VIRTUAL PROGRAMME – Version 25 AUGUST *Rights reserved to adapt this programme*

PHYSIOMAR 2021
7-9 September
Nelson, New Zealand

AUSTRALIA NEW ZEALAND MARINE BIOTECHNOLOGY SOCIETY

physiomar@confer.co.nz | www.physiomar2021.org

Tuesday 7 September

1345	**Joint Welcome** *Mihi whakatau & official conference opening*
1400	**Invited speaker - Rohan Davis:** Leveraging an 8000+ marine invertebrate collection for biodiscovery – the NatureBank approach
1420	**Invited Speaker - Eric W. Schmidt:** A chemical mimicry hunting strategy in the cone snail, *Conus imperialis*
1440	**Mattias Giglio:** Snail egg toxin effects on gut. A possible antipredation defense mechanism
1450	**Sara Masoomi Dezfooli:** Encapsulation technology for delivery of bioactives in abalone aquaculture
1500	**Leila Basti:** Impacts of mono and mixed blooms of *Alexandrium catenella* on the life cycle of the Japanese pearl oyster, Pinctada *fucata martensii*
1510	**Zhaoshou Ran:** Biosynthesis of long chain polyunsaturated fatty acids in the razor clam *Sinonovacula constricta* (Lamarck 1818): Characterization of fatty acyl desaturases and elongases of very long chain
1520	**Discussion**

Wednesday 8 September

Time	PHYSIOMAR	Time	ANZMBS
900	Physiomar Welcome	900	ANZMBS Welcome & opening karakia
910	**OMICS – Chairs Brendon Dunphy & Zoë Hilton** **KEYNOTE - Pierre Boudry**: Genetics and genomics of the European flat oyster (*Ostrea edulis*): progress and prospects to contribute to the restoration of populations in the framework of the Native Oyster Restoration Alliance (NORA)	915	**KEYNOTE - Te Rerekohu Tuterangiwhiu & Heni Unwin**: Creating a Kāinga for Research
930	**Tim Young:** Mapping the metabolome of King salmon: Searching for signals associated with feed efficiency		
940	**Brendon Dunphy:** Metabolomic analysis of prolonged aerial exposure in green lipped mussels (*Perna canaliculus*)		
950	**Tiago Hori:** A blue mussel chromosome-scale assembly and genomic resources for aquaculture, marine ecology and evolution	1000	**INVITED SPEAKER: Colin Barrow**: Marine Bioprocessing - Linking New Zealand and Australia
1000	**Jinchen (Martin) Guo:** Preliminary results of juvenile Californian white abalone (*Haliotis sorenseni*) microbiome composition under UV-light treatment		
1010	**Marie Morin:** Captive crown-of-thorns starfish upregulate stress and immune genes, and downregulate cell signalling genes		
1020	**Mathias Jonsson:** Sex-specific differences in the spawning biology of the crown-of-thorns starfish revealed by transcriptome analysis		
1030	**Camille Baettig:** Development and validation of molecular biomarkers for the green-lipped mussel (*Perna canaliculus*) to characterize the effects of environmental contaminants		
1040	**Poster 1-minute introductions:** Awanis Azizan, Emily Joy Frost, Jinchen (Martin) Guo, Nathan Kenny, M. Luz Pérez-Parallé, Felipe Stambuk, Thao Van Nguyen, Leonie Venter		
1050	Break	1030	Break
1120	**NUTRITION & IMMUNITY/DISEASE – Chairs Jessica Ericson & Leonie Venter** **KEYNOTE - Katherina Brokordt**: Unveiling immunity trade-offs at critical developmental stages in scallops: role of dietary HUFAs and its potential use in aquaculture	1100	**BIOACTIVES** **Invited Speaker - Suhelen Egan:** Marine Biodiscovery and functional genomics
1140	**Zoë Hilton**: The impact of the exotic pathogen *Bonamia ostreae* on the NZ native flat oyster (*Ostrea chilensis*), and potential for selective breeding for resilience	1130	**Jamie Mei Kok**: Algal lipids attenuate cytokine-mediated inflammatory signalling and tight junction barrier dysfunction in human keratinocyte models
1150	**Katherine Muñoz-Cerro**: Bacteria associated with larvae of *Argopecten purpuratus* displaying less susceptibility to the pathogen *Vibrio bivalvicida*: a source of potential probiotics?		
1200	**Ronald Lulijwa**: Polyinosinic: polycytidylic acid (poly I:C) in vivo enhances Chinook salmon immunity and alters its metabolome	1145	**Johan Svenson:** Preventing surface colonization using cyclic marine peptides
1210	**Joanna Copedo:** Histopathological assessment of *Haliotis iris* populations exhibiting divergent growth performance: A baseline study		
1220	**Natalia Bullon:** Sustainable aquafeeds to boost abalone nutrition in land-based farming	1200	**Thomas Grant:** Amphiphilic 2,5-diketopiperazines as novel, eco-friendly marine antifoulants
1230	**Andrew Barrick:** Investigating the ecotoxicological impacts of microplastic additives towards New Zealand native species		
1240	**Poster 1-minute introductions:** Sara Masoomi Dezfooli, Farhana Muznebin, Felipe Stambuk, David Donald, Stephens, Paul Wolf	1215	**Patrick Cahill:** Toward environmentally-benign marine antifouling – an intractable problem requiring holistic thinking and multiple tactics

