Managing shellfish diseases now and in the near future? Research outcomes from VIVALDI

FINAL CONFERENCE

Brest (F)

26-28 November 2019

Pole Numérique Brest Iroise :
26-27 November

Océanopolis :
28 November

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VIVALDI
Preventing and mitigating farmed bivalve diseases

Ifremer

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VIVALDI Final Conference

Managing shellfish diseases now and in the near future?

Research outcomes from VIVALDI

Brest, 26-28 November 2019

Pôle numérique Brest Iroise and Océanopolis

Programme

Tuesday 26 November 2019 (*Pôle numérique Brest Iroise)*

Studying pathogen diversity and improving tools for better surveillance

Understanding bivalve functional response for alternative methods of prevention and treatment

09:00 – 9:30	Introduction by Isabelle Arzul, Coordinator of the VIVALDI project (Ifremer-F)
9:30-12:45	**Studying pathogen diversity and improving tools for better surveillance (Work package 1)** Session moderated by David Bass, Work package 1 leader (CEFAS-UK) and Stein Mortensen (IMR, NO)
9:30-10:00	*Pathogen detection and diagnostics in the light of microbial hyperdiversity*, by David Bass, Work package 1 leader (CEFAS-UK)
10:00-10:20	*How do OsHV-1 µvars stack up? : a comparison of multiple variants through experimental challenges*, by Colleen Burge (Institute of Marine and Environmental Technology, University of Maryland Baltimore County, USA)
10:20 – 10:40	*Genomic methodologies for bivalve pathobiome characterization and detection*, by Alberto Pallavicini (UNITS-IT)
10:40 – 11:10	*Coffee break and poster session*
11:10 - 11:30	*Exploring OsHV-1 diversity at the gene and genome scale,* by Deborah Cheslett (Marine Institute-IE) and Benjamin Morga (Ifremer-F)
11:30 – 11:50	*Maldi-tof: a tool to help characterising bacteria in shellfish* by Mirna Moussa-Pouly (Ifremer-F)

11:50 – 12:10	Flash presentations : *A-to-I RNA editing against Ostreid herpesvirus 1*, by Umberto Rosani (UNIPD-IT/AWI-DE), *Bonamia ostreae in Limfjorden in Denmark: when and where?,* by Lone Madsen (DTU-DK) *Where can Bonamia ostreae and Marteilia refringens be found outside their bivalve host, Ostrea edulis*, by Nicolas Mérou (Ifremer-F)
12:10– 12:30	*Diversity of pathogens of molluscs in Mexico and surveillance tools,* by Jorge Caceres Martinez (Centro de Investigación Científica y de Educación Superior de Ensenada, México)
12:30 – 12:45	Conclusions by David Bass, Work package 1 leader (CEFAS-UK) and Stein Mortensen (IMR, NO)
12:45 – 14:00	*Lunch*
14:00 – 17:15	**Understanding bivalve functional response for alternative methods of prevention and treatment (Work package 2)** Session moderated by Antonio Figueras, Work package 2 leader (CSIC-ES) and Paola Venier (UNIPD-IT)
14:00 – 14:30	*Bivalve disease management based on the knowledge of their immunity: the European advantage,* by Antonio Figueras, Work package 2 leader (CSIC-ES)
14:30 – 14:50	*The dark matter of the genomes in marine bivalves: long non-coding RNAs as key players*, by Cristian Gallardo-Escárate (Interdisciplinary Centre for Aquaculture Research, Concepción University, Chile)
14:50 – 15:10	*Immune priming and transgenerational immune priming in C. gigas*, by Caroline Montagnani (CNRS/Ifremer - IHPE -F)
15:10 – 15:30	*Macrophage migration inhibitory factor (MIF) in bivalve immunity,* by Paola Venier (UNIPD-IT)
15:30 – 16:00	*Coffee break and poster session*
16:00– 16:20	*Tissue lesions induced by OsHV-1 µVar and their evolution in time,* by Isabelle Arzul (Ifremer-F)
16:20 – 16:40	Flash presentations : *Mytilus galloprovincialis immunity*, by Beatriz Novoa (CSIC-ES) *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, the etiological agent of Brown Ring Disease affecting the Manila clam Ruditapes philippinarum* , by Alexandra Rahmani (CNRS LEMAR-F)
16:40– 17:00	*Mucosal immunity in bivalves*, by Bassem Allam, Stony Brook University, USA
17:00 – 17:15	Conclusions by Antonio Figueras, Work package 2 leader (CSIC-ES) and Paola Venier (UNIPD-IT)
17:15 – 17:30	Conclusions of the first day by Isabelle Arzul, Coordinator of the VIVALDI project (Ifremer-F)

