WEDNESDAY, September 28

PLENARY AND STUDENT SPOTLIGHT
Wednesday, September 28  09.00 - 10.00  Anfiteatro Room

09.00  Nadia Pinardi, Mariana Mata Lara
CLIMATE CHANGE AND AQUACULTURE

PERCID FISH CULTURE
Wednesday, September 28  10.30 - 13.00  Marina Room
Chairs: Uros Ljubobratovic, Malinovskyi Oleksandr

10.30  Oleksandr Malinovskyi, Ondrej Slavik, Pavel Horky, Tomáš Policar
THE PARTNER SELECTION AND SPAWNING BEHAVIOR IN PIKEPERCH Sander lucioperca DURING SEASONAL NEST SPAWNING

10.45  Tamás Müller, Ádám Varga, Balázs Kucska, József Horváth, Tamás Szabó,
Uros Ljubobratovic, Türker Bodur, Béla Urbányi
OBSERVATION ON TANK SPAWNING OF PIKEPERCH FEMALES WITHOUT MALE
COMBINED WITH OVARIAN LAVAGE

11.00  Edson Panana, Stefan Teerlinck
OUT-OF-SEASON REPRODUCTION OF TWO DIFFERENT PIKEPERCH Sander lucioperca STRAINS: EVALUATION OF BROODSTOCK REPRODUCTIVE
PERFORMACE AND EARLY LIFE STAGE DEVELOPMENT OF THEIR OFFSPRING
11.15 Carlos Yanes-Roca, Ana Galindo, Lukas Vesely, Tomas Policar, Eric Leclercq, Eva Novakova, Jose Antonio Perez
PIKEPERCH Sander lucioperca LARVAL REARING OPTIMIZATION: UTILIZATION OF LACTIC ACID BACTERIA FOR IMPROVING MICROBIOME DIVERSITY AND DIGESTIVE ENZIME ACTIVITY

11.30 Jelena Stanivuk, Ákos Horváth, Zoran Marinovic, Georgina Fazekas, Jeno Káldy, Uroš Ljubobratovic
HYBRIDIZATION AND TRIPLOIDIZATION AS TOOLS TO IMPROVE LARVICULTURE IN PIKEPERCH Sander lucioperca

11.45 Daniel Schill, Elizabeth Mamer, Alan Johnson, Jay Rudacille, Aaron Andrews, Jason Vajnar, Daric Schneidewind
SEX REVERSAL TRIALS ON WALLEYE Sander vitreus: AN EXAMPLE OF INTERAGENCY AQUACULTURE COOPERATION

12.00 Mahyar Zare, Hung Quang Tran, Marketá Prokešová, Vlastimil Stejskal
EFFECTS OF GARLIC Allium sativum POWDER ON CROWDING STRESS RESPONSE IN EURASIAN PERCH Perca fluviatilis JUVENILES

12.15 Alicia Noël, Vincent Gennotte, Renaud Nivelle, Marielle Thomas, Pascal Fontaine, Carole Rougeot
PIKEPERCH CULTURE IN AQUAPONICS: PRODUCTIVITY AND WELFARE IN MONO- AND POLYCULTURE

12.30 Tomas Penka, Oleksandr Malinovskyi, Jiri Kristan, Aiman Imentai, Tomas Policar
EFFECT OF DENSITY AND MIXED CULTURE OF LARGEMOUTH BASS Micropterus salmoides WITH PIKEPERCH Sander lucioperca ON GROWTH, SURVIVAL AND FEED CONSERVATION RATE IN INTENSIVE CULTURE

12.45 Uros Ljubobratovic, Georgina Fazekas, Zoltán Nagy, Bernadett Pataki, Ákos Horváth
A NOVEL APPROACH FOR BROODSTOCK MANAGEMENT FOR OUT-OF-SEASON REPRODUCTION OF PIKEPERCH Sander lucioperca
MICROPLASTICS AND LITTER
Wednesday, September 28    10.30 - 13.00    Tempio 2 Room
Chair: Mariana Mata Lara

10.30 Simona Rimoldi, Andrea Valsesia, Jessica Ponti, Marco Saroglia, Genciana Terova
NOVEL METHOD FOR MICRO- AND NANOPLASTICS DETECTION, COUNTING
AND CHARACTERIZATION IN RAW INGREDIENTS FOR AQUAFEEDS

10.45 Roberta Giugliano, Simona Bronco, Barbara Vivaldi, Marina Locritani, Lucia Ricci,
Cristina De Monte, Silvia Merlino
CORRELATION BETWEEN POPS ABSORBED BY BEACHED RESIN PELLET AND
THEIR DEGRADATION IN SEVERAL ITALIAN SITES: A COMPARISON BETWEEN
“MUSSEL WATCH” AND “PELLETS WATCH” MONITORING

11.00 Nico Cattaneo, Matteo Zarantoniello, Federico Conti, Basilio Randazzo,
Giulia Chemello, Andrea Frontini, Gloriana Cardinaletti, Giorgia Gioacchini,
Ike Olivotto
THE FATE OF DIETARY MICROPLASTICS: A MULTIDISCIPLINARY LABORATORY
APPROACH TO EVALUATE LOCALIZATION AND PHYSIOLOGICAL RESPONSES
OF ZEBRAFISH Danio rerio LARVAE

11.15 Diogo Silva, C.M.R. Almeida, F.A. Guardiola, S. Ramos
MICROPLASTICS CONTAMINATION IN A VARIETY OF CANNED SEAFOOD WITH
APPLICATION OF AN OPTIMIZED METHODOLOGY

11.30 Hanne Digre, Torstein Kristensen, Thor Kamfjord, Steinar Tragethon
TECHNOLOGICAL SOLUTIONS FOR REDUCING MICRO- AND MACROPLASTIC
FROM FISH FARMING

11.45 Marga Andrés, Oihane C. Basurko, Leire Arantzamendi
CREATING NEW LIFE FOR DISCARDED FISHING AND AQUACULTURE GEARS:
PREVENTION OF MARINE LITTER GENERATION BY CONTRIBUTION TO MORE
CIRCULAR AQUACULTURE ROPES

12.00 João Rito, A.P.L. Costa, D. Alves, P. Canhão, C. Cardoso, C. Afonso, N.M. Bandarra,
S. Kubowicz, E.F. Reia da Costa, N. Leite
MINIMIZING MICROPLASTIC CONTAMINATION IN ONSHORE (RAS) MEAGRE
FARMING
MODERN CHALLENGES AND TRENDS FOR BREEDING AND PROTECTION OF STURGEON FISH IN POLAND, EUROPE AND WORLDWIDE

Wednesday, September 28 10.30 - 13.00  Parco Room
Chair: Grzegorz Janusz Dietrich, PhD Eng
the director of The Stanislaw Sakowicz Inland Fisheries Institute

10.30  Introduction

10.45  Paolo Bronzi
A PRELIMINARY UPDATE OF GLOBAL STURGEON AND CAVIAR PRODUCTION TO 2021

11.00  Andrzej Kapusta
PROBLEMS OF STURGEON PROTECTION AND THE IMPLEMENTATION STATUS OF THE HELCOM ACTION PLAN FOR THE RECONSTRUCTION AND PROTECTION OF THE BALTIC STURGEON Acipenser oxyrinchus IN POLAND

11.15  Konrad Turkowski
COMMON CARP POND MANAGEMENT IN POLAND - AN EXAMPLE OF AN ECOSYSTEM APPROACH IN AQUACULTURE

11.30  Beata Cejko
CIRCULAR BIO-ECONOMY AND CHALLENGES IN MODERN AQUACULTURE

11:45  Agata Cejko, Agnieszka Napiórkowska-Krzebietke
FEED PRODUCTION USING SUSTAINABLE, ECOLOGICALLY SAFE AND LOW-CARBON RESOURCES

12.00  Dariusz Kaczmarczyk
GENASSEMBLAGE 2.0 SOFTWARE AS A TOOL FOR MAINTAINING GENETIC VARIATION AND IN OPTIMIZATION AND MANAGEMENT THE BANKS OF CRYOPRESERVED STURGEON SEMEN

12.15  Panel discussion / Q&A Session
FORUM ON EUROPEAN EEL  
Wednesday, September 28    10.30 - 13.00    Borgo Room

10.30  Speakers’ corner: The urge for a closed-cycle production. Short talks on status of hatchery development for European eel – a high-value species targeted for aquaculture, but also critically endangered.

11.30  Panel discussion: How does the aquaculture industry see prospects for sustainable eel aquaculture? What would fish mongers and customers request? Could hatchery glass eel production help conservation and natural resource management?

ENVIRONMENTAL IMPACT AND INTERACTIONS  
Wednesday, September 28    10.30 - 17.30    Castello 1 Room  
Chairs: Roberto Pastres, Daniele Brigolin

10.30  Killian Chary, Anne-Jo van Riel, Ramón Filgueira, Aurélie Wilfart, Souhil Harchaoui, Abigail Muscat, Marc Verdegem, Imke de Boer, Geert Wiegertjes  
TRANSPOSING CIRCULAR ECONOMY PRINCIPLES TO AQUACULTURE

10.45  David Villanueva, Maite Cidad, Saioa Ramos, Ane Ugena  
PILOTING OF A SOFTWARE TOOL DESIGNED TO CALCULATE THE ENVIRONMENTAL PERFORMANCE OF MEDITERRANEAN AQUACULTURE PRODUCTS

11.00  Inma Sanchez, Joel Armengol, Daniel Checa, Marta Escamilla  
AN INNOVATIVE APPROACH FOR THE ENVIRONMENTAL ASSESSMENT IN INTEGRATED MULTITROPHIC AQUACULTURE: ASTRAL PROJECT

11.15  Michele Zoli, Lorenzo Rossi, Michele Costantini, Baldassare Fronte, Carlo Bibbiani, Jacopo Bacenetti  
ENVIRONMENTAL IMPACT OF OFF-SHORE AQUACULTURE: LIFE CYCLE ASSESSMENT OF SEABASS AND SEABREAM PRODUCTION

11.30  Tamara Wind, Mark Schumann, Stephan Hofer, Carsten Schulz, Alexander Brinker  
LIFE CYCLE ASSESSMENT OF RAINBOW TROUT FARMING BASED ON THE TYPICAL FARM CONCEPT

11.45  Megan Rector, Ramon Filgueira, Jon Grant  
INCLUDING FAR-FIELD IMPACTS AND LOCAL CONTEXT IN THE ECO-CERTIFICATION OF MARINE SALMON FARMS
12.00  **Rasmus Nielsen**, Frank Jensen, Ventica Hukom, Max Nielsen  
AN UPSTREAM-DOWNSTREAM EXTERNALITY RELATED TO WATER QUALITY: THE CASE OF THE PORONG RIVER IN INDONESIA

12.15  **Frank Jensen**, Andreea Cojocaru, Kamila Kulmambetova, Bård Misund, Rasmus Nielsen, Ruth Pincinato, Ragnar Tvedterås  
FLEXIBLE POLICY INSTRUMENTS TO ENCOURAGE EXTERNALITY ABATEMENT TECHNOLOGIES IN SALMON AQUACULTURE

12.30  **Sarah Bouchemousse**, Jean Grassien, Louis Costes, Loann Gisat, Bertrand Jacquemin, Rémy Michel  
CAN FOULING SEAWEEDS ON SEA-BASED STRUCTURES ADD VALUE TO AQUACULTURE? A BIODIVERSITY SURVEY AND SEA-URCHIN FEEDING STUDY

13.00  LUNCH

14.30  **Meredith Burke**, Jon Grant, Ramon Filgueira, Jinyu Sheng  
TEMPORAL AND SPATIAL VARIABILITY IN TEMPERATURE AND OXYGEN ALONG SOUTHWEST NOVA SCOTIA USING GLIDER OBSERVATIONS

14.45  **Caterina Pezzola**, Signe Svensson, Katherine Mary Dunlop  
MONITORING OF BENTHIC INDICATORS OF ORGANIC ENRICHMENT UNDER AQUACULTURE SITES OVER MIXED BOTTOM SUBSTRATES DURING A FISH PRODUCTION CYCLE

15.00  **Brendan Robertson**, María Algueró-Muñiz, Bachar Cheaib, Antonella E. Bacigalupo, Toni Dwyer, Calum Johnstone, Marta Mazurkiewicz, Jennifer Welsh, Sofie Spatharis, Martin Llewellyn  
PLANKTTONIC THREATS IN SALMON AQUACULTURE – INSIGHTS FROM MICROSCOPY AND METABARCODING DATA

15.15  **Miroslav Urosevic**, Jasna Grabic, Nora Navarro-Gonzalez, Segolene Calvez  
PRELIMINARY RESULTS OF WATER QUALITY IN RAINBOW TROUT FARMS IN SERBIA – ARE WE CLOSER OR FARTHER FROM THE DIRECTIVE 2006/44/EC?

15.30  **Matteo Bolzonella**, Adriano C. Lima, Roberto Pastres  
ESTIMATING AMMONIA-N AND CARBON DIOXIDE EMISSIONS FROM A LAND-BASED TROUT FARM: A PRECISION FISH FARMING APPROACH

15.45  **Adrián V. Montalt**, Pablo Arechavala-Lopez, Kilian Toledo-Guedes  
OTOLITH SHAPE: A TRACER FOR AQUACULTURE FISH SPECIES?

