



Tuesday 7 September

1345	Official conference opening Mihi whakatau - Anaru Luke, Cawthron Institute Joint Welcome - Chairs Norman Ragg (Physiomar) & Mike Packer (ANZMBS)
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, <i>Conus imperialis</i>
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 <i>Alexandrium catenella</i> on the life cycle of the Japanese pearl oyster, <i>Pinctada fucata martensii</i>
1510	Q&A
1520	Summary & Wrap-up

Wednesday 8 September

Time	PHYSIOMAR	Time	ANZMBS
900	Physiomar Welcome	900	OPENING SESSION - Chair Chris Battershill ANZMBS Welcome & opening karakia – Mike Packer
910	OMICS – Chairs Brendon Dunphy & Zoë Hilton KEYNOTE - Pierre Boudry: Genetics and genomics of the European flat oyster (<i>Ostrea edulis</i>): 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 & Anaru Luke: Creating a Kāinga for Research
930	Tim Young: Mapping the metabolome of King salmon: Searching for signals associated with feed efficiency	1000	INVITED SPEAKER: Colin Barrow: Marine Bioprocessing - Linking New Zealand and Australia
940	Brendon Dunphy: Metabolomic analysis of prolonged aerial exposure in green lipped mussels (<i>Perna canaliculus</i>)		
950	Tiago Hori: A blue mussel chromosome-scale assembly and genomic resources for aquaculture, marine ecology and evolution		
1000	Jinchen (Martin) Guo: Preliminary results of juvenile Californian white abalone (<i>Haliotis sorenseni</i>) 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	Break
1030	Camille Baettig: Development and validation of molecular biomarkers for the green-lipped mussel (<i>Perna canaliculus</i>) 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 – Chair Georgina Dowd Invited Speaker - Suhelen Egan: Marine Biodiscovery and functional genomics
1140	Zoë Hilton: The impact of the exotic pathogen <i>Bonamia ostreae</i> on the NZ native flat oyster (<i>Ostrea chilensis</i>), 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 <i>Argopecten purpuratus</i> displaying less susceptibility to the pathogen <i>Vibrio bivalvicida</i> : 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	TBC
1210	Joanna Copedo: Histopathological assessment of <i>Haliotis iris</i> populations exhibiting divergent growth performance: A baseline study	1200	Thomas Grant: Amphiphilic 2,5-diketopiperazines as novel, eco-friendly marine antifoulants
1220	Natalia Bullon: Sustainable aquafeeds to boost abalone nutrition in land-based farming	1215	

