAINABLE FISHERIES

OECMs (Other Effective Area-based Conservation Measures): "a defined geographical area other than a Protected Area and managed to achieve positive and long-lasting results for the conservation of in situ biodiversity, with associated ecosystem functions and services and, where applicable, cultural, spiritual, socio-economic and other values at the local level".

For example, for this area of the Gulf of Trieste, a **Management Plan for small-scale artisanal fishing** is being developed for the ZTB.

The MaB E ZTB Miramare area meets the criteria

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CRITICAL ISSUES

Fishing equipment and methods
- Greater definition and criteria depending on the fishing area
- Fishing gear and its use must be monitored according to resources
- Recovery of ancient fishing gear

Fish culture and consumer awareness
- Consumer education
- Lack of culture surrounding the consumption of fish products with variety of species
- Coastal fishing should diversify its products more
- Market demands and promotion
- Education of fishermen, from old techniques to modern technologies

Professional fishing is disadvantaged compared to other types of fishing
- Recreational (amateur) fishing must be controlled
- 10-25% of landings come from recreational fishing
- Sport fishing is acceptable, but amateur fishing is often professional fishing in disguise

There is a need for regulation
- There is a serious lack of controls in the supply chain.

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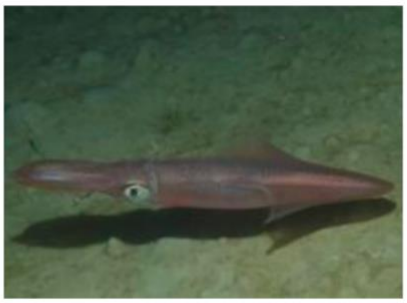
TEMPORARY MOORINGS
- Creation of mooring buoy lines for authorised persons or those registered in the register

TRACEABILITY OF BOATS AND VESSELS
- Traceability of boats and vessels through the use of number plates, in order to combat illegal activities.

THE RESULT

CALIBRATED FISHING CLOSURES
- Introduction of new types of fishing closures adapted to climate change
- +

PROFESSIONAL REGISTER OF SMALL-SCALE COASTAL FISHERIES
- Establishment of a register of professional fishermen authorised by area and, in particular, a register of small-scale coastal fishermen



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THE RESULT

REGULATION OF PERMITTED EQUIPMENT AND TECHNOLOGIES

- Regulation of coastal fishing technologies and incentives for experimenting with traditional fishing gear

REGULATION OF RECREATIONAL, AMATEUR AND UNDERWATER FISHING

- Regulation of recreational and amateur fishing;
- Increase control over non-professional fishing; Control of purchasers to limit sales from recreational fishing;

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THE RESULT

CREATION OF A GUARANTEED SUPPLY CHAIN

- Creation of a traceability system for fish products captured by SSF

LOG BOOKS AND QUAY LOG BOOKS ON CATCHES

- Introduction of regular, voluntary log books (self-monitoring) for recording catches;.

'SMALL-SCALE COASTAL FISHING' CERTIFICATION

Enhancement of the tradition and typical characteristics of fishing using traditional methods;
establishment of a PDO (Protected Designation of Origin) certification (label) for small-scale coastal fishing products;

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THE RESULT

FIGHTING ALIEN SPECIES

- Combating edible alien species;
- incentives for capture and trade; combating inedible alien species
- through rewards

- **REPOPULATION AND AGGREGATION WITH BARRIERS, FADs AND CORRIDORS**
  Implementation of activities to restore the health of the seabed,
- Repopulation of the seabed with underwater barriers,
- Creation of submerged FADs

ENVIRONMENTAL RESTORATION ACTIONS

- RESTORATION of natural seabeds,
- Research projects relating to the presence of local species.

AND NOW...

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PROFESSIONAL TRAINING IN SMALL-SCALE COASTAL FISHING TRAINING ON:

- species,
- trades,
- traceability,
- logbooks,
- the market and diversification,
- PDO,
- traditions and techniques from older fishermen.

THE RESULT

CONSUMER AWARENESS CAMPAIGNS TO PROMOTE :

- confidence in local products,
- diversification in the consumption of fish products,
- consensus on the quality of small-scale coastal fishing products;
- raising awareness of the coastal habitat; educational programmes in schools on fish resources and new products.

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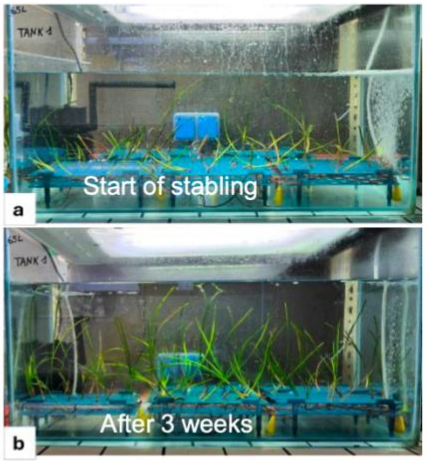
AND HERE IS THE OTHER SOLUTION: HYDROPONICS FOR RESTORATION (LAB AREA)

small aquaponics systems for growing submerged seagrass leaves and algae shoots



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IN THE SEA ON THE SANDY SEA BED

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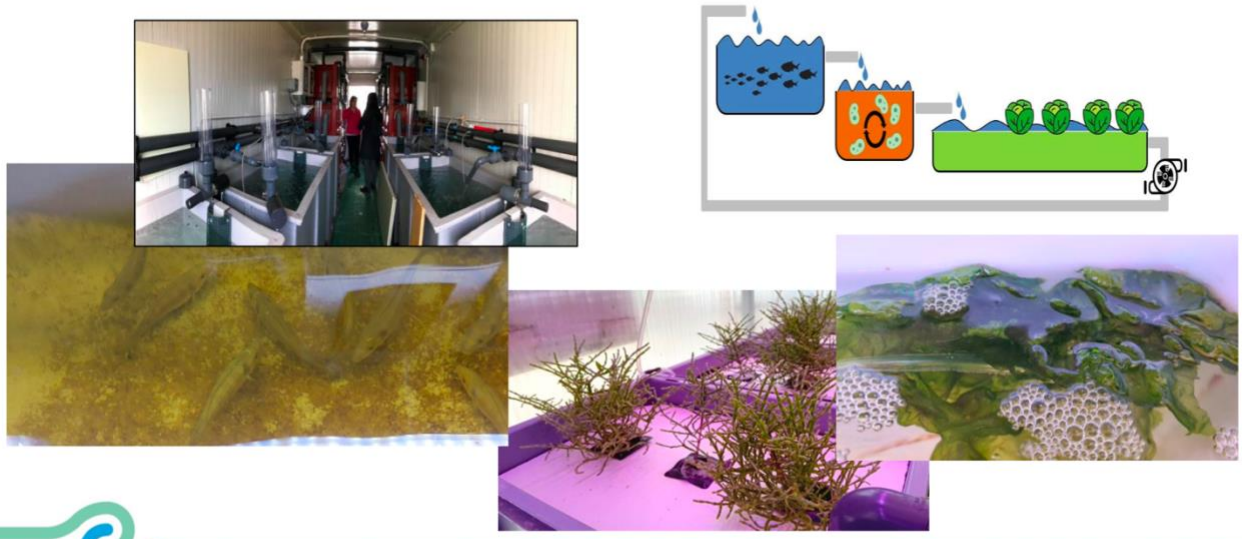
ANOTHER SOLUTION: SALT WATER AQUAPONICS

development of hydroponic and aquaponic systems: with salt water – cultivation of young plants from brackish environments and algae, combined with the breeding of fish or marine crustaceans



SALT WATER AQUAPONICS

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Hydroponics and aquaponics systems: with salt water for:

- Production of animals for restocking
- Production of food for the fruit, vegetable and fish market
- Production of young animals for breeding
- Production of vegetables as soil improvers in fish farming feed
- Use of the vegetable component as phytoremediation in large breeding facilities (e.g. clam beds)

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IT CAN BE DONE

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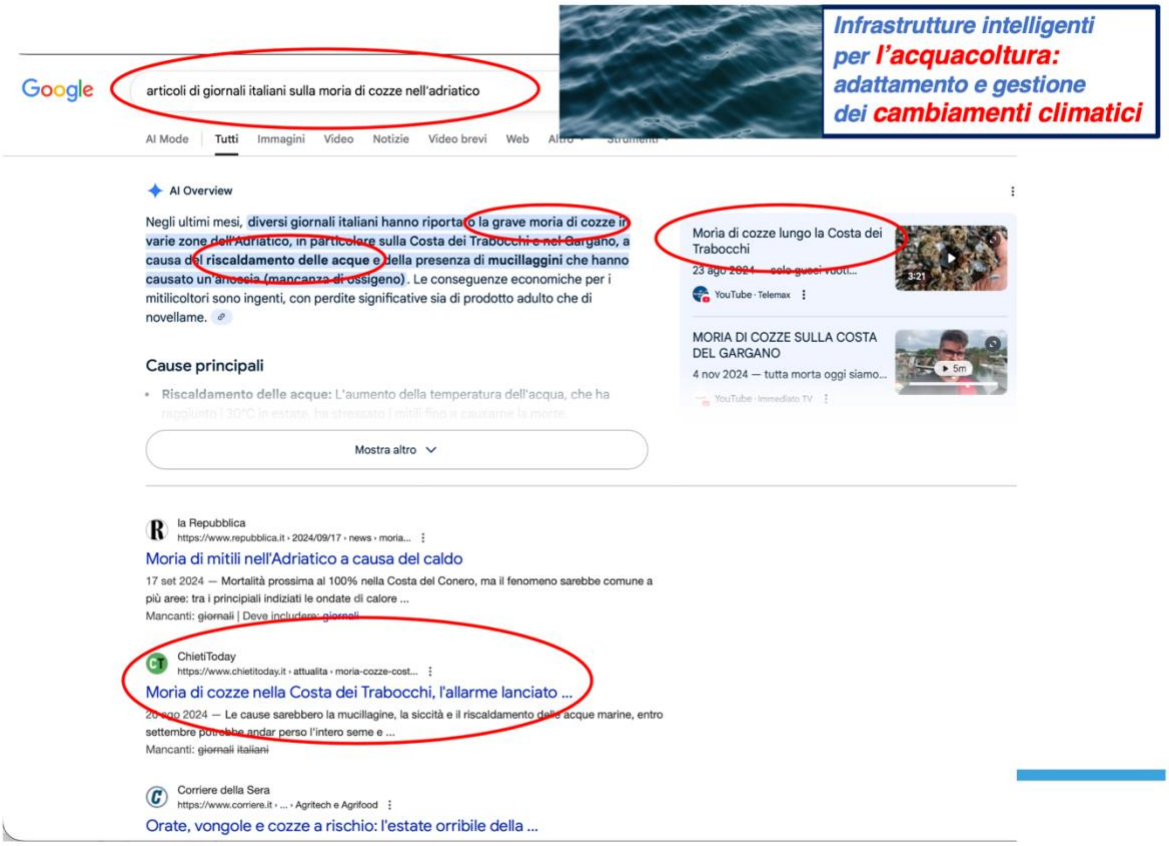
6. Pietro Giorgio Tiscar, Università degli Studi di Teramo (esperto PP4 FLAG CT)
Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici


Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici
Google
articoli di giornali italiani sulla moria di cozze nell'adriatico
AI Mode
Tutti
Immagini
Video
Notizie
Video brevi
Web
AI Overview
Negli ultimi mesi, diversi giornali italiani hanno riportato la grave moria di cozze in varie zone dell'Adriatico, in particolare sulla Costa dei Trabocchi e nel Gargano, a causa del riscaldamento delle acque e della presenza di mucillaggini che hanno causato un'anossia (mancanza di ossigeno). Le conseguenze economiche per i mitilicoltori sono ingenti, con perdite significative sia di prodotto adulto che di novellame.
Cause principali
Riscaldamento delle acque: L'aumento della temperatura dell'acqua, che ha raggiunto i 30°C in estate, ha stressato i mitili fino a causarne la morte.
Mostra altro
Moria di cozze lungo la Costa dei Trabocchi
YouTube · Telemax
MORIA DI COZZE SULLA COSTA DEL GARGANO
4 nov 2024 — tutta morta oggi siamo...
la Repubblica
https://www.repubblica.it › 2024/09/17 › news › moria...
Moria di mitili nell'Adriatico a causa del caldo
17 set 2024 — Mortalità prossima al 100% nella Costa del Conero, ma il fenomeno sarebbe comune a più aree: tra i principiali indiziati le ondate di calore ...
Mancanti: giornali | Deve includere: giornali
ChietiToday
https://www.chietitoday.it › attualita › moria-cozze-cost...
Moria di cozze nella Costa dei Trabocchi, l'allarme lanciato ...
Le cause sarebbero la mucillagine, la siccità e il riscaldamento delle acque marine, entro settembre potrebbe andar perso l'intero seme e ...
Mancanti: giornali italiani
Corriere della Sera
https://www.corriere.it › ... › Agritech e Agrifood
Orate, vongole e cozze a rischio: l'estate orribile della ...

