Managing shellfish diseases now and in the near future?

Research outcomes from VIVALDI

VIVALDI Final Conference- Brest, 26-28 November 2019

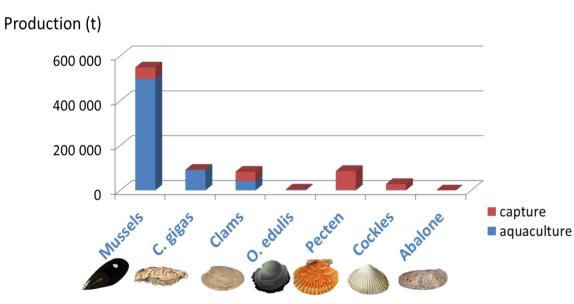






The context

European marine mollusc production





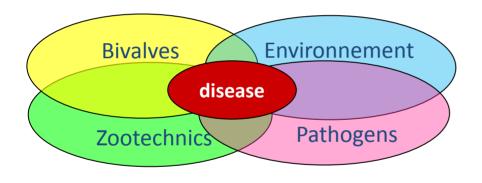
Increase of mortality events

Challenge: Increase the sustainability and competitiveness of the European shellfish industry

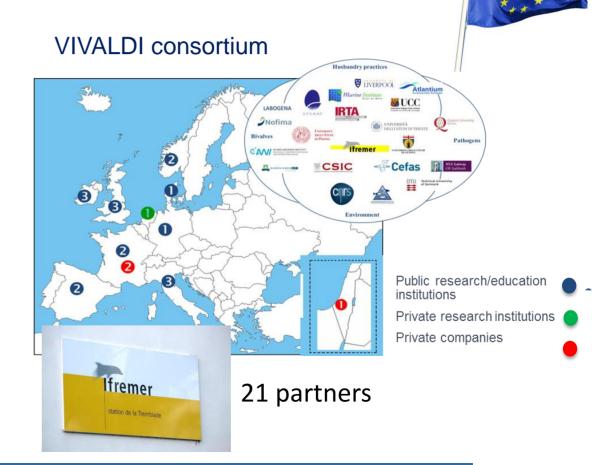


The VIVALDI project: 2016-2020

Better knowledge of factors triggering disease emergence



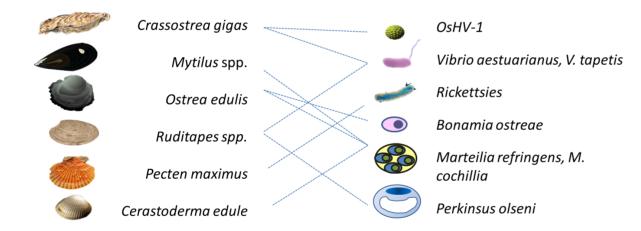
Tools and strategies to prevent control and mitigate impact of diseases





Pathogen organisms

Improved understanding of their diversity and lifecycle





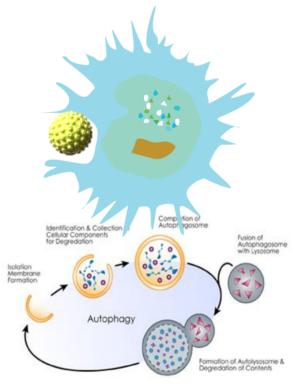
New tools for better detections



Bivalve immunity

Better understand their defence mechanisms







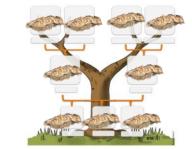
Stimulate their immunity



Selection of resistant bivalves

Identify genetic markers of interest







Optimise breeding programmes



Interactions with the environment



Investigate the impact of environmental factors





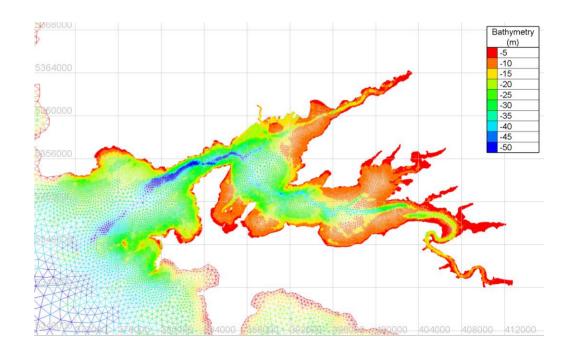
Explore the microbiome



Disease management measures

Strategies to avoid OsHV-1 and decrease mortalities





Improve surveillance of bivalve diseases



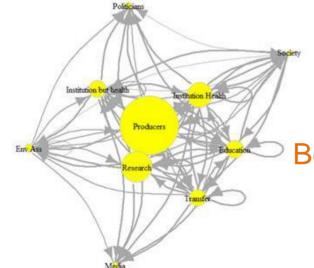
Sharing results





Shellfish health: an international challenge





Co construction of a manual

Better communicate regarding disease management

International network



Sharing results



- 30 deliverables already submitted and 18 due by the end of the project
- 30 Conferences + 8 workshops
- 15 meetings with stakeholders

