

The present research is carried out with the aim of investigating the impacts of the establishment of biofoulants in the Greek aquaculture. The questionnaire is ANONYMOUS and does not contain any information that leads to the identification of the respondent. Your answers will be evaluated to serve the purpose mentioned above.

- Date of interview
- Questionnaire number
- Interview area

A. Farming issues

A1. Farming species

Mussels ☐ Oysters ☐ Others ☐.....

A2. Farming capacity.....Annual production (2020).....

A3. Surface area.....Depth (minimum-maximum).....

A4. Farming area

.....

A5. Starting year of the farming

.....

A6. Characteristic of farming units

A. Type of farming




Floated ☐ Hanging Rafts ☐ Bottom ☐ Other ☐

A. Farming equipment

Socks (Pergolari) ☐ Ropes ☐ Trays ☐ Other ☐

B. Problems during the farming

B1. Which of the following species is identified as a problem in the breeding units (from 1 = most important to 3 = less)

Species	Photo	Degree
Ascidian <i>Clavelina sp</i>		
Gastropod <i>Rapana verosa</i>		
Sponge <i>Paraleucilla magna</i> (photo from [78])		

B2. When does the problem date for each of the following species?

Species	Year
Ascidian <i>Clavelina</i> sp	
Gasteropod <i>Rapana verosa</i>	
Sponge <i>Paraleucilla magna</i>	

B3. Rate the severity of the problem for each of the following organizations?

Species	Μεγάλος	Μέτριος	Ελάχιστος
Ascidian <i>Clavelina</i> sp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gasteropod <i>Rapana verosa</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sponge <i>Paraleucilla magna</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B4. Has their abundance (+/-) changed in the last 5 years?

Species	Increase	No change	Reduction
Ascidian <i>Clavelina</i> sp			
Gasteropod <i>Rapana verosa</i>			
Sponge <i>Paraleucilla magna</i>			

B5. Are invasive species present every year (in the last five years)?YES ☐NO ☐**B6a. What is the effect of the presence of ascidians on the farming process?**

Issues	Low	Moderate	High
Reduction of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overlapping of species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decrease growth rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase mortality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appearance of diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Size dispersion of species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B6b. What is the effect of the presence of gasteropods on the farming process?

Issues	Low	Moderate	High
Reduction of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overlapping of species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decrease growth rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase mortality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appearance of diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Size dispersion of species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B6c. What is the effect of the presence of sponges on the farming process?

Issues	Low	Moderate	High
Reduction of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overlapping of species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Decrease growth rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increase mortality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appearance of diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Size dispersion of species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B7. Please rank (from 1 = most commonly used to 6 = least used) the methods you use to control and manage biofoulants.

Method	Ascidian <i>Clavelina</i> sp	Gasteropod <i>Rapana verosa</i>	Sponge <i>Paraleucilla magna</i>
Manual removal			
Air exposure			
Sun exposure			
Brushing			
Washing			
Frequent dilutions			

B8. Rate from 1 to 6 (1 = Very Strong, 2 = Strong, 3 = Moderate, 4 = Slight, 5 = Minimal, 6 = None) the effect of the above species on farming production per month.

Months after the impact	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

C. Final product and costs

C1. Rate the degree of negative impact on the final product by the following species?

Species	Low	Moderate	None
Ascidian <i>Clavelina</i> sp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gasteropod <i>Rapana verosa</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sponge <i>Paraleucilla magna</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C2a. Which factor and to what extent does the presence of ascidians affect? (More than one answer may be given)

Issues	Low	Moderate	None
Reduced amount of flesh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide variation in sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced sale price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product returns-rejections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced product life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C2b. Which factor and to what extent does the presence of gastropods affect? (More than one answer may be given)

Issues	Low	Moderate	None
Reduced amount of flesh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide variation in sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced sale price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Product returns-rejections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced product life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C2c. Which factor and to what extent does the presence of sponges affect? (More than one answer may be given)

Issues	Low	Moderate	None
Reduced amount of flesh	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide variation in sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced sale price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product returns-rejections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced product life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C3. For which of the following species and by what % does it increase the cost of management?

Species	0–10%	11–30%	30–50%	>50%
Ascidian <i>Clavelina</i> sp				
Gasteropod <i>Rapana verosa</i>				
Sponge <i>Paraleucilla magna</i>				

C4. To what extent and for which of the following factors the presence of each biofoulant affect the annual cost of production?

Issues	Ascidian <i>Clavelina</i> sp			Gasteropod <i>Rapana verosa</i>			Sponge <i>Paraleucilla magna</i>		
Repairs and maintenance	Low	Moderate	None	Low	Moderate	None	Low	Moderate	None
Labors	Low	Moderate	None	Low	Moderate	None	Low	Moderate	None
Fuel-Energy	Low	Moderate	Low	Moderate	None	Low	Low	Moderate	None
Packaging-Sale	Low	Moderate	Low	Moderate	None	Low	Low	Moderate	None

C5. Estimate the percentage (%) on farming operating cost and sales from the effect of biofoulant.

Issue	0–20%	21–50%	>50%
Reduction in sale price			
Loss of production			
Extra fuel			
Extra Labor			
Repair and maintenance			

C6. Please propose an alternative scenario for managing the impact of biofoulants on the farming process.

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C7. What would be your proposal to the Ministry to address this problem?