



FARNET TRANSNATIONAL SEMINAR FOR FLAGS
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Integrating aquaculture within local communities

From crushed shells to 3D printing

NORTH SARDINIA FLAG
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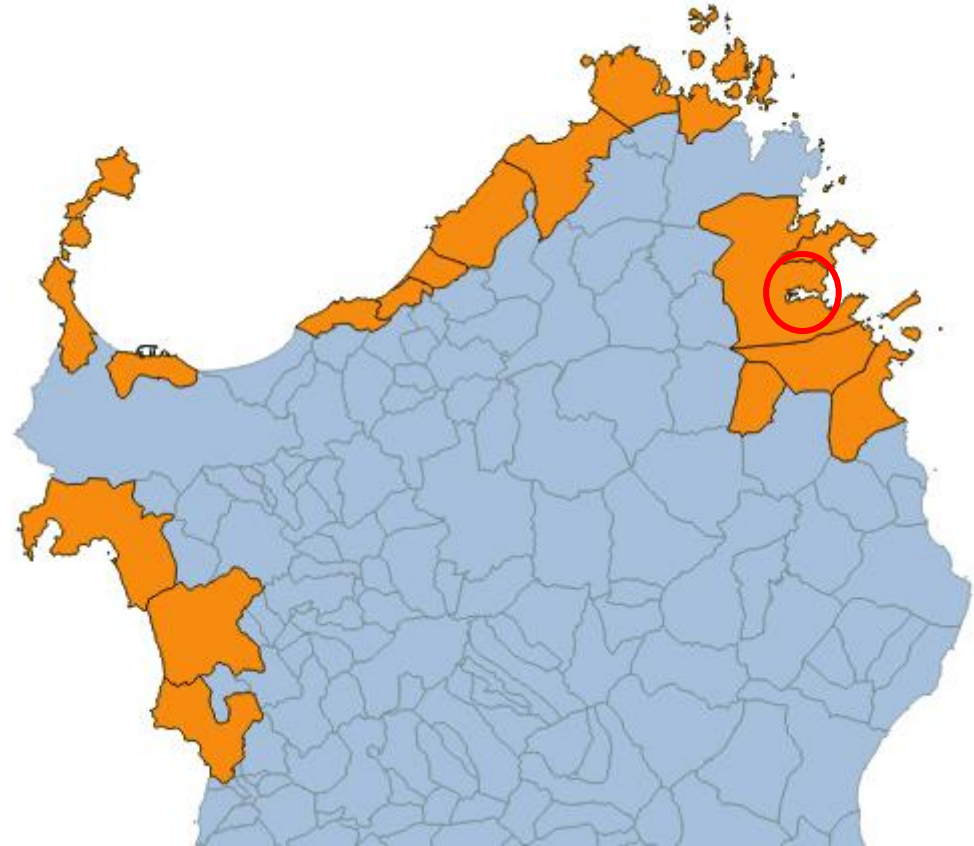
CONTEXT

- Mussels are the most produced and consumed shellfish in Europe.
- Actually mussels are mostly sold fresh or processed (frozen or pre-cooked).
- The shells of fresh mussels are considered waste, and only a small part is destined to other uses as a byproduct (mineral supplements, litter for stables, corrective pH of soils, etc.).
- At Olbia are produced 35,000 quintals per year of fresh mussels, all sold on the markets of Sardinia and Central Northern part of Italy; about 1/3 of the weight is represented by shells, so about 10,000 quintals per year become waste.
- Our idea is to encourage the recovery of shells of mussels or other molluscs, excluding them from the waste cycle, through their non-traditional use oriented to the creation of objects, using 3D printing in the production of matrices.





North Sardinia Flag



NORTH SARDINIA FLAG

General information

- 1,947 km²
- 931 km of coastal line, from east to west
- 124.275 people in the area
- 56 partners: composition

Sector	Number	%
Fishing	14	25
Acquaculture	9	16
Private organizations	11	18
Public administrations	22	41