 35 Publications and much more coming soon

3 days-conference needed to share all these results





Final conference





FINAL CONFERENCE OPEN TO ALL STAKEHOLDERS Brest (F) 26-28 November 2019 Pole Numérique Brest Iroise :

26-27 November Océanopolis : 28 November





Final conference -Objectives

To present research outcomes of the VIVALDI project



To exchange about new advances in understanding shellfish diseases

To collectively identify disease management measures



175 participants registered From Europe and beyond Not only VIVALDI partners Not only scientists

VIVAL DI Final Conference- 26-28 November 2019



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Tuesday 26 November 2019

- Studying pathogen diversity and improving tools for better surveillance (Work package 1) Session moderated 2:45 by David Bass, Work package 1 leader (CEEAS-UK) and Stein Mortensen (IMR, NO)
- Pathogen detection and diagnostics in the light of microbial hyperdiversity, by David Bass, Work package 1 0.00 leader (CEFAS-UK)
- How do OsHV-1 uvars stack up? : a comparison of multiple variants through experimental challenges ·10:20 Burge (Univ. of Maryland Baltimore County, USA)
- Genomic methodologies for bivalve pathobiome characterization and detection, by Alberto Pallavici · 10:40
- -11:10 Coffee break and poster session
- Exploring OsHV-1 diversity at the gene and genome scale, by Deborah Cheslett (Marine Institute--11:30 Benjamin Morga (Ifremer-F)
- -11:50 Maldi-tof: a tool to help characterising bacteria in shellfish by Mirna Moussa-Pouly (Ifremer-F)

Flash presentations :

A-to-I RNA editing against Ovstreid herpesvirus 1, by Umberto Rosani (UNIPD-IT/AWI-DE).

- Bonamia ostreae in Limfiorden in Denmark: when and where, by Lone Madsen (DTU-DK) -12:10 Where can Bonamia ostreae and Marteilia refringens be found outside their bivalve host. Ostrea edulis, by Nicolas Mérou (Ifremer-F)
- Diversity of pathogens of molluscs in Mexico and surveillance tools, by lorge Caceres Martinez (Centro de · 12:30 Investigación Científica y de Educación Superior de Ensenada, México)
- -12:45 Conclusions by moderators

-14:00 Lunch

IT)

Understanding bivalve functional response for alternative methods of prevention and treatmy -17:15 package 2) Session moderated by Antonio Figueras, Work package 2 leader (CSIC-ES) and Paola

- Bivalve disease management based on the knowledge of their immunity: the European advantage, -14:30 Figueras, Work package 2 leader (CSIC-ES)
- The dark matter of the genomes in marine bivalves: long non-coding RNAs as key players, by Cristian Gallardo--14:50 Escárate (Concepción University, Chile)
- Immune priming and transgenerational immune priming in C. gigas, by Caroline Montagnani (CNRS/Ifremer --15:10 IHPE -F)
- Macrophage migration inhibitory factor (MIF) in bivalve immunity, by Paola Venier (UNIPD-IT) -15:30
- -16:00 Coffee break and poster session
- Tissue lesions induced by OsHV-1 µVar and their evolution in time, by Isabelle Arzul (Ifremer-F) ·16:20

Flash presentations :

Mytilus galloprovincialis immunity, by Beatriz Novoa (CSIC-ES)

- -16:40 New advances in autophagy in Crassostrea gigas, by Benjamin Morga (Ifremer-FR), Implication of the type IV secretion system in the pathogenicity of Vibrio tapetis affecting the clam Ruditapes philippinarum, by Alexandra Rahmani (CNRS LEMAR-F)
- Mucosal immunity in bivalves, by Bassem Allam, Stony Brook University, USA ·17:00
- -17:15 Conclusions by moderators
- -17:30 Conclusions of the first day

Wednesday 27 November 2019

- 9:10 Welcome and introduction

- Genetic selection for disease resistance/tol te Lamv **Respect timing** 2:30 Work package 3 leader (Ifremer-F) and Luca
- 9:40 Main achievements in VIVALDI on genetic se Ifremer-F. Work package 3 leader
- Different format of presentations Biotic and abiotic factors shaping the cockle Paulino Martinez (USC-Spain)
 - First steps towards genomic selection in the

Coffee break and poster session

Potential and optimization of breeding progr (SYSAAF-F)

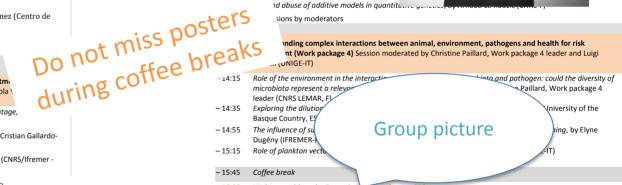
Genomic signatures of selection across mass aigas, by Mathias Wegner (AWI-DE)