Infrastrutture intelligenti per l'acquacoltura: ***adattamento*** *e gestione dei cambiamenti climatici*

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Acquacoltura di precisione

Sistema di ottimizzazione delle dinamiche e dei processi di allevamento applicato all'acquacoltura

MIGLIORE PRODUTTIVITA'

*Infrastrutture intelligenti per l'acquacoltura: adattamento e **gestione** dei cambiamenti climatici*

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- Principio di "Blue Growth"

Forma di sviluppo che non ostacola o riduce le possibilità di crescita, ma pone come obiettivo principale la sostenibilità

SOSTENIBILITA', ETICITA', QUALITA'

Infrastrutture intelligenti per l'acquacoltura: ***adattamento*** *e gestione dei cambiamenti climatici*

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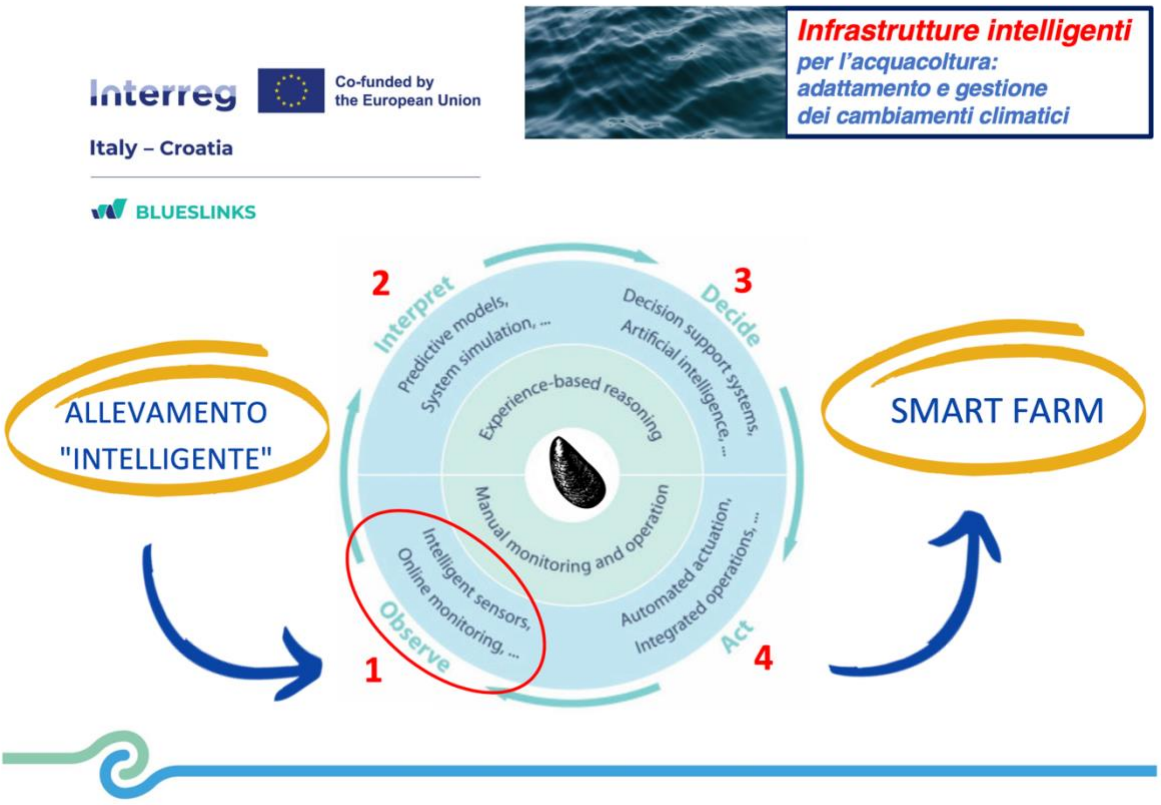
Acquacoltura di precisione

Sistema di ottimizzazione delle dinamiche e dei processi di allevamento applicato all'acquacoltura

MIGLIORE PRODUTTIVITA'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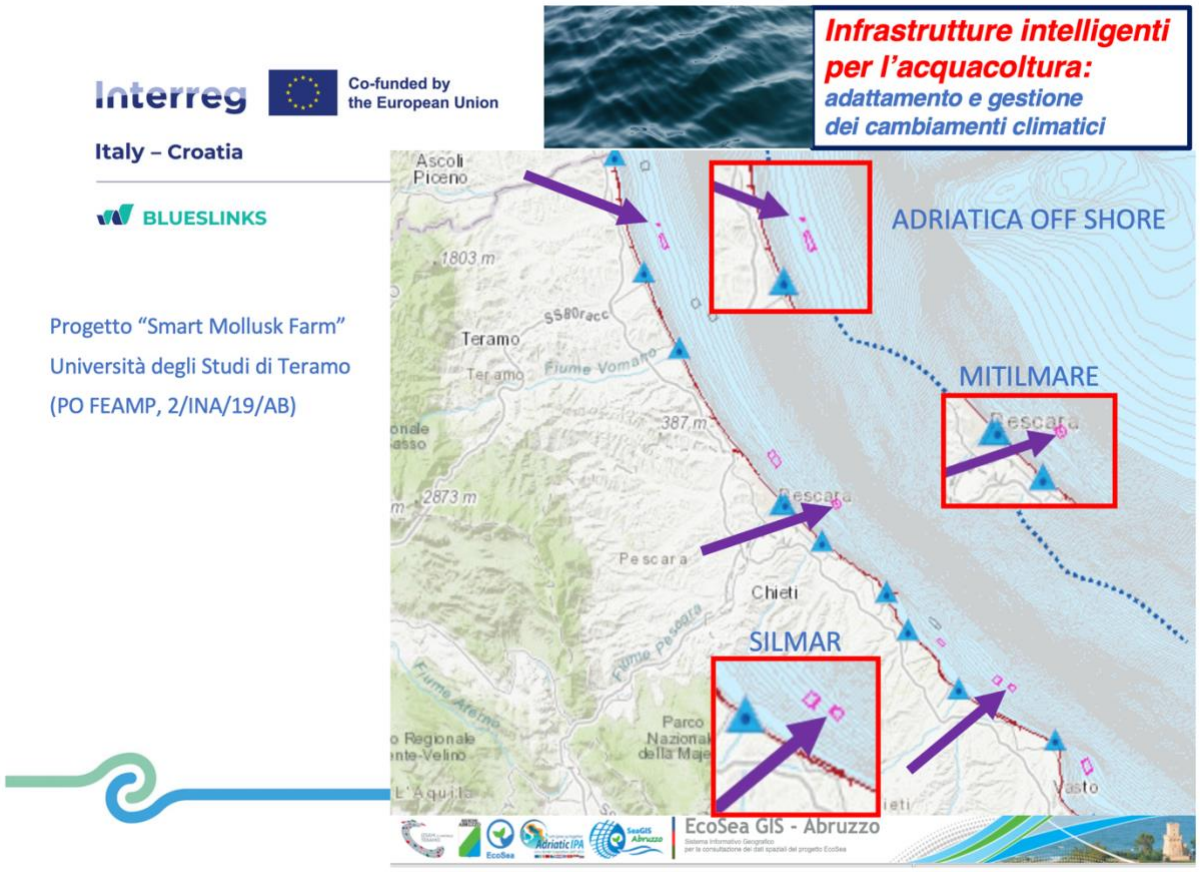
Infrastrutture intelligenti
per l'acquacoltura:
adattamento e gestione
dei cambiamenti climatici
ALLEVAMENTO
"INTELLIGENTE"
SMART FARM
2
Interpret
Predictive models,
System simulation, ...
3
Decide
Decision support systems,
Artificial intelligence, ...
Experience-based reasoning
Manual monitoring and operation
Intelligent sensors,
Online monitoring, ...
Observe
1
Automated actuation,
Integrated operations, ...
Act
4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adattamento e gestione dei cambiamenti climatici
Interreg
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BLUESLINKS
Progetto "Smart Mollusk Farm"
Università degli Studi di Teramo
(PO FEAMP, 2/INA/19/AB)
ADRIATICA OFF SHORE
MITILMARE
SILMAR
Ascoli Piceno
Teramo
Pescara
Chieti
Vasto
1803 m
2873 m
387 m
EcoSea GIS - Abruzzo

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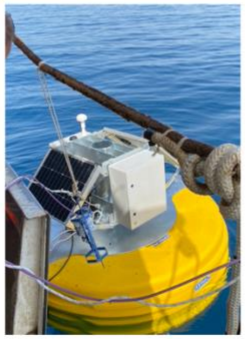
Progetto "Smart Mollusk Farm"
Università degli Studi di Teramo
(PO FEAMP, 2/INA/19/AB)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adattamento e gestione
dei cambiamenti climatici

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	A	B	C	D
1	TIME	ALARM	ANA_001	ANA_002
2	Timestamp	Alarm	Abs Speed	Direction
3			cm/s	∞
4	18/10/25 07:30	NO ALARM	10.147	151.95
5	18/10/25 08:00	NO ALARM	12.174	172.87
6	18/10/25 08:30	NO ALARM	12.799	197.14
7	18/10/25 09:00	NO ALARM	12.799	197.14
8	18/10/25 09:30	NO ALARM	15.4	172.22
9	18/10/25 10:00	NO ALARM	14.06	164.56
10	18/10/25 10:30	NO ALARM	12.375	176.22
11	18/10/25 11:00	NO ALARM	12.375	176.22
12	18/10/25 11:30	NO ALARM	14.044	171.88
13	18/10/25 12:00	NO ALARM	12.586	153.94
14	18/10/25 12:30	NO ALARM	13.879	140.81
15	18/10/25 13:00	NO ALARM	13.879	140.81
16	18/10/25 13:30	NO ALARM	18.069	146.70
17	18/10/25 14:00	NO ALARM	14.864	142.93

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per l'acquacoltura: adattamento e gestione dei cambiamenti climatici

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	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
1	ANA_001	ANA_002	ANA_003	ANA_004	ANA_005	ANA_006	ANA_007	ANA_008	ANA_009	ANA_010	ANA_011	ANA_012	ANA_013	ANA_014	ANA_015	ANA_016	ANA_017	ANA_018	ANA_019	ANA_020	GPS
2	Abs Speed	Direction	North	East	Heading	Tilt X	Tilt Y	SP Std	Strength	Ping Count	Abs Tilt	Max Tilt	Std Tilt	Temperature	Strength X	Strength Y	Strength X Ti	Strength X Ti	Strength Y Ti	Strength Y Ti	Gps
3	cm/s	∞	cm/s	cm/s	∞C	∞	∞	cm/s	dB		∞	∞	∞	∞C	dB	dB	dB	dB	dB	dB	
4	tM	10.147	151.956	-8.955	4.770	6.178	-19.737	-25.778	24.129	-26.458	100.0	32.325	35.978	2.228	19.640	-25.473	-27.443	-25.205	-26.373	-27.468	-27.432	1.0
5	tM	12.174	172.878	-12.080	1.509	29.744	-18.735	-26.421	19.817	-26.739	100.0	32.267	36.693	2.271	19.601	-26.603	-26.876	-26.336	-27.669	-28.281	-26.383	1.0
6	tM	12.799	197.145	-12.231	-3.773	35.906	-19.380	-26.298	22.352	-26.587	100.0	32.537	36.475	1.994	19.585	-26.073	-27.101	-25.669	-28.362	-29.568	-26.484	1.0
7	tM	12.799	197.145	-12.231	-3.773	35.906	-19.380	-26.298	22.352	-26.587	100.0	32.537	36.475	1.994	19.585	-26.073	-27.101	-25.669	-28.362	-29.568	-26.484	1.0
8	tM	15.400	172.220	-15.258	2.085	20.390	-18.895	-26.628	24.451	-24.879	100.0	32.536	37.157	2.344	19.565	-25.023	-24.736	-25.026	-25.010	-27.730	-23.684	1.0
9	tM	14.060	164.569	-13.553	3.741	21.668	-18.887	-26.266	23.305	-26.459	100.0	32.224	34.698	2.123	19.529	-26.023	-26.895	-26.155	-25.210	-30.204	-26.169	1.0
10	tM	12.375	176.222	-12.348	8.770	34.314	-19.080	-26.169	24.637	-25.740	100.0	32.258	36.020	2.289	19.531	-25.356	-26.124	-25.174	-25.827	-27.717	-25.593	1.0
11	tM	12.375	176.222	-12.348	8.770	34.314	-19.080	-26.169	24.637	-25.740	100.0	32.258	36.020	2.289	19.531	-25.356	-26.124	-25.174	-25.827	-27.717	-25.593	1.0
12	tM	14.044	171.884	-13.904	1.983	27.413	-18.844	-26.411	18.470	-25.771	100.0	32.316	34.395	1.240	19.516	-25.523	-26.541	-24.917	-25.552	-28.744	-26.058	1.0
13	tM	12.586	153.941	-11.307	5.529	2.273	-19.404	-25.865	9.811	-24.955	100.0	32.194	34.719	1.631	19.521	-24.787	-25.124	-24.766	-24.954	-24.241	-25.468	1.0
14	tM	13.879	140.810	-10.757	8.770	10.046	-19.064	-26.560	29.022	-25.154	100.0	32.569	35.123	1.818	19.517	-24.646	-25.662	-24.456	-25.407	-29.342	-25.063	1.0
15	tM	13.879	140.810	-10.757	8.770	10.046	-19.064	-26.560	29.022	-25.154	100.0	32.569	35.123	1.818	19.517	-24.646	-25.662	-24.456	-25.407	-29.342	-25.063	1.0
16	tM	18.069	146.708	-15.103	9.918	16.936	-18.231	-27.129	19.283	-24.586	100.0	32.585	36.682	2.383	19.336	-23.917	-25.256	-23.667	-24.803	-27.377	-24.966	1.0
17	tM	14.864	142.934	-11.861	8.959	10.385	-17.029	-27.985	24.134	-24.484	100.0	32.677	36.054	1.429	19.337	-24.000	-24.969	-23.758	-25.181	-25.326	-24.916	1.0
18	tM	16.055	149.339	-13.810	8.187	13.729	-18.564	-26.661	14.005	-23.424	100.0	32.371	35.245	2.177	19.360	-22.897	-23.951	-22.885	-22.988	-26.577	-23.413	1.0
19	tM	15.948	157.703	-14.756	6.051	14.123	-18.342	-27.968	19.831	-23.605	100.0	33.364	37.348	3.249	19.449	-23.409	-23.801	-23.184	-24.311	-25.955	-23.121	1.0
20	tM	13.166	159.018	-12.293	4.714	26.109	-18.276	-27.008	17.993	-23.492	100.0	32.524	39.587	3.420	19.429	-23.253	-23.730	-22.976	-24.039	-24.101	-23.626	1.0

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	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
1	GPS_FIX	GPS_LAT	GPS_LON	GPS_SATN	VOLTAGE	YSI_001	YSI_012	YSI_022	YSI_193	YSI_211	YSI_212	YSI_226	
2	Gps_Fix	Gps_Lat	Gps_Lon	Gps_Satn	Voltage	Temp	Sal	Depth	Chl	ODOsat	ODO	BGA-PE	
3					V	∞C	ppt	meters	ug/L	%	mg/L	ug/l	
4	1.0	42.8045161	14.0021651	10.0	12.61	19.659	31.3	8.173	15.66	47.69	3.63	100.23	
5	1.0	42.8045531	14.0022536	10.0	12.65	19.656	31.83	8.460	32.35	47.65	3.61	127.56	
6	1.0	42.8045595	14.0022983	10.0	12.65	19.638	32.08	8.365	31.2	47.61	3.61	139.81	
7	1.0	42.8045611	14.0023073	10.0	12.72	19.642	32.05	8.406	23.32	47.5	3.6	121.68	
8	1.0	42.804559 N	14.0023185	11.0	12.83	19.613	32.42	8.226	11.9	47.4	3.58	107.9	
9	1.0	42.80455 N	14.0023218	12.0	13.01	19.584	31.48	8.185	16.58	47.33	3.6	117.18	
10	1.0	42.8045461	14.0023251	11.0	13.05	19.584	31.48	8.185	16.58	47.33	3.6	117.18	
11	1.0	42.8045288	14.0022725	9.0	13.16	19.571	32.76	8.161	12.48	47.22	3.57	97.57	
12	1.0	42.8045171	14.0022158	10.0	13.19	19.571	32.43	8.142	12.62	47.17	3.57	100.27	
13	1.0	42.8045181	14.0022235	12.0	13.23	19.570	32.39	8.146	9.47	47.14	3.57	83.55	
14	1.0	42.8045095	14.0021928	10.0	13.27	19.570	32.39	8.146	9.47	47.14	3.57	83.55	
15	1.0	42.8045041	14.0021985	10.0	13.3	19.421	32.7	7.817	9.35	46.9	3.55	86.32	
16	1.0	42.8044938	14.0021008	12.0	13.16	19.412	32.5	7.752	10.6	46.91	3.56	85.63	
17	1.0	42.804466 N	14.0020873	11.0	13.19	19.428	32.09	7.815	9.05	46.9	3.57	95.91	
18	1.0	42.8044821	14.0020833	10.0	13.23	19.443	32.56	7.816	8.58	46.9	3.56	83.63	
19	1.0	42.8044905	14.0021303	12.0	13.19	19.541	32.81	7.869	9.13	46.91	3.54	96.13	
20	1.0	42.8044676	14.0020403	11.0	13.19	19.501	32.27	7.819	11.54	46.96	3.56	87.53	
21	1.0	42.8044838	14.0020605	11.0	13.19	19.499	30.94	7.821	14.41	46.97	3.59	94.58	
22	1.0	42.804488 N	14.0020606	11.0	13.09	19.459	30.58	7.938	13.97	47.0	3.6	101.3	
23	1.0	42.8044755	14.0020425	10.0	13.09	19.455	30.58	7.906	11.15	47.04	3.61	111.03	

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Come monitorare?