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1250	Lunch Break	1230	Lunch break
1320	**EARLY LIFE HISTORY – Chairs Julien Vignier & Andrew Barrick** **Julien Vignier:** Dietary exposure of Pacific oyster (*Crassostrea gigas*) larvae to compromised microalgae results in impaired fitness and microbiome shift	1300	**CELL & DEVELOPMENTAL BIOLOGY** **Georgina Dowd:** Cellular systems for fish health
1330	**Kevin Osterheld:** Triploidy in *Mytilus edulis* allows better attachment which can result in higher production yields	1315	**Hayley Stent:** Fast and slow growing teleost species show differences in muscle fibre growth and connective tissue content
1340	**Paul South:** Linking physiology and behaviour of juvenile, green-lipped mussels during the aquaculture seeding process	1330	**Megan Wilson:** A whole new body in only 8 days: Whole-body regeneration in the ascidian, *Botrylloides diegensis*
1350	**Paul Wolf:** Larval transition from pelagic to benthic is much more than settlement and metamorphosis	1345	**MOLECULAR TOOLS** **Benjamín Durán-vinet:** CRISPR/Cas13 potential as a next-generation molecular biomonitoring tool of harmful algal blooms
1400	**Shaneel Sharma:** Effects of temperature on early development of the New Zealand Geoduck *Panopea zelandica* (Quoy & Gaimard, 1835)		
1410	**Ines Leal:** Physiological lipid remodelling as a function of latitude in late-stage barnacle larvae	1400	**Huifang Yuan:** Chromatin and gene expression analyses reveal rapid activation of signalling pathways at onset of metamorphosis in the demosponge *Amphimedon queenslandic*a
1420	**Mathilde Gigot:** Impact of pile driving noise on *Pecten maximus* larval ecology		
1430	**Poster 1-minute introductions:** Natalia Bullon, Matthew Clements, M. Luz Pérez-Parallé, Alfonso Schmidt, Paul Wolf		
1440	Break	1415	**Qi Yang:** New insights into the sponge microbiomes for untapped marine microbial resource mining
1500	**CLIMATE CHANGE – Chairs Leonie Venter & Natali Delorme** **Kirsty Smith:** Is environmental adaptation in the invasive species, *Didemnum vexillum*, due to epigenetic mechanisms?		
1510	**Mathilde Godefroid:** Do high-frequency temperature fluctuations at depth increase the thermal resilience of local populations? Comparison between antipatharians and scleractinians from Mo'orea, French Polynesia.	1430	**Discussion time & session close**
1520	**Emily Frost:** Assessing embryo fate development as a means of selective climate adaptation in marine invertebrates		
1530	**Davide Asnicar:** Phenotypic plasticity and acclimation capability in sea urchins (*Paracentrotus lividus*) under long-term exposure to seawater acidification		
1540	**Jodi Thomas:** Transcriptomic and behavioural responses of a cephalopod to elevated CO_2		
1550	**Poster 1-minute introductions:** Emily Mclaren, Tim Young, Tom Zeimes		