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1230	Andrew Barrick: Investigating the ecotoxicological impacts of microplastic additives towards New Zealand native species		Patrick Cahill: Toward environmentally-benign marine antifouling – an intractable problem requiring holistic thinking and multiple tactics
1240	Poster 1-minute introductions: Sara Masoomi Dezfooli, Farhana Muznebin, Felipe Stambuk, David Donald, Stephens, Paul Wolf	1230	Srijan Shrestha: A phlorotannin isolated from <i>Ecklonia radiata</i> , Dibenzodioxin-fucodiphloroethol, inhibits neurotoxicity and aggregation of β -amyloid
1250	Lunch Break	1245	Lunch break
1320	EARLY LIFE HISTORY – Chairs Julien Vignier & Andrew Barrick Julien Vignier: Dietary exposure of Pacific oyster (<i>Crassostrea gigas</i>) larvae to compromised microalgae results in impaired fitness and microbiome shift	1315	CELL & DEVELOPMENTAL BIOLOGY – Chair Mathew Cumming Georgina Dowd: Cellular systems for fish health
1330	Kevin Osterheld: Triploidy in <i>Mytilus edulis</i> allows better attachment which can result in higher production yields	1330	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	1345	Megan Wilson: A whole new body in only 8 days: Whole-body regeneration in the ascidian, <i>Botrylloides diegensis</i>
1350	Paul Wolf: Larval transition from pelagic to benthic is much more than settlement and metamorphosis	1400	MOLECULAR TOOLS – Chair Mathew Cummings 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 <i>Panopea zelandica</i> (Quoy & Gaimard, 1835)		
1410	Inês Leal: Allochthonous subsidies drive early recruitment of subtropical foundation species	1415	Huifang Yuan: Chromatin and gene expression analyses reveal rapid activation of signalling pathways at onset of metamorphosis in the demosponge <i>Amphimedon queenslandica</i>
1420	Mathilde Gigot: Impact of pile driving noise on <i>Pecten maximus</i> larval ecology		
1430	Poster 1-minute introductions: Natalia Bullon, Matthew Clements, M. Luz Pérez-Parallé, Alfonso Schmidt, Paul Wolf		
1440	Break	1430	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, <i>Didemnum vexillum</i> , 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.	1445	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 (<i>Paracentrotus lividus</i>) 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 <i>Mytilus galloprovincialis</i> under raft cultivation: mussel tenacity versus anemone <i>Actinotroch sphyrodeta</i> blooms	900	ALGAL METABOLISM & PRODUCTS I – Chair Mike Packer Invited speaker - Benoit Guieysse: Microalgae cultivation: reality versus expectations
910	Malwenn Lassudrie: Ichthyotoxicity of microalgae of the <i>Karlodinium</i> 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 ₂ O synthesis in <i>Chlamydomonas reinhardtii</i> to evaluate the microalgal contribution to N ₂ O emissions from eutrophic lakes.
930	Guillaume Durier: Sensitivity to oil dispersants: Effects on the valve movements of the blue mussel <i>Mytilus edulis</i> and the giant scallop <i>Placopecten magellanicus</i> , 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 <i>Pecten maximus</i>	945	Alex Cliff: The phosphate overplus response in <i>Chlamydomonas reinhardtii</i> and <i>Chlorella vulgaris</i> : Different strategies and the influence of environmental factors on polyphosphate accumulation
950	Sylvain Gaillard: Sensitivity of gametes and fertilization of the Pacific oyster, <i>Crassostrea gigas</i> , exposed to <i>Dinophysis</i> 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 & Zahra Champion (BiotechNZ), Andy Elliot (Wakatū Incorporation), Pia Winberg (VenusShell Systems), Clare Bradley (AgriSea), Damien Stringer (Marinova), Justin Hall (Tahi Spirulina), Alex Pressman (Waikaitu), Iain Hosie (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 – Chair Patrick Cahill 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	

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1210	Jules Devaux: Effects of thermal acclimation on heart mitochondrial energy balance in the Australian rainbow trout <i>Oncorhynchus mykiss</i>		Susan Marshall: Cyber-Physical Seafood Systems: The future of NZ marine products processing
1220	Maitane Perez: Histology and biochemistry reveal the factors compromising the differential growth rate and physiological performances of the mussel <i>Mytilus galloprovincialis</i>	1215	Peng Su: Development of bio-composite materials from seaweed polysaccharides for environmentally-friendly food packaging product innovations
1230	Alice Harford: Mitochondrial adaptations 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
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 – Chair Jonathan Puddick Invited speaker - Marie Magnusson: Algal bioremediation: Don't throw out the algae with the wastewater
1320	Aldi Nel: Metabolic responses to temperature of co-occurring post-settlement mussels, <i>Perna perna</i> and <i>Mytilus galloprovincialis</i> , during immersion do not explain adult distributional patterns	1345	ALGAL METABOLISM & PRODUCTS II – Chair Jonathan Puddick 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	1415	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 <i>Perna canaliculus</i>	1430	Diane Purcell-Meyerink: Does Location Matter to the Giant Kelp? A comparison of nutritional composition and water quality of the giant kelp (<i>Macrocystis pyrifera</i>) when sampled off the coast of Australia and New Zealand
1350	Mena Welford: Physiological and behavioural responses of green-lipped mussels (<i>Perna canaliculus</i>) to intermittent aerial exposure	1445	Jennifer Hudson: RNA-Seq analysis reveals downregulation of immune associated genes in <i>Delisea pulchra</i> (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 (<i>Perna canaliculus</i>) exposed to air under different conditions	1500	Sarah Hamade: COVID-19: The Cure Within the Deep Sea
1410	Poster 1-minute introductions: Ronald Lulijwa, Shaneel Sharma	1510	Closing & ANZMBS AGM
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 <i>Perna canaliculus</i>		
1450	Logan Kozal: Transgenerational effects of parental exposure to marine heatwave conditions on larval performance of the green-lipped mussel, <i>Perna canaliculus</i>		
1500	Lizenn Delisle: Understanding the dynamic of POMS infection in New Zealand and the role of microbiota composition in the survival of Pacific oysters, <i>C. gigas</i>		
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 <i>Perna canaliculus</i>		
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 (<i>Perna canaliculus</i>)		
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		