Sistemi attualmente impiegati per il monitoraggio ambientale

Rilievi satellitari

Impiego di sonde multiparametriche

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Copernicus ®

Satelliti adibiti al monitoraggio marino

- Sentinel-1 (SAR)
- Sentinel-2
- Sentinel-3
- Sentinel-6

Reti in situ

Boe, droni, navi, stazioni fisse costiere

Raccolta, elaborazione e distribuzione dati

Accesso gratuito, download in formato NetCDF

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La sonda

Sette sensori intercambiabili

- **Elettrochimici** (pH, O2)
- **Ottici** (clorofilla)
- **Fisici** (salinità, T°)

Piattaforma raccolta dati (**DPC**)
Calibrazione: **KorEXO**
Intervallo di rilievo **modulabile**
Dati in formato **CSV**

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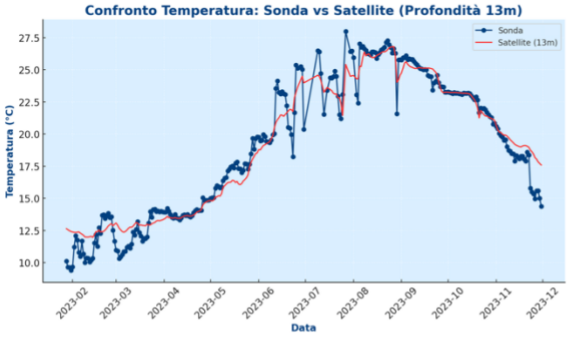
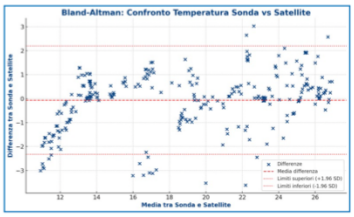
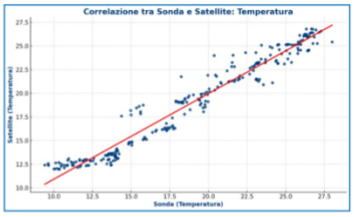
Temperatura







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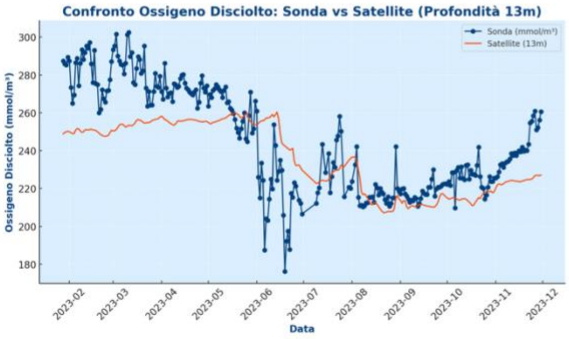
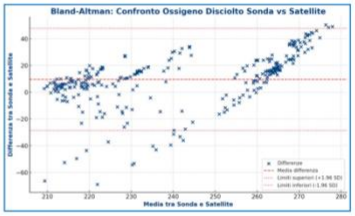
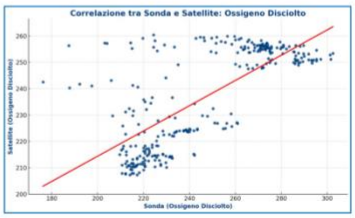
Ossigeno disciolto







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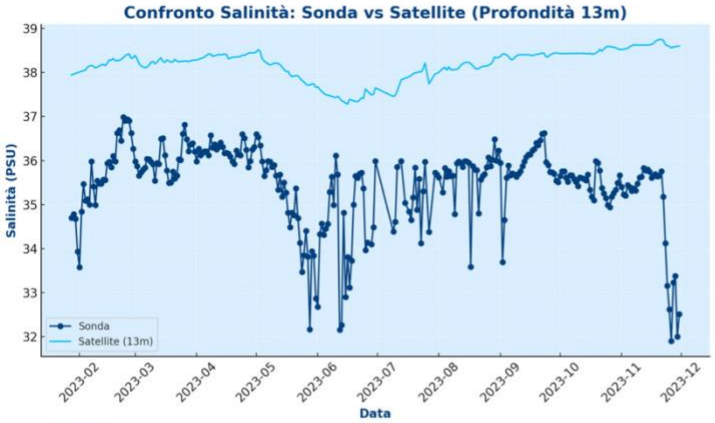
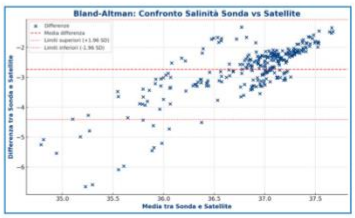
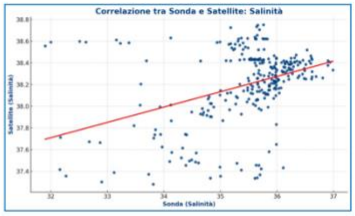
Salinità







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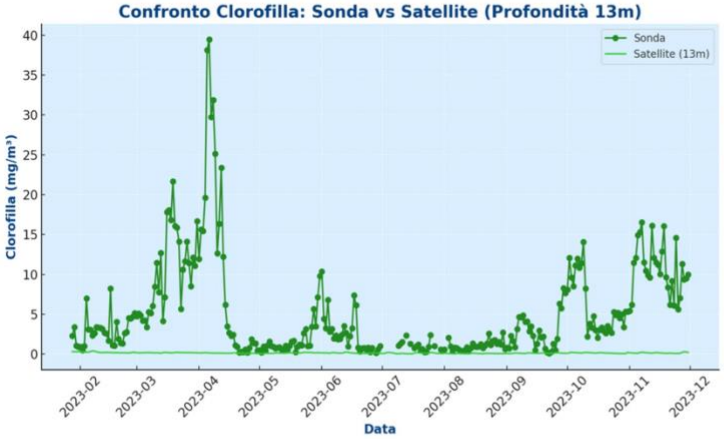
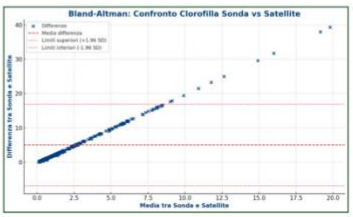
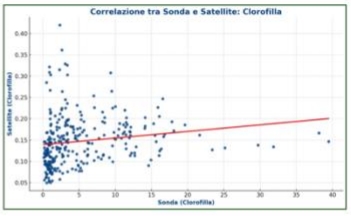
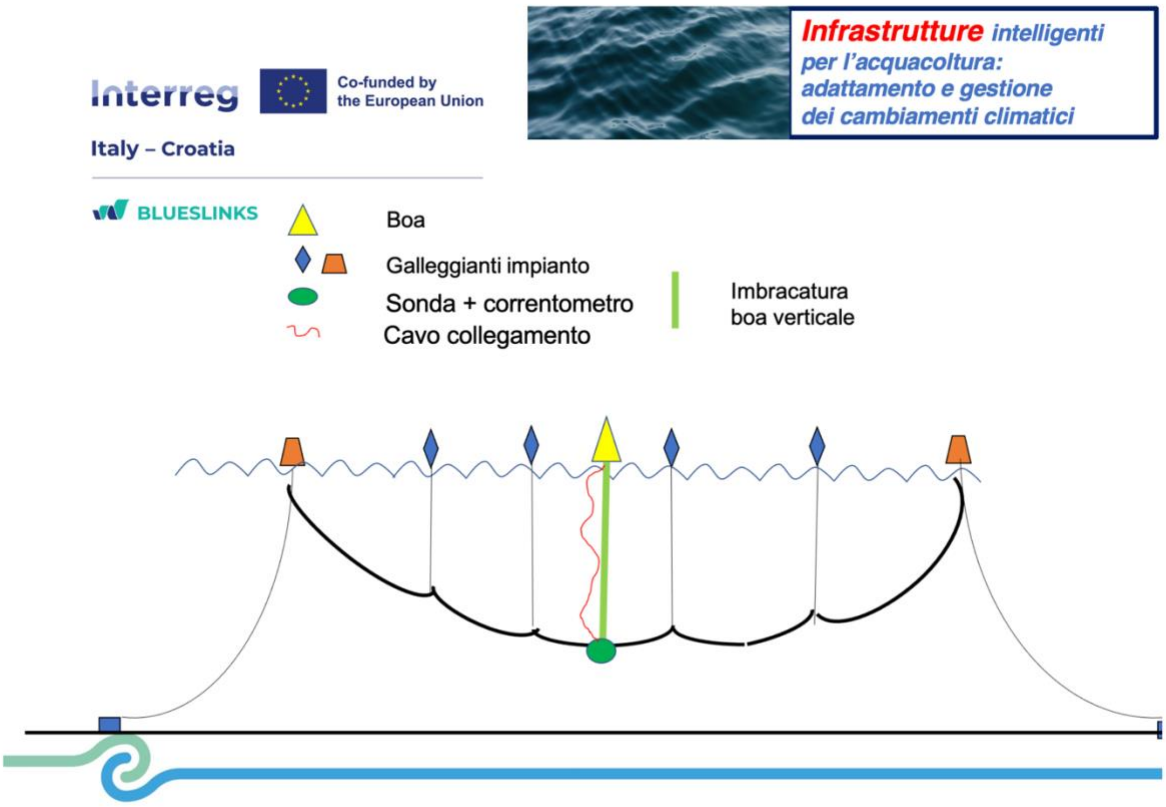
Clorofilla





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Boa
Galleggianti impianto
Sonda + correntometro
Cavo collegamento
Imbracatura boa verticale

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UNI SALENTO

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adattamento e gestione
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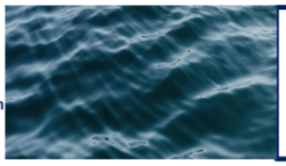
progetto **SMART WATER-SHELL**

Sustainable **M**onitoring **A**utomation **R**eporting **T**echniques
Water **A**nalysis **T**echnology for **E**nvironmental **R**esearch
Sensors **H**andled by **E**fficient **L**ogging **L**ocator

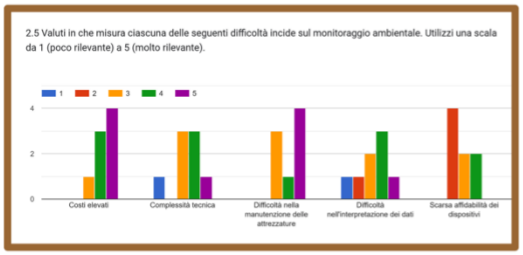
cofinanziato dal PNRR (Spoke 2 - Università di Messina),

