



# **rAqua** ORGANIC EXTRACTIVE AQUACULTURE: STATE OF THE ART AND CHALLENGES



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**Ifremer**



Context	State of the art	Regulation	Case study	Challenge & perspectives
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- Contrary to fish and shrimp (transformation aquaculture), most of the molluscs productions rely on **natural food webs**

## Extractive aquaculture

- Shellfish are highly depending on the quality of their **surrounding environment**
- Shellfish production should comply with strict sanitary regulations



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# Sanitary criteria

*EU directive for non organic and organic products*

- Faecal contamination:
  - $< 230$  *E. Coli*/100g Flesh and Intravalvular Liquid
- Phytoplankton toxic species thresholds :
  - *Alexandrium*  $< 1000$  to  $10\ 000$  cells /l
  - *Pseudonitzschia*  $< 100\ 000$ - $300\ 000$  c/l
  - Dinophysis  $< 0$  to  $500$  cells/l
- If  $>$  thresholds, toxins screening :
  - PSP  $< 800\ \mu\text{g.kg}^{-1}$  equ.STX
  - ASP  $< 20$  mg domoïc acid/ kg flesh
  - DSP  $< 160\ \mu\text{g.kg}^{-1}$



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# European organic shellfish : state of the art

- **Main producers**

**Ireland, Scotland, Denmark, France**

- **No precise data available**

- **France situation (source: Agence Bio)**

- 50 farms (oysters +mussels) registered
- 10% of total volume sold as organic
- Around 450 tons

- Since 2010, +40 % in aquaculture products consumption





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# Organic rules for shellfish

- Council Regulation (EC) No 834/2007 on organic production and labeling of organic products
- “ an overall system of **farm management** and food production that combines **best environmental practices**, a high level of **biodiversity**, the **preservation of natural resources**, the application of high animal **welfare** standards”
- Main criteria for shellfish are based on Water quality

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# Organic rules for bivalves

- Water quality**

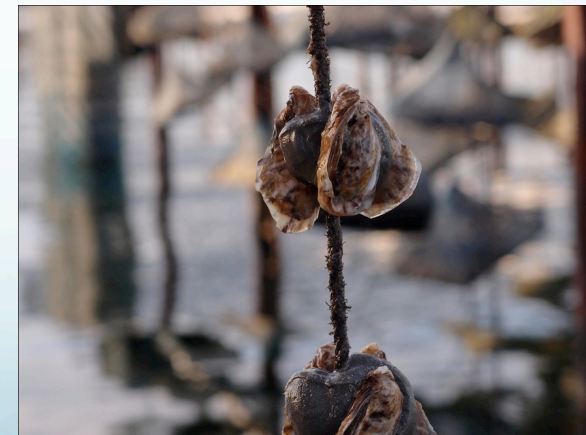
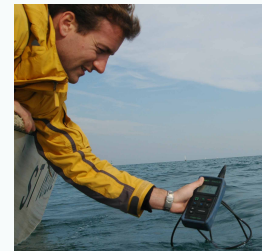
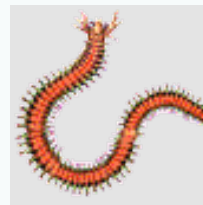
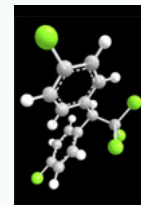
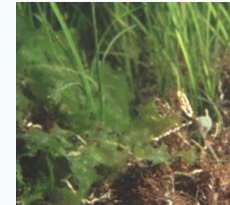
Water directive good status required

Ecological and chemical indicators

- Conversion period = 3 months**

- Growing area**

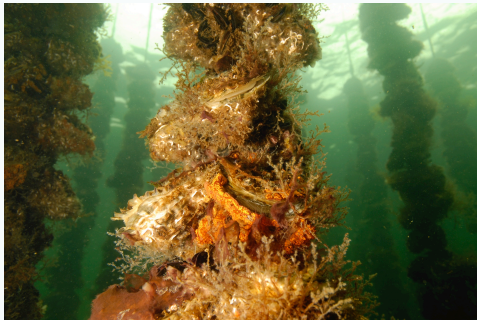
- Strictly delimited
- Minimise risks to species of interest
- May be carried out in polyculture if finfish and seaweed are organic





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- **Production systems**
  - **No exclusion**
  - **Density** < of that used for non-organic
  - Ensure welfare & high product quality
  - For oysters, no specification
  - For mussel
    - Nb of ropes < 1/m<sup>2</sup>
    - Drop-rope length < 20m
- **Sourcing of seed**
  - **Traceability** is necessary
  - Only **diploids** spat for oysters; wild seed can be used
- **Management**
  - **Biofouling** removed by physical means or by hand
  - Health **management** plan : biosecurity and disease prevention



# French case study: Thau lagoon



- 75 km<sup>2</sup>
  - 93 600 inhab. (+35% by 2030)
- supports many uses**
- 10% french production
  - 600 farmers
  - 150 fishermen
  - First SPA site (48 000 visits/y)





# Organic certification in Thau lagoon



- 7 farms
- 180 t/year = 3% of total production
- Capacity will be increased
  - Thau : 30 producers gave draft of intent
  - Another Mediterranean area begins procedure
  - Atlantic coast : to be developped

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# Organic in Thau: Balance sheet

- **Main difficulties**
  - Macrophytes and chemical status of the water body
  - Conflicts on space use (mixity)
- **Added value of organic**
  - Marketing (+20%)
  - Environmental management plan
    - From spat to product sale
    - Footprint: water/electricity, waste management
  - By products valorisation





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# Challenges for the organic label

- Are indicators all relevant ?
- How can the environmental management be better taken into account ?
  - **Cultural practices** : stocking density and waste management
  - **Traceability** with tools to enable co-production (organic / non-organic)
  - **Global sustainability** of the production
- What positive impacts on production area, product quality and safety ?
  - Filling ratio
  - Level of contaminants
  - Pre-sale conditioning possibilities
  - **To be demonstrated in the coming years !**



# Thank you for your attention



Intégrer les bâtiments  
dans le paysage

Faire contrôler son exploitation par  
un organisme certificateur agréé  
par les services de l'État

Favoriser les énergies  
renouvelables

Séparer strictement  
les produits bio et non bio  
(dans le temps ou dans  
l'espace)

Préservation  
de la ressource

Élaborer un Plan de Gestion  
Durable visant à réduire  
l'impact de l'activité sur  
l'environnement  
(rejets, déchets...)

Utiliser des coquillages  
diploïdes issus du captage naturel  
ou d'écloseries bio  
(triploïdes interdites)