

Day 1: 26 October 2021

TIME	PROGRAMME
09.00 – 09.05	WELCOME Sarah Riddle, Director of Innovation & Engagement, SAIC Iain Berrill, Head of Technical, SSPO
09.05 – 09.26	INTERNATIONAL SECTOR UPDATE Updates from salmonid producing countries around the world Christine Huynh, Co-Director, Nautilus Collaboration, Gill Health Initiative Chair Ole Bendik Dale, Section Leader, Aquatic Biosafety Research, Norwegian Veterinary Institute Angela Ashby, Head of Clinical Services, Pharmaq Analytiq Patricio Bustos, General Manager, ADL Diagnostics
09.26 – 10.45	INTEGRATED HEALTH MANAGEMENT: INTERVENTIONS Headline speaker and chair: Angela Ashby, Head of Clinical Services, Pharmaq Analytiq <i>Laksepox – a Project Concerning Salmon Gill Pox Virus (SGPV) in Atlantic Salmon in Hatcheries – Disinfection Protocol</i> – Brit Tørud, Fish Health Expert, Norwegian Veterinary Institute <i>Potent Oxidising Agents as Routine Water Disinfectants in Atlantic Salmon Brackishwater RAS – Can Mucosal Health Status Support Their Potential?</i> – Carlo C. Lazado, Senior Scientist, Nofima <i>Nanofiltration Modified Seawater Treatments for AGD and Sea Lice</i> – Mark Powell, General Manager, Marineholmen RASlab AS <i>Effect of Prophylactic Flush Treatment with Chloramine-T on Gill Histology and Microbiome of Atlantic Salmon Under Commercial Conditions</i> – Petra Quezada-Rodriguez, Aquatic Animal Health PhD, CSIRO <i>Health and Welfare of Atlantic Salmon Following Repeated Exposure to Peracetic Acid – a Candidate Chemotherapeutant for Amoebic Gill Disease</i> – Carlo C. Lazado, Senior Scientist, Nofima INTEGRATED HEALTH MANAGEMENT Q&A AND DISCUSSION
10.45 – 11.30	BREAK, NETWORKING, EXPO

TIME	PROGRAMME
11.30 – 12.23	NUTRITION Chair: Professor Sam Martin, Director of the Scottish Fish Immunology Research Centre, University of Aberdeen <i>Molecular Tools to Aid Design of Functional Feeds for Improved Gill Health in Atlantic Salmon</i> – Eoin Costelloe, PhD student, University of Aberdeen / BioMar <i>Improving Gill Health in Atlantic Salmon Through Feeds: A Positive Story of Functional Nutrition</i> – Victoria Valdenegro, Scientist, BioMar <i>Management of Gill Health Through Nutritional Intervention</i> – Javier Gonzalez, Director of Research, Nuprox <i>Gill Health: Perspectives from Mowi Feed</i> – Martin Huun-Røed, Product Development Manager – Fish Health, Mowi NUTRITION Q&A AND DISCUSSION
12.23 – 14.00	BREAK, NETWORKING, EXPO
13.00 – 13.45	BREAKOUT (optional) AquaPharma led session – The Future of Hydrogen Peroxide Treatments for Management of Marine Ecto Parasites (organised by the EIT Food BREEZE project)
14.00 – 14.53	HOST PATHOGEN INTERACTIONS Headline speaker and chair: Kim Thompson, Principal Investigator, Moredun Research Institute <i>Histopathological and Agent Investigation of Complex Gill Disease in Sea Farmed Atlantic Salmon</i> – Anne Berit Olsen, Veterinarian Scientist, Norwegian Veterinary Institute <i>First Record of Experimentally Induced Salmon Gill Pox Virus Disease (SGPVD) in Atlantic Salmon</i> – Mona Gjessing, Veterinarian and Researcher, Norwegian Veterinary Institute <i>Histological mucous cell quantification and mucosal mapping reveal different aspects of mucous cell responses in the gills of shorthorn sculpins</i> – Mai Dang, PhD student, Institute for Marine and Antarctic Studies, University of Tasmania HOST PATHOGEN INTERACTIONS Q&A AND DISCUSSION
14.53 – 15.00	DAY 1 ROUND UP Sven Martin Jørgensen, Director R&D Fish Health, Norwegian Seafood Research Fund (FHF)