partenariato tra ORION srl e Università degli studi di Teramo

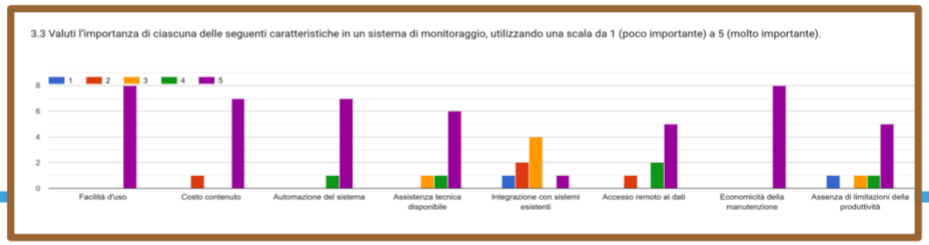


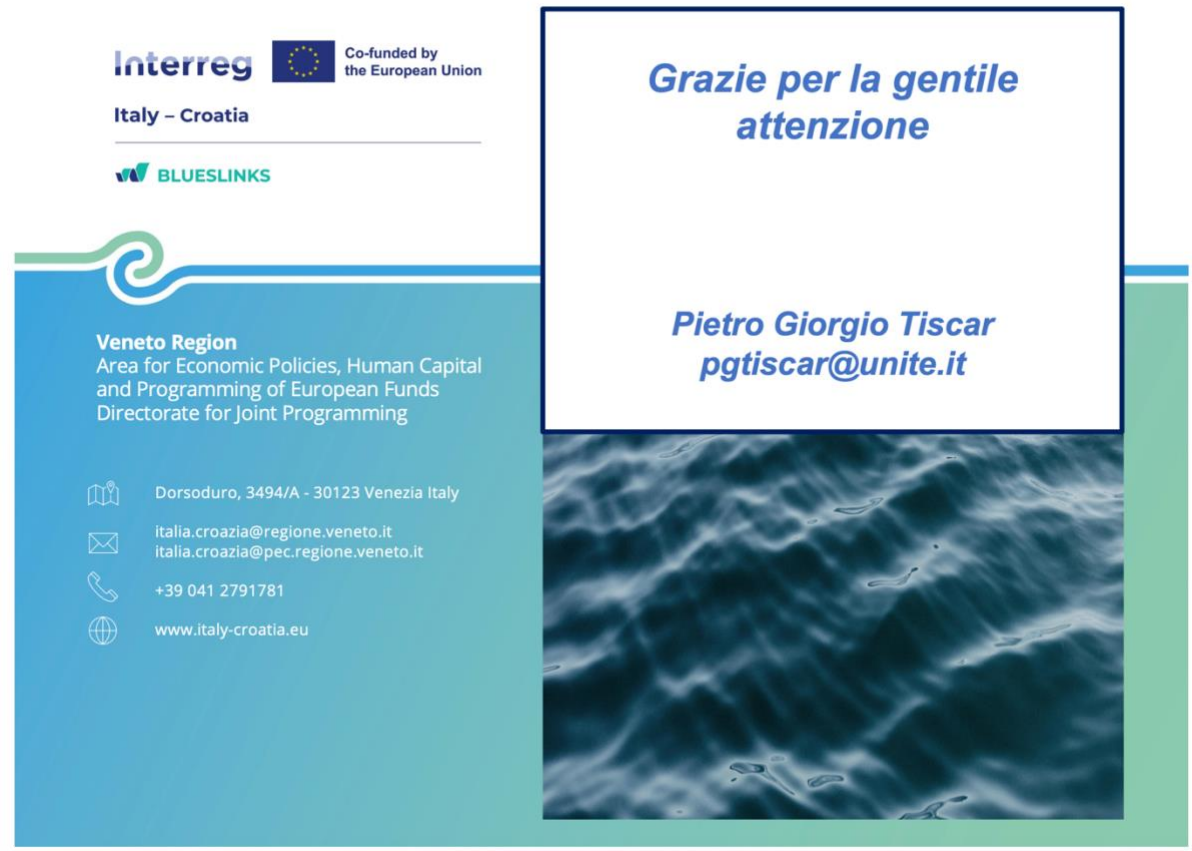
Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici

progetto SMART WATER-SHELL



Gli operatori della costa abruzzese hanno indicato i requisiti prioritari: boe compatte, facilmente manutenibili, a costi sostenibili e capaci di fornire dati in tempo reale per garantire conformità normativa e migliorare la gestione produttiva

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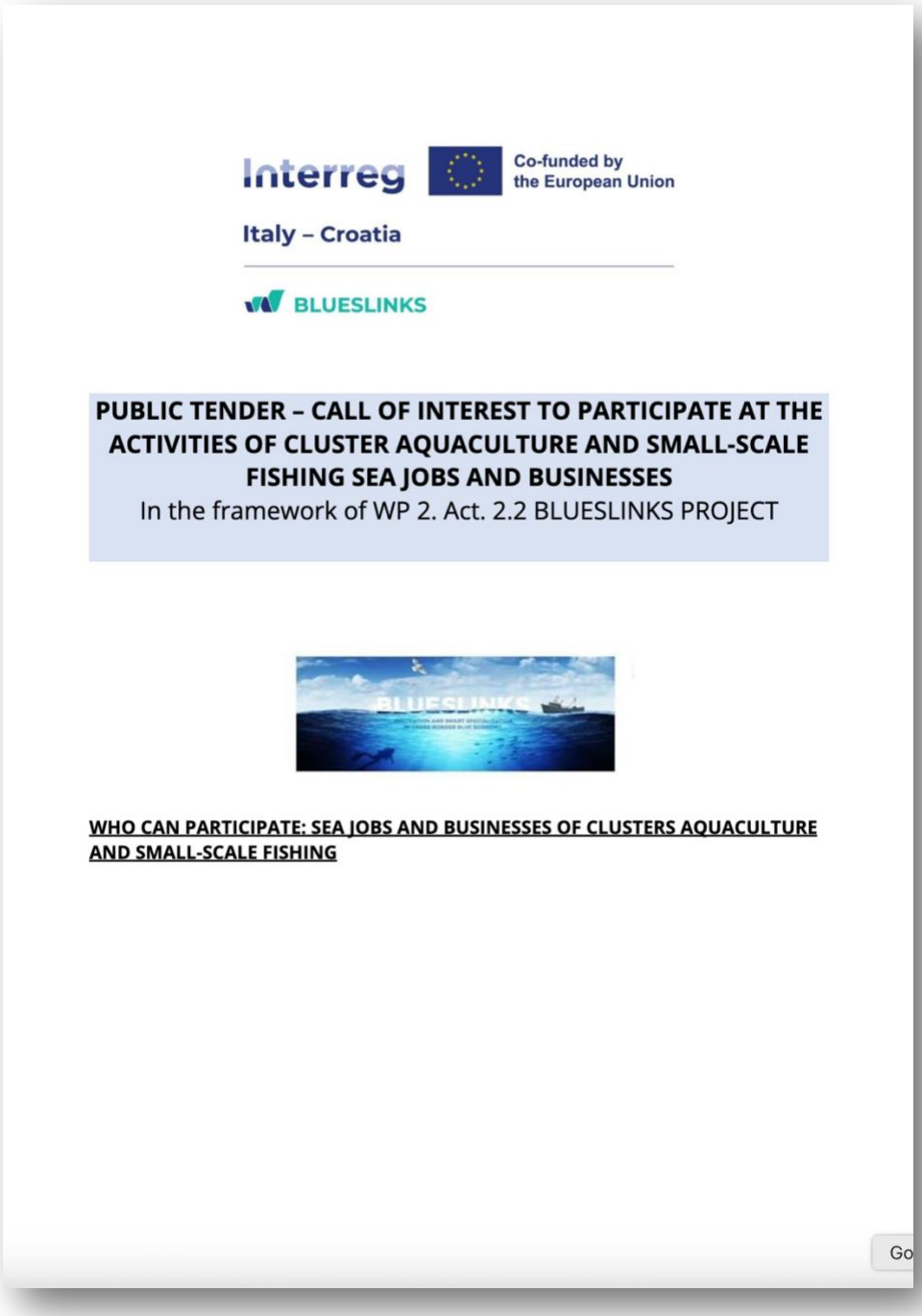
Veneto Region
Area for Economic Policies, Human Capital and Programming of European Funds
Directorate for Joint Programming
Dorsoduro, 3494/A - 30123 Venezia Italy
italia.croazia@regione.veneto.it
italia.croazia@pec.regione.veneto.it
+39 041 2791781
www.italy-croatia.eu
Grazie per la gentile attenzione
Pietro Giorgio Tiscar
pgtiscar@unite.it

7. *Vadis Paesanti - Fedagripesca Emilia Romagna (esperto LP DELTA 2000)*

Specie invasive in acquacoltura: criticità e possibili soluzioni

This presentation is available as video.

14. Call for interest in info day fisheries and acquaculture



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PUBLIC TENDER – CALL OF INTEREST TO PARTICIPATE AT THE ACTIVITIES OF CLUSTER AQUACULTURE AND SMALL-SCALE FISHING SEA JOBS AND BUSINESSES
In the framework of WP 2. Act. 2.2 BLUESLINKS PROJECT

WHO CAN PARTICIPATE: SEA JOBS AND BUSINESSES OF CLUSTERS AQUACULTURE AND SMALL-SCALE FISHING

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UNI SALENTO

INDEX

1. Introductory summary

Within the framework of the project's communication, outreach and capacity-building activities, an Info Day and Exchange event was organised with a specific focus on aquaculture and small-scale fisheries as key components of the Blue Economy. The initiative targeted SMEs, aquaculture operators, small-scale fishers, sectoral organisations and related service providers, with the objective of increasing awareness of the project's aims, planned actions and opportunities arising from cross-border cooperation within the Blue Economy framework.

The event served as a cross-border platform for knowledge exchange and stakeholder networking, bringing together economic actors, public authorities, research institutions and innovation stakeholders active in the Blue Economy. Discussions and exchange sessions addressed shared challenges and opportunities across the participating regions, including sustainability and technological innovation for SMEs, innovation, and environmental sustainability, pollution, biosecurity.

Through the promotion of mutual learning, cooperation and stakeholder engagement, the Info Day and Exchange contributed to strengthening the competitiveness, sustainability and resilience of aquaculture and small-scale fisheries, supporting the development of a more integrated and sustainable Blue Economy in the programme area, in line with Interreg priorities and objectives.

2. Event description

Date: October 21, 2025

Location:

Dubrovnik, Croatia

Format:

In-person for Croatian SMEs, hybrid format for international participants

The Info Day dedicated to SMEs in the Small-Scale Fisheries and Aquaculture Sectors was successfully held as part of the project's broader stakeholder engagement and innovation support actions. Conceived as a key milestone within the project's outreach strategy, the event brought together experts, entrepreneurs, innovation facilitators, and institutional representatives to explore strategic themes essential for the sustainable growth and long-term competitiveness of these sector.

Throughout the sessions, participants were introduced to the following topics:

1. **Challenges, Resilience, Sustainability and Technological Innovation for Small-Scale Fisheries SMEs**

with the following presentations:

- Eel management plans: status of European eel fisheries along the eastern Adriatic coast
- Sustainable seas: awareness of the water footprint in Mediterranean fisheries
- Current status and future prospects of Croatian fisheries
- Management plans for small-scale coastal fisheries: comparison of experiences
- Digital traceability platforms and remote monitoring systems for fisheries
- The evolution of coastal fisheries: from climate and social changes towards a possible new management model

2. **Cross-Fertilisation Session – Innovation in the Small-Scale Fisheries Sector**

   SMEs shared experiences and participants and speakers had opportunities for discussion and exchange during this session.

3. **Environmental sustainability, carrying capacity, pollution, biosecurity, resource constraints, technological and innovation gaps, and support for SMEs in the aquaculture sector**
   with the following presentations:

- Blue economy or grey future? The impact of mariculture on the marine environment – Adaptation strategies to pollution
- Bivalve translocation in aquaculture – Production optimisation: challenges, risks and management strategies
- Innovative solutions for waste management
- Invasive species in aquaculture: critical issues and possible solutions
- EMFF funding for sustainability and resilience and other financing instruments
- Smart infrastructures for aquaculture: adaptation to and management of climate change

4. **Cross-Fertilisation Session – Innovation in the Small-Scale Fisheries Sector**

This was a match-making session with exchange and collaboration activities among enterprises, start-ups and young graduates.

The event was organized under the coordination of the University of Dubrovnik (PP8) with LP – Delta 2000.

The Info Day took place in a highly collaborative environment that fostered networking and active participation, strengthening connections among aquaculture operators, SMEs, service providers, research organisations, and public authorities. By delivering targeted insights and practical guidance tailored to the aquaculture sector, the Info Day contributed to enhancing the capacity of SMEs to innovate, adapt, and remain competitive within a rapidly evolving and sustainability-driven aquaculture market.

To support dissemination and further knowledge sharing, the presentations (PPT slides) are reported and the full recording of the event is attached.

3. Agenda

The event agenda including the topics is provided below.

Agenda – INFODAY – Settori Pesca Artigianale e Acquacoltura
21 ottobre 2025 – Studentato universitario, Dubrovnik (Croazia) e online per le imprese italiane

🕗 **08:30 – 09:00 | Registrazione dei partecipanti**
🕘 **09:00 – 09:30 | Saluti istituzionali**
– Collegamento dall'Italia: Saluti istituzionali
– In presenza a Dubrovnik:
• *Marijana Pećarević* – Prorettrice, Università di Dubrovnik
• *Sanja Tomšić* – Professoressa e coordinatrice del progetto BLUESLINKS per PP8

🎯 **Nuove rotte per le PMI della pesca artigianale e dell'acquacoltura – Sostenibilità, innovazione tecnologica, digitalizzazione, tutela e ripristino della biodiversità**

09:30 – 11:30 | Sessione 1: Sfide, resilienza, sostenibilità e innovazione tecnologica per le PMI della pesca artigianale
🎙️ Relatori:
• *Branko Glamuzina* – Professore UNIDU – Piani di gestione dell'anguilla: stato della pesca dell'anguilla europea lungo la costa adriatica orientale
• *Tatjana Dobroslavić* – Professoressa UNIDU – Mari sostenibili: consapevolezza dell'impronta idrica nella pesca mediterranea
• *Mato Oberan* – Presidente della Gilda della Pesca – Stato e prospettive della pesca croata
• *Fabio Fiori*, Coopmare (esperto coinvolto da LP DELTA 2000) – Piani di gestione della pesca costiera artigianale: confronto tra esperienze
• *Massimo Bellavista*, Lega Coop Emilia Romagna (esperto LP DELTA 2000) – Piattaforme di tracciabilità digitale e sistemi di monitoraggio remoto per la pesca
• *Marco Francese*, Shoreline Experts (esperto PP2 POLOAA) – L'evoluzione della pesca costiera: dai cambiamenti climatici e sociali a un possibile nuovo modello gestionale

🎤 **11:30 – 12:00 | Tavola rotonda e Q&A**

🔄 **12:00 – 13:30 | Sessione di cross-fertilizzazione – Innovazione nel settore della pesca artigianale**
– Condivisione di esperienze da parte delle aziende
🍽️ **13:30 – 14:30 | Pranzo di networking**
– Opportunità di confronto tra partecipanti e relatori

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Strada del Mezzano, 10 – 44020 Ostellato (FE) Tel. 0533 57693-4 Fax 0533-57674 www.deltaduemila.net – e-mail: info@deltaduemila.net
Pec: deltaduemila@pec.it - Capitale Sociale Euro 200.000,00 – Numero Registro Imprese di Ferrara, C.F. e P. IVA 01358060380 – R.E.A. di Ferrara 150.300

14:30 – 16:30 | Sessione 2: Sostenibilità ambientale, capacità di carico, inquinamento, biosicurezza, vincoli sulle risorse, gap tecnologici e di innovazione, supporto alle PMI nel settore acquacoltura

Relatori:
• *Ana Bratoš Cetinić* – Professoressa UNIDU – Economia blu o futuro grigio? L'effetto della maricoltura sull'ambiente marino – Strategie di adattamento all'inquinamento
• *Kruno Bonačić* – Professore UNIDU – Traslocazione dei bivalvi in acquacoltura – Ottimizzazione della produzione: sfide, rischi e strategie di gestione
• *Vlasta Bartulović* – Professoressa UNIDU – Soluzioni innovative per la gestione dei rifiuti
• *Vadis Paesanti*, Fedagripesca Emilia Romagna (esperto LP DELTA 2000) – Specie invasive in acquacoltura: criticità e possibili soluzioni
• *Valentina Zambetti* (esperta PP3 Confcoop Veneto) – Finanziamenti FEAMP per sostenibilità e resilienza e altri strumenti di finanziamento
• *Pietro Giorgio Tiscar* (esperto PP4 FLAG CT) – Professore di Microbiologia Veterinaria, Università di Teramo – Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici

16:30 – 17:30 | Tavola rotonda e Q&A
– Discussione aperta tra esperti, imprese e stakeholder
– Sessione di domande e networking
– Call to Action: Come accedere ai servizi BLUESLINKS

17:30 – 18:30 | Sessione di cross-fertilizzazione – Innovazione nel settore della pesca artigianale
– Sessione dedicata al match-making
– Attività di scambio e collaborazione tra imprese, startup e giovani laureati

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4. List of presentations

Below is a list of the speakers' presentations, available in full in the following pages.