Wednesday 27 November 2019 (*Pôle numérique Brest Iroise)*

Genetic selection for disease resistance/tolerance

Understanding complex interactions between animal, environment, pathogens and health for risk assessment

09:00 – 9:10	*Welcome and introduction by Isabelle Arzul, Coordinator of the VIVALDI project (Ifremer-F)*
9:10-12:30	**Genetic selection for disease resistance/tolerance (Work package 3)** Session moderated Jean-Baptiste Lamy , Work package 3 leader (Ifremer-F) and Luca Bargelloni (UNIPD-IT)
9:10 - 9:40	*Main achievements in VIVALDI on genetic selection for disease resistance or tolerance,* by Jean-Baptiste Lamy, Work package 3 leader (Ifremer-F)
9:40 - 10:00	*Biotic and abiotic factors shaping the cockle´s genome in the Atlantic: a population genomics approach,* by Paulino Martinez (USC-ES)
10:00 - 10:20	*First steps towards genomic selection in the Manila clam*, by Morgan Smits (UNIPD-IT/LEMAR-F)
10:20 - 10:50	*Coffee break and poster session*
10:50 - 11:10	*Potential and optimization of breeding programs in Pacific oysters in presence of mortalities,* by Florian Enez (SYSAAF-F)
11:10 - 11:30	*Genomic signatures of selection across mass mortality events in European populations of Pacific oysters C. gigas*, by Mathias Wegner (AWI-DE)
11:30 - 11:50	<u>Flash presentations :</u> *Selective breeding of Pacific oyster (Crassostrea gigas) for OsHV-1 resistance: impact of nutritional factors,* by Pauline Kamermans (Wageningen University-NL), *Imputation with shellfish genomes : pitfalls*, by Binyam Sime Dagnachew (NOFIMA-NO)
11:50- 12:10	*Use and abuse of additive models in quantitative genetics*, by Arnaud Le Rouzic (CNRS-F)
12:10 - 12:30	Conclusions by Jean-Baptiste Lamy, Work package 3 leader (Ifremer-F) and Luca Bargelloni (UNIPD-IT)
12:30 – 13:45	*Lunch*

13:45 – 17:15	**Understanding complex interactions between animal, environment, pathogens and health for risk assessment (Work package 4)** Session moderated by Christine Paillard, Work package 4 leader (CNRS LEMAR, F) and Luigi Vezzuli (UNIGE-IT)
13:45 – 14:15	*Role of the environment in the interactions between bivalves, microbiota and pathogens: could the diversity of microbiota represent a relevant new indicator of the health status?,* by Christine Paillard, Work package 4 leader (CNRS LEMAR, F)
14:15 – 14:35	*Exploring the dilution of parasites and disease mitigation in oysters,* by Gorka Bidegain (University of the Basque Country, ES)
14:35 – 14:55	*The influence of surrounding species on Crassostrea gigas disease risk in Pacific Oyster farming*, by Elyne Dugény (IFREMER-F)
14:55 – 15:15	*Role of plankton vectors in mediating V. aestuarianus infections,* by Luigi Vezzuli (UNIGE-IT)
15:15 – 15:45	*Coffee break*
15:45 – 16:00	*Welcome address by François Houllier, Ifremer CEO*
16:00– 16:20	*All models are wrong but are some useful in managing shellfish health?* by Ed Peeler (CEFAS-UK)
16:20 – 16:40	<u>Flash presentations :</u> *Impacts of Environmental factors on pathogen development,* by Sarah Culloty (UCC-IE) *Eco-physiological indicators as clinical signs of the oyster (Crassostrea gigas) during a disease event*, by Marianne Alunno-Bruscia (Ifremer –F) *Oyster hemolymph is a complex and dynamic ecosystem hosting bacteria, protists and viruses,* by Jean-Michel Escoubas (CNRS/Ifremer – IHPE –F)
16:40– 17:00	*Impacts of Perkinsus olseni infection on growth and reproduction of juvenile Manila clam Ruditapes philippinarum,* by Albert Choi Kwang-Sik (School of Marine Biomedical Science-Jeju National University- KR)
17:00 – 17:15	Conclusions by Christine Paillard, Work package 4 leader (CNRS LEMAR, F) and Luigi Vezzuli (UNIGE-IT)
17:15 – 17:45	*Better understanding stakeholders' perceptions regarding VIVALDI's scientific progress in preventing and controlling bivalve diseases*, by Coralie Lupo (Ifremer-F)
17:45-18:00	Conclusions by Isabelle Arzul, Coordinator of the VIVALDI project (Ifremer-F)