16.00  **Kristian Beqiri**, Ángel Perni Llorente, Kilian Toledo Guedes  
DO FISH ESCAPEES INFLUENCE WILD FISH MARKET PRICES? AN ANALYSIS IN THE SPANISH MEDITERRANEAN
### Wednesday, September 28

**16.15**  
**Karla Orlic**, Lorena Peric, Snježana Kazazic, Damir Kapetanovic, Irena Vardic-Smrzlic, Tonka Buha, Anamarija Kolda, Jakša Bolotin, Valter Kožul, Vedrana Nerlovic, Svjetlana Bobanovic-Colic  
**OCCURRENCE OF ANTIBIOTIC RESISTANCE AND VIRULENCE OF GENUS Vibrio IN BIVALVE AQUACULTURE OF EASTERN ADRIATIC**

**16.30**  
**Gianni Brundu**, Cheoma Frongia, Samuele Pagani, Anuta Chindris, Philip Graham, Stefano Carboni  
**FIRST COMPARATIVE EVALUATION OF Ostrea edulis (LINNAEUS, 1758) AND Crassostrea gigas (THUNBERG, 1793) BIODEPOSITION IN TWO MEDITERRANEAN LAGOONS**

**16.45**  
**Federica Di Giacinto**, Camilla Bertolini, Luigi Carbone, Chiara Profico, Giuseppina Mascilongo, Ludovica Di Renzo, Gabriella Di Francesco, Carla Giansante, Nicola Ferri, Roberto Pastres  
**ENVIRONMENTAL PARAMETERS INFLUENCING VALVE MOVEMENTS OF MANILA CLAM FARMED IN VENICE LAGOON**

**17.00**  
**Konrad Turkowski**  
**CARP FARMING IN PONDS IN POLAND AS AN EXAMPLE OF AN ECOSYSTEM APPROACH IN AQUACULTURE**

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**INTEGRATED MULTITROPHIC AQUACULTURE (IMTA)**

**Wednesday, September 28**  
**10.30 - 17.30**  
**Castello 2 Room**  
**Chairs: Myriam Callier, Bela Urbanyi**

**10.30**  
**Abiodun Falade**, Pete Britz, Clifford Jones  
**EVALUATION OF IMTA-PRODUCED MACROALGAE Ulva lactuca MEAL AS DIETARY INGREDIENT IN FEED PELLETS FOR SOUTH AFRICAN ABALONE Haliotis midae**

**10.45**  
**Abigail John Onomu**, Matthew James Slater, Niall Gordon Vine  
**INTEGRATED MULTITROPHIC AQUACULTURE OF ABALONE Haliotis midae AND SEA CUCUMBER Neostichopus grammatus: AN EFFICIENT AND SUSTAINABLE METHOD TO REDUCE ASSOCIATED TANK CLEANING COST AND LABOUR INVOLVED IN ABALONE FARMING**

**11.00**  
**John J. Bolton**, Mark D. Cyrus, Joseph A. De Prisco, Michael Geldart, Marissa Brink-Hull, Brett M. Macey  
**DAILY RHYTHMS OF CRITICAL WATER QUALITY PARAMETERS IN COMMERCIAL LAND-BASED, PARTIALLY RECIRCULATED ABALONE/ Ulva INTEGRATED AQUACULTURE SYSTEMS, AND THE POTENTIAL FOR INCREASING RECIRCULATION RATES**
11.15  Gercende Courtois de Viçose, Clifford Jones
INTEGRATION OF SEA CUCUMBERS TO ABALONE PRODUCTION: LOW TROPHIC SPECIES IMTA SYSTEMS

11.30  Bastien Sadoul, Grégory Raymond, Myriam Callier, Emmanuelle Roque d’Orbcastel
TAMING HOLOTHURIANS FOR THEIR USE IN INTEGRATE MULTITROPHIC AQUACULTURE: FAILURES, SUCCESSES AND PERSPECTIVES

11.45  Inka Anglade, Thomas H. Dahl, Bjørn B. Kristensen, Margot Nyeggen, Andreas Hagemann, Arne M. Malzahn, Kjell Inge Reitan
BIOCHEMICAL COMPOSITION OF Hediste diversicolor REARED ON AQUACULTURE SLUDGE AND ITS POTENTIAL AS AN AQUAFEED RESOURCE

12.00  Signe G.B. Svensson, H. Jansen, T. Strohmeier, H. Sveier
INVESTIGATION OF LIFE-HISTORY TRAITS FOR Ophryotrocha craigsmithi: IMPLICATIONS FOR ITS ROLE IN INTEGRATED MULTITROPHIC AQUACULTURE SYSTEMS

12.15  Panagiotis D. Dimitriou, Dimitra Chatzivasileiou, Ioanna Kalantzi, Nafsika Papageorgiou, Iordanis Magiopoulos, Paraskevi Pitta, Manolis Tsapakis, Ioannis Karakassis
AN INTERGRATED MULTITROPHIC AQUACULTURE IN GREECE (EASTERN MEDITERRANEAN): CO-CULTURE OF FISH AND BIVALVES

13.00  LUNCH

14.30  Sandra L. Østerø, Hardus Diedericks, Birgitta Andreasen, Tróndur T Johannesen, Gunnvør á Norði
ECOSYSTEM SERVICES BY INTEGRATED COASTAL AREA MULTITROPHIC AQUACULTURE: A STUDY WITH COMMERCIAL FISH FARMING AND BLUE MUSSELS

14.45  Gerardo Diaz, Sveinn Agnarsson, Gunnvør á Norði, Juliana Arias, Unn Laksá
A REGIONAL MULTITROPHIC AQUACULTURE ECONOMIC MODEL

15.00  Joël Aubin, Quentin Latourre, Francesca Conti, Christophe Jaeger, Vincent Gayet
ENVIRONMENTAL PERFORMANCES OF SEABREAM-OYSTER-CLAM-SHRIMP IMTA: THE LIFE CYCLE ASSESSMENT POINT OF VIEW

15.15  Luis Poersch, Jorge Tagliaferro, Andrezza Chagas, Mayra Gonçalves, Debora Florentino, Luisa Poersch, Mariana Holanda, Francesca Cucchi, Alessandro Cardozo, Felipe Nascimento, Claudio Melo, Wilson Wasielesky Jr.
COMPARISON OF INTEGRATED PRODUCTION OF TILAPIA, SEAWEED AND WHITE SHRIMP IN BIOFLOC SYSTEMS DOMINATED BY CHEMOAUTOTROPHIC AND HETEROTROPHIC BACTERIA
15.30 Luis Poersch, Andrezza Carvalho, Lea Costa, Mariana Holanda, Mayra Gonçalves, Jorge Tagliaferro, Wilson Wasielesky Jr., Gamze Turan
EVALUATION OF THE GROWTH OF MACROALGAE Ulva lactuca AT DIFFERENT DEPTH IN THE INTEGRATED MULTITROPHIC CULTIVATION WITH SHRIMP AND FISH IN BIOFLOCS

15.45 Ingrid Masaló, Joan Oca, Saray Ramírez, Neva Bu jalance, Kim Nguyen, Patricia Jiménez
LIGHT MANAGEMENT STRATEGIES TO MAXIMIZE Ulva PRODUCTIVITY IN IMTARAS SYSTEMS

16.00 Christopher Shaw, Klaus Knopf, Werner Kloas
NUTRIENT EXCRETION IN NILE TILAPIA Oreochromis niloticus AND AFRICAN CATFISH Clarias gariepinus INVESTIGATING PROTEIN SOURCES IN FEEDS FOR CIRCULAR MULTITROPHIC FOOD PRODUCTION SYSTEMS

16.15 Joël Aubin, Marielle Thomas, Thomas Lecocq, Joël Robin, Aurélien Tocqueville, Jésabel Laithier, Alexandrine Pannard, Julie Coudreuse, Marc Roucaute, Christophe Jaeger, Aurélie Wilfart, Marie Maillot, Michael Corson
PROVIDING NEW SOLUTIONS OF FISH STOCKING FOR FRESH WATER POND SYSTEMS IN FRANCE

16.30 Koushik Roy, Jaroslav Vrba, Lenka Kajgrova, Jan Mraz
THE CONCEPT OF BALANCED FISH NUTRITION IN TEMPERATE EUROPEAN PONDS TO TACKLE EUTROPHICATION

16.45 Letizia Valluzzi, Jan Giebichenstein, Paul-Daniel Sindilariu
IMTA FOR THE FINAL EFFLUENT TREATMENT AT THE FIRST TUNA AQUACULTURE PRODUCTION FACILITY IN EUROPE

17.00 Ivo Monteiro, Maria João Rodrigues, Viana Castañeda-Loaiza, Hugo Ferreira, Morgana Angelo, Florbela Soares, Pedro Pousão-Ferreira, Luísa Custódio
SALINE WASTEWATER FROM FISH AND OYSTERS TO GROW DIFFERENT SPECIES OF HALOPHYTES IN GREENHOUSE

17.15 Petter Olsen
ALTANET – THE ATLANTIC LOW TROPHIC AQUACULTURE NETWORK

17.30 Natalia Ospina-Alvarez, Tânia Li Chen, Patricia Anyanwu, Stephanie Waniko, Elisa Ravagnan
ASTRAL’S OCEAN LITERACY FOR AQUACULTURE: INCREASING PUBLIC ACCEPTANCE AND AWARENESS OF AQUACULTURE IN THE ATLANTIC

ASTRAL POOL OF TECHNOLOGIES: DIGITAL TWINS TO SUPPORT MULTITROPHIC AQUACULTURE WITHIN THE ATLANTIC AREA

NUTRITION – PHYSIOLOGY AND REQUIREMENTS

Wednesday, September 28 10.30 - 17.30 Anfiteatro Room
Chairs: Marisol Isquierdo, Genciana Terova

10.30 Sofia Morais, Sara Puchol, Esther Leal, José Miguel Cerdá-Reverter, Anna Rita Angotzi

TASTE BEYOND ORAL PERCEPTION IN SEABREAM Sparus aurata: NEW EVIDENCE FOR FUNCTIONAL GUT CHEMICAL SENSING IN FISH

10.45 David Dominguez Montesdeoca, Yiyen Tseng, U. Sivagurunathan, Marisol Izquierdo

MINERAL AND VITAMIN NUTRITION IN GILTHEAD SEABREAM JUVENILES Sparus aurata

11.00 Noor Khan, Sadia Nazir

EFFECT OF VITAMIN C (L-ASCORBIC ACID) SUPPLEMENTED FEEDS ON THE GROWTH AND NUTRIENT PROFILE OF BULLSEYE SNAKEHEAD Channa marulius

11.15 Sivagurunathan Ulaganathan, David Dominguez, Vincent Laizé, Yiyen Tseng, Paulo J. Gavaia, Clara Boglione, Marisol Izquierdo

EFFECT OF DIETARY VITAMIN D AND K ON SKELETAL DEVELOPMENT OF GILTHEAD SEABREAM Sparus aurata

11.30 Roel Maas, Ep Eding, Johan Schrama, Paula Costa Domech

EFFECT OF DIETARY PHOSPHORUS LEVELS, WATER PHOSPHORUS LEVELS AND THEIR COMBINATION ON GROWTH PERFORMANCE AND PHOSPHORUS UTILISATION IN NILE TILAPIA

11.45 Claudia Prats Llorens, Alexandra Leeper, Wolfgang Koppe, Eduard Schneeberger, David A.H. Sutter, P. Eckhard Witten, Markus Rodehutscord

DIFFERENTIAL PHOSPHORUS UPTAKE BY JUVENILE EUROPEAN CATFISH Silurus glanis FROM FEED AND WATER IN RECIRCULATING AQUACULTURE SYSTEM
12.00 Christina Hoerterer, Jessica Petereit, Gisela Lannig, Christian Bock, Bela H. Buck
NMR-BASED METABOLIC PROFILE IN MUSCLE OF JUVENILE TURBOT
Scopthalmus maximus FED WITH PLANT AND ANIMAL PROTEIN SOURCES

12.15 Ana Basto, Luisa M.P. Valente, Jose L. Soengas, Marta Conde-Sieira
DEFATTED Tenebrio molitor LARVAE MEAL AS PARTIAL AND TOTAL FISHMEAL
SUBSTITUTE IN DIETS FOR EUROPEAN SEA BASS Dicentrarchus labrax: IMPACT
ON SHORT- AND MID-TERM HOMEOSTATIC REGULATION OF FOOD INTAKE

13.00 LUNCH

14.30 Stefano Ratti, Matteo Zarantoniello, Giulia Chemello,
Francesco Alessandro Palermo, Paolo Cocci, Gilberto Mosconi, Miriam Giammarino,
Deborah Pacetti, Ancuta Nartea, Giulia Secci, Andrea Osimani, Giulia Pascon,
Paola Riolo, Giuliana Parisi, Elisabetta Giorgini, Ike Olivotto
PHYSIOLOGICAL RESPONSES OF RAINBOW TROUT Oncorhynchus mykiss
FED DIETS INCLUDING Hermetia illucens PREPUPAE MEAL ENRICHED WITH
SPIRULINA Arthrospira platensis

14.45 Arianna Marchi, Luca Parma, Nicole Pelusio, Francesco Dondi, Elisa Brini,
Pier Paolo Gatta, Francesco Capozzi, Gianfranco Picone, Marco Candela,
Daniel Scicchitano, Roberto Cerri, Alessio Bonaldo
TOWARDS A FREE WILD FISH AND SOY DIET FOR EUROPEAN SEABASS
USING BY-PRODUCTS FROM FISHERY AND AQUACULTURE

15.00 Federico Melenchón, Dmitri Fabrikov, Alba Galafat, Francisco Javier Alarcón,
Héctor Julián Pula, Amalia Encarnación Morales, Cristina Tomás-Almenar
MEALWORM Tenebrio molitor IN DIETS FOR RAINBOW TROUT Oncorhynchus
mykiss: A STRATEGY TO FACE THE OMEGA-3 PROBLEM OF INSECT-FED FISH

15.15 Jessica Di Toro, Sonia Rey, Monica Betancor, Asa Johannesen
WILD LUMPFISH Cyclopterus lumpus AS A MODEL TO INVESTIGATE
NUTRITIONAL REQUIREMENTS OF FARMED LUMPFISH

15.30 S.M. Majharul Islam, Florence Arachchilage, Shruti Gupta, Ester Santigosa, Ian Carr,
Kyla Zatti, Bisa Saraswathy Viswanath, Mette Sørensen, Monica Brinchmann,
Ioannis Vatsos
IMPROVED HEALTH STATUS OF ATLANTIC SALMON Salmo salar DURING
SMOLTIFICATIONS AFTER REPLACING FISH OIL WITH ALGAL OIL

15.45 Esmail Lutfi, Sina Velzi, Siri Horn, Aleksei Krasnov, Trine Ytrestøyl, Bente Ruyter,
Ashie Norris, Bjarne Hatlen
INTERACTION BETWEEN DIETARY OMEGA-3 FATTY ACIDS AND FILLET COLOR
IN ATLANTIC SALMON Salmo salar: A TRANSCRIPTOME STUDY
EFFECTS OF THE DIFFERENT STIMULUS PERIODS FROM FIRST FEEDING ON VEGETALE-BASED DIET CHALLENGE IN ATLANTIC SALMON *Salmo salar* L. FINGERLINGS

16.15  **Sofia-Brinkmann Bougali**, Nafsika Karakatsouli, Alkisti Batzina, Despoina Trampouli, Pinelopi-Paraskevi Laskari  
BILE IMPRINT ON THE PARIETAL PERITONEUM IN RED SEABREAM AND GILTHEAD SEABREAM: EFFECTS OF DAYS OF FASTING, STRESS AND ICE-STORAGE

16.30  **Paulo de Mello**, Asaad Mohamed, Seemab Zehra, Reda Saleh, Aboobucker Siddik, Edoardo Pantanella, Joseph Laranja, Jorge Alarcon, Ali Al Shaikhi, Abdulaziz Al-Suwailem  
INFLUENCE OF DIFFERENT COMMERCIAL DIETS FROM THE KINGDOM OF SAUDI ARABIA IN GILTHEAD SEABREAM *Sparus aurata* PRODUCTION: THE EXPANSION OF WELL SUCCEEDED SPECIES TO THE RED SEA CONDITIONS

16.45  **Elisa Benini**, Sebastian N. Politis, Kasun A. Bandara, Sofia Engrola, Anders Nielsen, Luis E.C. Conceição, Jonna Tomkiewicz  
FEEDING DIETS FOR EUROPEAN EEL LARVAL CULTURE: INSIGHTS AT MORPHOLOGICAL, NUTRITIONAL AND MOLECULAR LEVELS

**SOCIO-ECONOMIC CHALLENGES FOR SUSTAINABLE AQUACULTURE IN A CHANGING ENVIRONMENT**  
Wednesday, September 28  10.30 - 17.30  Arco Room  
Chairs: Gesche Krause, Ramon Filgueira

10.30  **Gesche Krause**, Suzanna-Lynn Billing, John Dennis, Jon Grant, Lucia Fanning, Ramon Filgueira, Molly Miller, Jose Perez Agundez, Nardine Stybel, Selina M. Stead, Wojciech Wawrzynski  
VISUALIZING THE SOCIAL IN AQUACULTURE ACROSS GEOGRAPHIC SCALES

10.45  **Andreas Misund**, Trine Thorvaldsen, Maitri Thakur, Andrea Viken Strand, Rachel Tiller  
COMPARING OPPORTUNITIES AND CHALLENGES IN PRODUCTION SYSTEMS FOR SALMON AQUACULTURE

11.00  **Andrea Viken Strand**, Maitri Thakur  
DECISION MECHANISMS IN NORWEGIAN AQUACULTURE: COMPARISON BETWEEN CONVENTIONAL AND NEW PRODUCTION SYSTEMS
11.15 Marcelo Hidalgo, Peter Trott
MARINE INGREDIENTS FOR FEED FOR AQUACULTURE: AN ANALYSIS OF CERTIFICATION AND SUSTAINABLE SOURCING

11.30 Jenny Weitzman, Ramon Filgueira, Jon Grant
CONCERNS, CONFLICTS AND CONTROVERSY: UNDERSTANDING DRIVERS OF SOCIAL ACCEPTANCE OF SALMON AQUACULTURE IN NOVA SCOTIA, CANADA

12.00 LUNCH

14.30 Marit S. Olsen, Tonje C. Osmundsen
INCREASED PRODUCTION AND SOCIETAL EXPECTATIONS: THE IMPORTANCE OF SOCIAL ANCHORING IN NORWEGIAN SALMON AQUACULTURE INDUSTRY

14.45 Ina Ahlquist, Andrea Viken Strand, Rachel Tiller, Trine Thorvaldsen, Andreas Misund, Lara Veylit
CO-PRODUCTION OF KNOWLEDGE FOR A DECISION SUPPORT TOOL FOR AQUACULTURE AND COASTAL MANAGEMENT DEVELOPMENT IN NORWAY

15.00 Thea L. Oftebro, Havard Almås, Magnus Hakvåg, Trine Thorvaldsen, Rachel Tiller
USING SERIOUS GAMES TO GAIN INSIGHT INTO THE KEY CHALLENGES PERTAINING TO REGULATION OF NEW AQUACULTURE PRODUCTION SYSTEMS IN NORWAY

15.15 Laurent Viguie, Aaron A. McNevin
WWF’S GLOBAL AQUACULTURE STRATEGY

15.45 Grethe Lilleng, Trine Thorvaldsen, Kristine Størkersen, Andreas Misund, Magnus Myhre, Ulf Johansen
RESPONSE TO SOCIETAL CHANGE AND CRISSES: LESSONS LEARNED BY THE NORWEGIAN AQUACULTURE INDUSTRY IN 2020-2022

16.00 Signe A. Sønvisen, Trine Thorvaldsen, Marit S. Olsen, Tonje Osmundsen, Kristine V. Størkersen, Andreas Misund, Samson Afewerki
AQUACULTURE TECHNOLOGY AND GOVERNANCE – GOING DOWN RABBIT HOLES?

