



Blu Marine Service Soc Coop

BLUE PACKAGING PROJECT

D. Emanuele Troli

Company overview

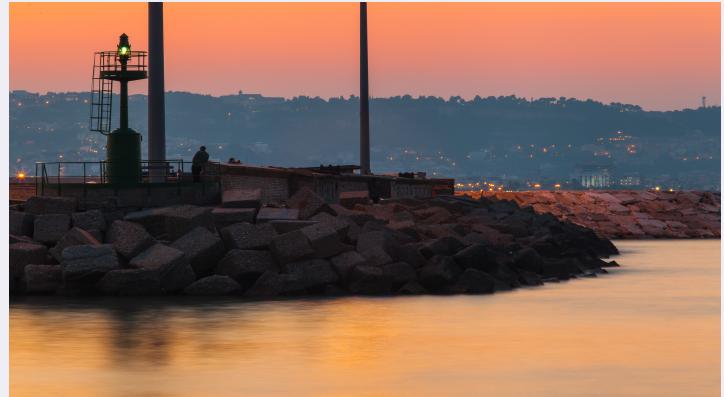
The Blu Marine Service operates with the purpose to match the **conservation of the territory and the marine environment** with the exigencies of the socio economical development;



Stefano Buttafoco
ARTIFOTOGRAFICHE

Our Mission is to **actively transfer to companies operating in fishery, aquaculture and environmental sectors; technical expertise and managing capabilities to be used for a responsible managing of the natural resources.**

The main goal of the company is to insure a **sustainable exploitation of the resources aiming at the preservation of the occupational level and workers' income.**



Company approach

Blu Marine Service is a well-established and efficient company, working in national and international sectors of managing, improving and protecting the marine environment.

The scientific and technical ability, the competence and high skills, the equipment and instruments, are the resources that the company use for implementing projects in the marine field.

Blu Marine Service successfully operates in a number of different sectors: **the maritime environment and marine biology; coastal management; environmental and landscape engineering; fishing and marine culture and traditions; tourism; and the provision of monitoring and analytical services for managing the research studies.**

Furthermore, in recent years Blu Marine Service has also engaged in the applied research sectors considering the environment as a dynamic system to protect and manage, physically, naturally and anthropologically.

Company approach



**Blu Marine Service
Soc Coop**
(San Benedetto del Tronto,
Italy)

- Applied Marine Research
- Coastal management
- Environmental and landscape engineering
- Fishing and marine culture and traditions

MISSION:

to transfer technical know-how and management skills to productive sectors to manage natural resources sustainably.



MAIN GOAL:

to ensure a sustainable exploitation of marine resources in order to preserve ecosystem conservation.

Project's Location



Project's focus: Marine Litter

All the latest scientific studies are confirming that there is a serious risk that **plastics are entering in the food chain** of marine organisms, with high risks for human health.



The packaging actually used in the fishing sector is made in **EPS Expanded polystyrene** and it's used along all the stages of production and distribution of seafood chain and, once absolved its function, normally is thrown in the garbage.



Polystyrene could be recycled and reused after appropriate treatments, but the supply chain in the fishing sector is complex and present some critical issues that make **almost impossible the recycling process**.

Fishing sector - environmental impact



The boxes are loaded on board of vessels and then landed with the fresh product at the fish market; after the sale, are usually stored in the warehouses of traders and/or delivered directly to intermediates or final customers



Fishing sector - environmental impact



The **polystyrene is not biodegradable in the environment and remains unchanged for decades**, with the possibility to shatter into **small pieces**. The fragmentation of polystyrene boxes makes this material very polluting, because with the collapse of its structure, composed of granules, becomes complicated and difficult, **if not impossible**, its removal from the coasts.