Day 2: 27 October 2021

TIME	PROGRAMME
09.00 – 09.03	WELCOME Heather Jones, CEO, SAIC
09.03 – 10.04	INTEGRATED HEALTH MANAGEMENT: MONITORING AND PREVENTION Chair: Daniel Carcajona, Aquaculture Innovation Officer, Sustainable Aquaculture Innovation Centre <i>A Standardised Gill Health Tool in the Eye of the Storm</i> – Karin Pittman, Professor, University of Bergen <i>Breeding for Healthy Gills</i> – Fabian Grammes, Senior Researcher, Aquagen <i>Hydrozoan Blooms and the Gill Health Implications on Farmed Atlantic Salmon – Case Study</i> – Lucy Fry, Regional Health Manager, Mowi <i>Modelling of Cleaning Waste Distribution to Map Gill Health Risks</i> – Nina Bloecher, Senior Scientist, SINTEF Ocean INTEGRATED HEALTH MANAGEMENT Q&A AND DISCUSSION
10.04 – 11.05	BREAK, NETWORKING, EXPO
11.05 – 11.58	MODEL SYSTEMS Headline speaker and chair: Barbara Nowak, Associate Dean, University of Tasmania <i>Developing Fish Cell Lines as Model Systems</i> – Niels Bols, Professor Emeritus, University of Waterloo <i>Development of an In Vitro Model to Study Environmental Factors Influencing the Gill Epithelial Function</i> – Anita Solhaug, Senior Scientist, Norwegian Veterinary Institute <i>Repeatability and Reproducibility of the RTgill-W1 Cell Line Assay for Predicting Fish Acute Toxicity</i> – Kristin Schirmer, Head of Environmental Toxicology Department, Eawag, Swiss Federal Institute of Aquatic Science and Technology MODEL SYSTEMS Q&A AND DISCUSSION
11.58 – 13.00	BREAK, NETWORKING, EXPO

TIME	PROGRAMME
13.00 – 14.17	EPIDEMIOLOGY AND MONITORING Chair: Aaron Reeves, Quantitative Epidemiologist, SRUC <i>Acute effects of mechanical delousing on gill health of farmed Atlantic salmon (Salmo salar L.)</i> – Liv Østevik, Veterinary Pathologist, Pharmaq Analytiq AS <i>Field Tests for Marine Gill Disease</i> – Annette Boerlage, Epidemiological Researcher, SRUC <i>Integration of Transcriptome, Gross Morphology and Histopathology in the Gill of Farmed Atlantic Salmon</i> – Elzbieta Król, Lead Researcher, University of Aberdeen <i>Gill Histopathology Scoring Vs Gross Morphology in Farmed Atlantic Salmon: assessment highlights the complexity of gill health</i> – Patricia Noguera, Senior Histopathologist, Marine Scotland Science <i>Is Amoebic Gill Disease a Seasonal Disease in Commercial Salmon Farms in Chile?</i> – Laura Gonzalez-Pobleté <i>A case study of a new gill disease in Atlantic salmon</i> – Morten Lund, Senior Health Advisor, Patogen EPIDEMIOLOGY AND MONITORING Q&A AND DISCUSSION
14.17 – 14.45	BREAK, NETWORKING, EXPO
14.45 – 15.26	EARLY CAREER RESEARCHER SESSION Chair: Christine Huynh, Gill Health Initiative Chair <i>Variation in gill mucous cell count of pre-smolt Atlantic salmon</i> – David Persson, Norwegian University of Life Sciences <i>Changes in the microbiome of Scottish farmed salmon during transfer from freshwater hatcheries to seawater cages</i> – Kelly Joann Stewart, University of Glasgow <i>Local and systemic immune response to salmon gill poxvirus infection, including effects of cortisol</i> – Marit Amundsen, Norwegian Veterinary Institute <i>The effects and genetic diversity of salmon gill poxvirus disease outbreaks in freshwater Atlantic salmon in Scotland</i> – Rosa Allshire, Institute of Aquaculture, University of Stirling EARLY CAREER RESEARCHERS Q&A AND DISCUSSION
15.26 – 15.35	CONCLUSIONS AND CLOSING MESSAGES Sven Martin Jørgensen, Director R&D Fish Health, FHF Sarah Riddle, Director of Innovation & Engagement, SAIC Iain Berrill, Head of Technical, SSPO
15.35	EVENT CLOSE

SPEAKERS

DAY 1 WELCOME



SARAH RIDDLE

Director of Innovation & Engagement
Sustainable Aquaculture Innovation
Centre

Sarah leads a programme to support SAIC's Phase II strategy. Having previously worked at Scottish Sea Farms and Aquascot, Sarah has also provided strategic support for organisations such as the Scottish Association of Marine Science.