- 11:50 Flash presentations :

Selective breeding of Pacific ovster (Crassos by Pauline Kamermans (Wageningen Univ tation with shellfish genomes ; pitfalls, nd abuse of additive models in quantitu...

sions by moderators

unding complex interactions between animal, environment, pathogens and health for risk nt (Work package 4) Session moderated by Christine Paillard, Work package 4 leader and Luigi UNIGE-IT)



Time for questions and conclusions by moderators Welcome address by Francois H

All models are wrong but are some useful in managing shellfish health? by Ed Peeler (CEFAS-UK)

>resentations :

f Environmental factors on pathogen development, by Sarah Culloty (UCC-IE)

- ological indicators as clinical signs of the oyster (Crassostrea gigas) during a disease even, by e Alunno-Bruscia (Ifremer -F)
- emolymph is a complex and dynamic ecosystem hosting bacteria, protists and viruses, by Jean-Michel is (CNRS/Ifremer - IHPE -F)
- s of Perkinsus olseni infection on growth and reproduction of Manila clams, by Albert Choi Kwang-Sik, of Marine Biomedical Science-Jeju National University, South-Korea

usions by moderators

r understanding stakeholders' perceptions regarding VIVALDI's scientific progress in preventing and rolling bivalve diseases, by Coralie Lupo (Ifremer-F)

	Thursday 28 November (Océanopolis)			
	Disease management measures and biosecurity This session will be interpreted in English, French, Italian and Spanish			
- 9:30	- Introduction by Isabelle Arzul, Coordinator of the VIVALDI project			
.0:40	Innovative tools and approaches to better prevent disease emergence and spread Session moderated by Dolors Furones, WP5 leader (IRTA-ES)			
9:45	Application of genomic tools and perspectives, by Romain Morvezen (SYSAAF-F)			
10:00	Novel biotechnological strategies for the detection of ostreid herpesvirus, by Mònica Campa	as (IRTA-ES)		
- 10:15	Biosecurity measures and inactivation of pathogenic organisms in shellfish aquaculture faci Christophe Stavrakakis (Ifremer-F)	liti	Still	
- 10:20	Simulating bivalve immunity, by Beatriz Novoa and Rebeca Moreira (CSIC- ES)		postors	
- 10:40	Discussion		posters	
- 11:00	Coffee break			
- 12:20	What is the impact of the environment on shellfish health? Session moderated by Ed Peeler, (CEFAS-UK)			
- 11:15	Shellfish farming in an era of rapid changes, by Fabrice Pernet (Ifremer-F)			
- 11:30	A life in flux: effects of environmental parameters and extreme events on Pacific oyster perj and pathogen development, by Sarah Culloty (UCC-IE)			
- 11:45	Impacts on Public and Shellfish Health - Potential for a One Health Approach to Monitoring Dore (Marine Institute-IE)	?, by Bill		
- 12:00	Which models can we developed in order to better anticipate the impact of global environm changes on shellfish health, by Cédric Bacher (IFREMER-F)	ental		
- 12:20	Discussion			
- 12:50	Strategies for mitigating ostreid herpesvirus 1 in Crassostrea gigas hatchery and nursery s Dolors Furones, Work package 5 leader			
- 14:00	Lunch	V	IVALDI	
2,0%		١	Video	
- 17:15	Elaborating recommendations for management measures and biosecurity together with stakeholders Session moderated by Dolors Furones (IRTA-ES) and Isabelle Arzul (Ifremer-F)	7	VIGCO	
·14:15	Preventing and mitigating farmed mollusc diseases, results from the VIVALDI project (Video			
- 14:30	Introduction and presentation of the draft biosecurity manual, by Isabelle Arzul, VIVALDI co	ordinator		
- 14:45	The Animal Health Law and its role in disease prevention and control in molluscs, by Fiona G DG SANTE, European Commission	Geoghegan,		
- 15:00	The OIE's role in disease prevention and control – collaboration, sustainability; our future, b Johnsen, World Organisation for Animal Health	ve Ex	kchange s	session
- 15:15	Discussion	V	with proc	lucors
- 15:45	Coffee break	V	and C	
- 17:00	Exchange session with stakeholders from the main European producing countries:		and C	.A
	Ireland: Bill Dore (Marine Institute), Edward Gallagher and Lee Hunter (shellfish producers			



On Thursday : change of scenario

Let's meet at Océanopolis

One day addressed more specifically to stakeholders

Translation into English, French, Italian and Spanish



Final conference –Follow up

Report/proceedings of the conference (don't forget to send your abstracts)

VIVALDI is not yet finished

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Your attention, please...

Speakers are kindly requested to respect their allocated time.



Keep your mobile phone on silence mode



Please sign the registration list every day

Shuttles will take you back at 18:00





Wifi connexion information available on the walls





This project has received funding from the European Union's Horizon 2020 Research and innovation programme under grant agreement N° 678589

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