Marco Francese

Pietro Giorgio Tiscar

Vadis Paesanti

5. Marco Francese, Shoreline cooperative company (by PP2 PoloAA)
The Evolution of Coastal Fisheries: FromClimate and Social Change to a Possible New Management Model

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ABOUT US

Cooperative Society for Marine Environment Quality Services

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T +39 040 3755700 Mob +39 347 4284024

email: shoreline@shoreline.it, marfrancese@gmail.com

PEC: shoreline@pec.it

cf/p.iva 00754460327

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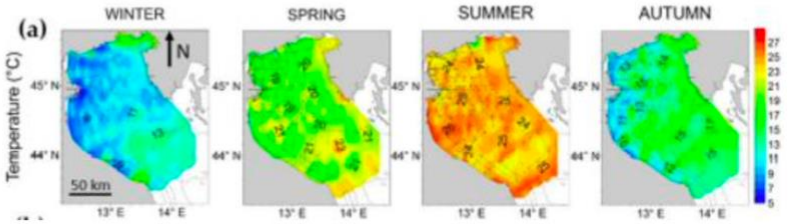
CLIMATE CHANGE: A GLOBAL PROBLEM

Climate change: The consequences of climate change, such as damage from mucilage and high temperatures, are undermining fish stocks



Sea fishing is a cause for concern due to the **reduction in** fish **species** (-50% in 15 years for small pelagic species such as anchovies) ...

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CLIMATE CHANGE: A GLOBAL PROBLEM

Sea fishing is also a cause for concern due to **the invasion of alien species**.

The Gulf of Trieste has also seen an increase in the presence of these species. In addition to ctenophores, there are numerous organisms that require careful observation. Crustaceans, such as the **blue crab (Scardovari 386 tonnes in 2024)**, molluscs, bivalves, macro and micro invertebrates, most of which are little known.

At present, the **ctenophore Mnemiopsis leidyi**, also known as the 'sea walnut', is the alien species of greatest concern: it is capable of altering the development of the food chain, depriving many pelagic fish of food and preying on their eggs and larvae. In addition, the gelatinous masses clog fishing gear and nets.
Its presence in the Gulf of Trieste was first reported in 2005.

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THE FISHING INDUSTRY IN FRIULI VENEZIA GIULIA AT RISK: A SOCIAL PROBLEM

In Friuli-Venezia Giulia, the sea fishing sector is characterised by a **shrinking fleet**, with small-scale coastal fishing accounting for the majority of businesses.

The main regional **fishing ports** are located in Marano Lagunare, Grado, Monfalcone and Trieste

Fleet decline: Businesses dedicated to sea fishing have recorded a steady annual decline of **6-7% per annum** over the last six years.

Company structure: Sole proprietorships still make up the majority (over 70%), despite a steady decline.

Generational change: The steady decline in the number of companies and the prevalence of sole proprietorships indicate difficulties in generational change and in the economic stability of sea fishing companies.

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European regulations aim to reduce fishing quotas
from 2012 to 2024, the number of workers at regional level has fallen to around 60%

A European plan **designed for the large** European **seas**, but difficult to sustain in the Adriatic, which relies on small-scale fishing for 80% of its livelihood, with a fleet where boats have two or three crew members or, in most cases, only the owner/fisherman.

European sustainability: Operators are concerned about the lack of additional financial and regulatory aid for these areas, which is not forthcoming.

FISHING REGULATIONS: A LEGAL PROBLEM

In our region, it has been managed for years by **management consortia**
The activities carried out by the GAC Flag of Friuli Venezia Giulia in collaboration with municipalities, businesses and social partners have been positive.

Studies are welcome, but not the adoption of *Ballast Water* regulations to combat the entry of alien species (2004 Convention).

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Aquaculture vs. sea fishing:
Aquaculture, in particular the farming of trout and marine species such as sea bass, sea bream and bivalve molluscs, accounts for the majority of regional fish production (FVG).

The aquaculture sector should be considered **complementary to fishing** rather than a conflict of interest.

AQUACULTURE: A MARKET PROBLEM

Mussel farming in Trieste has always been a flagship of the regional fish industry.
Mariculture in the Gulf of Trieste boasts a prominent cultural tradition that has set an example throughout the Mediterranean with the first bivalve mollusc farms, the earliest of which date back to the mid-19th century in the bay of Muggia.

However, the sector is also in crisis due to health restrictions caused by **algal biotoxins** (microscopic phytoplankton organisms that produce toxins, e.g. DSP toxins), which can accumulate in the edible parts of filter-feeding molluscs.
In addition, **mussels produced in other seas and different bivalves on the market** are causing the shellfish farming industry to be in crisis.

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A SOLUTION:
THE STUDY ON SMALL-SCALE FISHERIES IN TRIESTE (by AMP Miramare)

A small percentage of fishing vessels are registered with the peripheral commands of the Coast Guard of Trieste, Muggia and Sistiana: numerically, they account for only 13.4% of the Friuli Venezia Giulia fleet, 14.7% of the total tonnage and 13.8% of the regional engine power.

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A SOLUTION:
PARTICIPATION IN THE STUDY ON SMALL-SCALE FISHERIES (by Shoreline)

A participatory process was conducted with a mix of stakeholders: fishermen, researchers, the Chamber of Commerce and protected areas.

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CRITICAL ISSUES

Reduced resources (depletion)
- Decline in resources
- Contraction of the fishing industry
- Pelagic species at risk
- Fish market: local supply does not meet demand
- Ever smaller sizes
- Lack of nutrients
- Presence of alien species that prey on juveniles

Maintaining the vitality of depleted habitats:
- Continue to protect seagrass beds
- Trawling does not lead to restoration, but to permanent degradation
- Coastal areas: restore nurseries destroyed by high temperatures and pollution

Fishing locations and boundaries
- Dynamics of marine basins to be analysed
- Fishing areas that are diverse and far from the coast: difficult to reach
- Coastal protected areas that are increasingly extensive and non-inclusiveClimate change alters water regimes

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THE REASON? THE AMP MIRAMARE MAB AREA: AN INNOVATIVE TESTING GROUND FOR THE DEVELOPMENT OF SUSTAINABLE FISHERIES

OECMs (Other Effective Area-based Conservation Measures): "a defined geographical area other than a Protected Area and managed to achieve positive and long-lasting results for the conservation of in situ biodiversity, with associated ecosystem functions and services and, where applicable, cultural, spiritual, socio-economic and other values at the local level".

For example, for this area of the Gulf of Trieste, a **Management Plan for small-scale artisanal fishing** is being developed for the ZTB.

The MaB E ZTB Miramare area meets the criteria

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CRITICAL ISSUES

Fishing equipment and methods
- Greater definition and criteria depending on the fishing area
- Fishing gear and its use must be monitored according to resources
- Recovery of ancient fishing gear

Fish culture and consumer awareness
- Consumer education
- Lack of culture surrounding the consumption of fish products with variety of species
- Coastal fishing should diversify its products more
- Market demands and promotion
- Education of fishermen, from old techniques to modern technologies

Professional fishing is disadvantaged compared to other types of fishing
- Recreational (amateur) fishing must be controlled
- 10-25% of landings come from recreational fishing
- Sport fishing is acceptable, but amateur fishing is often professional fishing in disguise

There is a need for regulation
- There is a serious lack of controls in the supply chain.

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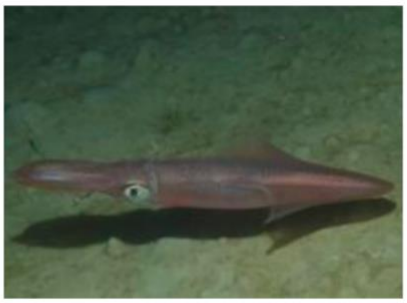
TEMPORARY MOORINGS
- Creation of mooring buoy lines for authorised persons or those registered in the register

TRACEABILITY OF BOATS AND VESSELS
- Traceability of boats and vessels through the use of number plates, in order to combat illegal activities.

THE RESULT

CALIBRATED FISHING CLOSURES
- Introduction of new types of fishing closures adapted to climate change
- +

PROFESSIONAL REGISTER OF SMALL-SCALE COASTAL FISHERIES
- Establishment of a register of professional fishermen authorised by area and, in particular, a register of small-scale coastal fishermen



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THE RESULT

REGULATION OF PERMITTED EQUIPMENT AND TECHNOLOGIES

- Regulation of coastal fishing technologies and incentives for experimenting with traditional fishing gear

REGULATION OF RECREATIONAL, AMATEUR AND UNDERWATER FISHING

- Regulation of recreational and amateur fishing;
- Increase control over non-professional fishing; Control of purchasers to limit sales from recreational fishing;

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THE RESULT

CREATION OF A GUARANTEED SUPPLY CHAIN

- Creation of a traceability system for fish products captured by SSF

LOG BOOKS AND QUAY LOG BOOKS ON CATCHES

- Introduction of regular, voluntary log books (self-monitoring) for recording catches;.

'SMALL-SCALE COASTAL FISHING' CERTIFICATION

Enhancement of the tradition and typical characteristics of fishing using traditional methods;
establishment of a PDO (Protected Designation of Origin) certification (label) for small-scale coastal fishing products;

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THE RESULT

FIGHTING ALIEN SPECIES

- Combating edible alien species;
- incentives for capture and trade; combating inedible alien species
- through rewards

- **REPOPULATION AND AGGREGATION WITH BARRIERS, FADs AND CORRIDORS**
  Implementation of activities to restore the health of the seabed,
- Repopulation of the seabed with underwater barriers,
- Creation of submerged FADs

ENVIRONMENTAL RESTORATION ACTIONS

- RESTORATION of natural seabeds,
- Research projects relating to the presence of local species.

AND NOW...

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PROFESSIONAL TRAINING IN SMALL-SCALE COASTAL FISHING TRAINING ON:

- species,
- trades,
- traceability,
- logbooks,
- the market and diversification,
- PDO,
- traditions and techniques from older fishermen.

THE RESULT

CONSUMER AWARENESS CAMPAIGNS TO PROMOTE :

- confidence in local products,
- diversification in the consumption of fish products,
- consensus on the quality of small-scale coastal fishing products;
- raising awareness of the coastal habitat; educational programmes in schools on fish resources and new products.

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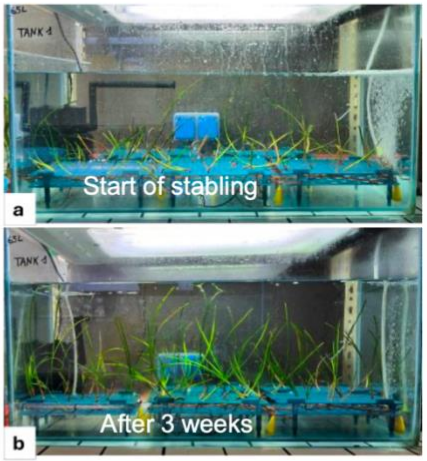
AND HERE IS THE OTHER SOLUTION: HYDROPONICS FOR RESTORATION (LAB AREA)

small aquaponics systems for growing submerged seagrass leaves and algae shoots



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IN THE SEA ON THE SANDY SEA BED

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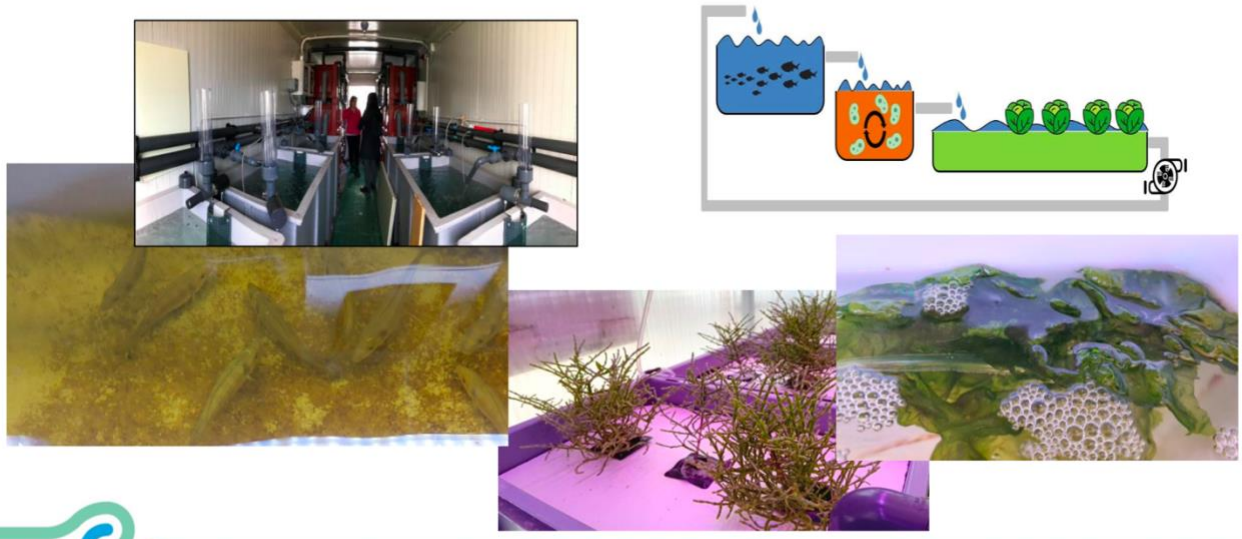
ANOTHER SOLUTION: SALT WATER AQUAPONICS

development of hydroponic and aquaponic systems: with salt water – cultivation of young plants from brackish environments and algae, combined with the breeding of fish or marine crustaceans