IAIN BERRILL

Head of Technical
SSPO

Iain has a BSc in Marine Biology, an MSc in Applied Fish Biology and a PhD investigating the freshwater development of farmed Atlantic salmon. Iain provides technical input into all aspects of the company's activities.

INTERNATIONAL SECTOR UPDATE



CHRISTINE HUYNH

Co-Director

Nautilus Collaboration
and Gill Health Initiative Chair

Christine completed a Bachelor of Veterinary Science at the University of Sydney. She consults internationally, offering technical management services that support global best practice. She is also the industry chair of the Gill Health Initiative.



OLE BENDIK DALE

Section Leader

Aquatic Biosafety Research,
Norwegian Veterinary Institute

Ole-Bendik has been involved in fish health diagnostics and research since 1985 and has been an OIE-expert on infectious salmon anemia since 2020.



ANGELA ASHBY

Head of Clinical Services

Pharmaq Analytiq

Dr Ashby has been an aquatic veterinarian since 2013. With a particular interest in Fish welfare and gill health, Angela has been involved in a number of gill-focused research projects and publications in recent years.



PATRICIO BUSTOS

General Manager

ADL Diagnostics

A Veterinarian at the University of Concepción in Chile, Patricio is a fish disease specialist with more than 33 years of experience in salmonid health and marine fish. He founded ADL Diagnostic, a diagnostic and biotechnology lab, in 2000.

INTEGRATED HEALTH MANAGEMENT: INTERVENTIONS



BRIT TØRUD

Fish Health Expert

Norwegian Veterinary Institute

Brit is a Veterinarian with a masters degree in aquatic medicine, and more than 20 years' experience in fish health. She has worked as a senior adviser in the Ministry of Trade, Industry, and Fisheries, and is now a researcher at the Veterinary Institute.



CARLO C. LAZADO

Senior Scientist

Nofima

Dr Lazado has a PhD from the University of Nordland. He conducted his postdoctoral training at the Technical University of Denmark and Ben-Gurion University of the Negev. He focuses on the physiology and immunology of fish mucosal barriers.



MARK POWELL

Chief Executive Officer

Marineholmen RASLab AS

Dr Powell leads a contract research laboratory for Recirculating Aquaculture Systems technology and land-based aquaculture. He is a researcher with specific focus on gill and cardiac pathology in fish and developing clinical gill health solutions.



PETRA QUEZADA-RODRIGUEZ

PhD Candidate

University of Tasmania / Commonwealth
Scientific and Industrial Research
organization (CSIRO)

Petra trained as a Veterinarian in Mexico, where she practiced as an aquatic animal health consultant. Petra has a masters degree in Aquaculture and in 2018 she started her PhD on microbiome and gill health of Atlantic salmon.

SPEAKERS

NUTRITION



SAM MARTIN
Director, Scottish Fish Immunology Research Centre
University of Aberdeen
Professor Martin's research examines aspects of fish health, immunology and nutrition. His lab has been at the forefront of molecular biological approaches for the analysis of health and nutrition in both Atlantic salmon and rainbow trout.



EOIN COSTELLOE
PhD student
University of Aberdeen
Eoin is a third year PhD student based in the Scottish Fish Immunology Research Centre at University of Aberdeen. His research focuses on identifying potential biomarkers associated with gill health in Atlantic salmon from various sites in Scotland.



VICTORIA VALDENEGRO
Product Manager
BioMar Pty Ltd, Australia
Dr Valdenegro is a Veterinarian from the University of Chile. She conducted research on gill immunology, AGD and fish health. She works in the Technical Department at BioMar, developing functional feed concepts to improve robustness of mucosal surfaces.



JAVIER GONZÁLEZ
Chief Technology Innovation Officer
Nuprox Switzerland Ltd
A Dr in Veterinary Medicine with a PhD in Animal Science, Javier has worked as Technical and R&D Manager, and as a consultant in Poultry Integrations and Aquafeed companies. He specialises in Poultry and Salmon Nutrition and Health.