16.15 Ragnar Tveterås, Tord Ludvigsen, Bård Misund
OFFSHORE SALMON AQUACULTURE FINANCIAL RISKS AND INVESTMENT ANALYSIS: IMPLICATIONS FOR GOVERNMENT REGULATIONS AND TAX REGIME

16.30 Tonje Osmundsen, Marit Schei Olsen, Asle Gautepllass, Frank Asche
DESIGNING PRODUCTION LICENSES FOR SUSTAINABLE AQUACULTURE
WEDNESDAY

16.45 Catherine Mariojouls, T. Latvala, R. Ginés, I. Muller, A. Kause
EUROPEAN CONSUMERS’ PERCEPTION OF FISH FARMING AND NEED FOR INFORMATION

WELFARE
Wednesday, September 28  10.30 - 17.30  Arengo Room
Chairs: Joao L. Saraiva, Tommaso Petochi

10.30 Christine Klykken, Lauris Boissonnot, Alf Dalum, Anne Katrine Reed,
Kari Attramadal, Rolf Olsen, Morten Moe
PHYSIOLOGICAL CHANGES OBSERVED IN FARMED ATLANTIC SALMON Salmo salar L. WITH NEPHROCALCINOSIS

10.45 Pierluigi Carbonara, Sébastien Alfonso, Eleonora Fiocchi, Amedeo Manfrin,
Annalisa Stefani, Valentina Bertazzo, Arkadios Dimitroglou, Leonidas Papaharisis,
Walter Zupa, Maria Teresa Spedicato, Elena Mente, Giuseppe Lembo
ASSESSING PHYSIOLOGICAL EFFECTS OF FEEDING AN INNOVATIVE DIET IN FARMED EUROPEAN SEA BASS Dicentrarchus labrax

11.00 J.E. van Eys
THE USE OF SOY PRODUCTS AS A REPLACEMENT FOR FISH MEAL IN AQUA DIETS

11.15 Ingrid Lein, Gerd M. Berge, Katerina Kousoulaki, Tone-Kari K. Østbye,
Elisabeth Ytteborg, Bjarne Gjerde, Johanna Kottmann
EFFECTS OF DIETARY FATTY ACIDS AND CONDITION FACTOR ON BALLAN WRASSE WELFARE DURING COLD WINTER TEMPERATURES

11.30 Nicklas Wallbom, Albin Gräns
SLEEPING WITH THE FISHES: USING BRAIN ACTIVITY TO ASSESS INDUCTION TIMES OF FIVE ANESTHETICS IN RAINBOW TROUT Oncorhynchus mykiss

11.45 Manuel Blonç, Mariana Teles, Irene Brandts, Meritxell Uroz, Montse Mesalles,
Nerea Roher, Lluis Tort, Rafaela Cuenca, Josep Pastor
PERFORMANCE EVALUATION OF THE SYSMEX XN-1000V AUTOMATED HAEMATOLOGY ANALYSER AND REFERENCE RANGES INTERVAL FOR RAINBOW TROUT BLOOD
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<tr>
<td>12.00</td>
<td>Sinem Zeytin, Desislava Bögner, Moses Okoli, Lautaro Hollmann, Meeno Mathes, Jonah Bocksz, Hilal Tolasa Gündogdu, Murat Arikut, Julien Jost, Camille Blanc, Pierre-Oliver Jost, Matthew J. Slater</td>
<td>HAEMATOLOGICAL RESPONSES AND HISTOLOGICAL EVALUATION IN LIVER, SKIN AND GILLS OF FARMED EUROPEAN SEA BASS <em>Dicentrarchus labrax</em> EXPOSED TO ULTRASOUND</td>
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<td>12.15</td>
<td>Jingwen Ding, Lars Christian Gansel, Steffen Hageselle Blindheim, Yanran Cao</td>
<td>APPLICATION OF FECAL CORTICOID METABOLITES (FCM) AS STRESS INDICATOR DURING PARR-SMOLT TRANSFORMATION FOR ATLANTIC SALMON <em>Salmon salar</em> L.</td>
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<td>12.30</td>
<td>Elisa Samorì, Inmaculada Rodríguez Carretero, Jose Antonio Paullada-Salmerón, Laura Sánchez-Alacid, José Antonio Muñoz-Cueto, Francisco Javier Sánchez-Vázquez, Jose Fernando López-Olmeda</td>
<td>DAILY RHYTHMS IN THE STRESS RESPONSE OF THE EUROPEAN SEA BASS <em>Dicentrarchus labrax</em> AND THE EFFECTS OF SEASONALITY</td>
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<td>12.45</td>
<td>Alexander Rebl, Joan Martorell-Ribera, Dirk Koczan, Torsten Viergutz, Ronald M. Brunner, Tom Goldammert, Ulrike Gimsa</td>
<td>EXPERIMENTAL HANDLING CHALLENGES AFFECT THE MONOAMINE SYSTEM, PHAGOCYTIC CAPACITY AND TRANSCRIPTOME OF MARAENA WHITEFISH <em>Coregonus maraena</em></td>
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<td>14.30</td>
<td>Ricardo Nuno Alves, Susana Agustí</td>
<td>ULTRAVIOLET B RADIATION EXPOSURE INDUCES TRANSCRIPTIONAL CHANGES IN GILTHEAD SEABREAM <em>Sparus aurata</em> REARED IN CAGES ON THE RED SEA COAST OF SAUDI ARABIA</td>
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<td>14.45</td>
<td>Martina Bortoletti, Alessio Bonaldo, Luca Parma, Emanuele Muraro, Giuseppe Radaelli, Daniela Bertotto</td>
<td>ALTERNATIVE MATRICES FOR STRESS EVALUATION IN EUROPEAN SEABASS <em>Dicentrarchus labrax</em> EXPOSED TO HYPOXIA</td>
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<td>15.00</td>
<td>Carlos Espírito Santo, Carmen Alburquerque, Francisco Guardiola, Rodrigo Ozório, Leonardo Julián Magnoni</td>
<td>SWIMMING ACTIVITY MODULATES PRO-INFLAMMATORY GENES IN GILLS AND HEAD-KIDNEY OF GILTHEAD SEABREAM <em>Sparus aurata</em></td>
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15.15 **Arjan Palstra**, Wout Abbink, Wisdom Agbeti, Pauline Jéhannet, Asgeir Bjarnasson, Edwin Foekema, Martin Lankheet

HEART RATE AND ACCELERATION LOGGING DURING SWIM-FITNESS AND STRESS CHALLENGE TESTS IN YELLOWTAIL KINGFISH *Seriola lalandi* AND RELATION WITH SWIMMING SPEED, OXYGEN CONSUMPTION AND LOCOMOTORY BEHAVIOR

15.30 **María J. Cabrera-Álvarez**, Ana Rita Oliveira, Florbela Soares, Ana Candeias-Mendes, Pablo Arechavala-Lopez, João L. Saraiva

HUSBANDRY PROCEDURES AFFECT HEART RATE OF BROODSTOCK OF GILTHEAD SEA BREAM

15.45 **Daniel Morgenroth**, Finn Økland, Bjarne Kvaestad, E. Svendsen, C. Rosten, Michael Axelsson, Bengt Finstad, Rolf-Erik Olsen, Nina Blöcher, Martin Føre, Albin Gräns

USING WIRELESS METHODS TO REMOTELY ASSESS STRESS IN FARMED ATLANTIC SALMON *Salmo salar*

16.00 **Sébastien Alfonso**, Eva Troianou, Dimitris Troianos, Walter Zupa, Maria Teresa Spedicato, Giuseppe Lembo, Pierluigi Carbonara

INSIGHTS FROM REAL-TIME MONITORING OF EUROPEAN SEA BASS *Dicentrarchus labrax* SEA CAGE MARICULTURE

16.15 **Linda Tschirren**, Peter Zeller, Kanwal Aftab, Luca Regazzoni, Mathias Sigrist, Boris Pasini, Robert Vorburger, Krzysztof Kryszczuk, Fridolin Tschudi

DEVELOPING AN ANIMAL WELFARE ASSESSMENT AND CONTROL SYSTEM (AWACS) FOR FISH FARMS BY USING SOFTWARE THE SMART WAY

16.30 **Santhosh Kelathody Kumaran**, Lars Erik Solberg, David Izquierdo-Gomez, Hernan Cañon Jones, Chris Noble

AN AUTOMATED ANALYSIS OF THE DISTRIBUTION AND HOME RANGE OF SMALL GROUPS OF TANK-HELD ATLANTIC SALMON PARR *Salmo salar* L. USING COMPUTER VISION

16.45 **Tommaso Petochi**, Alessandro Feraldi, Francesco Cardia, Francesc Padrós, Giovanna Marino

ASSESSMENT OF WELL-BEING OF FARMED EUROPEAN SEA BASS AND GILTHEAD SEA BREAM THROUGH A SMART OPERATIONAL TOOL

17.00 **Stein-Kato Lindberg**, Gareth Difford, Evan Durland, Karsten Heia, René Alvestad, Erik Burgerhout, Vasco C. Mota, Anja Striberny, Gerhardus C. Verstege, Chris Noble

APPLICATIONS OF HYPERSPECTRAL IMAGING FOR DOCUMENTING SMOLTIFICATION STATUS AND WELFARE IN ATLANTIC SALMON
SCOPE: The Food and Agriculture Organization of the United Nations (FAO) is engaged in global actions that aim at assisting its Member countries in developing sustainable food industries and securing the access of a healthy diet to all. The access to applied production innovations, appropriate governance and support policies along with economic and market forces play an important role in the current and future development of any specific food industry at the national, regional and global level. FAO, with its key mandate focused on food production, provides the global discussion and knowledge-sharing platform along with tools and guidelines that will enable countries to move the aquatic food production industries in producing and distributing their produce by ensuring that environmental, social and economic sustainability issue are fully and globally met. The FAO Special Day will focus on a number of relevant international processes and discuss their implications on the development of the European aquaculture sector.

THE GLOBAL PROCESSES ON SUSTAINABLE AQUACULTURE: WHAT DOES IT MEAN TO EUROPEAN STAKEHOLDERS?

Moderator: Austin Stankus, Matthias Halwart  Time: 10.30 - 12.30
Session objective: Presentation of the outcomes of Global Conference on Aquaculture Millennium+20 including the Shanghai Declaration and regional review of European aquaculture, the FAO COFI Fisheries and Aquaculture Declaration, and the forthcoming Guidelines for Sustainable Aquaculture, providing an overview and highlighting their use to enhance institutional and intergovernmental cooperation for the advancement of European Aquaculture and its contribution to the United Nations Sustainable Development Goals.

GENETIC RESOURCES IN AQUACULTURE: MANAGING THEM BETTER

Moderator: Graham Mair, Daniela Lucente  Time: 14.30 - 16.00
Session objective: Present and seek feedback on the key issues in the current management of genetic resources in European aquaculture and to outline and discuss the role a Global Plan of Action and AquaGRIS, a new information system, can play in enhancing this management.

14:30  Graham Mair
FAO’s work to promote enhanced management of aquatic genetic resources

14:45  Daniela Lucente
AquaGRIS – A new global information system for genetic resources of aquaculture species

15:00  Marc Vandeputte
The status of aquaculture genetics in Europe

15:15  Mohammad Pourkazemi
A case study: Conservation and sustainable use of sturgeon genetic resources

15:30  Panel Q&A session  All presenters
MARKETS FOR AQUACULTURE PRODUCTS – RECENT CHANGES AND TRENDS  
Moderator: Marcio Castro de Souza  Time: 16.00 - 16.45
Session objective: To present the main changes in recent years and some trends regarding the markets for aquaculture products at regional and global levels. Aspects associated with consumer tastes, product information, sustainability market requirements, among others, will also be analyzed.

SMALL IN SCALE, BIG IN VALUE: CELEBRATING THE INTERNATIONAL YEAR OF ARTISANAL FISHERIES AND AQUACULTURE
Moderator: Alessandro Lovatelli, Austin Stankus  Time: 16.45 - 17.30
Session objective: Draw attention to International Year of Artisanal Fisheries and Aquaculture (IYFA 2022), present the Global Action Plan and share communication material to inspire action from European states attending AE2022 and participants

AE2022 INDUSTRY FORUM
Wednesday, September 28  14.30 - 17.30  Tempio 1 Room

The AE2022 Industry Forum is a half-day event (organized by the Italian Association of Fish Producers [API] and the Mediterranean Aquaculture Association [AMA]) aimed at industry players and focused on issues of relevance and current importance to the industry. Three expert panels on innovation and knowledge transfer will inform the audience on new approaches and technologies to increase energy efficiency in aquaculture, to adapt to climate changes and mitigate impacts of aquaculture practices, while improving the ecological footprint and providing ecosystem services. How to materialize such innovations by and for the sector will be addressed in the framework of European Maritime, Fisheries and Aquaculture Funds (EMFAF) together with aquaculture operators, sector associations and policy makers.