SALT WATER AQUAPONICS

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Hydroponics and aquaponics systems: with salt water for:

- Production of animals for restocking
- Production of food for the fruit, vegetable and fish market
- Production of young animals for breeding
- Production of vegetables as soil improvers in fish farming feed
- Use of the vegetable component as phytoremediation in large breeding facilities (e.g. clam beds)

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IT CAN BE DONE

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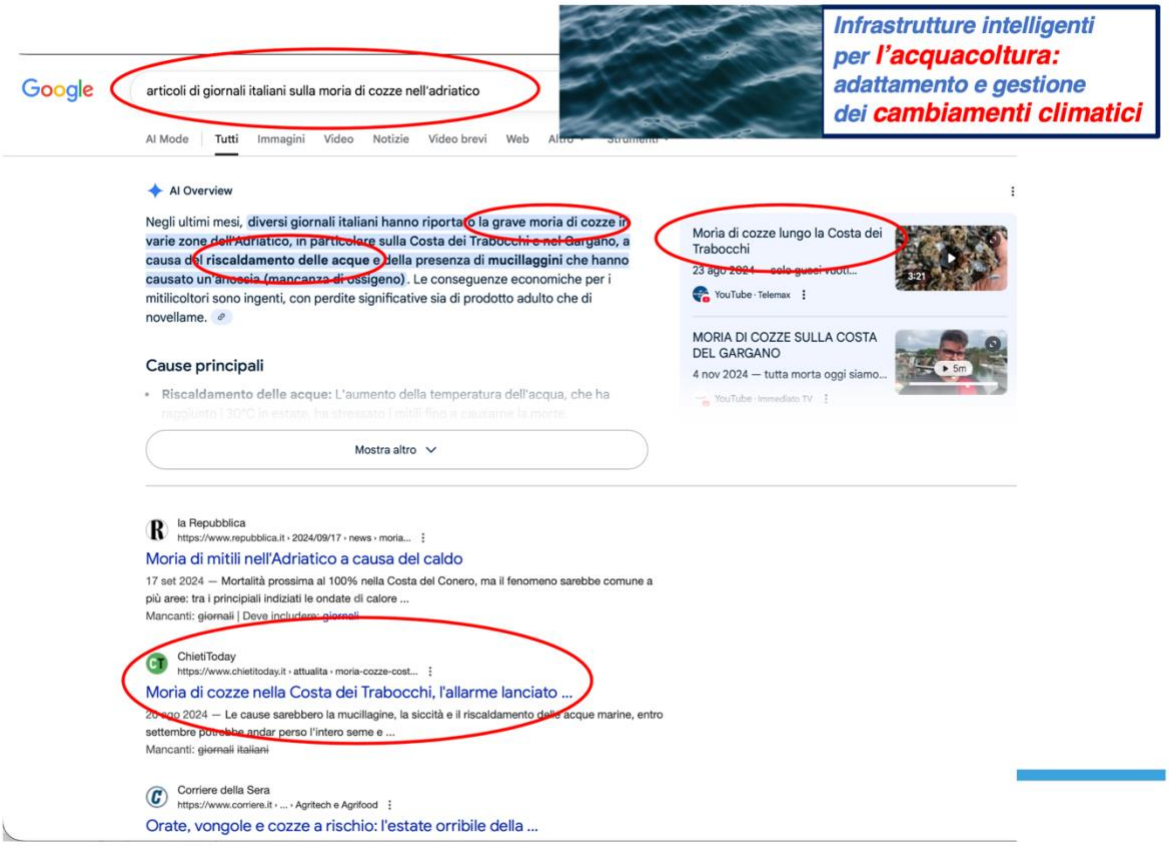
6. Pietro Giorgio Tiscar, Università degli Studi di Teramo (esperto PP4 FLAG CT)
Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici


Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici
Google
articoli di giornali italiani sulla moria di cozze nell'adriatico
AI Mode
Tutti
Immagini
Video
Notizie
Video brevi
Web
AI Overview
Negli ultimi mesi, diversi giornali italiani hanno riportato la grave moria di cozze in varie zone dell'Adriatico, in particolare sulla Costa dei Trabocchi e nel Gargano, a causa del riscaldamento delle acque e della presenza di mucillaggini che hanno causato un'anossia (mancanza di ossigeno). Le conseguenze economiche per i mitilicoltori sono ingenti, con perdite significative sia di prodotto adulto che di novellame.
Cause principali
Riscaldamento delle acque: L'aumento della temperatura dell'acqua, che ha raggiunto i 30°C in estate, ha stressato i mitili fino a causarne la morte.
Mostra altro
Moria di cozze lungo la Costa dei Trabocchi
YouTube · Telemax
MORIA DI COZZE SULLA COSTA DEL GARGANO
4 nov 2024 — tutta morta oggi siamo...
la Repubblica
https://www.repubblica.it › 2024/09/17 › news › moria...
Moria di mitili nell'Adriatico a causa del caldo
17 set 2024 — Mortalità prossima al 100% nella Costa del Conero, ma il fenomeno sarebbe comune a più aree: tra i principiali indiziati le ondate di calore ...
Mancanti: giornali | Deve includere: giornali
ChietiToday
https://www.chietitoday.it › attualita › moria-cozze-cost...
Moria di cozze nella Costa dei Trabocchi, l'allarme lanciato ...
Le cause sarebbero la mucillagine, la siccità e il riscaldamento delle acque marine, entro settembre potrebbe andar perso l'intero seme e ...
Mancanti: giornali italiani
Corriere della Sera
https://www.corriere.it › ... › Agritech e Agrifood
Orate, vongole e cozze a rischio: l'estate orribile della ...

Infrastrutture intelligenti per l'acquacoltura: ***adattamento*** *e gestione dei cambiamenti climatici*

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Acquacoltura di precisione

Sistema di ottimizzazione delle dinamiche e dei processi di allevamento applicato all'acquacoltura

MIGLIORE PRODUTTIVITA'

*Infrastrutture intelligenti per l'acquacoltura: adattamento e **gestione** dei cambiamenti climatici*

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- Principio di "Blue Growth"

Forma di sviluppo che non ostacola o riduce le possibilità di crescita, ma pone come obiettivo principale la sostenibilità

SOSTENIBILITA', ETICITA', QUALITA'

Infrastrutture intelligenti per l'acquacoltura: ***adattamento*** *e gestione dei cambiamenti climatici*

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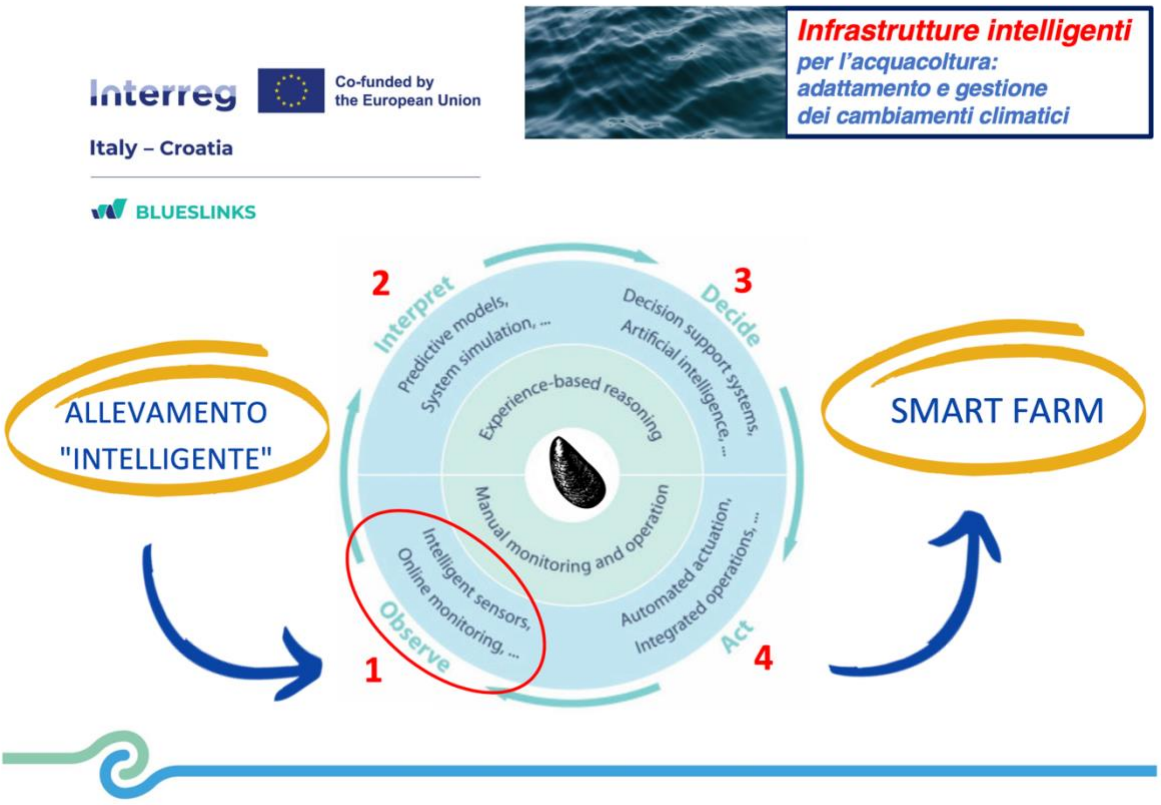
Acquacoltura di precisione

Sistema di ottimizzazione delle dinamiche e dei processi di allevamento applicato all'acquacoltura

MIGLIORE PRODUTTIVITA'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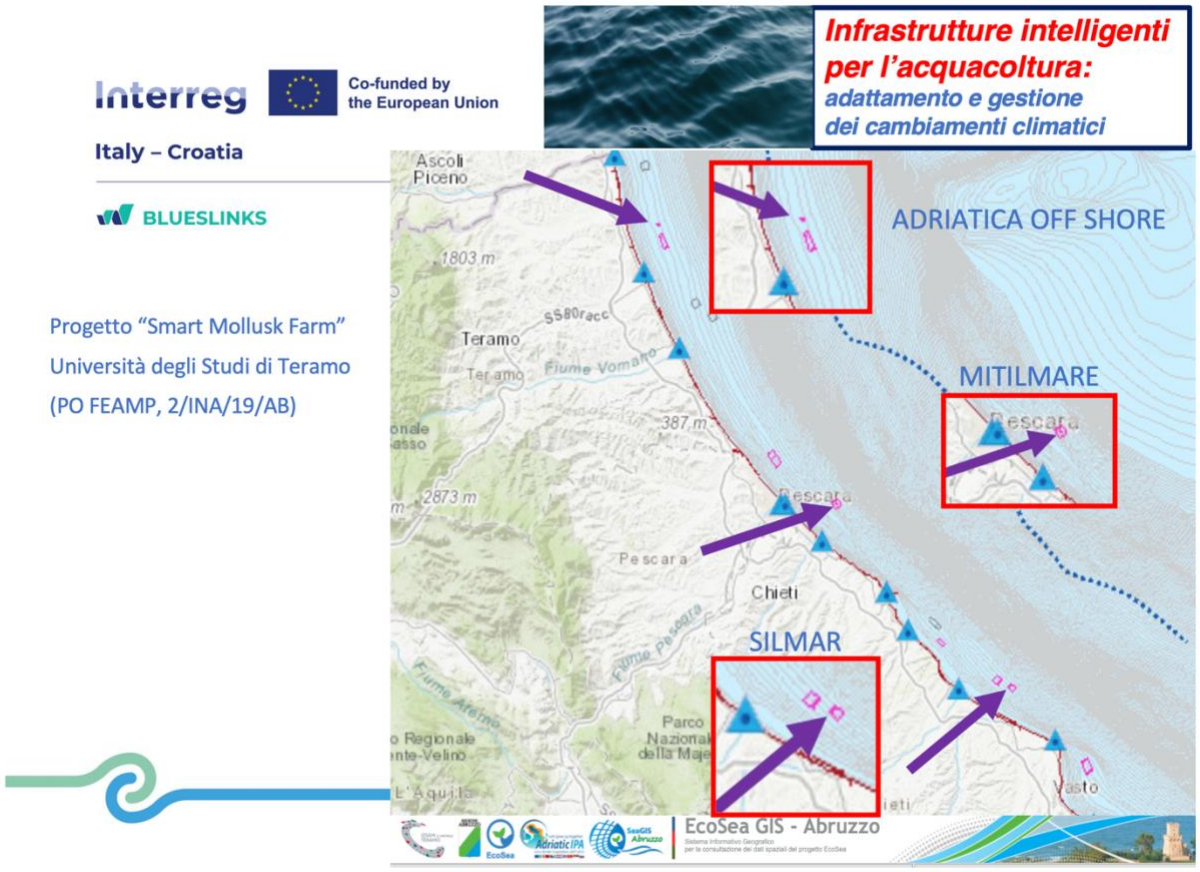
Infrastrutture intelligenti
per l'acquacoltura:
adattamento e gestione
dei cambiamenti climatici
ALLEVAMENTO
"INTELLIGENTE"
SMART FARM
2
Interpret
Predictive models,
System simulation, ...
3
Decide
Decision support systems,
Artificial intelligence, ...
Experience-based reasoning
Manual monitoring and operation
Intelligent sensors,
Online monitoring, ...
Observe
1
Automated actuation,
Integrated operations, ...
Act
4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adattamento e gestione dei cambiamenti climatici
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BLUESLINKS
Progetto "Smart Mollusk Farm"
Università degli Studi di Teramo
(PO FEAMP, 2/INA/19/AB)
ADRIATICA OFF SHORE
MITILMARE
SILMAR
Ascoli Piceno
Teramo
Pescara
Chieti
Vasto
1803 m
2873 m
387 m
EcoSea GIS - Abruzzo

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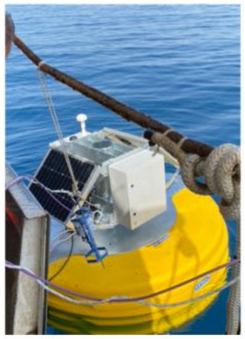
Progetto "Smart Mollusk Farm"
Università degli Studi di Teramo
(PO FEAMP, 2/INA/19/AB)


Infrastrutture intelligenti
per l'acquacoltura:
adattamento e gestione
dei cambiamenti climatici