NORTH SARDINIA FLAG

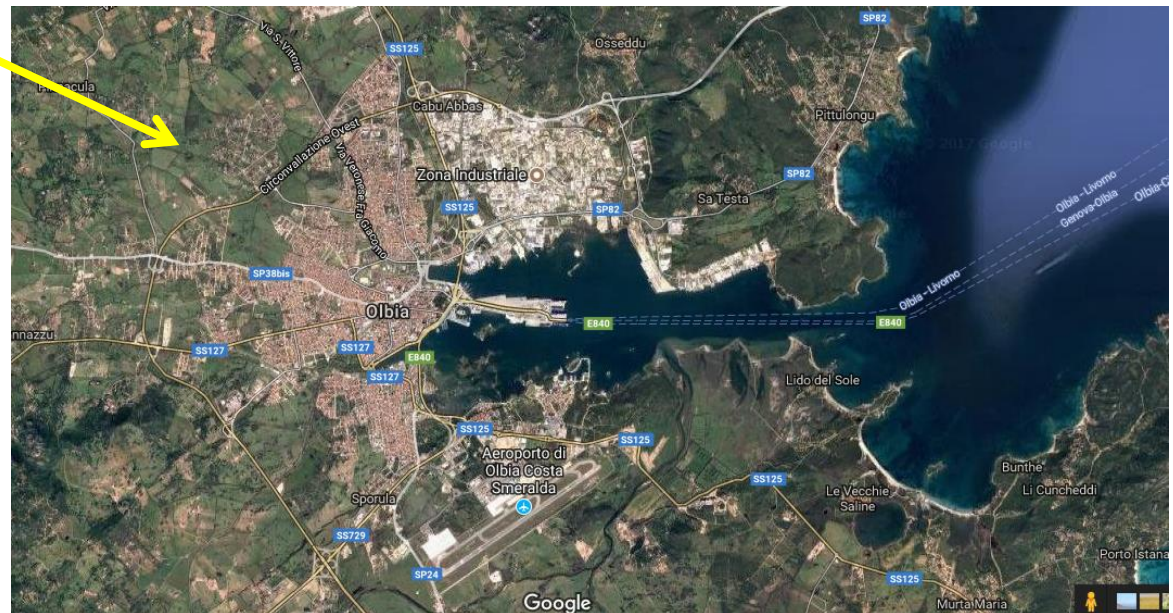
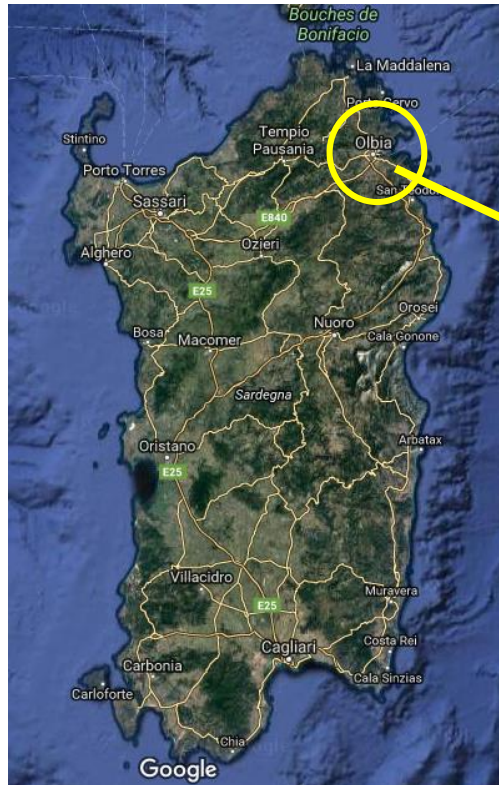
General information

Summary of CLLD: the main objectives of the strategy of the CLLD

- Implementation and diversification of a local fishery policy
- Retaining/increasing incomes related to fishing and aquaculture activities
- Enhancing territorial quality as leverage for development
- Market expansion and cooperation
- Improving and adding fisheries operators new skills and new professional profiles
- New start up setting in FLAG area

DOVE SIAMO

OLBIA



IL CONSORZIO MOLLUSCHICOLTORI DI OLBIA



OBJECTIVES OF THE PROJECT

1. To offer new opportunities for using molluscs shells
2. To increase the sensibility of local communities and municipalities in the management of wastes, highlighting how these can become a new resource
3. Reduce the amount of waste by reclaiming shells as a byproduct
4. Create new businesses and new jobs

PARTNERS

The stakeholder involved are:

- The creators: the professional school of Olbia and some of their teachers (www.istitutoamsicora.gov.it/amsicora/ipia-olbia-link.html)
- The producers of molluscs: Consorzio Molluschicoltori di Olbia (18 cooperatives with about 90 workers)
- North Sardinia FLAG (www.gacnordsardegna.it)
- The Municipality of Olbia

METHODOLOGY

Today the project is at the stage of realization of prototypes based on a mix of grinded shellfish and different resins in different proportions.

Le fasi del progetto sono:

1. Prototyping (2017)

- Imagination and design of the object
- realization of the matrix with the use of the 3D printer
- realization of the silicone mold useful for casting resin
- choice of resin to be used and mixing with shells at shredding variable levels (1 mm $< \varnothing <$ 3-5 mm)
- pouring into molds and rest waiting for solidification
- finishing the product

METHODOLOGY

2. Drafting a business plan and looking for funding (2018)

3. Implementation of a start-up and launch of a new business (2018-2019)

We also intended to involve the local public administration, the municipality of Olbia, in order to facilitate the recovery of shells in productive activities, by proposing tax incentives to companies that want to collect shells and not throw them as waste (ex. reduction of local tax on waste)

Furthermore, FLAG North Sardinia intends to launch a further project (PO Maritime -) for the construction of a small shell crushing plant to be used for pH (pH correction) of acidic soils in our territory, Gallura.

RESULTS

At the moment the first results of this project have led to the creation of several prototypes that clearly make us hope for the future.

In fact, it is possible to produce both large artifacts (kitchens plans or tiles or still mosaics) or small objects or anything else that man's creativity wants to achieve thanks to 3D printing.

It is therefore possible to combine creativity with technology and at the same time be respectful of the environment through the containment and recovery of food waste for new creations or uses.

THE REALIZATION OF AN OBJECT



THE REALIZATION OF AN OBJECT



SOME OBJECTS



Real
granite

Not
real
granite



Thank you for your attention