Physiomar International Committee

M. Luz Pérez Parallé – Senior scientist & Professor at Institute of Aquaculture, University of Santiago de Compostela, Spain
Katherina Brokordt – Professor at the Aquaculture Department, Universidad Católica del Norte, Chile
Pierre Boudry – Department of Biological Resources and Environment, Ifremer, France
Doris Abele – Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Germany
Rejean Tremblay – Professor at the Institut des Sciences de la Mer, Université du Québec à Rimouski UQAR, Canada
Horacio Heras – Professor, Universidad Nacional de la Plata UNLP - CONICET, Argentina
Simon Morley – British Antarctic Survey, UK
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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 (<i>Perna canaliculus</i>)	Awanis	Azizan	Omics
Nutritional and metabolomic changes of juvenile farmed abalone (<i>Haliotis iris</i>) in New Zealand	Natalia	Bullon	Early Life History
Larval Resilience to Decreased Salinity in <i>Acanthaster</i> cf. <i>solaris</i> (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 <i>Mytilus edulis platensis</i> During Seasonality and Harmful Algae Blooms	Paula Mariela	González	Ecotox
Gut microbiome and pathogenic eDNA investigations on New Zealand pāua (<i>Haliotis iris</i>)	Jinchen (Martin)	Guo	Omics
Effect of the extreme heatwave on mortality and hemocyte functions of intertidal mussel <i>Mytilisepta virgata</i> (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 <i>Hapalochlaena fasciata</i> 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 (<i>Galaxias argenteus</i>) broodstock	Ronald	Lulijwa	Energetics/Metabolism II
Encapsulated bioactives for increased growth of farmed Pāua	Sara	Masoomi Dezfouli	Nutrition & Immunity/Disease
A predator-prey behavioural interaction between intertidal seastars and the influence of ocean acidification	Emily	Mclaren	Climate Change
Occurrence of <i>Perkinsus olseni</i> and other parasites in New Zealand black-footed abalone (<i>Haliotis iris</i>)	Farhana	Muznebin	Nutrition & Immunity/Disease
Expression of two <i>Mytilus galloprovincialis</i> ABC transporter proteins under a toxic tide of <i>Dinophysis acuminata</i>	M. Luz	Pérez-Parallé	Omics
Effects of natural substances in the metamorphosis of pullet carpet shell <i>Venerupis corrugata</i> (Gmelin, 1791) larvae	M. Luz	Pérez-Parallé	Early Life History
Physiological Markers in Early Life Stages of the Green-lipped mussel, <i>Perna canaliculus</i> , Quantified Using Semi-Automated Bioimaging Analysis	Alfonso	Schmidt	Early Life History
Physiological responses of juvenile New Zealand geoduck (<i>Panopea zelandica</i>) post emersion and recovery	Shaneel	Sharma	Energetics/Metabolism II
Embryo-larval effects of early exposure to environmentally realistic pesticides mixture in the pacific oyster, <i>Crassostrea gigas</i>	Thomas	Sol Dourdin	Ecotox
Big Defensin ApBD1 from the scallop <i>Argopecten purpuratus</i> 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 <i>Argopecten purpuratus</i>	Felipe	Stambuk	Omics
Physiological, behavioural and metabolomic response of Chinook salmon (<i>Oncorhynchus tshawytscha</i>) 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 (<i>Perna canaliculus</i>)	Leonie	Venter	Omics
Passive Migration of Abalone Offspring Through Utilisation of Water Turbulences by Juveniles of <i>Haliotis irirs</i> (Gmelin, 1791)	Paul	Wolf	Early Life History
What lives in and on the shell of Pāua? Infestation and epibionts on <i>Haliotis iris</i> 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 <i>Antipathella subpinnata</i> (Ellis & Solander, 1786) in the Mediterranean Sea	Tom	Zeimes	Climate Change

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