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	A	B	C	D
1	TIME	ALARM	ANA_001	ANA_002
2	Timestamp	Alarm	Abs Speed	Direction
3			cm/s	∞
4	18/10/25 07:30	NO ALARM	10.147	151.95
5	18/10/25 08:00	NO ALARM	12.174	172.87
6	18/10/25 08:30	NO ALARM	12.799	197.14
7	18/10/25 09:00	NO ALARM	12.799	197.14
8	18/10/25 09:30	NO ALARM	15.4	172.22
9	18/10/25 10:00	NO ALARM	14.06	164.56
10	18/10/25 10:30	NO ALARM	12.375	176.22
11	18/10/25 11:00	NO ALARM	12.375	176.22
12	18/10/25 11:30	NO ALARM	14.044	171.88
13	18/10/25 12:00	NO ALARM	12.586	153.94
14	18/10/25 12:30	NO ALARM	13.879	140.81
15	18/10/25 13:00	NO ALARM	13.879	140.81
16	18/10/25 13:30	NO ALARM	18.069	146.70
17	18/10/25 14:00	NO ALARM	14.864	142.93

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	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
1	ANA_001	ANA_002	ANA_003	ANA_004	ANA_005	ANA_006	ANA_007	ANA_008	ANA_009	ANA_010	ANA_011	ANA_012	ANA_013	ANA_014	ANA_015	ANA_016	ANA_017	ANA_018	ANA_019	ANA_020	GPS
2	Abs Speed	Direction	North	East	Heading	Tilt X	Tilt Y	SP Std	Strength	Ping Count	Abs Tilt	Max Tilt	Std Tilt	Temperature	Strength X	Strength Y	Strength X Ti	Strength X Ti	Strength Y Ti	Strength Y Ti	Gps
3	cm/s	∞	cm/s	cm/s	∞C	∞	∞	cm/s	dB		∞	∞	∞	∞C	dB	dB	dB	dB	dB	dB	
4	tM	10.147	151.956	-8.955	4.770	6.178	-19.737	-25.778	24.129	-26.458	100.0	32.325	35.978	2.228	19.640	-25.473	-27.443	-25.205	-26.373	-27.468	-27.432	1.0
5	tM	12.174	172.878	-12.080	1.509	29.744	-18.735	-26.421	19.817	-26.739	100.0	32.267	36.693	2.271	19.601	-26.603	-26.876	-26.336	-27.669	-28.281	-26.383	1.0
6	tM	12.799	197.145	-12.231	-3.773	35.906	-19.380	-26.298	22.352	-26.587	100.0	32.537	36.475	1.994	19.585	-26.073	-27.101	-25.669	-28.362	-29.568	-26.484	1.0
7	tM	12.799	197.145	-12.231	-3.773	35.906	-19.380	-26.298	22.352	-26.587	100.0	32.537	36.475	1.994	19.585	-26.073	-27.101	-25.669	-28.362	-29.568	-26.484	1.0
8	tM	15.400	172.220	-15.258	2.085	20.390	-18.895	-26.628	24.451	-24.879	100.0	32.536	37.157	2.344	19.565	-25.023	-24.736	-25.026	-25.010	-27.730	-23.684	1.0
9	tM	14.060	164.569	-13.553	3.741	21.668	-18.887	-26.266	23.305	-26.459	100.0	32.224	34.698	2.123	19.529	-26.023	-26.895	-26.155	-25.210	-30.204	-26.169	1.0
10	tM	12.375	176.222	-12.348	8.770	34.314	-19.080	-26.169	24.637	-25.740	100.0	32.258	36.020	2.289	19.531	-25.356	-26.124	-25.174	-25.827	-27.717	-25.593	1.0
11	tM	12.375	176.222	-12.348	8.770	34.314	-19.080	-26.169	24.637	-25.740	100.0	32.258	36.020	2.289	19.531	-25.356	-26.124	-25.174	-25.827	-27.717	-25.593	1.0
12	tM	14.044	171.884	-13.904	1.983	27.413	-18.844	-26.411	18.470	-25.771	100.0	32.316	34.395	1.240	19.516	-25.523	-26.541	-24.917	-25.552	-28.744	-26.058	1.0
13	tM	12.586	153.941	-11.307	5.529	2.273	-19.404	-25.865	9.811	-24.955	100.0	32.194	34.719	1.631	19.521	-24.787	-25.124	-24.766	-24.954	-24.241	-25.468	1.0
14	tM	13.879	140.810	-10.757	8.770	10.046	-19.064	-26.560	29.022	-25.154	100.0	32.569	35.123	1.818	19.517	-24.646	-25.662	-24.456	-25.407	-29.342	-25.063	1.0
15	tM	13.879	140.810	-10.757	8.770	10.046	-19.064	-26.560	29.022	-25.154	100.0	32.569	35.123	1.818	19.517	-24.646	-25.662	-24.456	-25.407	-29.342	-25.063	1.0
16	tM	18.069	146.708	-15.103	9.918	16.936	-18.231	-27.129	19.283	-24.586	100.0	32.585	36.682	2.383	19.336	-23.917	-25.256	-23.667	-24.803	-27.377	-24.966	1.0
17	tM	14.864	142.934	-11.861	8.959	10.385	-17.029	-27.985	24.134	-24.484	100.0	32.677	36.054	1.429	19.337	-24.000	-24.969	-23.758	-25.181	-25.326	-24.916	1.0
18	tM	16.055	149.339	-13.810	8.187	13.729	-18.564	-26.661	14.005	-23.424	100.0	32.371	35.245	2.177	19.360	-22.897	-23.951	-22.885	-22.988	-26.577	-23.413	1.0
19	tM	15.948	157.703	-14.756	6.051	14.123	-18.342	-27.968	19.831	-23.605	100.0	33.364	37.348	3.249	19.449	-23.409	-23.801	-23.184	-24.311	-25.955	-23.121	1.0
20	tM	13.166	159.018	-12.293	4.714	26.109	-18.276	-27.008	17.993	-23.492	100.0	32.524	39.587	3.420	19.429	-23.253	-23.730	-22.976	-24.039	-24.101	-23.626	1.0

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	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
1	GPS_FIX	GPS_LAT	GPS_LON	GPS_SATN	VOLTAGE	YSI_001	YSI_012	YSI_022	YSI_193	YSI_211	YSI_212	YSI_226	
2	Gps_Fix	Gps_Lat	Gps_Lon	Gps_Satn	Voltage	Temp	Sal	Depth	Chl	ODOsat	ODO	BGA-PE	
3					V	∞C	ppt	meters	ug/L	%	mg/L	ug/l	
4	1.0	42.8045161	14.0021651	10.0	12.61	19.659	31.3	8.173	15.66	47.69	3.63	100.23	
5	1.0	42.8045531	14.0022536	10.0	12.65	19.656	31.83	8.460	32.35	47.65	3.61	127.56	
6	1.0	42.8045595	14.0022983	10.0	12.65	19.638	32.08	8.365	31.2	47.61	3.61	139.81	
7	1.0	42.8045611	14.0023073	10.0	12.72	19.642	32.05	8.406	23.32	47.5	3.6	121.68	
8	1.0	42.804559 N	14.0023185	11.0	12.83	19.613	32.42	8.226	11.9	47.4	3.58	107.9	
9	1.0	42.80455 N	14.0023218	12.0	13.01	19.584	31.48	8.185	16.58	47.33	3.6	117.18	
10	1.0	42.8045461	14.0023251	11.0	13.05	19.584	31.48	8.185	16.58	47.33	3.6	117.18	
11	1.0	42.8045288	14.0022725	9.0	13.16	19.571	32.76	8.161	12.48	47.22	3.57	97.57	
12	1.0	42.8045171	14.0022158	10.0	13.19	19.571	32.43	8.142	12.62	47.17	3.57	100.27	
13	1.0	42.8045181	14.0022235	12.0	13.23	19.570	32.39	8.146	9.47	47.14	3.57	83.55	
14	1.0	42.8045095	14.0021928	10.0	13.27	19.570	32.39	8.146	9.47	47.14	3.57	83.55	
15	1.0	42.8045041	14.0021985	10.0	13.3	19.421	32.7	7.817	9.35	46.9	3.55	86.32	
16	1.0	42.8044938	14.0021008	12.0	13.16	19.412	32.5	7.752	10.6	46.91	3.56	85.63	
17	1.0	42.804466 N	14.0020873	11.0	13.19	19.428	32.09	7.815	9.05	46.9	3.57	95.91	
18	1.0	42.8044821	14.0020833	10.0	13.23	19.443	32.56	7.816	8.58	46.9	3.56	83.63	
19	1.0	42.8044905	14.0021303	12.0	13.19	19.541	32.81	7.869	9.13	46.91	3.54	96.13	
20	1.0	42.8044676	14.0020403	11.0	13.19	19.501	32.27	7.819	11.54	46.96	3.56	87.53	
21	1.0	42.8044838	14.0020605	11.0	13.19	19.499	30.94	7.821	14.41	46.97	3.59	94.58	
22	1.0	42.804488 N	14.0020606	11.0	13.09	19.459	30.58	7.938	13.97	47.0	3.6	101.3	
23	1.0	42.8044755	14.0020425	10.0	13.09	19.455	30.58	7.906	11.15	47.04	3.61	111.03	

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Come monitorare?

Sistemi attualmente impiegati per il monitoraggio ambientale

Rilievi satellitari

Impiego di sonde multiparametriche

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Copernicus ®

Satelliti adibiti al monitoraggio marino

- Sentinel-1 (SAR)
- Sentinel-2
- Sentinel-3
- Sentinel-6

Reti in situ

Boe, droni, navi, stazioni fisse costiere

Raccolta, elaborazione e distribuzione dati

Accesso gratuito, download in formato NetCDF

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La sonda

Sette sensori intercambiabili

- **Elettrochimici** (pH, O2)
- **Ottici** (clorofilla)
- **Fisici** (salinità, T°)

Piattaforma raccolta dati (**DPC**)
Calibrazione: **KorEXO**
Intervallo di rilievo **modulabile**
Dati in formato **CSV**

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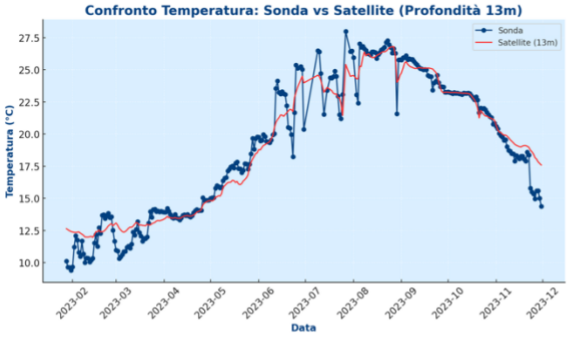
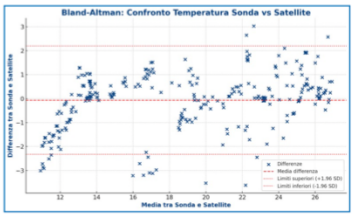
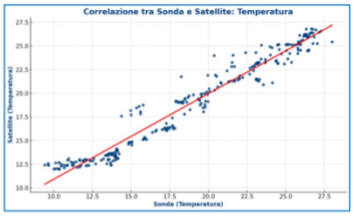
Temperatura







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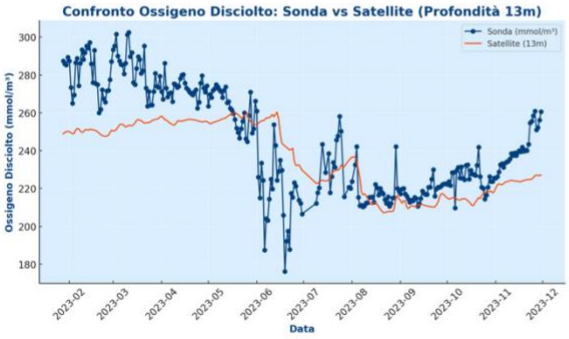
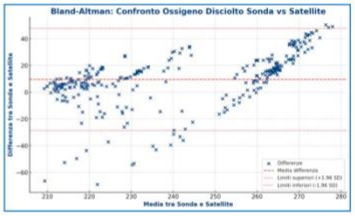
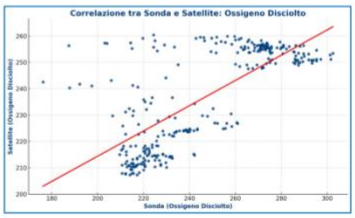
Ossigeno disciolto







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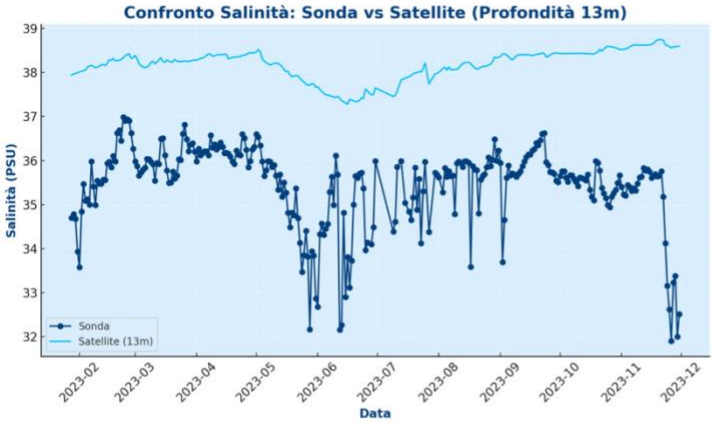
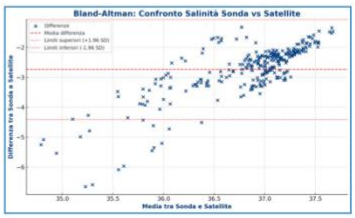
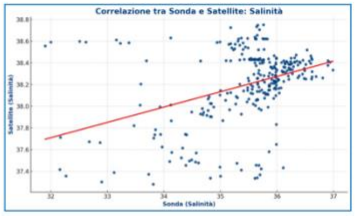
Salinità







