



# AquaVitae

## Case study 12 - Use of by-products

### KEYWORDS

Bivalve shells, non-commercial mussels, fisheries previously discarded biomass, CO<sub>2</sub> storage, valorisation

### SPECIES

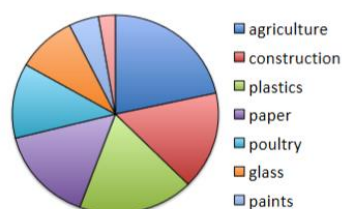
- *Mytilus galloprovincialis*
- *Sardina pilchardus*
- Multiple fishery species previously discarded from Galician trawlers

### GEOGRAPHICAL BOUNDARIES

Case study 12 will take place in the Eastern Atlantic with a focus on activities in Galicia (Spain), Algarve (Portugal) and Western Cape (South Africa). In addition, we will link to activities of cases studies 8 (Sweden) and 9 (Denmark) with bivalves (mussels and oysters).

### GOALS

- To promote shellfish aquaculture production as a CO<sub>2</sub> storage activity through shell CaCO<sub>3</sub> valorisation.
- To provide diet ingredients for finfish aquaculture from side-streams of fisheries and shellfish aquaculture activities.

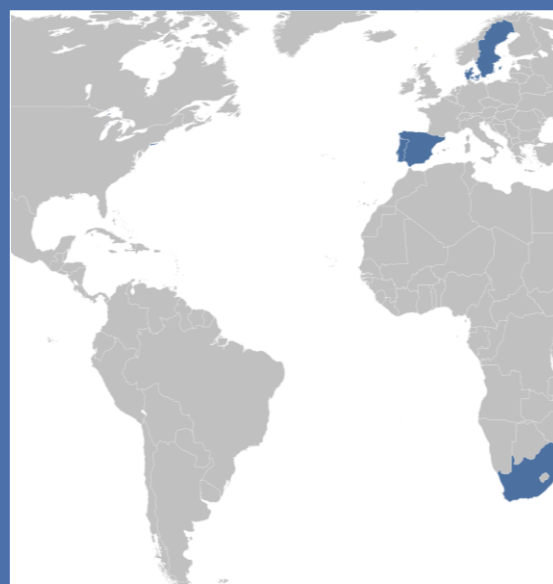


Potential sectors for effective CO<sub>2</sub> storage.



### AT A GLANCE

- Project period: 2019 – 2023
- Assess the CO<sub>2</sub> storage potential of shellfish aquaculture
- Promote the eventual inclusion of shellfish aquaculture in the carbon trading system
- Propose low carbon footprint uses of shell CaCO<sub>3</sub> : environmental application (ocean alkalisation) and industrial application (ecological paint)
- Produce high quality ingredients (e.g. hydrolysed proteins) from fishery previously discarded biomass, fish frames and non-commercial mussels
- Use these ingredients to produce high quality aquafeeds for marine aquaculture fish juveniles



## CHALLENGES

- To obtain reliable biological carbon footprint estimates for shellfish aquaculture activities.
- To promote low carbon footprint – high added value and long intertization time applications for shell  $\text{CaCO}_3$ .
- To valorise ingredients from fishery previously discarded biomass, fish frames and non-commercial mussels as aquafeeds for finfish juveniles.

## EXPECTED RESULTS

- Assessment of the biological carbon footprint of shellfish aquaculture:  $\text{CO}_2$  storage and potential for incorporation in the international carbon trading system.
- Proposal of Galician (NW Spain) coastal waters alkalisation, main mussel producer in Europe.
- Use shellfish  $\text{CaCO}_3$  to produce ecological paints.
- Production of high quality ingredients from fishery and mussel aquaculture side-streams for aquafeeds.
- Assessment of a full set of performance indicators in gilthead seabream fed diets formulated with ingredients from fisheries by-catch and aquaculture side-streams.

## EXPECTED USERS

- Government:  $\text{CO}_2$  storage in bivalve shells (carbon trading economy) and ocean alkalisation
- Coating industry: shell  $\text{CaCO}_3$  for ecological paints production
- Agrifood industry: aquafeeds

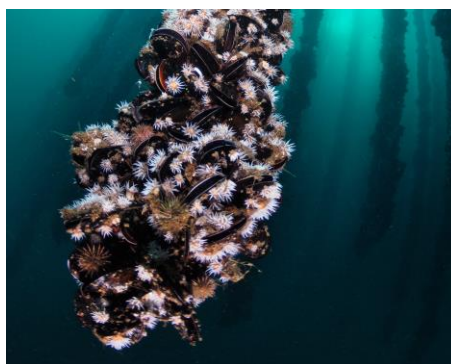
## WORKPLAN

Estimate the biological carbon budget of Galician, Danish and Swedish mussels, calculate their  $\text{CO}_2$  storage and propose shell  $\text{CaCO}_3$  applications to promote their eventual inclusion in the carbon trading economy.

Produce high quality ingredients from fishery previously discarded biomass, fish frames and non-commercial mussels and test them in aquafeeds for gilthead seabream juveniles.

## TEAM

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