Thursday 9 September

Time	Physiomar	Time	ANZMBS
900	**ECOTOX – Chairs Andrew Barrick & Julien Vignier** **Jose Babarro:** Dislodgement events of the mussel *Mytilus galloprovincialis* under raft cultivation: mussel tenacity versus anemone *Actinothoe sphyrodeta* blooms	900	**ALGAL METABOLISM & PRODUCTS I** **Invited speaker - Benoit Guieysse:** Microalgae cultivation: reality versus expectations
910	**Malwenn Lassudrie:** Ichthyotoxicity of microalgae of the *Karlodinium* genus from the French coasts to bivalves assessed using bioassays on oyster hemocytes and reproductive outputs		
920	**Sara Cabral:** Eating contest: potential trophic niche overlap between native and non-indigenous species	930	**Laura Teuma:** Understanding N_2O synthesis in *Chlamydomonas reinhardtii t*o evaluate the microalgal contribution to N_2O emissions from eutrophic lakes.
930	**Guillaume Durier:** Sensitivity to oil dispersants: Effects on the valve movements of the blue mussel *Mytilus edulis* and the giant scallop *Placopecten magellanicus*, in sub-arctic conditions		
940	**José Luis García-Corona:** Immunohistochemistry as a tool to decipher the mechanisms involved in the accumulation and long retention of the phycotoxin domoic acid in the king scallop *Pecten maximus*	945	**Alex Cliff:** The phosphate overplus response in *Chlamydomonas reinhardtii* and *Chlorella vulgaris*: Different strategies and the influence of environmental factors on polyphosphate accumulation
950	**Sylvain Gaillard:** Sensitivity of gametes and fertilization of the Pacific oyster, *Crassostrea gigas*, exposed to *Dinophysis* and pectenotoxin 2		
1000	**Poster 1-minute introductions:** Paula Mariela González, Nobuhisa Kajino, Jiasui Li, Thomas Sol Dourdin	1000	**Maxence Plouviez:** Studying the structure of the microalgal vacuolar transport chaperone complex: a critical step to understand polyphosphate accumulation in microalgae
1015	Break		
1030	**JOINT SESSION: Commercialising Marine Bioproducts & Industry Panel** **Chair Anna Yallop** (Seafood Innovations) **Manya Sabherwal** (BiotecNZ), TBC (Wakatū Incorporation), **Pia Winberg** (VenusShell Systems), **Clare Bradley** (AgriSea), **Damien Stringer** (Marinova), **Justin Hall** (Tahi Spirulina), **Alex Pressman** (Waikaitu), TBC (NanoLayr), **Greg Macpherson** (SRW Laboratories)		
1130	Break		
1140	**ENERGETICS/METABOLISM I – Chairs Zoë Hilton & Jessica Ericson** **KEYNOTE- Andrea Alfaro:** Understanding physiology under rapidly changing climates	1145	**BIOMOLECULES** **Mathew Cumming:** "Got your nose!" Understanding the novel collagen composition from nasal cartilage of hoki
1200	**Tony Hickey:** Thermal sensitivity links to cellular cardiac decline in three spiny lobsters	1200	**Susan Marshall:** Cyber-Physical Seafood Systems: The future of NZ marine products processing
1210	**Jules Devaux:** Effects of thermal acclimation on heart mitochondrial energy balance in the Australian rainbow trout *Oncorhynchus mykiss*		
1220	**Maitane Perez:** Histology and biochemistry reveal the factors compromising the differential growth rate and physiological performances of the mussel *Mytilus galloprovincialis*	1215	**Peng Su:** Development of bio-composite materials from seaweed polysaccharides for environmentally-friendly food packaging product innovations
1230	**Alice Harford:** Mitochondrial adaptions involved in brain tolerance to hypoxia and reoxygenation in New Zealand triplefin fish (Tripterygiidae)	1230	**Reinu Elsa Abraham:** Vortex Fluidic Device tailored alginate biomaterial for 3D bioprinting