Moderator(s):  Javier Ojeda (FEAP), Alessandro Lovatelli (FAO)
Opening:  Javier Ojeda (FEAP)

14:00 SESSION 1 ENERGY EFFICIENCY IN AQUACULTURE:
Good Practices projects
ETICA IP - Alessio CANALINI, The Sea Opportunities

EWEAS - Energy and Water Efficiency in the Aquaculture Sector - Andrea FABRIS, API

Decarbonization in aquaculture - Moreno GUERRIERI (BI.NAV)

14:45 SESSION 2 ECOSYSTEM SERVICES AND AQUACULTURE:
What is needed for recognition and credits

Carbon and nutrient extraction - Aad SMAAL, Wageningen University

Carbon footprint for shellfish - Arianna MARTINI, CREA

ASEAWA - Advanced Materials using Biogenic Calcium Carbonate from Seashell Wastes - Giuseppe FALINI, UNIBO
15.30 SESSION 3  CLIMATE CHANGE AND AQUACULTURE:
Knowledge gaps and industry challenges
*Marine biotoxins: a new “Scenario”* - Sonia DALL’ARA / Stefania MILANDRI, CRM

Drought risk and impacts, and the EU response - Dario MASANTE, EC Joint Research Centre

Rheticus Aquaculture - smart satellite support for facing climate change challenges - Antonello AIELLO, Planetek Italia

16.15 SESSION 4  INDUSTRY PRIORITIES FOR THE MEDIUM-TERM IN EMFAF 2021-2027
EMPA – Bruno GUILLAUMIE, General Secretary (TBC)

OP Acquacoltura Orbetello – Marco GILMOZZI, President

AMA – Giuseppe PRIOLI, President

*Hellenic Aquaculture Producers Organisation (HAPO)* – Yannis PELEKANAKIS, Director of European Affairs

Free entrance - Simultaneous translation from English to Italian will be provided.

At the end of the Industry Forum, the participants are invited to a refreshment with local farmed products offered by API, AMA and the Consorzio Mitilicoltori of Emilia Romagna.

EAS STUDENT GROUP WORKSHOP
Bridging the Gap Between Science and Business
Wednesday, September 28    14.30 - 17.30    Marina Room
Chairs: Elisavet Syropoulou, Mariana Ferreira

14.30 Welcome, status of EAS-SG and introduction to the workshop (Elisavet Syropoulou and Mariana Ferreira)

14.35 Valentina Romboli – Aquaculture status in Italy

14.40 - 15.15 SCIENCE IN BUSINESS
14.40 Vivi Koletsi – Industrial PhD: a struggle or a pleasure?
14.50 Diana Almeida – A PhD in an Industrial Setting: How did scientific curiosity meet the husbandry challenges?
15.00 Sarah Perché – Modern problems, modern solutions: how industrial research gives purpose to our curiosity

15.10 Q&A

15.15 - 17.40 FROM SCIENCE TO BUSINESS
15.15 Antonios Chalaris – Finding your Ithaca in aquaculture
15.25 Ana Teresa Gonçalves – A journey towards applied research in fish nutrition

15.35 Q&A
### 15.40 - 16.20 BUSINESS FROM SCIENCE
- **15.40** João Rito – SEAentia: Overcoming the obstacles of starting an aquaculture company
- **15.55** Ioannis Mittakos – To busi- or not to busi-. The critical decision
- **16.10** Q&A

### 16.15 - 17.15 TRAVEL GRANT WINNERS
- **16.15** Anil Tellbuscher – Implications of the pH for plant nutrient concentrations in aquaponics
- **16.25** Christina Zantioti – Effects of two diets with different phytoestrogen content on growth, proximate composition, blood parameters and fatty acid profile of gilthead sea bream (*Sparus aurata*)
- **16.35** Rodrigo Mendes – The use of diet encapsulation as a valuable tool to identify the potential of novel fish diets
- **16.45** Tomáš Pěnka – Application of automatic feeders in intensive breeding of juvenile pikeperch (*Sander lucioperca*)
- **17.05** Julia Clols Fuentes – The water microbiome in RAS under different stocking densities

### 17.15 - 17.30 PIZZA ROUNDTABLE – The Science of Sharing and the Sharing of Science

### EARLY LIFE STAGES
**Wednesday, September 28**    14.30 - 17.30    Borgo Room
Chair: Clara Boglione

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<td>14.30</td>
<td>Georgina Fazekas, Jelena Stanivuk, Dorottya Fazekas, Uroš Ljubobratovic</td>
<td>EVALUATION OF APPLYING ENVIRONMENTAL ENRICHMENT ON STERLET <em>Acipenser ruthenus</em> L. IN EARLY LIFE STAGES</td>
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<td>14.45</td>
<td>Delphine Weissman, Thomas Raynaud</td>
<td>HIGH QUALITY EARLY NUTRITION AS A STRATEGY FOR A PRODUCTIVE AQUACULTURE</td>
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<td>15.00</td>
<td>Katerina Loufi, Dimitris G. Sfakianakis, Pavlos Makridis</td>
<td>THE EFFECT OF FEEDING WITH THE COPEPOD <em>Acartia tonsa</em> DURING THE FIRST DAYS OF LARVAL REARING ON SKELETON ONTOGENY AND SKELETAL DEFORMITIES IN GREATER AMBERJACK <em>Seriola dumerili</em></td>
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15.15  **Pauline Wischhusen**, Mónica B. Betancor, Matthew Sprague, Aurelio Ortega, Fernando de la Gándara, Douglas R. Tocher, Gabriel Mourente
ATLANTIC BLUEFIN TUNA *Thunnus thynnus* L. LARVAE ANTIOXIDANT MOLECULAR FUNCTIONS INDUCED BY DIETARY SELENIUM IN ROTIFER *Brachionus rotundiformis*

THE EFFECT OF DIFFERENT LIVE FEED ORGANISMS ON LARVAL LUMPFISH *Cyclopterus lumpus*

15.45  **Yiyen Tseng**, David Dominguez, U. Sivagurunathan, P. Antony Jesu Prabhu, Marisol Izquierdo
EFFECT OF DIETARY MANGANESE ON GROWTH AND SKELETAL DEVELOPMENT IN GILTHEAD SEABREAM *Sparus aurata* LARVAE

16.00  **Zachary Dellacqua**, Claudia Di Biagio, Arianna Martini, Marisol Izquierdo, Clara Boglione, Andrea Fabris
THE EFFECTS OF STOCKING DENSITIES VERSUS TANK VOLUME ON THE SKELETON OF GILTHEAD SEABREAM *Sparus aurata* IN THE HATCHERY AND PRE-ONGROWING PHASES OF THE PRODUCTION CYCLE

16.15  **Babak Najafpour**, Adelino V. M. Canário, Deborah M. Power
ARE FISH LARVAE FULLY IMMUNOCOMPETENT AT EARLY STAGES?

16.30  **Kasun Bandara**, Elisa Benini, Sebastian Politis, Sune Riis Sørensen, Jonna Tomkiewicz, Olav Vadstein
MOLECULAR ONTOGENY OF THE IMMUNE SYSTEM AND CHARACTERIZATION OF BACTERIAL COMMUNITY STRUCTURE IN FEEDING EUROPEAN EEL LARVAE *Anguilla anguilla*

16.45  **Sune Riis Sørensen**, Sanni L.H. Aalto, Sebastian N. Politis, Kasun A. Bandara, Jonna Tomkiewicz, Adam Hambly
AQUATIC BACTERIAL COMMUNITIES: FORCES AND DYNAMICS BEHIND THEIR FORMATION AND IMPACT IN FISH EMBRYO AND LARVAL CULTURE

17.00  **Pauline Jehannet**, Arjan P. Palstra, Mara Havinga, Leon T.N. Heinsbroek, William Swinkels, Hans Komen
IMPROVING THE VITALITY OF EUROPEAN EEL LARVAE

17.15  **Sebastian Nikitas Politis**, Sune Riis Sørensen, Luis Conceicao, Andre Santos, Elisa Benini, Kasun Bandara, Daniela Sganga, Joao Branco, Jonna Tomkiewicz
EUROPEAN EEL LARVICULTURE: FIRST ESTABLISHMENT OF FEEDING *Leptocephalus* CULTURE
14.30 Joern Gessner, Marie-Laure Acolas, Eric Rochard, Paolo Bronzi
HOW COMMON IS COMMON? EXPERIENCES AND RESULTS DERIVED FROM RESTORATION PROGRAMS OF THREE STURGEON SPECIES: *Acipenser naccarii*, *A. oxyrinchus*, AND *A. sturio*

14.45 Mohammad Pourkazemi
AN EMERGENCY CALL TO DEVELOP AN ACTION PLAN TO CONSERVE STURGEON IN THE CASPIAN SEA

15.00 Tudor Ionescu, Ioan Valentin Petrescu-Mag
THE CAUSES OF STURGEON POPULATION DECLINE, IN LOWER DANUBE

15.15 Sergii Bushuiev, Olexandr Chashchyn, Serhii Snihirov
THE STURGEON BY-CATCH WHILE TRAWL FISHING IN THE NORTH-WESTERN PART OF THE BLACK SEA

15.30 Kostiantyn Demianenko, Artem Ripenko, Tetiana Yakovlieva, Vasyl Kovalenko
THE ROLE OF UKRAINIAN AQUACULTURE IN RESTOCKING OF WILD *Acipenseridae* spp. POPULATIONS AND DEVELOPMENT OF COMMERCIAL STURGEON AQUACULTURE IN UKRAINE

15.45 Paolo Bronzi, Elisa Boscari, Leonardo Congiu
35 YEARS OF CONSERVATION OF THE ADRIATIC STURGEON: PAST AND FUTURE

16.00 Harald Rosenthal, Sven Wuertz, Monika Radominska, Paolo Bronzi, Joern Gessner
FITNESS FOR RELEASE – ARE THERE WAYS TO CIRCUMVENT MALADAPTATIONS CAUSED BY REARING TECHNIQUES?

16.15 Leonardo Congiu, Elisa Boscari
CONSERVATION OF THE BELUGA STURGEON *Huso huso* IN THE ADRIATIC AREA; DEFINING GUIDELINES BASED ON CONTEMPORARY AND ANCIENT GENETIC DIVERSITY

16.30 Elisa Boscari, Alessia Cariani, Stefano Dalle Palle, Annalisa Scapolatiello, Nicola Vitulo, Leonardo Congiu
MULTILOCUS ANALYSIS OF INTRON POLYMORPHISMS AS A PROMISING AND ECLECTIC TOOL FOR GENETIC CHARACTERISATIONS
16.45 Gyöngyvér Fazekas, Gyula Kovács, Móni Farkas, Katalin Bogár, Balázs Kovács
ASSESSMENT OF GENETIC DIVERSITY AND POPULATION STRUCTURE
OF THE STERLET Acipenser ruthenus FROM GENE BANK AND NATURAL
POPULATIONS IN HUNGARY

17.00 Jeno Káldy
USING UNIPARENTAL PROPAGATION METHODS TO ENHANCE WILD
STURGEON STOCKS

CLIMATE CHANGE
Wednesday, September 28    14.30 - 17.30    Tempio 2 Room
Chairs: Erika Porporato, Lynne Falconer

14.30 Daniele Brigolin, Elisa Donati
BLUE FOOD PLANNING AND CLIMATE CHANGE: FOOD WEB MODELS AS
TOOLS FOR THE ANALYSIS

14.45 Ana Rato, Sandra Joaquim, Ana Margarete Matias, Cláudia Roque,
António Marques, Domitília Matias
THE EFFECT OF CLIMATE CHANGES ON SURVIVAL AND BEHAVIOUR OF
EUROPEAN CLAM Ruditapes decussatus

15.00 Elena Tamburini, Edoardo Turolla, Mattia Lanzoni, Giuseppe Castaldelli
MANILA CLAM AND MEDITERRANEAN MUSSEL AQUACULTURE IS
SUSTAINABLE AND ACT AS A NET CARBON SINK

15.15 Lynne Falconer, Solfrid Sætre Hjøllo, Elisabeth Ytteborg
CLIMATE CHANGE AND AQUACULTURE: WORKING ON A PUZZLE WITHOUT ALL
THE PIECES

15.30 Solfrid Sætre Hjøllo, Johanna Myrseth Aarflot, Lynne Falconer, Shuang Gao,
Elisabeth Ytteborg, Morten Dahlberg Skogen
CUMULATIVE IMPACTS OF CLIMATE CHANGE AND INCREASED AQUACULTURE
PRODUCTION IN A NORWEGIAN FJORD

15.45 Smaragda Tsairidou, Alastair Hamilton, R. Blonk, Jarl van den Berg,
Stephen Tapping, Ross D. Houston
INVESTIGATING CLIMATE CHANGE EFFECTS ON SCOTTISH SALMON
AQUACULTURE AND ASSESSING GENETIC MITIGATION – A PILOT STUDY
16.00 **Carlo Lazado**, Aleksei Krasnov, Nora Albaladejo-Riad, Johansen Lill-Heidi, Ytteborg Elisabeth
SMELLING THE DANGER OF CLIMATE CHANGE: THE CASE OF ATLANTIC SALMON OLFACTORY ORGAN

FARMED ATLANTIC COD: SEAWATER TEMPERATURE AFFECTS BIOLOGICAL PERFORMANCE, DISEASE DEVELOPMENT AND SITE SELECTION

16.30 **Helena Oliveira**, Ana L. Maulvault, Sara Castanho, Luísa M.P. Valente, Pedro Pousão-Ferreira, Rui Rosa, António Marques, Patrícia Anacleto
EFFECTS OF OCEAN ACIDIFICATION AND WARMING ON CHEMICAL COMPOSITION, FITNESS AND ENERGY BUDGET OF JUVENILE SENEGALESE SOLE *Solea senegalensis*

16.45 **Farzana Hossain**, Md Shahjahan
IMPACTS OF CLIMATE CAUSED SALINITY INTRUSION ON EARLY DEVELOPMENT AND GROWTH PERFORMANCE OF STRIPED CATFISH

17.00 **Md. Shahjahan**
GLOBAL WARMING CHALLENGES FOR AQUACULTURE: THE CASE OF INDIAN MAJOR CARP ROHU *Labeo rohita*

17.15 **Bruna Guterres**, Kauê Sbrissa, Amanda Mendes, Lucas Pereira, Francisca Vermeulen, Kati Michalek, Lisl Lain, Marié Smith, Javier Martinez, Silvia Botelho, Paulo Drews, Nelson Duarte, Vinicius Menezes, Lucie Novoveska, Marcelo Pias
BENCH TOP VISUAL HAB MONITORING: SUPPORTING CLIMATE RESILIENT AQUACULTURE IN THE ATLANTIC AREA
THURSDAY, September 29

PLENARY
Thursday, September 29  09.00 - 10.00  Anfiteatro Room

09.01  Geert Wiegertjes, Yolanda Morales, Roy Koushik, Brian Thomsen
THE MOVE TOWARDS CIRCULARITY

GENOMICS
Thursday, September 29  10.30 - 13.00  Marina Room
Chair: Daniel Žarski

10.30  Jose Gallardo, Patricia Rivera, Nicol Delgado, María Rueda, Carlos Soto, Anti Vasemägi
GENOMIC ASSOCIATION STUDY FOR EARLY SEXUAL MATURATION IN A DOMESTIC STRAIN OF ATLANTIC SALMON

10.45  Renaud Nivelle, V. Gennotte, C. Prignon, M. Nambyl Adéoti Fagbemi, J. Zappia, M. Muller, C. Mélard, C. Rougeot
EFFECTS OF HIGH TEMPERATURE EXPOSURE ON SEX DETERMINATION AND GONADAL TRANSCRIPTOMES AND METHYLOMES IN GENETIC FEMALE (XX) AND MALE (XY) NILE TILAPIA Oreochromis niloticus

11.00  Siigmund Ramberg, Bjørn Høyheim, Tone-Kari Knutsdatter Østbye, Rune Andreassen
A TRANSCRIPTOME GENERATED FROM HYBRID-CORRECTED PACBIO LONG-READS IN ATLANTIC SALMON PROVIDES 71000 HIGH-QUALITY FULL-LENGTH SEQUENCED MRNAS, AND IDENTIFIES THOUSANDS OF NOVEL SPLICE VARIANTS