MARTIN HUUN-RØED
Product Development Manager
Mowi Feed AS
With a background in Aqua Medicine from University of Bergen, Martin works for Mowi Scotland. He is responsible for new products, and optimal deployment of functional ingredients and products in Norway, Scotland, F. Islands and Ireland.

HOST PATHOGEN INTERACTIONS



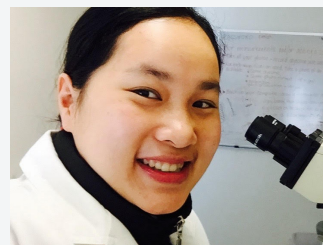
KIM THOMPSON
Principal Investigator
Moredun Research Institute
Dr Thompson is a Principal Investigator at Moredun Research Institute, where she heads the Aquaculture Research Group. She graduated with a BSc (hons) in Biochemistry, an MSc in Immunology, and a PhD in Fish Immunology.



ANNE BERIT OLSEN
Veterinarian Scientist
Norwegian Veterinary Institute



MONA GJESSING
Researcher
Norwegian Veterinary Institute
Dr Gjessing is a Pathologist with a PhD in Inflammatory Responses in Atlantic Cod. She has worked with investigation of diseases in farmed fish, mostly Atlantic salmon and her research focus has been on gill diseases of salmon.



MAI DANG
Researcher
Institute for Veterinary Research and Development of Central Vietnam (IVRD)
Dr Dang earned her BSc in Fish Pathology at Nhatrang University. She worked at IVRD for five years before getting her MSc and PhD at University of Tasmania. Mai works as a researcher in Aquatic Animal Health at IVRD.

DAY 1 ROUND UP



SVEN MARTIN JØRGENSEN
Director R&D Fish Health
Norwegian Seafood Research Fund (FHF)
The R&D director of the Norwegian Seafood Research Fund (FHF), Sven Martin has responsibility for funding research for the aquaculture industry within fish health and welfare. His background is a PhD in molecular biology and immunology and he is a former senior researcher at Nofima on a wide range of topics related to salmon aquaculture.

SPEAKERS

DAY 2 WELCOME



HEATHER JONES

Chief Executive Officer
Sustainable Aquaculture Innovation
Centre

Heather has over thirty years' experience working directly with governments, industry and research institutions in a scientific capacity. She was formerly the Head of International Division in the Scottish Government and a Deputy Director in Marine Scotland. Heather established SAIC and is also a founder of the WiSA (Women in Scottish Aquaculture) network.

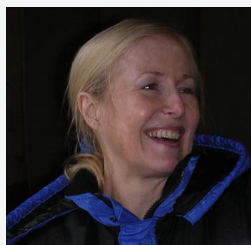
INTEGRATED HEALTH MANAGEMENT: MONITORING AND PREVENTION



DANIEL CARCAJONA

Aquaculture Innovation Officer
Sustainable Aquaculture
Innovation Centre

Daniel has an MSc from the University of Coruna and a Degree in Marine Science from the University of Vigo. He worked in seaweed farming, cleaner fish and salmon in Scotland. He has worked at Ardtoe Marine Research Facility, Scottish Sea Farms and Otter Ferry Seafish.



KARIN PITTMAN

Professor and CEO
University of Bergen and
Quantidoc A/S

Professor Pittman moved from Halifax, Canada to Bergen, Norway to pursue her interests in applied marine biology. She focuses on how to objectively evaluate health in farmed fish.



FABIAN GRAMMES

Senior Researcher
AquaGen AS

Dr Grammes is a bioinformatician/molecular geneticist and has worked for over 10 years in salmon research. His main interest is the analysis of large genetic datasets. Fabian has experience in the lab isolating DNA/RNA and prepping libraries.



LUCY FRY

Regional Health Manager
Mowi

Lucy has worked within the Aquaculture industry since graduating with a degree from the University of Tasmania. She works as Regional Health Manager and is leading the water quality management program at Mowi with Debra Brennan.



NINA BLOECHER

Senior Scientist
SINTEF Ocean

Dr Bloecher is a marine biologist at SINTEF Ocean (Norway) specialising in biofouling in salmon aquaculture. Her work focuses on the impacts on fish health and exploring novel anti-biofouling management technologies for aquaculture nets.

MODEL SYSTEMS



BARBARA NOWAK

Deputy Associate Dean, Research College of Science and Engineering
University of Tasmania

A fellow of Australian Academy of Science, Professor Nowak received her PhD from Sydney University. Her research focuses on fish parasitology, immunology and pathology, in both wild and farmed fish. She is Hon. Professor at Aarhus University and RMIT University.



