Fourth International Symposium

Advances in Marine Mussel Research

Saunton Sands, 21-23 November 2022

Scientific programme

(main/selected talks and posters)

Talks

Monday 21st November

08:00 - 10:00	Travel – from Exeter to Saunton Sands
10:00 - 10:30	*Registration / coffee*
10:30 - 11:00	Intro/welcome

Session 1. Genetics

Chaired by - Rod Wilson and Louisa Williams

11:00 - 11:30 **Jonathan Gardner**
Mytilus speciation in the Southern hemisphere: origins and implications

11:30 - 11:45 **Jennfier Nascimento Schulze** - Development and applications of a multi-species 60K SNP-array for Blue mussel species

11:45 - 12:00 **Eleonora Cariolato** - Genetic characterization and population dynamics of the blue mussel complex (*Mytilus spp*) in Irish waters employing Single Nucleotide Polymorphisms (SNPs) analyses

12:00 - 12:15 **Artur Burzyński** - Mitogenomics of southern hemisphere blue mussels revisited

12:15 - 12:30 **Fanny Touchard** - Anthropogenic migration and admixture of mussels in ports

12:30 - 12:45 **Sara Cobo-Arroyo** - Genetic variation and interspecific crossing success of mussels from different populations of the French Atlantic coast

12:45 - 13:00 **Iva Popovic** - Not all hybrid zones are equal: Pre-introduction introgression contributes to unparallel anthropogenic hybridisation in Australian *Mytilus* mussels

13:00 - 14:00	*Lunch*

Session 2. Industry / open

Chaired by - Robert Ellis and Kiera McCabe

14:00 - 14:30 **Emma Sheehan**
The effects of offshore mussel farming on biodiversity

14:30 - 14:45 **Fernando Lima** - Monitoring temperature and biodiversity in rocky shores across the whole Atlantic Ocean

14:45 - 15:00 **Keira McCabe** - Utilising biomimetic body temperature data to understand biogeographic shifts in UK *Mytilus spp.* abundance

15:00 - 15:15	**Chantelle Hooper** - Investigations into the declines in Blue Mussel (*Mytilus edulis*) beds in the UK
15:15 - 15:30	**Kevin Osterheld** - Triploid mussels with better attachment may act as improved extractive species.
15:30 - 15:45	**Sam Rastrick** - Can integrated multi-trophic aquaculture help mitigate the effects of climate change on economically important filter feeders
15:45 - 16:00	**Rod Wilson** - Can we help mussels to acid-base regulate and thrive under high CO2 RAS-like conditions?
16:00 - 16:30	*Coffee break*
16:30 - 16:45	**Gerardo Zardi** - Endolith-induced phenotypic variation of the intertidal reef-building mussel *Mytilus galloprovincialis* mediates thermal stress for the associated community.
16:45 - 17:00	**Trystan Sanders** - Osmolyte pool modification and absence of a physiological stress response in low salinity Baltic mussels
17:00 - 17:15	**Julien Vignier (virtual)** - Establishing early life stages of Greenshell mussel as an ecotoxicological model to assess environmental pollution in New Zealand
17:15 - 17:30	**Sofia Blanco Gonzalez** - Widespread presence of females with sex-biased offspring production in natural populations of blue mussels
17:30 - 17:45	**Svenja Tidau** - Impacts of artificial light at night on the blue mussel *Mytilus edulis*
17:45 - 18:00	**Tim Bean** - Developments in molluscan primary tissue culture and utility in pathogen challenges.
18:00 - 20:00	*Proposed free time for networking / breakouts*
20:00 - 22:00	*Dinner*

Tuesday 22nd November

Session 3. Physiology

Chaired by - Anne Todgham and Alex Berry

08:30 - 09:00	**Cristian Vargas** Bridging the gap between adaptation strategies of climate change impacts and the mussel farming industry in Chile
09:00 - 09:15	**Antonio Aguera Garcia** - Physiological plasticity of blue mussel individuals under natural environmental conditions
09:15 - 09:30	**Luis Pereira** - Quantification of cardiac performance in mollusks subjected to realistic simulations of intertidal thermal conditions
09:30 - 09:45	**Nicole Castillo** - Physiological performance curves of the Chilean mussels, *Mytilus chilensis* from populations inhabiting coastal areas with different temperature, salinity and pH variability regimes
09:45 - 10:00	**Norman Ragg (virtual)** - Marine heatwave tolerance in the New Zealand mytilid mussel *Perna canaliculus*

10:00 - 10:15	**Sarah Nancollas** - Heatwaves in the intertidal: how microhabitat, thermal unpredictability, and food availability shape physiological performance in mussels
10:15 - 10:30	**Ben Harvey** - Ocean acidification stunts growth in the intertidal mussel *Septifer bilocularis*
10:30 - 11:00	*Coffee break*