11.15  Marieke Verleih, Tina Visnovska, Julian Alban Nguinkal, Tom Goldammer, Rune Andreassen
IDENTIFICATION OF NOVEL AND CONSERVED MIRNAS IN PIKEPERCH Sander lucioperca

11.30  Alice Shwe, Aleksei Krasnov, Tina Visnovska, Sigmund Ramberg, Tone-Kari K. Østbye, Rune Andreassen
IDENTIFICATION OF DIFFERENTIALLY EXPRESSED MIRNAS AND THEIR PREDICTED TARGET GENES IN GILL INDICATES THAT ATLANTIC SALMON SMOLTIFICATION AND SEAWATER ADAPTATION IS POST-TRANSCRIPTIONALLY REGULATED BY MIRNAS
11.45 Maria Papadaki, Elisavet Kaitetzidou, Constantinos C. Mylonas, Elena Sarropoulou
DIFFERENTIALLY EXPRESSED SMALL RNAs IN THREE DIFFERENT OVARIAN
MATURATION STAGES OF HATCHERY-REARED GREATER AMBERJACK Seriola
dumerili

12.00 Partha Sarathi Tripathy, Artem Nedoluzhko, Kaja Helvik Skjærven,
Francesc Piferrer, Jorge Manuel de Oliveira Fernandes
NANOPore SEQUENCING REVEALS GROWTH RATE-DEPENDENT
DIFFERENTIAL METHYLATION OF THE MITOGENOME IN NILE TILAPIA
Oreochromis niloticus MUSCLE

SPATIAL PLANNING, ZONING AND PROTECTED AREAS
Thursday, September 29 10.30 - 13.00 Arengo Room
Chairs: Francesco Cardia

10.30 Barry Antonio Costa-Pierce
ACCELERATING THE DEVELOPMENT OF MARINE AQUACULTURE IN THE
NEARSHORE: SCALING OUT IS AS IMPORTANT AS SCALING UP

10.45 Micah Conkling
HAS THE LPA SYSTEM BEEN SUCCESSFUL? SMALL-SCALE AQUACULTURE
RECRUITMENT IN MAINE, USA, THROUGH THE LIMITED-PURPOSE
AQUACULTURE (“LPA”) LICENSING SYSTEM

11.00 Daniel Jensen
COLLAPSING COASTAL GOVERNABILITY – GOVERNING UNSTABLE OBJECTS
IN NORWEGIAN SALMON AQUACULTURE

11.15 Ricardo Haroun, Andrej Abramic, Carlos Andrade, Natacha Nogueira,
Sadassivam Kaushik
OVERVIEW OF THE AQUACULTURE SECTOR AND MSP PROCESSES IN THE
MACARONESIAN SEA BASIN

11.30 Piergiorgio Stipa
ALLOCATION OF ZONES FOR AQUACULTURE IN TUSCANY REGION: THE CASE
STUDY OF FOLLONICA GULF
11.45 Erika M.D. Porporato, Daniele Trogu, Stefano Carboni, Anuta Chindris, Philip Graham, Daniele Grech, Samuele Pagani, Alessandro Conforti, Andrea Cucco, Giovanni De Falco, Jacopo Giampaletti, Giovanni Quattrocchi, Alberto Ribotti, Lynne Falconer, Trevor Telfer, Andrea Barbanti, Elisabeth De Maio, Stefano Menegon, Maura Baroli
ALLOCATED ZONES FOR AQUACULTURE (AZAs) IDENTIFICATION IN THREE AQUATIC ECOSYSTEMS: SEA, LAGOONS AND LAKES

12.00 Giorgio Bellotti, Claudia Cecioni, Gianfranco Calise, Maria Paola Campolunghi, Tommaso Petochi, Antonello Bruschi, Francesco Cardia, Giovanna Marino
DOWNSCALING COPERNICUS ERA5 WAVE DATA TO IDENTIFY SUITABLE MARINE AREAS FOR MEDITERRANEAN AQUACULTURE

GIS APPLICATION FOR OFFSHORE AQUACULTURE SITE SELECTION ALONG THE RED SEA, SAUDI ARABIA

12.30 Christopher Aura, Safina Musa, Chrisphine Nyamweya, Zachary Ogari, James Njiru, Stuart Hamilton, Linda May
DELINEATING THE AREAS OF A LAKE THAT ARE SUITABLE FOR TILAPIA CAGE FISH CULTURE

12.45 Joao G. Ferreira, Rui Gomes Ferreira, Anton Immink, Lucy Kimani, Christopher Aura, Chrisphine Nyamweya, Rita Marteleira, Marta Tirano, Diogo Gomes
INTEGRATED CARRYING CAPACITY MODELLING FOR FINFISH CULTURE IN LAKE VICTORIA

WELFARE – CONTINUED
Thursday, September 29  10.30 - 13.00  Tempio 2 Room
Chairs: Joao L. Saraiva, Tommaso Petochi

10.30 Ana R. Oliveira, Maria J. Cabrera-Álvarez, Florbela Soares, Ana Candeias-Mendes, Pablo Arechavala-Lopez, João L. Saraiva
STRUCTURAL ENRICHMENT EFFECTS ON THE WELFARE OF GILTHEAD SEABREAM Sparus aurata BROODSTOCK

10.45 Aude Kleiber, Jean-Michel Le-Calvez, Thierry Kerneis, Axel Batard, Lionel Goardon, Laurent Labbe, Valentin Brunet, Vitor Hugo Bessa Ferreira, Vanessa Guesdon, Ludovic Calandreau, Violaine Colson
BUBBLES AS A FEEDING PREDICTOR IMPROVES THE WELFARE OF FARmed RAINBOW TROUT
11.00 Lauris Boissonnot, Camilla Karlsen, Grete Hansen Aas, Patrick Reynolds, Håvard Kaland, Stig Tuene, Albert Imsland
WELFARE OF CLEANER FISH IN COMMERCIAL ATLANTIC SALMON PRODUCTION

11.15 Hijran Yavuzcan Yildiz, Lambros Kokokiris, Elena Mente
WHAT HAPPENED OVER THE LAST 10 YEARS (2012 to 2021): A BIBLIOMETRIC ANALYSIS OF FISH WELFARE RESEARCH IN EUROPEAN SEA BASS Dicentrarchus labrax

11.30 Timothy Wiese, Jimmy Turnbull, Marie Haskell, Susan Jarvis, Sonia Planellas
CONCERNS AND RESEARCH PRIORITIES FOR THE WELFARE OF SCOTTISH FARMED ATLANTIC SALMON Salmo salar – AN INDUSTRY PERSPECTIVE

11.45 Ragnhild Aven Svalheim, Bjorn Roth, Endre Grimsbo
TOWARDS HUMANE SLAUGHTERING OF SNOW CRAB Chionoecetes opilio

12.00 Ana Herrero, Hamish Rodger, Adam D. Hayward, Chris Cousens, James E. Bron, Mark P. Dagleish, Kim D. Thompson
PROSPECTIVE LONGITUDINAL STUDY OF PUTATIVE AGENTS INVOLVED IN COMPLEX GILL DISORDER IN ATLANTIC SALMON

12.15 Amritha Johny, Rune Slimestad, Mette G. Thomsen, Elisabeth Ytteborg, Jan T. Rosnes, Christian R. Karlsen
BIO-FARMING FOR BIOACTIVE COMPOUNDS: SCREENING OF NORDIC HERBS AND UNDERSTANDING THEIR POTENTIAL SYNERGISM WITH BIOACTIVE COMPOUNDS AGAINST ATLANTIC SALMON PATHOGENS

12.30 Carlo Lazado, Hanna Ross Alipio, Bergstedt Julie, Nicolaysen Ilona, Danilo Carletto, Britt-Kristin Reiten, Kevin Stiller
MUCOSAL IMMUNOTOXICITY OF HYDROGEN SULPHIDE IN ATLANTIC SALMON SMOLTS

12.45 Lucia Drabikova, Per Gunnar Fjelldal, Adelbert De Clercq, M. Naveed Yousaf, Thea Morken, Charles McGurk, P. Eckhard Witten
RE-THINK PHOSPHORUS: HOW SALMON BONE REACTS TO LOW AND HIGH PHOSPHORUS DIETS
10.30 Maria Morais, João Henriques, Luís Conceição, Eduardo Jiménez-Fernández
ASSESSING THE IMPACT OF DIFFERENT EXPERIMENTAL DIETS ON BALLAN WRASSE Labrus bergylta LARVAE GROWTH PERFORMANCE

10.45 João Henriques, Maria Morais, Wilson Pinto, Walter Olsen-Ryum, Børre Erstad, Jorge Dias, Luís Conceição
IMPROVING MICRODIET FORMULATION FOR TWO FLATFISH SPECIES: SENEGALESE SOLE AND ATLANTIC HALIBUT

11.00 Ida Hedén, Jonathan Roques, James Hinchcliffe, Markus Langeland, Elisabeth Jönsson, Kristina Sundell, Henrik Sundh
ENZYME ACTIVITY AND PLASMA NUTRIENT VARIATION DEPENDENT ON FEEDING TIME IN ATLANTIC WOLFFISH Anarhichias lupus

11.15 James Hinchcliffe, Halvor Prytz, Bisa Saraswathy, Jan Fredrik Prytz, Kristina Sundell, Elisabeth Jönsson, Ørjan Hagen
MINERAL CARRY OVER FROM PLANT-BASED AND MARINE-BASED FEEDS ON SPOTTED WOLFFISH Anarhichas minor: EFFECTS ON GROWTH, HEALTH AND WELFARE

11.30 Barbara Loi, Danilo Concu, Raquel Quirós-Pozo, Javier Roo Filgueira, Lidia Robaina, Stefano Carboni, Dario Vallainc
HISTOLOGICAL EVALUATION OF FLATHEAD GREY MULLET Mugil cephalus LARVAE REARED UNDER DIFFERENT CO-FEEDING STRATEGIES

11.45 Shaba Noore, Laura Hinds, Mahesha M. Poojary, Colm O’Donnell, Brijesh K. Tiwari
INVESTIGATION OF HIGH-PRESSURE PROCESSING ON THE EXTRACTION OF FREE AMINO ACIDS FROM DUCKWEED Lemna minor

12.00 Paulo de Mello, Assad Mohamed, Seemab Zehra, Reda Saleh, Aboobucker Siddik, Edoardo Pantanella, Joseph Laranja, Jorge Alarcon, Ali Al Shaikhi, Abdulaziz Al-Suwailem
INFLUENCE OF DIFFERENT COMMERCIAL DIETS FROM THE KINGDOM OF SAUDI ARABIA IN SOBAITY SEABREAM Sparidentex hasta AQUACULTURE: INVESTIGATING A POTENTIAL CANDIDATE SPECIES FOR WARM WATER AQUACULTURE

13.00 LUNCH
14.30 Laura Ciriminna, Arnold Rakaj, Luca Grosso, Davide Pensà, Alessandra Fianchini, Michele Scardi, Antonio Mazzola, Salvatrice Vizzini
EVALUATION OF THE EFFECT OF LETTUCE-BASED DIETS ON *Paracentrotus lividus* LARVAL DEVELOPMENT

14.45 Fabiola Mustafaj, Katherine Dolmage, Kathrin Steinberg
AQUACULTURE STEWARDSHIP COUNCIL (ASC) CERTIFICATION: EVALUATION OF NICHE SPECIES (I.E. PERCH AND CATFISH) FOR THE DEVELOPMENT AND IDENTIFICATION OF SPECIES AND SYSTEM-SPECIFIC CERTIFICATION METRICS

15.00 Paul-Daniel Sindilariu, Jan Giebichenstein
FISH LOGISTICS: THE KEY TO SUCCESSFUL CLOSED CYCLE TUNA AQUACULTURE

15.15 James Hinchcliffe, A. Powell, L. Svanberg, K. Sundell, S. Eriksson
ADVANCES IN EUROPEAN LOBSTER RESEARCH ON THE SWEDISH WEST COAST

15.30 Asaad Mohamed, Edoardo Pantanella, Joseph L.Q. Laranja, Jorge Alarcon, Reda Saleh, Paulo H. de Mello, Seemab Zehra, Aboobucker Abulkasim, Ali Al Shaikh, Abdulaziz Al-Suwailim
THE GROWTH POTENTIAL AND QUALITY OF MEAGRE *Argyrosomus regius* AT WARMER TEMPERATURES: A CASE STUDY FROM THE RED SEA

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**NUTRITION – FUNCTIONAL INGREDIENTS**
Thursday, September 29  10.30 - 17.30  Anfiteatro Room
Chairs: Florian Geay, Monica Juarez Ceballos

10.30 Ailbhe McGurrin, Julie Maguire, Rahel Suchintita Das, Brijesh K. Tiwari, Marco Garcia-Vaquero
MACROALGAE AS A SOURCE OF SUSTAINABLE BIOPRESERVATIVES FOR FOOD SAFETY

10.45 Marian Ponce, Victoria Anguís, Catalina Fernández-Díaz
ASSESSING THE ROLE OF ULVAN EXTRACTS AS FUNCTIONAL INGREDIENTS IN AQUACULTURE

11.00 Maria Garcia, Maria A. Rodriguez, Marie Gallissot, Danièle Marzin, Buddhi Gunathilaka
EFFECT OF MACROALGAL POLYSACCHARIDES ON IMMUNE RESPONSE AND SUSCEPTIBILITY TO *Edwardsiella tarda* IN OLIVE FLOUNDER *Paralichthys olivaceus*
11.15 Tamas Bardocz, Giovanni Marco Cusimano, Jui-Che Chiang, Natalie Panasiak, Steven Prescott, Florian Nagel, Sandra Balsells Claramunt, Dorinde Kleinegris, Simeon Deguara
INFLUENCE OF *Microchloropsis gaditana* EXTRACT SUPPLEMENTATION ON THE GROWTH, MORPHOLOGICAL, AND BODY QUALITY TRAITS OF ASIAN SEABASS *Lates calcarifer* AT TWO DIFFERENT SALINITIES

11.30 Doret van Muilekom, Jonas Müller, Michael Schlachter, Ronald M. Brunner, Henrike Seibel, Svenja Starke, Alexander Rebl, Tom Goldammer
THE TRANSCRIPTOMIC RESPONSE OF ATLANTIC SALMON *Salmo salar* TO MICROALGAE DIETS AND ENVIRONMENTAL STRESS

11.45 Dina Zilberg, Sagar Nayak, Arunjyothi Jawaji, Inna Khozin-Goldberg
MICROALGAL-CONTAINING DIETS: A SUSTAINABLE AND HEALTH-PROMOTING ALTERNATIVE IN BARRAMUNDI PRODUCTION

12.00 Dina Zilberg, Sagar Nayak, Yohannes Kpordzaxor, Uri Yogev, Amity Tal, Natan Gur, Ze Zhu, Amit Gross
FROM FISH EXCRETIONS TO HIGH-PROTEIN DIETARY INGREDIENT: FEEDING INTENSIVELY CULTURED BARRAMUNDI *Lates calcarifer* A DIET CONTAINING MICROBIAL BIOMASS, ORIGINATING FROM A MICROAEROPHILIC ASSIMILATION REACTOR OF A RECIRCULATING AQUACULTURE SYSTEM (RAS)