Thursday 28 November (*Océanopolis)*

Disease management measures and biosecurity

This session will be interpreted in English, French, Italian and Spanish

09:00 – 9:30	*Introduction by Isabelle Arzul, Coordinator of the VIVALDI project*
9:30-10:40	**Innovative tools and approaches to better prevent disease emergence and spread** Session moderated by Dolors Furones, WP5 leader (IRTA-ES)
9:30 - 9:45	*Application of genomic tools and perspectives*, by Romain Morvezen (SYSAAF-F)
9:45 – 10:00	*Novel biotechnological strategies for the detection of Ostreid herpesvirus,* by Mònica Campas (IRTA-ES)
10:00 – 10:15	*Biosecurity measures and inactivation of pathogenic organisms in shellfish aquaculture facilities,* by Christophe Stavrakakis (Ifremer-F)
10:15 – 10:20	*Stimulating bivalve immunity*, by Rebeca Moreira (CSIC- ES)
10:20 – 10:40	Discussion
10:40– 11:00	*Coffee break*
11:00– 12:20	**What is the impact of the environment on shellfish health?** Session moderated by Ed Peeler, (CEFAS-UK)
11:00– 11:15	*Shellfish farming in an era of rapid changes*, by Fabrice Pernet (Ifremer-F)
11:15 – 11:30	*A life in flux: effects of environmental parameters and extreme events on Pacific oyster performance and pathogen development*, by Sarah Culloty (UCC-IE)
11:30 – 11:45	*Impacts on Public and Shellfish Health - Potential for a One Health Approach to Monitoring?*, by Bill Dore (Marine Institute-IE)
11:45 – 12:00	*Which models can we developed in order to better anticipate the impact of global environmental changes on shellfish health*, by Cédric Bacher (IFREMER-F)
12:00 – 12:20	Discussion
12:20 – 12:50	*Strategies for mitigating Ostreid herpesvirus 1 in Crassostrea gigas hatchery and nursery systems,* by Dolors Furones, Work package 5 leader
12:50 – 14:00	*Lunch*

14:00 – 17:15	**Elaborating recommendations for management measures and biosecurity together with all stakeholders** Session moderated by Dolors Furones (IRTA-ES) and Isabelle Arzul (Ifremer-F)
14:00-14:15	Preventing and mitigating farmed bivalve diseases, results from the VIVALDI project (Video)
14:15 – 14:30	*Introduction and presentation of the draft biosecurity manual*, by Isabelle Arzul, VIVALDI coordinator
14:30 – 14:45	*The Animal Health Law and its role in disease prevention and control in molluscs,* by Fiona Geoghegan, DG SANTE, European Commission
14:45 – 15:00	*The OIE's role in disease prevention and control – collaboration, sustainability; our future,* by Stian Johnsen, World Organisation for Animal Health
15:00 – 15:15	Discussion
15:15 – 15:45	*Coffee break*
15:45 – 17:00	**Exchange session with stakeholders from the main European producing countries:** Ireland: Bill Dore (Marine Institute), Edward Gallagher and Lee Hunter (shellfish producers) Spain: Miguel Carles (FEPROMODEL President) and Placido Calco Dopico (Xunta de Galicia) Italy: Lorenzo Gennari (BIVI srl Civitanova Marche) and Andrea Maroni Ponti (Italian Ministry of Health) France: Jacques Beuguel (DGAL) and representative from a shellfish production company
17:00 – 17:15	Results of the Focus Discussion Groups by Coralie Lupo (Ifremer-F)
17:15 – 17:30	Conclusions by Isabelle Arzul, Coordinator of the VIVALDI project

Friday 29 November (*Ifremer premises)*	
9:00-12:30	**Working meeting to prepare the biosecurity manual and recommendations**

About the VIVALDI project

The European shellfish industry is a major contributor to global production of marine bivalves. Its success depends a great deal on high environmental quality and susceptibility to mortality events, often linked to pathogenic organisms such as viruses, bacteria and parasites (protozoa). The European project VIVALDI is developing tools and approaches with a view to better preventing and controlling marine bivalve diseases. 21 partners, research institutes, universities and SMEs, from 10 countries in Europe and beyond, cooperate in VIVALDI within 6 scientific work packages, with the objective of improving the competitiveness and sustainability of the shellfish industry.

Website: www.vivaldi-project.eu / Blog: https://vivaldiprojecteu.wordpress.com/

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Thank you all for your participation!

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