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1240	Lunch break	1245	Lunch break
1310	**ENERGETICS/METABOLISM II – Chairs Leo Zamora & Brendon Dunphy** **Jaime Willis:** Shifting dynamics: The energy balance in brains of New Zealand triplefin fish (Tripterygiidae) under heat stress	1330	**BIOREMEDIATION** **Invited speaker - Marie Magnusson:** Algal bioremediation (title TBC)
1320	**Aldi Nel:** Metabolic responses to temperature of co-occurring post-settlement mussels, *Perna perna* and *Mytilus galloprovincialis*, during immersion do not explain adult distributional patterns	1345	**ALGAL METABOLISM & PRODUCTS II** **Invited speaker - Wei Zhang:** Biorefinery production of bioactive ingredients from under-utilized marine bio-resources for functional foods and nutraceuticals
1330	**Callyn Shelley:** Larval fish in a warming ocean: A bioenergetic study of growth of California grunion	1400	**Invited speaker "NZMSS marine biotechnology student speaker awardee" – Vanessa Taikato:** Exploring traditional practices of bivalve translocation: a multidisciplinary approach
1340	**Natalí Delorme:** Effect of emersion and relative humidity on the stress response and recovery dynamics in juvenile *Perna canaliculus*	1415	**Diane Purcell-Meyerink:** Does Location Matter to the Giant Kelp? A comparison of nutritional composition and water quality of the giant kelp (*Macrocystis pyrifera*) when sampled off the coast of Australia and New Zealand
1350	**Mena Welford:** Physiological and behavioural responses of green-lipped mussels (*Perna canaliculus*) to intermittent aerial exposure	1430	**Jennifer Hudson:** RNA-Seq analysis reveals downregulation of immune associated genes in *Delisea pulchra* (Rhodophyta) following exposure to an opportunistic pathogen
1400	**Leonardo Zamora:** Enhancing recovery from aerial exposure: kinetics of oxidative stress biomarkers in the green-lipped mussel (*Perna canaliculus*) exposed to air under different conditions	1445	**Closing & ANZMBS AGM**
1410	**Poster 1-minute introductions:** Ronald Lulijwa, Shaneel Sharma		
1420	Break		
1430	**SUMMER MORTALITY – Chairs Norman Ragg & Leo Zamora** **Norman Ragg:** The potential for genetic diversity and transgenerational plasticity to promote increased resilience to marine heatwaves in the subtidal mussel *Perna canaliculus*		
1450	**Logan Kozal:** Transgenerational effects of parental exposure to marine heatwave conditions on larval performance of the green-lipped mussel, *Perna canaliculus*		
1500	**Lizenn Delisle:** Understanding the dynamic of POMS infection in New Zealand and the role of microbiota composition in the survival of Pacific oysters, *C. gigas*		
1510	**Réjean Tremblay:** Failure of bivalve foundation species recruitment in a context of extreme heat wave event		
1520	**Leonie Venter:** Exploring the temperature-stress metabolome of *Perna canaliculus*		
1530	**Jessica Ericson:** Greenshell mussel health and stress in a warming ocean – characterisation of thermotolerance and implications for summer mortality		
1540	**Thao Van Nguyen:** Heat stress response in abalone		
1550	**Awanis Azizan:** Identification and characterization of pathogenic bacteria from New Zealand Green-lipped mussels (*Perna canaliculus*)		
1600	**Steve Webb:** Green shell summer mortality (GSM SM)		
1610	**Simming Li:** Mapping the mussel microbiome: Case studies from New Zealand		
1620	**Poster 1-minute introductions:** Joanna Copedo, Hyun-ki Hong, Siming Li		
1630	**Closing** with awards & discussion of the next Physiomar		

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POSTER PRESENTERS

Introduction videos and virtual posters will be made available for on demand viewing through the conference virtual platform. The video introductions will also be integrated into the programme in sessions as specified below.