12.15 Dafna Israel
THE IMPORTANCE OF CHOOSING THE RIGHT ORGANIC ACIDS BLEND FOR AQUACULTURE FEED

12.30 Anna Tampou, K. Kousoulaki, A. Vasilaki, I. Nengas, I.T. Karapanagiotidis, E. Mente
GROWTH PERFORMANCE, AMINO ACID AND FATTY ACID COMPOSITION OF GILTHEAD SEABREAM *Sparus aurata* FED ALGAE MEAL DIETS

13.00 LUNCH

14.30 Santiago Pintos, C. Guidi, Eric Leclercq, Ana Rodiles, Francisco Javier Sánchez-Vázquez, Luisa María Vera
EFFECT OF A PROBIOTIC MIX ON FISH WELFARE AND STRESS RESPONSE: INFLUENCE OF THE TIME OF DAY OF ADMINISTRATION

14.45 Luisa Valente, Paula Canada, Cátia Costa, Ana Basto, Fátima Piloto, Maria A. Salgado, Helena Abreu, Jorge Dias, Alexandra Marques
THE USE OF SUSTAINABLE MARINE LIPID SOURCES IN DIETS FOR EUROPEAN SEA BASS *Dicentrarchus labrax*: EFFECTS ON GROWTH PERFORMANCE AND FATTY ACID PROFILE
15.00 Silvia Natale, Luca Parma, Sara Ciulli, Enrico Volpe, Francesca Errani, Valentina Indio, Alessandra De Cesare, Paolo Carcano, Nicole Francesca Pelusio, Pier Paolo Gatta, Alessio Bonaldo
EVALUATION OF DIETARY NUCLEOTIDES AND NUCLEIC ACIDS ON GROWTH AND GUT HEALTH OF EUROPEAN SEA BASS *European seabass* JUVENILES FED DIFFERENT FISHMEAL LEVEL

15.15 Christophe Jaeger, Joël Aubin, Vincent Gayet, Frédéric Terrier, Geneviève Corraze
FEEDING SEABREAM IN SUBSTITUTE FISHMEAL AND FISH OIL BY FRESH MUSSEL AND FEED BASED ON VEGETAL RESOURCES

15.30 Jinni Gu, Victoria Valdenegro, Iannis Karacostas, Elena Planas Callao, Stelios Tsekouras, Elisabeth Aasum
GILL HEALTH IN MARINE FISH AND BENEFIT OF FUNCTIONAL FEED AS PART OF THE HOLISTIC MANAGEMENT STRATEGY

15.45 Seemab Zehra, A. Mohamed, E. Pantanella, P. De Mello, J. Laranja, R. Saleh, A. Abulkasim, A. Al Shaikhi, A.M. Al Suwailem
GROWTH PERFORMANCE, PROXIMATE COMPOSITION, AND FEED CONVERSION RATIO OF JUVENILES AND PRE-ADULT GILT HEAD SEABREAM *Sparus aurata* FED COST-EFFECTIVE, IMPROVED DIETS

16.00 Diogo Filipe, Rui Magalhães, Carolina Castro, José Salgado, Aires Oliva-Teles, Isabel Belo, Helena Peres
EFFECT OF SOLID-STATE FERMENTATION EXTRACTS OBTAINED WITH WINERY AND OLIVE MILL BY-PRODUCTS ON OXIDATIVE STRESS REDUCTION IN EUROPEAN SEA BASS DIETS

16.15 André Barreto, D. Peixoto, C. Fajardo, W. Pinto, R.J.M. Rocha, L. Conceição, B. Costas
DIETARY ADDITIVES SUPPLEMENTED IN INERT MICRODIETS CAN MODULATE THE EXPRESSION OF IMMUNITY RELATED GENES OF WHITELEG SHRIMP *Penaeus vannamei* POST-LARVAE

16.30 Eric Leclercq, Mark Rawling, Mathieu Castex
THE DOSE-RESPONSE TO A SPECIFIC MANNAN-RICH YEAST CELL WALL TRADES BETWEEN GROWTH AND HEALTH BENEFITS IN SEAWATER ATLANTIC SALMON *Salmo salar*
17.00 Ivan Tankovski, Van Pham Thi Ha To, Wolfgang Koppe, Hannah Lucas
NUTRITIONAL EVALUATION OF ULTRA-HIGH PROTEIN AND ULTRA-HIGH PROTEIN LOW-OLIGOSACCHARIDE SOYBEAN MEALS IN DIETS OF POST-SMOLT ATLANTIC SALMON *Salmo salar*

SHELLFISH
Thursday, September 29  10.30 - 17.30  Arco Room
Chairs: Aad Smaal, Kartik Baruah

10.30 Ana Corrochano, Thomas Adams, Dmitry Aleynik, Michaël Bekaert, Stefano Carboni
PREDICTIVE BIOPHYSICAL MODELS OF BIVALVE LARVAE DISPERSAL IN SCOTLAND

10.45 Erika A.V. Burioli, Maurine Hammel, Nicolas Bierne, Frederic Thomas, Maryline Houssin, Delphine Destoumieux-Garzon, Guillaume M. Charriere
MUSSEL TRANSMISSIBLE NEOPLASIA MtrBTN: WHEN CANCEROUS CELLS ADOPT A PARASITIC LIFESTYLE

11.00 Kartik Baruah, Priya Rawat, Vaneet Gulati, Michael Saliba, Parisa Norouzitallab
PROBING THE PROPHYLACTIC POTENTIAL OF GINGER EXTRACT AGAINST ACUTE HEPATOPANCREATIC NECROSIS DISEASE-CAUSING *Vibrio parahaemolyticus* USING GNOTOBIOTIC *Artemia franciscana* AS A MODEL ORGANISM

BIOLOGICAL RESPONSES OF OYSTER *Crassostrea gasar* WHEN EXPOSED TO DIFFERENT CONCENTRATIONS OF TOTAL SUSPENDED SOLIDS IN A BIOFLOC SYSTEM: BEHAVIORAL AND BIOCHEMICAL ANALYSIS

11.30 Brecht Stechele, Anna Hughes, Steven Degraer, Peter Bossier, Nancy Nevejan
NORTHERN EUROPE’S SUITABILITY FOR FLAT OYSTER *Ostrea edulis* REEF RESTORATION AND OFFSHORE AQUACULTURE

11.45 A. De Marco, V.A. Baldassarro, L. Calzà, L. Giardino, G. Bignami, L. Parma, A. Bonaldo
EVALUATION EFFECTS OF HEAT WAVES ON FARMED *Crassostrea gigas* BIOMETRIC INDICES, HEAT SHOCK PROTEIN 70, 72, 90 AND P53 GENE EXPRESSION

12.00 Kathrin Steinberg
COMPARING ASC CERTIFIED SHRIMP FARMS WITH CONVENTIONAL FARMS AND LITERATURE – SHORTCOMINGS AND OPPORTUNITIES
13.00  LUNCH

14.30  **Sten Siikavuopio**, Grete Lorentzen, Federico Lian
**RED KING CRAB Paralithodes camtschaticus IN AQUACULTURE: OPPORTUNITY AND CHALLENGES**

14.45  **Grete Lorentzen**, Federico Lian, Sten I. Siikavuopio
**AQUACULTURE OF RED KING CRAB Paralithodes camtschaticus: EFFECTS ON MUSCLE PROPERTIES**

15.00  **Daniel Taylor**, Finn Bak, Pernille Nielsen
**TOTALLY TUBULAR: EXPERIENCES WITH A PROTOTYPE SUBMERSIBLE MUSSEL CULTIVATION SYSTEM**

15.15  **Oihana Solaun**, Izaskun Zorita, J. Germán Rodríguez, Marta Revilla, Urtzi Izagirre, Tifanie Briauadeau, Markel Montañó, Manuel González, Leire Arantzamendi, Joana Larreta, Yolanda Sagasminaga, Luis Ferrer, Almudena Fontán
**SUPPORT FOR THE MANAGEMENT OF THE EMERGING SHELLFISH SECTOR ON THE BASQUE COAST (SE BAY OF BISCAY)**

15.30  **Jean-Benoît Darodes de Tailly**, Ignacio Martinez Alpiste, Matthew A.G. Owen, Jonas Keitel, Jose M. Alcaraz-Calero, Mhairi E. Alexander, Katherine A. Sloman
**UNDERSTANDING THE PACIFIC WHITE SHRIMP Litopenaeus vannamei GROUP LEVEL FEEDING BEHAVIOUR IN AQUACULTURE PONDS**

15.45  **Leire Arantzamendi**, Marga Andrés, Oihane C. Basurko, Inma Martín, Izaskun Zorita, Joana Larreta, Mª Jose Suárez, Ainhara Pocheville, Lien Van der Shueren, Jane Maher, Mikel Auquinaga
**BIOBASEDropes (BIOGEARS) USE IN LONGLINE VS. RAFT MUSSEL Mytilus galloprovincialis AQUACULTURE: COMPARISON OF GROWTH PERFORMANCE AND QUALITY**

16.00  **Amine Chaabane**, Haitham Mohammed, Stephanie Cottey, Jean-François Gabarrou
**EFFECT OF A PROPRIETARY BLEND OF ESSENTIAL OIL BIOACTIVES ON STRESS RESPONSES OF Salmo salar**

16.15  **Stefania Chiesa**, Laura Di Blasi, Giovanna Marino
**ALIEN SPECIES ASSOCIATED TO COMMERCIAL BIVALVE TRANSLOCATIONS**

16.30  **Eva Hartog**, Lotte Niemeijer, Bas van den Berg, Demian Zwaan, Jacob Capelle
**IT'S GETTING HOT IN HERE; EXPLORING THE EFFECT OF HEAT TREATMENT ON SPAT AND HALF-GROWN OYSTERS Crassostrea gigas**
16.45  **Lotte Niemeijer**, Eva Hartog, Tony van der Hiele, Demian Zwaan, Lotte-Julia Bouwman, Jasper van Houcke  
*CAPTURING AN APHRODISIAC: IMPROVING THE CATCH EFFICIENCY OF OYSTER SPAT Crassostrea gigas AND Ostrea edulis IN THE DUTCH SOUTHWESTERN DELTA*

17.00  **M. Cescon**, Luisa Pasti, Alberto Cavazzini, Michele Mistri, Cristina Munari, Valentina Costa, Pier Paolo Giovannini, Martina Catani, Leonardo Aguiari  
*ENVIRONMENTALLY SUSTAINABLE SOLUTIONS FOR PRODUCTIVE RECOVERY OF Ostrea edulis*

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**RAS WATER, SOLIDS, GAS**  
Thursday, September 29  10.30 - 17.30  Castello 1 Room  
Chairs: Carlos Espinal, Zala Schmautz

10.30  **Martina Balazinski**, Michael Schmidt, Gerd-Michael Arndt, Klaus-Dieter Weltmann, Juergen Kolb, Veronika Hahn  
*PHYSICAL PLASMA AS AN EFFICIENT AND SUSTAINABLE DISINFECTION TECHNOLOGY IN RECIRCULATING AQUACULTURE SYSTEMS*

10.45  **Veronika Hahn**, Martina Balazinski, Michael Schmidt, Klaus-Dieter Weltmann, Thomas von Woedtke, Jürgen Kolb  
*PHYSICAL PLASMA FOR DECONTAMINATION IN AQUACULTURE*

11.00  **Matteo Egiddi**, Carlos Espinal, Lola Toomey, Ric de Vos, Rob van de Ven  
*METABOLIC FINGERPRINTING OF RECIRCULATING AQUACULTURE SYSTEMS: A PILOT APPLICATION OF UNTARGETED METABOLICS TO DESCRIBE BIOLOGICAL REECTORS*

11.15  **Wanhe Qi**, Peter Skov, Kim de Jesus Gregersen, Lars-Flemming Pedersen  
*ESTIMATION OF BIOFILM ACTIVITIES ON BIOFILTER CARRIERS FROM RECIRCULATING AQUACULTURE SYSTEM BY RESPIROMETRY*

11.30  **Xiaoyu Huang**, Sanni Aalto, Johanne Dalsgaard, Per Pedersen  
*IMPACTS OF DIETARY C/N RATIOS ON WATER QUALITY IN RECIRCULATING AQUACULTURE SYSTEMS*

11.45  **Kim João de Jesus Gregersen**, Lars-Flemming Pedersen  
*OPERATION OF RAS UNDER HETEROTROPHIC-N ASSIMILATION: CARBOHYDRATE ADDITION TO FRESH WATER WITH RAINBOW TROUT*
12.00  **Sebastian Marcus Strauch**, Ingrid Henry, Karoline Kjøk, Hans Kristian Tangen, Siri Tømmerås, Wolfgang Koppe
START-UP AND PERFORMANCE OF A DENITRIFICATION BIOREACTOR IN A COMMERCIAL SMOLT PRODUCTION FACILITY (RECIRCULATING AQUACULTURE, AKVA GROUP) IN MID NORWAY

12.15  **Fridolin Tschudi**, Pascal Wiesli, Mathias Sigrist, Luca Regazzoni, Boris Pasini, Linda Tschirren, Kevin Demondion, Marco Widmer, Mark A. Lever, Thomas B. Hofstetter
NEW INSIGHTS INTO GEOSMIN DYNAMICS IN FRESHWATER RECIRCULATING AQUACULTURE SYSTEMS FOR ATLANTIC SALMON *Salmo salar*

12.30  **Mathias Sigrist**, Fridolin Tschudi, Pascal Wiesli, Luca Regazzoni, Boris Pasini, Linda Tschirren, Kevin Demondion, Marco Widmer, Mark A. Lever, Thomas B. Hofstetter
CASE STUDY OF GEOSMIN CONTROL IN FRESHWATER RECIRCULATING AQUACULTURE SYSTEMS FOR ATLANTIC SALMON

12.45  **Andre Meriac**, Jelena Kolarevic
CARBON BIOAVAILABILITY AND NITRATE DETERMINE H2S PRODUCTION POTENTIAL IN SLUDGE COLLECTED FROM ATLANTIC SALMON IN RAS

13.00  LUNCH

14.30  **Brian Vinci**, Laura Bailey
PERFORMANCE CHARACTERIZATION OF A DIFFUSED AERATION BASIN FOR CARBON DIOXIDE REMOVAL IN RECIRCULATING AQUACULTURE SYSTEMS

14.45  **Kevin Stiller**, Jelena Kolarevic, Andre Meriac
AIR BASED CO2 MEASUREMENTS FOR INDUSTRIAL CARBON DIOXIDE DEGASSING UNIT AUTOMATION

15.00  **Manolya Akdemir Çolpan**
TWO-PHASE FLOW MODELING VIA COMPUTATIONAL FLUID DYNAMICS (CFD) STUDIES ON A CASE STUDY: MOVING BED BIOMEDIA REACTOR (MBBR) 1000

15.15  **Brian Vinci**, Khurram Shahzad, Curtis Crouse
EVALUATION OF A VELOCITY ASSIST INLET FOR IMPROVEMENT OF HYDRODYNAMICS IN COMMERCIAL-SCALE DUAL DRAIN FISH TANKS USED IN RECIRCULATING AQUACULTURE SYSTEMS

15.30  **Andrew Ray**, Mark Johannemann, Leo Fleckenstein
LOW-COST DENITRIFICATION IN BRACKISH WATER AQUACULTURE PRODUCTION

15.45  Round Table
PERFORMFISH: OUTPUTS FOR THE SECTOR / FUTURE TRENDS AND CHALLENGES
Thursday, September 29   10.30 - 17.30   Ponte Room

CONSUMER-DRIVEN PRODUCTION: INTEGRATING INNOVATIVE APPROACHES FOR COMPETITIVE AND SUSTAINABLE PERFORMANCE ACROSS THE MEDITERRANEAN AQUACULTURE VALUE CHAIN