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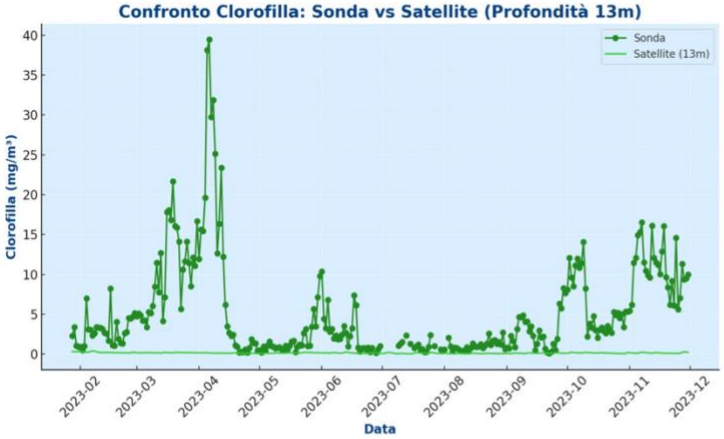
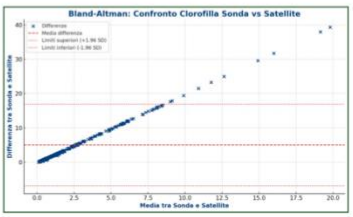
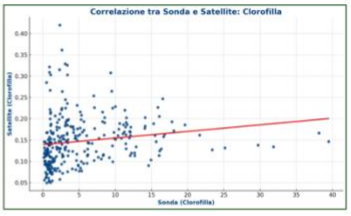
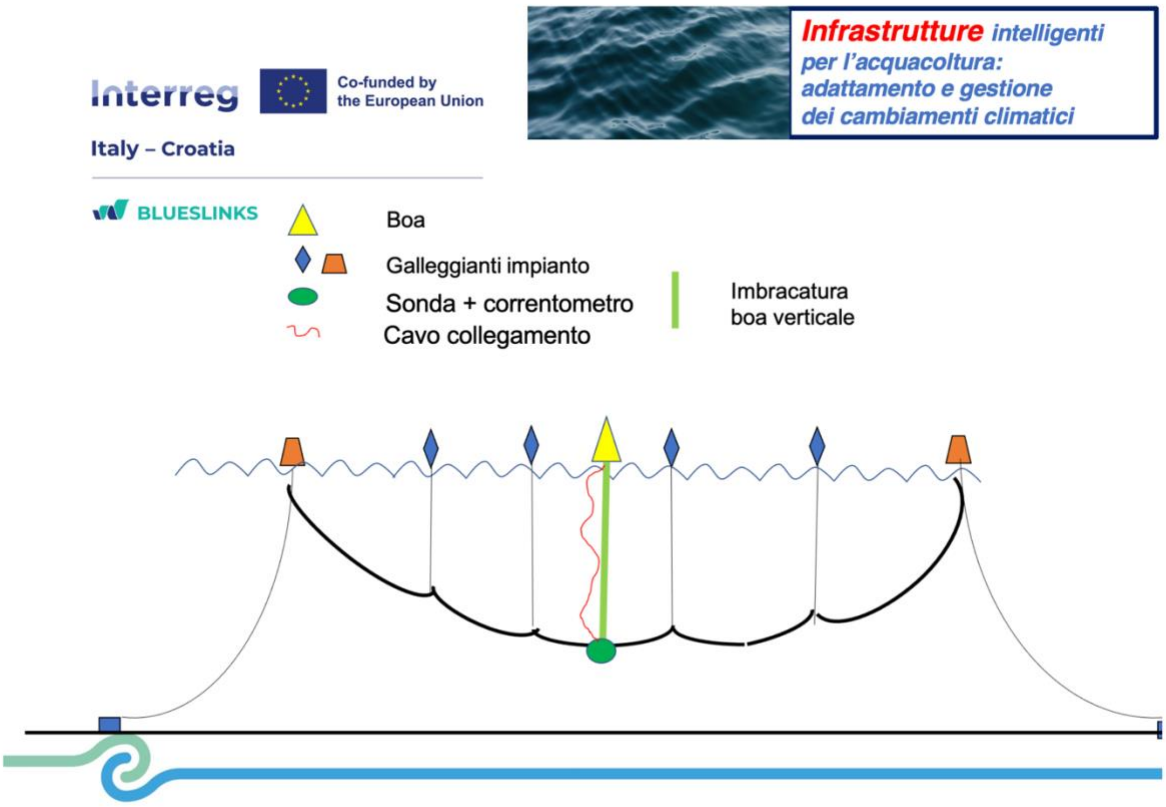
Clorofilla





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Boa
Galleggianti impianto
Sonda + correntometro
Cavo collegamento
Imbracatura boa verticale

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UNI SALENTO

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adattamento e gestione
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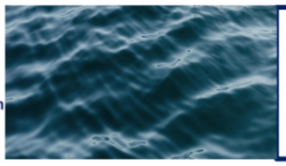
progetto **SMART WATER-SHELL**

Sustainable **M**onitoring **A**utomation **R**eporting **T**echniques
Water **A**nalysis **T**echnology for **E**nvironmental **R**esearch
Sensors **H**andled by **E**fficient **L**ogging **L**ocator

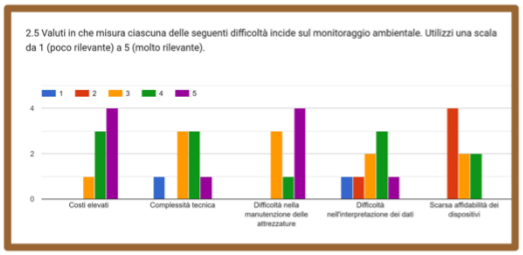
cofinanziato dal PNRR (Spoke 2 - Università di Messina),

partenariato tra ORION srl e Università degli studi di Teramo

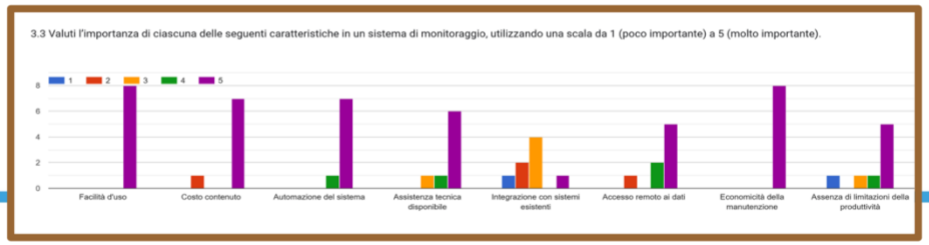


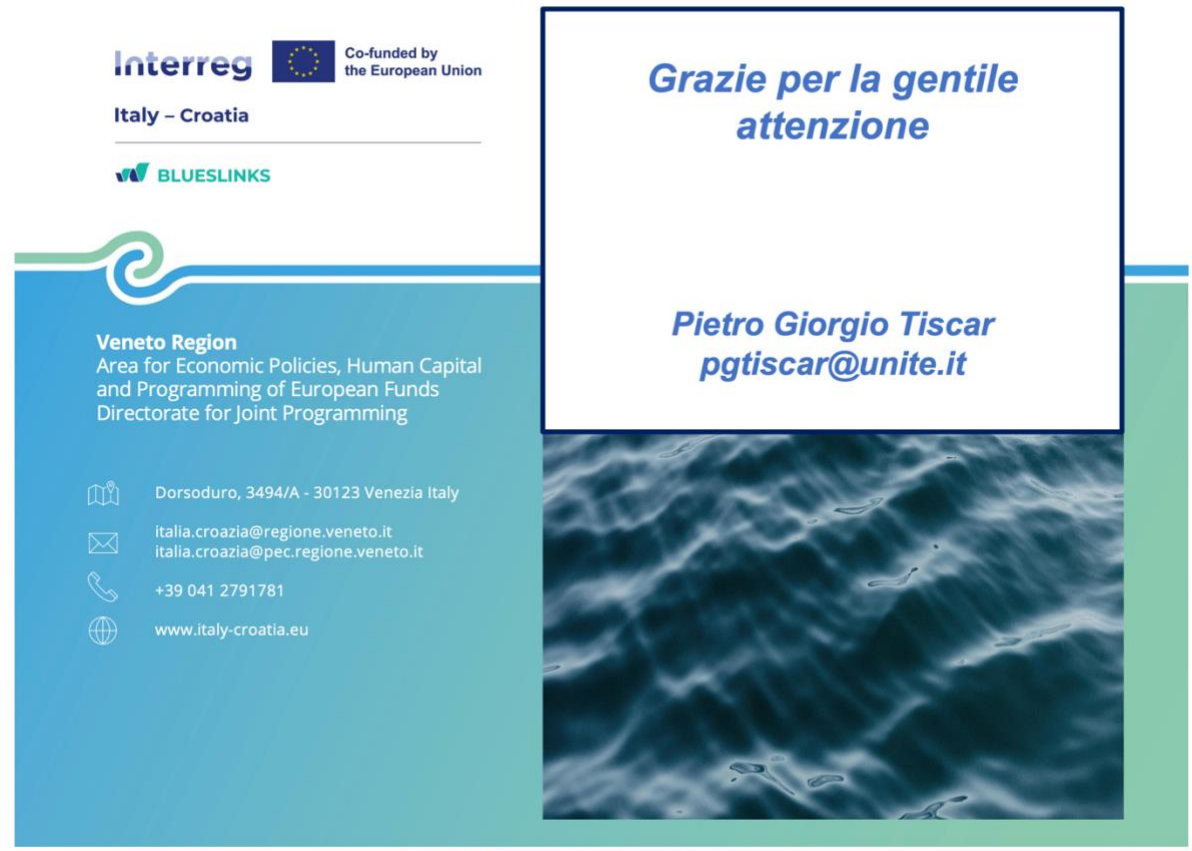
Infrastrutture intelligenti per l'acquacoltura: adattamento e gestione dei cambiamenti climatici

progetto SMART WATER-SHELL



Gli operatori della costa abruzzese hanno indicato i requisiti prioritari: boe compatte, facilmente manutenibili, a costi sostenibili e capaci di fornire dati in tempo reale per garantire conformità normativa e migliorare la gestione produttiva

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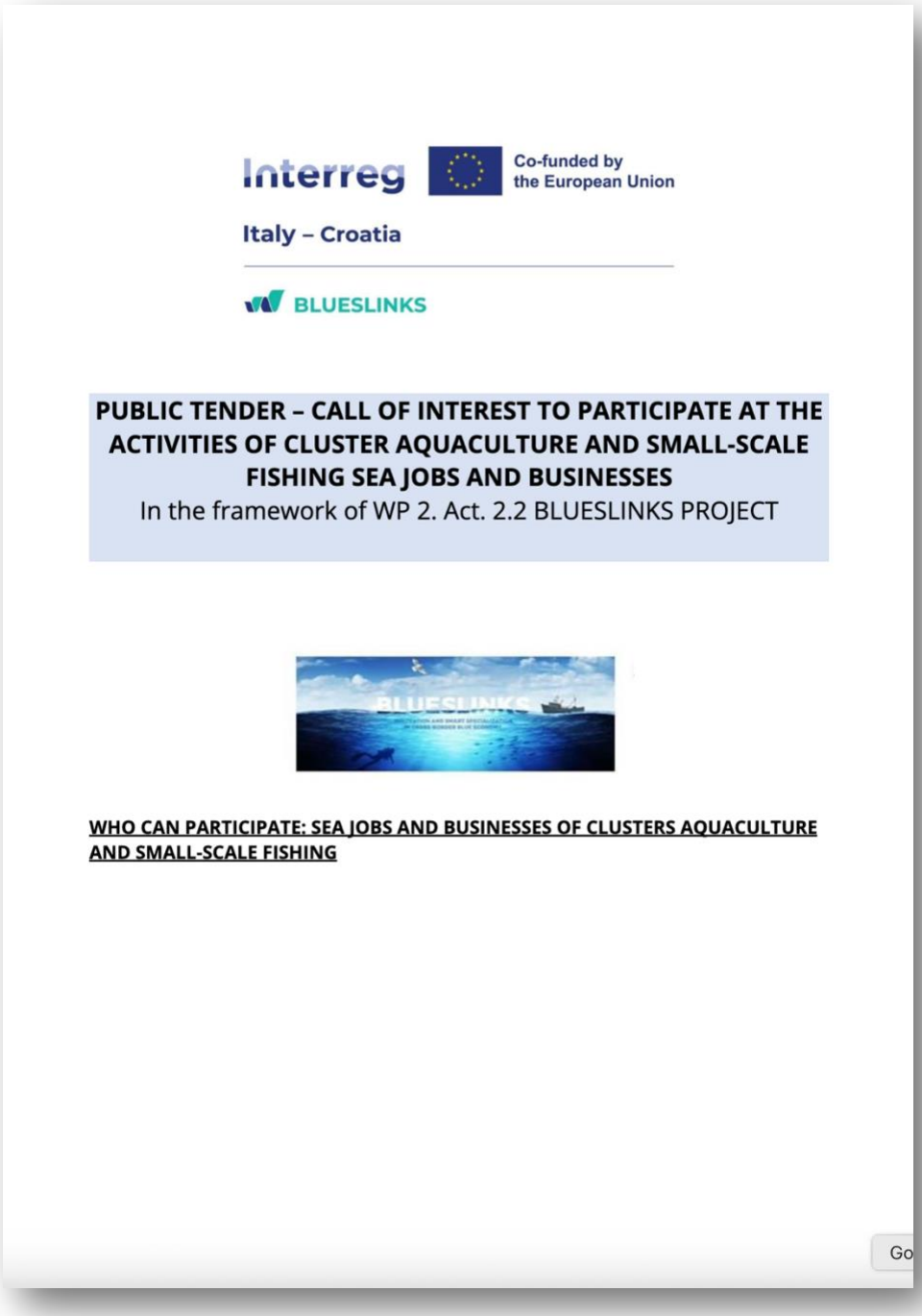
Veneto Region
Area for Economic Policies, Human Capital and Programming of European Funds
Directorate for Joint Programming
Dorsoduro, 3494/A - 30123 Venezia Italy
italia.croazia@regione.veneto.it
italia.croazia@pec.regione.veneto.it
+39 041 2791781
www.italy-croatia.eu
Grazie per la gentile attenzione
Pietro Giorgio Tiscar
pgtiscar@unite.it

7. *Vadis Paesanti - Fedagripesca Emilia Romagna (esperto LP DELTA 2000)*

Specie invasive in acquacoltura: criticità e possibili soluzioni

This presentation is available as video.

14. Call for interest in info day fisheries and acquaculture



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PUBLIC TENDER – CALL OF INTEREST TO PARTICIPATE AT THE ACTIVITIES OF CLUSTER AQUACULTURE AND SMALL-SCALE FISHING SEA JOBS AND BUSINESSES
In the framework of WP 2. Act. 2.2 BLUESLINKS PROJECT

WHO CAN PARTICIPATE: SEA JOBS AND BUSINESSES OF CLUSTERS AQUACULTURE AND SMALL-SCALE FISHING