EPS environmental impact

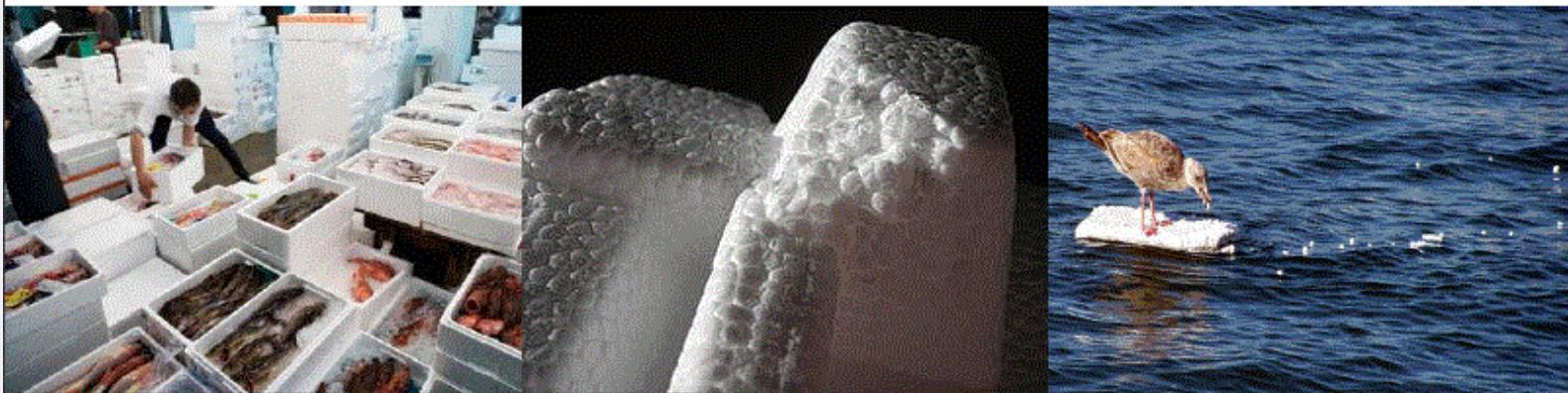
EPS (Expanded Polystyrene) in the fishing industry

PROS

- Lightweight
- Hygienic & Safe
- Insulating
- Waterproof
- Cost-effective

CONS

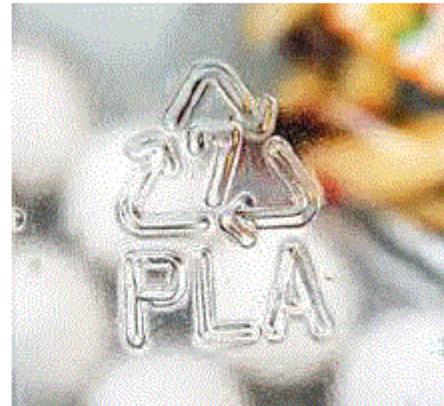
- Petroleum-based
- Non biodegradable (aprox. 1000 years)
- High risk of fragmentation into small pieces
- High risk to enter in the marine food chain
- Less suitable for recycling (fish residues and malodorous fluids)



New Ecosustainable material

New alternative material

Biopolymers or Bioplastics:
obtained from renewable raw materials
instead of fossil fuels



An example of biopolymer is **Polylactic Acid (PLA)** which is obtained by the fermentation of dextrose obtained from corn starch, sugarcane, etc.

The innovative material is the **BioFoam 100% bio-based PLA foam**, physically and mechanically comparable to EPS but also **biodegradable and compostable**

The New biobased material



Blue Packaging Project



Reduce packaging waste at source by using alternative materials in the fisheries sector



AWARENESS

Raise awareness about the sources and consequences of marine plastic pollution



INNOVATION

Promote packaging innovations to prevent production and use of plastic at source



COLLABORATION

Generate synergies to develop concrete solutions to reduce plastic waste

Basis and characteristics of the Project

The **BLUE PACKAGING** project consist in a continuation of a previous project financed by the **European Fishery Fund (EFF)**, where the Blu Marine Service has conducted a **market research worldwide, in order to find and test different packaging materials, with the objective to find an ecosustainable alternative to the polystyrene (EPS) boxes in the fishery sector.**

The initiative have foreseen a series of **concrete actions** in order to facilitate and disseminate the opportunity to use a **new packaging** in the fishing sector based on a material obtained by natural resources, that have the important characteristic to be **biodegradable and compostable** in substitution of the boxes, actually used in the sector that are non biodegradable.

Global goal and means of action

General Objectives

- 1) **Raise awareness** of both the public and institutions concerning the sources and consequences of plastic pollution in particular in the fishing sector.
2. **Support the implementation of regulations concerning plastic**, in particular in the municipalities involved in the initiative in order to organise a correct waste management and reduce waste transforming packaging in compost.
3. **Generate synergy between the various players** involved in “plastic” in order to facilitate the implementation of concrete solutions to combat plastic pollution, in particular showing the opportunity to use new biodegradable materials.
4. **Arise awareness and involvement of sea users** (wholesalers, sea food industries, local communities, waste management companies, etc.) to limit the use of plastic in their activities (fishing, aquaculture, selling, waste management).
5. **Disseminating and deploying the innovations** in the packaging sector in order to limit the production and the use of plastic in the marine field.