Poster Title	First Name	Last Name	Session
Beyond relaxed: Magnesium chloride anaesthesia alters the circulatory metabolome of a marine mollusc (*Perna canaliculus*)	Awanis	Azizan	Omics
Nutritional and metabolomic changes of juvenile farmed abalone (*Haliotis iris*) in New Zealand	Natalia	Bullon	Early Life History
Larval Resilience to Decreased Salinity in *Acanthaster* cf. *solaris* (CoTS)	Matthew	Clements	Early Life History
Thermal stress in mussels: a histopathological perspective	Joanna	Copedo	Summer Mortality
MagPix, a high-throughput hero in gene quantification	Emily Joy	Frost	Omics
Oxidative and Nitrosative Responses of the Mussel *Mytilus edulis platensis* During Seasonality and Harmful Algae Blooms	Paula Mariela	González	Ecotox
Gut microbiome and pathogenic eDNA investigations on New Zealand pāua (*Haliotis iris*)	Jinchen (Martin)	Guo	Omics
Effect of the extreme heatwave on mortality and hemocyte functions of intertidal mussel *Mytilisepta virgata* (Wiegmann, 1837) in indoor mesocosm experiments	Hyun-ki	Hong	Summer Mortality
First report of levels and distribution of tetrodotoxin (TTX) in the blue-lined octopus *Hapalochlaena fasciata* collected from Jeju Island of Korea	Nobuhisa	Kajino	Ecotox
Stretched Mussels: tracing the genetic basis of resilience to climate change and ocean acidification in cultured green-lipped mussels (kuku) from genome to embryo	Nathan	Kenny	Omics
Bacterial controlled mitigation of dysbiosis in a seaweed disease	Jiasui	Li	Ecotox
An integrated omics approach to investigate summer mortality of New Zealand green-lipped mussels	Siming	Li	Summer Mortality
Haematological and metabolic profiles associated with age and sex in giant kokopu (*Galaxias argenteus*) broodstock	Ronald	Lulijwa	Energetics/Metabolism II
Encapsulated bioactives for increased growth of farmed Pāua	Sara	Masoomi Dezfooli	Nutrition & Immunity/Disease
A predator-prey behavioural interaction between intertidal seastars and the influence of ocean acidification	Emily	Mclaren	Climate Change
Occurrence of *Perkinsus olseni* and other parasites in New Zealand black-footed abalone (*Haliotis iris*)	Farhana	Muznebin	Nutrition & Immunity/Disease
Expression of two *Mytilus galloprovincialis* ABC transporter proteins under a toxic tide of *Dinophysis acuminata*	M. Luz	Pérez-Parallé	Omics
Effects of natural substances in the metamorphosis of pullet carpet shell *Venerupis corrugata* (Gmelin, 1791) larvae	M. Luz	Pérez-Parallé	Early Life History
Physiological Markers in Early Life Stages of the Green-lipped mussel, *Perna canaliculus*, Quantified Using Semi-Automated Bioimaging Analysis	Alfonso	Schmidt	Early Life History
Physiological responses of juvenile New Zealand geoduck (*Panopea zelandica*) post emersion and recovery	Shaneel	Sharma	Energetics/Metabolism II
Embryo-larval effects of early exposure to environmentally realistic pesticides mixture in the pacific oyster, *Crassostrea gigas*	Thomas	Sol Dourdin	Ecotox
Big Defensin ApBD1 from the scallop *Argopecten purpuratus* is an antimicrobial peptide which entraps bacteria through nanonets formation	Felipe	Stambuk	Nutrition & Immunity/Disease
In silico identification and functional characterization of ApGKR, a new antimicrobial peptide expressed by hemocytes from the scallop *Argopecten purpuratus*	Felipe	Stambuk	Omics
Physiological, behavioural and metabolomic response of Chinook salmon (*Oncorhynchus tshawytscha*) to tryptophan supplementation	David Donald	Stephens	Nutrition & Immunity/Disease
Metabolic differences between stunted and non-stunted abalone in the Chatham Islands, New Zealand	Thao	Van Nguyen	Omics
Establishing sampling confidence parameters for Greenshell™ mussels (*Perna canaliculus*)	Leonie	Venter	Omics
Passive Migration of Abalone Offspring Through Utilisation of Water Turbulences by Juveniles of *Haliotis irirs* (Gmelin, 1791)	Paul	Wolf	Early Life History
What lives in and on the shell of Pāua? Infestation and epibionts on *Haliotis iris* from Kaikōura	Paul	Wolf	Nutrition & Immunity/Disease
Ocean warming impacts on growth performance, health, and physiology of salmon	Tim	Young	Climate Change
Effects of thermal stress on the mesophotic arborescent antipatharian *Antipathella subpinnata* (Ellis & Solander, 1786) in the Mediterranean Sea	Tom	Zeimes	Climate Change