ANITA SOLHAUG

Senior Scientist
Norwegian Veterinary Institute

Dr Solhaug is a Senior scientist in cellular toxicology. She has worked with vitro cell systems since 1998. Her main focus has been toxins and investigation of cell signaling systems. Dr Solhaug is the project leader of the project GILLMODEL.



NIELS BOLS

Distinguished Professor Emeritus
University of Waterloo

Dr Bols' degrees are BSc (SFU), MSc (UBC), and PhD (UofT) from Canada and his post-doc was done in Sweden at the Karolinska Institute. His UW career began in 1977. Highlights were the Life Time Distinguished Teacher Award and development of rainbow trout cell line, RTgill-W1.



KRISTEN SCHIRMER

Head of Department of Environmental Toxicology
Eawag – Swiss Federal Institute of Aquatic Science and Technology

Professor Schirmer is a cell biologist, advancing cellular models from fish to understand the impact of chemicals and other stressors on fish as important part of aquatic ecosystems.

SPEAKERS

EPIDEMIOLOGY AND MONITORING



AARON REEVES

Quantitative Epidemiologist
SRUC

Aaron is a quantitative epidemiologist with particular interests in modelling the dynamics of infection and disease in animal populations, and in the application of data science and 'Big Data' techniques to issues in animal population health.



LIV ØSTEVIK

Veterinary Pathologist
Pharmaq Analytiq AS

Liv Østevik is a board-certified European specialist in veterinary pathology. She works as a veterinary pathologist at Pharmaq Analytiq, and is pursuing a PhD focusing on gill disease in Atlantic salmon as a part of the GillRisk project.



ANNETTE BOERLAGE

Aquatic Epidemiologist
Scotland's Rural College

Dr Boerlage is an Aquatic Epidemiologist working at Scotland's Rural College. She obtained her MSc in Aquaculture & Fisheries, and PhD in Veterinary Epidemiology, at Wageningen University, and has worked in Vietnam and Canada.



ELA KRÓL

Research Fellow
University of Aberdeen

Dr Król is a research fellow at University of Aberdeen. She uses transcriptomic approaches to understand how environment-gene interactions produce emergent phenotypes in complex systems and changing environments.



PATRICIA NOGUERA

Senior Histopathologist
Marine Scotland Science

Dr Noguera has lectured on Fish Diseases, and has worked extensively in salmonids' diagnostic and research, previously on cardiac affecting conditions (CMS-SAV), on infection models and lately, focusing on complex gill disorders.



LAURA GONZÁLEZ POBLETE

Research Fellow

Universidad de Valparaíso

Dr Poblete earned a PhD in Fish Diseases, a masters degree in Aquaculture and worked as a Marine Biologist. She has experience in scientific and applied research in Chile and Australia, with focus on the identification of fish parasites and pathogens.



MORTEN LUND

Head of Fish Health

PatoGen AS

Dr Lund is a Fish health veterinarian with a PhD on PRV and HSMI. After finishing his PhD, he started at PatoGen as a senior fish health advisor working with preventive measures in Norwegian aquaculture.

EARLY CAREER RESEARCHER SESSION



DAVID PERSSON

PhD student

Norwegian University of Life Science

David is currently working on a PhD in Health management in salmon farming. He has previously worked with fish health in the field, both in a fish health service company and farming company.



KELLY J STEWART

PhD student

University of Glasgow

Kelly is a PhD candidate at the University of Glasgow with a background in Biomedical Science and Immunology. Her work looks at the role of the microbiome in the gill health of farmed Atlantic salmon, and global gill health and fish immune mechanisms.



MARIT MÅSØY AMUNDSEN

Head Engineer

Norwegian Veterinary Institute

Marit received a masters degree in biotechnology from the University of Life Sciences, with a thesis on Salmon Gill Poxvirus Disease. Her research include techniques for the study of molecular pathology.



ROSA ALLSHIRE

PhD Researcher

Institute of Aquaculture, University of Stirling

Rosa completed a BSc project on SAV at the University of Stirling and a MSc on AGD in University College Cork and the University of Bergen. She is now in the final year of her PhD in Stirling in the Virology group, looking at salmon gill poxvirus in Atlantic salmon.