Global goal and means of action

Through this initiative, that it has been implemented in collaboration with local players committed to combating plastic pollution, aimed to achieve the following important goals:

- To implement **concrete initiatives** in order to change social behaviour with regard to the unsustainable use of plastics
- To **develop the capacity of local players** to find and use alternatives biodegradable materials
- To **disseminate good practice**, both with regard to plastic waste management and the implementation of alternative products
- To **facilitate the creation of a Mediterranean network** (with the dissemination activities in Italy and in Spain) committed to fighting plastic pollution with concrete actions

Global goal and means of action

ACTION 1

Organisation of **3 workshops** in order to raise awareness concerning plastic pollution among the local stakeholders.

1. Workshop in San Benedetto del Tronto (AP) (Marche region)

2. Workshop City of Martinsicuro (TE) (Abruzzo Region) Small scale fishery market

3. Workshop in Barcellona (Spain)

During the workshops, that involved all the stakeholders (municipalities, stakeholders, waste management company, sea food wholesalers, etc.) are been illustrated the following arguments:

- **The marine litter and the plastic pollution problem.**
- **The environmental impact of the use of plastic in fishing and aquaculture activities.**
- **The solutions available for reducing plastic in the sea and on the coast line.**

Global goal and means of action

ACTION 2

To the companies involved in the initiative it has been delivered a **sample supply of biofoam boxes** in order to permit an evaluation for the future utilisation.

1500 boxes in total will be free delivered (500 in Italy - 1000 in Spain)

Waste management companies had a great opportunity to gain competences in the biobased product waste management, infact many thecnical aspects were analysed and resolved thanks to the opportunity of this pilot project, that permitted to analyse and test the procedures on the ground. All the boxes used were transformed in compost.

ACTION 3

Establishment of a label of the initiative in order **to give evidence to the public the commitment in implementing concrete actions to limit plastic in everyday use of polystyrene boxes.**

The New biobased material

PLA resembles EPS very well

	BioFoam®		EPS	
Thermal conductivity (MW/m·K)	35 g/l	34	33	30 g/l
Bending strength (kPa)	35 g/l	300	300	30 g/l
Compressive stress @ 10% deformation (kPa)	40 g/l	200	200	30 g/l
Compressive modulus (MPa)	40 g/l	4.0	3.0	30 g/l
Shear strength (kPa)	35 g/l	140	250	30 g/l
Shear modulus (kPa)	35 g/l	2.7	3.1	30 g/l
C-value (-)	35 g/l	2.6	2.7	30 g/l

The New biobased material

Worldwide market research

- light
- rigid
- excellent insulator
- high shock absorbing capacity
- impermeable to moisture
- hygienic
- complete freedom of 3D design
- durable, mold-resistant and UV-resistant
- not dangerous to health
- biomass derived
- renewable feedstocks
- biodegradable and compostable

EPS technical features

Alternative material



The New biobased material

- Based on GMO-free resources;
- Based on renewable feedstock: low carbon footprint;
- Biodegradability = additional & sustainable end-of-life option