CONTRIBUTING TO A SUSTAINABLE AND COMPETITIVE MEDITERRANEAN AQUACULTURE: THE PERFORMFISH LEGACY

10.30 Katerina Moutou, UTH
PerformFISH: designed to deliver for the MMFF sector

10.45 Costas Tsigenopoulos, HCMR
Application of the Med_Fish SNP-array for genomic selection in the MMFF sector

10.55 Giorgos Koumoundouros, UoC
How rearing variables reflect on quality and productivity in gilthead sea bream hatcheries

11.05 Deborah Power, CCMAR
A larval quality monitoring tool for the Mediterranean hatcheries

11.15 Panos Christofilogiannis, AQUARK
Novel Vaccines of high efficacy for European sea bass

11.25 Tommaso Petochi, ISPRA
Operational Welfare Indicators for the MMFF sector

11.35 Nikos Papandroulakis, HCMR
Validated methodology for cage biomass estimation of Mediterranean farmed fish

11.45 Daniel Montero Vitores, ULPGC
Re-defining micronutrient requirements in Mediterranean fish for more sustainable aquafeeds

11.55 Christian Philip Unmack, EUROFISH
How end consumers of MMFF products in major markets perceive “Sustainability”?
12.15 Q&A

12.45 LUNCH

BOOSTING PRODUCTION AND SUSTAINABILITY: CHALLENGES AND OPPORTUNITIES FOR MEDITERRANEAN MARINE FISH FARMING

14.30 Giovanna Marino, ISPRA
Benchmarking productivity and sustainability of European sea bass and gilthead sea bream farming based on Key Performance Indicators

15.30 PANEL DISCUSSION

16.30 Yiannis Pelekanakis, FGM
A revised Code of Conduct for the Mediterranean fish farming sector

AE2022 INNOVATION FORUM (EAS/EATIP/EU)
Thursday, September 29    10.30 - 17.30    Tempio 1 Room

Organised by The European Aquaculture Technology and Innovation Platform, the European Commission and the European Aquaculture Society

Creating the correct circumstances for the successful uptake of innovation solutions across aquaculture value chains benefits from a methodological approach considering industry needs alongside strategic political and policy objectives, coupled with an understanding of appropriate delivery vehicles. Multiple knowledge transfer and facilitation routes, including platforms, projects, accelerators, and dissemination/education tools all have a key role to play in effective innovation transfer and capacity building. Practical demonstrations of initiatives with high innovation potential will be presented as examples both of principles and practice.

The AE2022 Innovation Forum is aimed at industry actors, policy makers, knowledge transfer experts, and those engaging in aquaculture knowledge development and collaboration. It will inform how best to ensure meaningful knowledge & innovation transfer addressing research gaps and priorities for action whilst ensuring impact.
10.30 PART I. THE POLICY ENVIRONMENT AS A DRIVER FOR INNOVATION UPTAKE
Moderated by David Bassett, EATiP
Short, focused presentations with Q&A after each

- Global aquaculture policies as a lead for setting priorities nationally – Austin Stankus, FAO Fisheries and Aquaculture Division
- Implementing the Research and Innovation aspects of the Strategic Guidelines and the Aquaculture Assistance Mechanism for a more sustainable and competitive European Aquaculture – Lorella de la Cruz, European Commission, DG MARE
- A new approach for a sustainable Blue Economy - Blue farming within the Green Deal & Farm to Fork Strategies – Birgit Van Tongelen, European Commission DG MARE

11.30 PART II. THE BUILDING BLOCKS
Moderated by Mieke Eggermont, EATiP Mirror Platform Working Group
A panel-based discussion focussing on the available instruments and how they operate to facilitate the identification of needed innovations and mechanisms to maximise uptake.

Contributions from
- Interregional Innovation Investments (I3) smart specialisation platform(s) for Aquaculture - David Basset, EATiP
- National Innovation Organisations - NN, Innovation Norway
- European Institute of Innovation & Technology - Mercedes Groba, EIT Food

12.30 LUNCH

14.30 PART III. FACILITATING THE UPTAKE
Moderated by Damian Toner, EAS
Following up to Part II, with a focus on concrete measures within the policy and building blocks of the previous sessions to present and discuss approaches, experiences and best practice.

- BlueBio Cofund, Ingeborg Korme
- SUBMARINER Network, Frederick Bruce
- HATCH Blue, Chris Sworder
PART IV. SELECTED CASE STUDIES
Moderated by Alexandra Neyts, AQUAEXCEL3.0
Selection of case studies with outputs leading to either increased TRL or with high innovation potential.

AQUAEXCEL3.0 Transnational access high-impact outputs:
- Massimo Orioles: *New diagnostic techniques to prevent losses in rainbow trout farms due to the Red Mark Syndrome*
- Ricardo Ekmay: *Not only insect flour: use of wood-based yeast SCP (single-cell protein) as an ingredient for trout diets.*
- Hijran Yavuzcan: *A novel welfare assessment tool for sea-caged European Seabass: the SWIM (Salmon Welfare Index Model) approach*
- Raneesha De Fonseka: *Triploid salmon: how salinity influences growth and welfare*
- Dinara Bekkozhayeva: *No more tags: a novel method to identify fish by using scale patterns*

Discussion chaired by Kjell Maroni, member of AQUAEXCEL3.0 IRAP

Research-based industry innovations and start-ups:
- Viking Aqua (AquaBioTech, Shane Hunter)
- Planktonic (Antonio Coli)
- Next Tuna (Paul Sindilariu)

WRAP UP – with the 4 moderators giving a short summary of their parts.

ASTRAL WORKSHOP
“New Marine IMTA Cultivation Opportunities – Open Water and Land-Based Systems”
Thursday, September 29  14.30 - 17.30  Borgo Room

14.00 Welcome and workshop format – Pauline O’Donohoe (Marine Institute - MI)
14.05 ASTRAL – Elisa Ravagnan (Norwegian Research Centre - NORCE)
14.15 IMTA – Thierry Chopin (NORCE)
14.25 IMPAQT – Frank Kane (MI)
14.35 AquaVitae – Philip James (The Norwegian Food Research Institute- NOFIMA)
14.45 Technology for IMTA – Marie Smith (Council for Scientific and Industrial Research - CSIR)
14.55  Open water IMTA systems  
IMTA lab Ireland: Joanne Casserly (MI)  
IMTA lab Scotland: Adrian Macleod (The Scottish Association for Marine Science - SAMS)

15.15  Land-based IMTA systems  
IMTA lab SA: Brett Macey (Department of Forestry, Fisheries and the Environment - DFFE)  
IMTA lab Brazil: Luis Poersch (Universidade Federal do Rio Grande - FURG)

15.35  Prospective IMTA lab  
IMTA Lab Argentina: Tomás Chalde (Centro Austral de Investigaciones Científicas - CONICET)

15.45  Q & A

15.50  Two Workshop Groups  
Group 1 - Open marine water IMTA systems  
Group 2 – Land-based marine IMTA system

OTHER CONTRIBUTIONS 1  
Thursday, September 29  10.30 - 17.30  Parco Room  
Chair: Luca Parma, Andrea Gustinelli

THE ROLE OF OLEIC ACID IN FAT DEPOSITION AND OXIDATIVE STRESS IN EUROPEAN SEABASS *Dicentrarchus labrax* JUVENILES

10.45  Kiranpreet Kaur, Trond M. Kortner, Åshild Krogdahl  
EFFECT OF PHOSPHATIDYLCHOLINE FROM KRILL TOWARDS REDUCING LIPID MALABSORPTION SYNDROME IN ATLANTIC SALMON

11.00  Ioannis Papadakis, Lydia Katsika, Panagiota Tsoukali, Athanasios Samaras, Maria Mastoraki, Manolis Vasilakis  
EFFECT OF FEEDING FREQUENCY ON PRODUCTIVE INDICES IN OPTIMUM OXYGEN SATURATION LEVELS FOR SEA BREAM *Sparus aurata* AND SEA BASS *Dicentrarchus labrax*
11.15  **Loes Vandecasteele**, Jessica Knoop, Olivier De Clerck, Bert Groenendaal, Tom Baelemans, Mathieu Wille, Filip Velghe, Colin Janssen, Jana Asselmans, Peter Bossier, Margriet Drouillon 
**SEATACROPS: HEALTHY AND SUSTAINABLE FOOD FROM ON LAND SEAWEED CULTIVATION IN BELGIUM (in prep.)**

11.30  **Ingeborg Bringslid**, Jorunn Skjermo, Siv Anina Etter, Kjell Inge Reitan 
**POTENTIAL RECYCLING OF PHOSPHORUS FROM SALMON FARMS WITH Saccharina latissima CULTIVATED IN IMTA**

11.45  **Tyler Scodnick**, Jennie Korus, Tim Stone 
**CREATING DEEPER VALUE FROM LIVE DATA: OXYGEN, TEMPERATURE, AND ALGAL BLOOMS**

12.00  **Marisa Silva**, Konstanze Schiessl, Camila Montealegre, Elena Wernicke von Siebenthal, Jean-Baptiste Luce, Thomas Janssens 
**MONITORING MICROBIAL DYNAMICS IN A PERCH RECIRCULATING AQUACULTURE SYSTEM WITH FULLY AUTOMATED ONLINE FLOW CYTOMETRY**

12.15  **Aleksei Krasnov**, Marta Mira, Lene Sveen, Erik Burgerhout, Jens-Erik Dessen, Sergey Afanasyev, Vasco Mota 
**THE ATLANTIC SALMON IMMUNE SYSTEM CHANGES DURING SMOLTIFICATION: ENHANCED ACTIVITY OF B CELLS**

12.30  **Anastasia Tsiola**, Ilektra Papachristou, Ioulia Santi, Haris Zafeiropoulos, Manolis Tsapakis, Paraskevi Pitta 
**DIEL OSCILLATIONS IN MICROBIAL PLANKTON COMMUNITIES IN AQUACULTURE ENVIRONMENT**

12.45  **Ivan Abaho**, Peter Akoll, Charles Masembe, Clifford L.W. Jones 
**DIFFERENTIAL EXPRESSION ANALYSIS OF SEX GENES DURING PINE POLLEN-INDUCED MASCULINIZATION OF NILE TILAPIA Oreochromis niloticus**

13.00  **Alan E. Tinch** 
**OVERCOMING THE INFERTILIY PARADOX TO PRODUCE INFERTILE GENOME-EDITED FISH**

13.00  **LUNCH**

14.30  **Alireza Mobaran**, Ali Azimian 
**IDENTIFICATION OF THE MICROFLORA OF THE GASTROINTESTINAL SYSTEM OF RAINBOW TROUT Oncorhynchus mykiss AND THEIR POSSIBLE IMPORTANCE IN TERMS OF PROBIOTICS**
14.45 Xoel Souto Guitián, A.M. De Azevedo, A.P. Losada, N. Gandoy, R. Bermúdez, M.I. Quiroga
LESIONAL PATTERN OF TURBOT Scophthalmus maximus FURUNCULOSIS: NEW ADVANCES FOR INDUSTRIAL DIAGNOSIS

15.00 Konstantina Bitchava, Maria Kyritsi, Antiopi Tsoureki, Kostas Koukaras, Sofia Michailidou, Grigorios Krey, Anagnostis Argiriou
16S METAGENOMIC ANALYSIS ON SKIN SAMPLES COLLECTED FROM GILTHEAD SEA BREAM Sparus aurata L. WITH RED RASH LESIONS AND NORMAL ONES

15.15 Alireza Mobarhan, Ali Azimian
THE EFFECTS OF GARLIC Allium sativum AND HENNA Lawsonia inermis EXTRACT ON REDUCING THE FUNGAL LOAD OF FERTILIZED AND EYED EGGS OF RAINBOW TROUT Oncorhynchus mykiss

15.30 Ana Claudia Sánchez-Ortiz, Rafael Franco-Sapién, Ángel Isidro Campa-Córdovala, Ma. del Carmen Flores-Miranda
NATURAL ANTIMICROBIALS FOR AQUACULTURE

15.45 Natasja Cox, Evelien De Swaef, Mathias Corteel, Wim Van Den Broeck, Peter Bossier, João J. Dantas-Lima, Hans J. Nauwynck
DEVELOPMENT OF STANDARDIZED IN VIVO WHITE SPOT SYNDROME VIRUS (WSSV) INDIVIDUAL AND GROUP CHALLENGE MODELS FOR EXPERIMENTAL INFECTION STUDIES IN Litopenaeus vannamei SHRIMP

16.00 Florentina Gartmann, Zala Schmautz, Linda Tschirren, Fridolin Tschudi, Nadine Antenen, Sarah Milliken, Ranka Junge
MASSIVE OPEN ONLINE COURSE: AQUAPONICS – THE CIRCULAR FOOD PRODUCTION SYSTEM

16.15 Leticia Luján-Amoraga, Laura B. Ribeiro, Catia L. Marques, Sara Castanho, Narcisa Bandarra, Paulo J. Gavaia, Pedro Pousão-Ferreira
IMPACT OF OMEGA-3 DIETARY SUPPLEMENTATION ON LARVAL SKELETAL DEVELOPMENT, BONE MINERALISATION, AND OXIDATIVE STRESS IN A FAST-GROWTH SPECIES: Argysosomus regius

HISTOCHEMICAL AND HISTOLOGICAL CHANGES DURING OVARIAN DEVELOPMENT OF RIVER PRAWN Macrobrachium americanum (SPENCE BATE, 1868)
16.45 Luca van Duren, Lauriane Vilmin
MODELLING SEAWEED CULTIVATION ON THE DUTCH CONTINENTAL SHELF

17.00 Luís Conceição, André Barreto, Wilson Pinto, Rui Rocha
ROADMAP FOR DEVELOPING A MICRODIET FOR WHITELEG SHRIMP Penaeus vannamei POST-LARVAE

ENvironmental Impact and Interactions – Continued
Thursday, September 29  14.30 - 17.30  Arengo Room
Chairs: Roberto Pastres, Daniele Brigolin

14.30 Jon Grant, Ramon Filgueira, Ian Gardner, Gregor Reid, Leah Lewis-McCrea, Joao Ferreira
A DECISION SUPPORT SYSTEM FOR AQUACULTURE REGULATION IN NOVA SCOTIA

14.45 Jenny Weitzman, Ramon Filgueira, Jon Grant
NOT A QUESTION OF HOW MUCH, BUT OF HOW AND WHERE: REDEFINING CARRYING CAPACITY FOR HOLISTIC ASSESSMENT OF AQUACULTURE

15.00 Alhambra M. Cubillo, João G. Ferreira, Leonard Bernard-Jannin, João Lencart e Silva, Heather Moore, Adam Mellor, Rebecca Kyle, Matt Service, Jay Calvert, Orla Crothers
AN ECOSYSTEM MODELLING FRAMEWORK FOR ANALYSIS AND MANAGEMENT OF EUTROPHICATION AND AQUACULTURE IN COASTAL SYSTEMS

RED SEA FISH FARMING ECOSYSTEM EVALUATION: A FISH FARM ANALYSIS SYSTEM TO MANAGE SUSTAINABLE DEVELOPMENT OF THE AQUACULTURE INDUSTRY ALONG THE RED SEA WATERS OF SAUDI ARABIA

15.30 Elisa Stella, Roberto Pastres, Damiano Pasetto, Matko Kolega, Danijel Mejdandžic, Slavica Čolak, Antares Musmanno, Lorenzo Mari, Enrico Bertuzzo
APPLICATION OF EPIDEMIOLOGICAL MODELLING OF Sparicotyle chrysophrii TRANSMISSION IN Sparus aurata FARMS