Session 4. Genetics 2

Chaired by - Tim Bean and Jenny Nascimento Schulze

11:00 - 11:30	**Andy Gracey** "Between Pacific Tides" – transcriptional signatures of tides, stress, and pollution in the California mussel
11:30 - 11:45	**Umberto Rosani** - Digging into the mussel transcriptome by means of long read sequencing: advantages and limitations
11:45 - 12:00	**Tiago Hori** - A fully phased genome assembly for *Mytilus edulis* unveils a high degree of presence-absence variance between mussel populations.
12:00 - 12:15	**Marco Gerdol** - The mussel pan-genome: implications of gene presence-absence variation on the interpretation of gene expression data
12:15 - 12:30	**Amaro Saco** - Evolution and Diversity of Interleukin-17 in Mussels
12:30 - 12:45	**Samuele Greco** - Characterization of the myticalin and CRP-I gene clusters in the blue mussel *Mytilus edulis*
12:45 - 13:00	**Cristian Gallardo-Escarate** - The native mussel *Mytilus chilensis* genome reveals adaptative molecular signatures facing the marine environment
13:00 - 14:00	*Lunch*

Session 5. Health

Chaired by - Mauricio Urbina and Sarah Nancollas

14:00 - 14:30	**Inna Sokolova** Bioenergetics approaches to assess the effects of multiple stressors on marine organisms: A case study of the blue mussels
14:30 - 14:45	**Matt Cole** - Mussel power: developing a nature-based solution to marine microplastics
14:45 - 15:00	**Lorenzo Cozzolino** - Intraspecific genetic lineages of a marine mussel show behavioural divergence when exposed to microplastic leachates
15:00 - 15:15	**Helen Bouras** - Investigations of French mussel mortality events: Is *Francisella halioticida* the real culprit?

15:15 - 15:30	**Yosra Ben Cheikh** - *Vibrio splendidus* infection induces dysbiosis in the blue mussel and favors pathobiontic bacteria
15:30 - 15:45	**Delphine Veillard** - Impact of sound intensity related to maritime transport on the embryogenesis and metamorphosis of the blue mussel *Mytilus edulis*
15:45 - 16:00	**Antonella Panebianco** - Presence of hemocytes in the intervalvar liquid of *Mytilus galloprovincialis* involved in the response against external stimuli
16:00 - 16:30	*Coffee break*
16:30 - 16:45	**Michael Metzger** - The *Mytilus trossulus* genome and analysis of the world-wide transmissible cancers of *Mytilus* species
16:45 - 17:00	**Maria Skazina (virtual)** - Molecular diversity of blue mussel transmissible neoplasia in the Kola Bay (the Barents Sea) indicates a recent migration of the cancer between the North Pacific and Northern Europe
17:00 - 17:15	**Maurine Hammel** - Environmental correlates of MtrBTN2 prevalence suggest ports are epidemiological hubs for this mussel transmissible cancer
17:15 - 17:30	**Erika Burioli** - Mussel transmissible cancer MtrBTN2 accumulates multiple cancerous traits and shares oncogenic pathways with mammal cancers
17:30 - 19:00	*Proposed free time for networking / breakouts*
19:00 - 22:00	*Gala Dinner*

Wednesday 23rd November

08:30 - 09:00	Introduction and welcome – **Charles Tyler (Director of SAF)**

Session 6. Industry / Academia workshop

Chaired by – Rob Ellis and Rod Wilson

09:00 - 09:30	**Industry pitches –** short presentations from industry partners highlighting current barriers, challenges and opportunities in global mussel aquaculture
09:30 - 10:00	**Townhall discussion** – *barriers, challenges and opportunities for global mussel aquaculture expansion through industry/academia collaboration*
10:30 - 11:00	*Coffee break*
11:00 - 12:00	**Townhall discussion** – *barriers, challenges and opportunities for global mussel aquaculture expansion through industry/academia collaboration*
12:30 - 13:30	*Lunch*
13:30 – 15:30	Return travel to Exeter

Posters

P1. **Angel Diz** - Study of variation in gonad maturation and colour of marine mussels within and among different Galician populations

P2. **Annamaria Locascio** - Study of the Natural Organic Matter and how it affects BPA toxicity on the marine mussel *Mytilus galloprovincialis*

P3. **Paloma Moran Martinez** - High prevalence of Pea crab parasitism in a mussel population (*Mytilus edulis*) of the Atlantic French coast

P4. **Beatriz Novoa** - Myticin and Mytimycin extreme variability in *Mytilus galloprovincialis*. How and Why?

P5. **Beatriz Novoa** - Mussels: deciphering a very successful immune system

P6. **Cynthia Riginos** - MytiMap ("Mighty Map"): Quick species distribution maps for Mytilus mussels

P7. **Beatrice Rocher** - A cross-sectional survey of general stress response analyzed by proteomics in Mytilus sp.

P8. **Amaro Saco** - *Mytilus galloprovincialis* chromosome-level assembled genome generated from Mytilids available information

P9. **Llucia Mascorda Cabre** - Impacts of farming mussels offshore