COMPOST- BIOGAS



The New biobased material



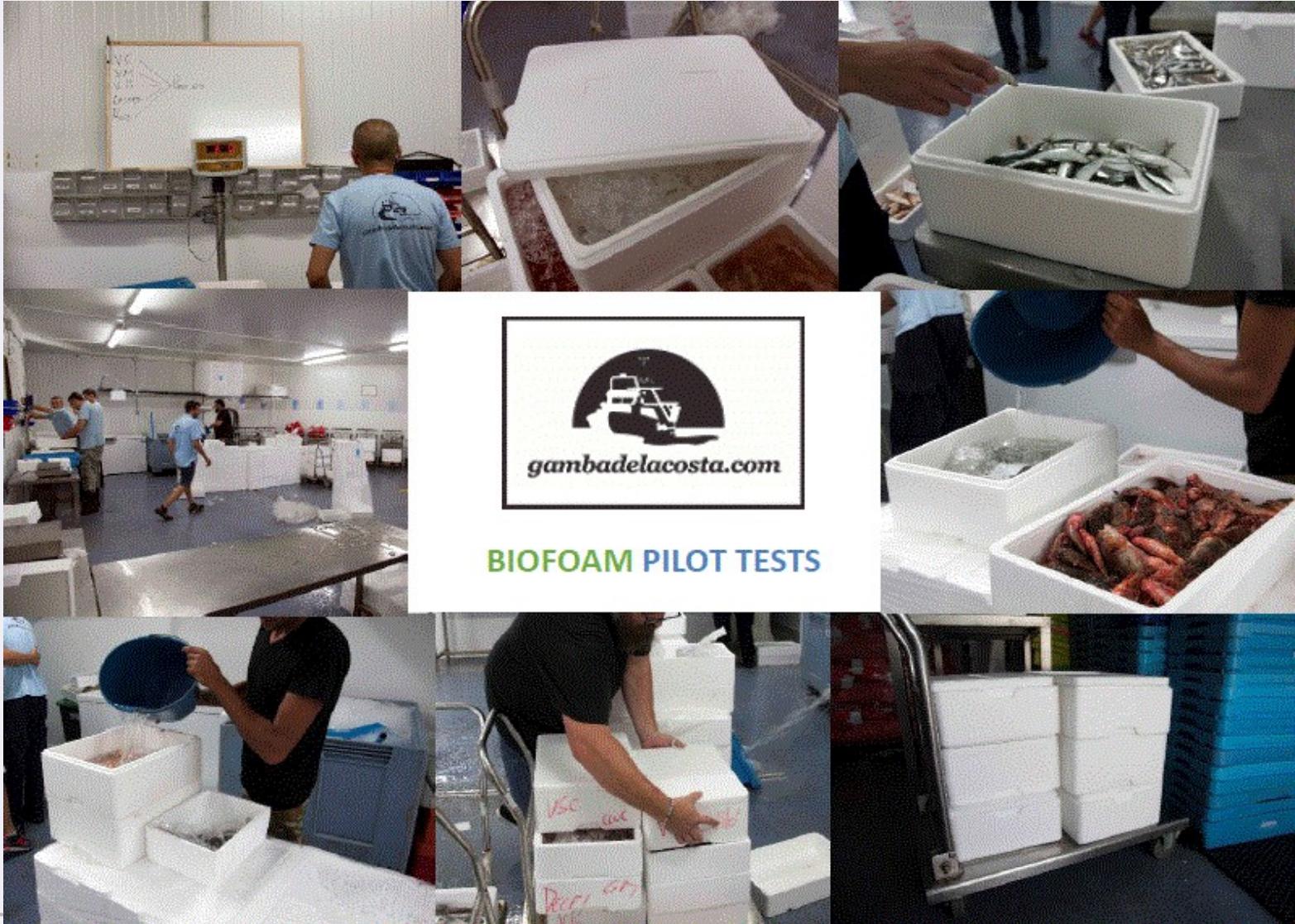
Biodegradable: capable of being biodegraded (partially or completely converted to H₂O, CO₂ / CH₄, energy and new biomass by microorganisms).

Compostable: capable of being biodegraded and converted into compost at elevated temperatures in soil under specified conditions and timescales (usually encountered in an industrial composter).

The commitment of the stakeholders



The commitment of the stakeholders



The commitment of the stakeholders



BIOFOAM
INDUSTRIAL COMPOSTING
PILOT TESTS



The commitment of the stakeholders



SWOT Analysis

Strengths	Weaknesses
no petroleum based product	high cost of the product in PLA compared to EPS
obtainable by renewable resources	low sensibility from local authorities respect the problem
same characteristic of EPS	different degrees of commitment by the local players
biodegradable and compostable	different degree of development of recycling activities in different countries/ports
no toxicity for marine environment	few companies in the fishing industry able to enhance the value of the packaging
pilot project easily replicable	industrial composting plants are not familiar with bioplastic treatment
Opportunities	Threats
added value driver for fish product	obstacles to the market entrance to alternatives material
diffusion of the use of biodegradable and compostable bioplastics	no general approach to the fishing sector waste in the european countries
possibility of huge savings for waste management	
zero waste from fishery sector activity	
applicable to different sector food and domestic appliance	



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Stop Plastic

Act Now !!!