15.45 Tim Szewczyk, Bernat Morro, Carlos Diaz-Gil, Sonia Rey-Planellas
ENVIRONMENTAL DRIVERS OF FISH MORTALITY ALONG AN INSHORE-OFFSHORE GRADIENT IN SCOTLAND
16.00 Gonçalo Silva Marinho, X. Anton Álvarez-Salgado, Isabel Fuentes-Santos, Itziar Burgués, Isabel Sousa-Pinto, Åsa Strand
NATURE’S CONTRIBUTIONS TO PEOPLE PROVIDED BY LOW-TROPHIC SPECIES AQUACULTURE

16.15 Arianna Martini, Luca Buttazzoni, Massimo Cali, Fabrizio Capoccioni, Marco Martinoli, Thomas Moranduzzo, Nicolò Tonachella, Giacomo Pirlo, Domitilla Pulcini
THE IMPORTANCE OF A COMMON METHODOLOGICAL APPROACH FOR THE ASSESSMENT OF THE CARBON SINK POTENTIAL OF MOLLUSC FARMING

16.30 Camilla Bertolini, Daniele Brigolin, Roberto Pastres
MODELLING CO2 SEQUESTRATION POTENTIAL OF MUSSEL FARMS ACROSS THE MEDITERRANEAN SEA

MODELLING THE IMPACT OF SEAWEED CULTIVATION ON THE MARINE PROTIST COMMUNITY

17.00 Ramón Filgueira, Thomas Guyondet, Pramod Thupaki, Gregor Reid, Leigh Howarth, Jon Grant
ASSESSING THE POTENTIAL FOR NUTRIENT TOXICITY ON SEAGRASS IN THE VICINITY OF AN AQUACULTURE SITE

SELECTIVE BREEDING
Thursday, September 29 14.30 - 17.30 Marina Room
Chair: John Bastiaansen

14.30 Khrystyna Kurta, Henrik Jeuthe, Dirk-Jan de Koning, Christos Palaiokostas
ACROSS SPAWNING SEASON VARIATION OF SPERM QUALITY IN FARMED ARCTIC CHARR Salvelinus alpinus

14.45 Sara Faggion, Paolo Carnier, Valentina Bonfatti, Luca Bargelloni
GENOMIC RELATIONSHIPS BETWEEN TRAINING AND TESTING SETS AFFECT GENOMIC PREDICTION ACCURACY OF NODAVIRUS RESISTANCE IN GILTHEAD SEA BREAM

15.00 Binyam Sime Dagnachew, Ashie Norris, Serap Gonen, Anna Sonesson
MULTI-TRAIT APPROACH FOR UTILIZING MULTI-GENERATION DATA FOR GENOMIC PREDICTION IN ATLANTIC SALMON
15.15  Stavroula Oikonomou, Zoi Kazlari, Kantham Papanna, Tereza Manousaki, Dimitrios Loukovitis, Arkadios Dimitroglou, Lefteris Kottaras, Evgenia Gourzioti, Charalampos Pagonis, Andreas Konstantis, Leonidas Papaharisis, Costas S. Tsiagenopoulos, Dimitrios Chatziplis
COMPARISON BETWEEN PEDIGREE AND GENOMIC PREDICTIONS USING THE MEDFISH SNP-ARRAY AND SELECTED LOW-DENSITY SNP PANELS FOR BODY WEIGHT IN EUROPEAN SEABASS

15.30  François Allal, Mathieu Besson, Alain Vergnet, David J. McKenzie, Frédéric Clota, Béatrice Chatain, Hugues de Verdal, Marc Vandeputte
IMPROVING FEED EFFICIENCY IN FISH: LET’S GET DOWN TO BUSINESS

15.45  Marc Vandeputte, Clota Frédéric, Vergnet Alain, Blanc Marie-Odile, Lallement Stéphane, Ruelle François, Sánchez-Baizán Nuria, Besson Mathieu, Piferrer Francesc, Cousin Xavier, Goikoetxea Alexander, Leitwein Maeva, Allal François, Geffroy Benjamin
CAN WE COMBINE GENETICS AND A TWO-STEP TEMPERATURE CONTROL TO MOVE TOWARDS MONOSEX EUROPEAN SEA BASS *Dicentrarchus labrax*?

16.00  Anne Kettunen, Katerina Kousoulaki, Ingunn Thorland, Binyam S. Dagnachew
GENETIC VARIATION IN GROWTH IN ATLANTIC SALMON WHEN FED CONVENTIONAL AND INNOVATIVE DIETS

16.15  Fernando Naya-Català, Maria Carla Piazzon, Silvia Torrecillas, Josep Àlvar Calduch-Giner, Ramón Fontanillas, Ariadna Sitjà-Bobadilla, Daniel Montero, Jaume Pérez-Sánchez
INTERACTION OF DIET, HOST GENETICS AND GUT MICROBIOTA DURING THE PRODUCTION CYCLE OF GILTHEAD SEA BREAM

16.30  Priadi Setyawan, Muhammad H. Fariduddin Aththar, Imron Imron, Bambang Gunadi, Joni Haryadi, John W. M. Bastiaansen, Mark Camara, Hans Komen
GENOTYPE BY ENVIRONMENT INTERACTION FOR PRODUCTIVITY TRAITS OF A HYBRID TILAPIA IN FRESH AND BRACKISH WATER PONDS

16.45  Anastasia Bestin, Floriane Colon, Marie Villa, Mathieu Besson, Romain Morvezen, Lydia Jaffrelo, Joseph Brunier, Aline Bajek, Pierrick Haffray, Jérôme Bugeon
GENETIC PARAMETERS OF EDIBLE YIELDS AND THEIR NON-LETHAL PREDICTORS IN TURBOT *Scophthalmus maximus*
17.00 Emilie Delpuech, Marc Vandeputte, Florence Phocas, Yoannah François, Anastasia Bestin, Mathieu Besson, Aline Bajek, Joseph Brunier, Arthur Cherbuin, Boudjema Imarazene, Xavier Cousin, Jean-Sebastien Bruant, Michel Sourdioux, Thierry Morin, Pierrick Haffray, Romain Morvezen, François Allal
FINE MAPPING FOR VIRAL NERVOUS NECROSIS RESISTANCE IN EUROPEAN SEA BASS *Dicentrarchus labrax* IDENTIFIED BY WHOLE-GENOME SEQUENCING

17.15 Muhammad Luqman Aslam, Sverrir Valdemarsson, Andreas Aarseth Berge, Theis Bue, Bjarne Gjerde
GENETIC VARIATION, GWAS, AND PREDICTABILITY FOR SURVIVAL AGAINST IPNV STRAINS IN RAINBOW TROUT

MARKET, PROCESSING AND CONSUMERS
Thursday, September 29  14.30 - 17.30  Tempio 2 Room
Chairs: Pietro Rocculi, Sylvia Tappi

14.30 Ana C.A.S. Pinheiro, Francisco J. Martí-Quijal, Francisco J. Barba, Silvia Tappi, Pietro Rocculi
PULSED ELECTRIC FIELDS (PEF) AND ACCELERATED SOLVENT EXTRACTION (ASE) FOR THE VALORIZATION OF SHRIMP BY-PRODUCTS: RECOVERY OF ASTAXANTHIN AND ANTIOXIDANT EXTRACTS

14.45 Fabio D’Elia, Lorenzo Nissen, Silvia Tappi, Jessica Genovese, Andrea Gianotti, Ana Cristina de Aguiar S. Pinheiro, Pietro Rocculi
EFFECT OF COLD PLASMA TREATMENT ON THE SHELF-LIFE OF SEA BREAM FILLETS

15.00 Theofania Tsironi, Evmorfia Athanasopoulou, Aikaterini Spanou, Stylianos Chatzidakis, Dimitris Ladakis, George Stoforos, I. Mantala, E. Flemetakis, Apostolos Koutinas
RETHINKING PLASTIC PACKAGING FOR FISH AND SEAFOOD: NOVEL MATERIALS AND PROCESSES FOR A ZERO-WASTE FUTURE

15.15 Ana C.A.S. Pinheiro, Fabio D’Elia, Gianfranco Picone, Silvia Tappi, Francesco Capozzi, Pietro Rocculi
INNOVATIVE CRYO-SMOKING PROCESS FOR THE PRODUCTION OF SMOKED SALMON
15.30 Vera Barbosa, Carolina Camacho, Helena Oliveira, Patricia Anacleto, Ana Luísa Maulvault, Inês Delgado, Marta Ventura, Maria Leonor Nunes, Piotr Eljasik, Remigiusz Panicz, Kalliopi Tsampa, Andreas Karydas, Laura Ribeiro, Pedro Pousão-Ferreira, Jorge Dias, Maria Luisa Carvalho, Marta Martins, António Marques

NUTRITIONAL VALUE AND QUALITY CHANGES DURING FROZEN STORAGE OF ECO-INNOVATIVE BIOFORTIFIED FARmed gILTHEAD SAEbREAM Sparus aurata and common carp Cyprinus carpio

15.45 João G. Ferreira, Rui Gomes Ferreira, Marta Tirano, Shawn Robinson, Johan Johansen, Christopher Haatuft

GOODFISH: BUILDING BRIDGES BETWEEN PRODUCTION AND CONSUMPTION OF CULTIVATED FISH

16.00 Laura López-Mas, Anna Claret, Gaëlle Arvisenet, Roser Romero del Castillo, Zein Kallas, Massimo Zuccaro, Luis Guerrero

EUROPEAN CONSUMERS’ SUSTAINABILITY BELIEFS: WILD FISH VERSUS FARMED FISH

16.15 Themistoklis Altintzoglou, Pirjo Honkanen

CONSUMER AWARENESS ABOUT AQUACULTURE IN EUROPE: A COMMUNICATION CAMPAIGN IN THE FutureEUAqua PROJECT

16.30 Florent Govaerts, Svein Ottar Olsen

CONSUMERS’ VALUES-ATTITUDES-BEHAVIOUR (VAB) TOWARDS CONSUMING SEAWEED FOOD PRODUCTS: THE EFFECT OF PERCEIVED NATURALNESS, UNIQUENESS, AND BEHAVIOURAL CONTROL

16.45 Gøril Voldnes

INDUSTRIAL BUYERS’ FOOD NEOPHOBIA – A BARRIER TO MARKET ENTRY?

17.00 Valeska Weymann

HOLISTIC APPROACH TOWARDS SAFE AND SUSTAINABLE AQUACULTURE SUPPLY CHAIN
FUNCTIONAL INGREDIENTS – CONTINUED
Friday, September 30 09.00 - 11.00 Arco Room
Chairs: Florian Geay, Monica Juarez Ceballos

09.00 Matthijs de Jong, Arno van der Aa, Brecht Bruneel, Jolien Van Soest, Eakopol Wangkahart
ANTIOXIDANT STATUS AND DISEASE RESISTANCE OF NILE TILAPIA Oreochromis niloticus FED DIFFERENT SOURCES AND LEVELS OF SELENIUM

09.15 Pierrick Kersante, Eakapol Wangkahart, Guillaume Le Reste
FREE AMINO ACIDS MIX SUPPLEMENTATION ON DIET IMPROVES GROWTH PERFORMANCES, FEED UTILIZATION, ANTIOXIDANT AND IMMUNE RESPONSES, DIGESTIVE ENZYMES AND FATTY ACID COMPOSITION OF NILE TILAPIA FINGERLING Oreochromis niloticus

09.30 Alex Diana, Andrew Richardson
TRANSIENT- AND RESIDENT-GUT MICROBIOTA IS POSITIVELY IMPROVED ON RAINBOW TROUT Oncorhynchus mykiss FED WITH INSECT MEAL FROM BLACK SOLDIER FLY Hermetia illucens

09.45 Valentin Eckart, Soodabe Parhizkar, Mehrnoush Norouzi, Mostafa Bagheri Tavani, Birgit Keimer
HYDROLYZED YEAST Kluyveromyces fragilis AS A FEED MATERIAL TO IMPROVE GROWTH PERFORMANCE AND IMMUNE FUNCTIONS OF RAINBOW TROUT Oncorhynchus mykiss

10.00 Matteo Zarantoniello, Lina Fernanda Pulido Rodriguez, Basilio Randazzo, Gloriana Cardinaletti, Elisabetta Giorgini, Alessia Belloni, Giulia Secci, Filippo Faccenda, Francesca Fava, Patrizia Di Marco, Domitilla Pulcini, Giuliana Parisi, Fabrizio Capoccioni, Emilio Tibaldi, Ike Olivotto
GROWTH, BLOOD METABOLIC PARAMETERS AND GUT HEALTH STATUS IN RAINBOW TROUT Oncorhynchus mykiss FED FISHMEAL-FREE DIETS SUPPLEMENTED WITH CONVENTIONAL FEED ADDITIVES OR DRIED MICROBIAL BIOMASS AND RED SWAMP CRAYFISH MEAL AS FEED SUPPLEMENT
10.15 Agustin Ignacio Lopez Gialdi, Ana Gamundi Berenguer, Yolanda Molares Montrero, Joaquim Gutierrez Fruitos, Marta Conde Sieira, Francisco Antonio Guardiola, Enric Gisbert
ACUISOST: AQUACULTURE SUSTAINABILITY AND RESILIENCE THROUGH NUTRITIONAL STRATEGIES

BROODSTOCK AND HATCHERY MANAGEMENT
Friday, September 30  09.00 - 11.00  Tempio 2 Room
Chairs: Nicolas Mace, Akos Horváth

09.00 Daniel Benetti
OVERVIEW ON ADVANCED TECHNOLOGIES OF NEW MARINE FISH SPECIES AND CHALLENGES LIMITING THEIR COMMERCIAL VIABILITY FROM HATCHERY TO OFFSHORE AQUACULTURE

09.15 Nafsika Karakatsouli, Sofia-Brinkmann Bougali, Apostolos Peppas, Kostas Ntomalis, Anemos Katelis, Athanasios Tsiaras, Alkisti Batzina, Elpiniki Monachou
CO-FEEDING DRY AND LIVE FEED IN FIRST-FEEDING EUROPEAN SEABASS Dicentrarchus labrax: EFFECTS ON FUNCTIONAL DEVELOPMENT OF THE DIGESTIVE SYSTEM, LARVAE AND POST-LARVAE PERFORMANCE

09.30 Andreas Tsipourlianos, Chara Kourkouta, Alexia Fytsili, Lamprini Tzioga, Soraia Santos, Babak Najafpour, Deborah M. Power, George Koumoundouros, Katerina A. Moutou
DEVELOPMENT OF A MOLECULAR INDEX OF LARVAL QUALITY FOR USE IN COMMERCIAL PRODUCTION OF GILTHEAD SEABREAM AND EUROPEAN SEABASS

09.45 Stefano Lancerotto, Ioannis Fakriadis, Katerina Samiotaki, Andrea Meloni, Irini Sigelaki, Maria Papadaki, Constantinos C. Mylonas
INDUCTION OF SPERMATOGENESIS IN 1+ YEAR OLD GREATER AMBERJACK Seriola dumerili AFTER ADMINISTRATION OF SINGLE-CHAIN RECOMBINANT GONADOTROPINS

10.00 Ákos Horváth, Zoran Marinovic, Jelena Lujic, György Hoitsy, Simona Sušnik Bajec, Ida Djurdjevic, Aleš Snoj, Bála Urbányi
CRYOPRESERVATION AND TRANSPLANTATION OF GERMLINE STEM CELLS IN SALMONIDS: WHAT HAVE WE LEARNED?

10.15 Mark Cyrus, Michael Bennett, Brett M. Macey, John J. Bolton, Vernon Coyne
IDENTIFYING SUITABLE SETTLEMENT SUBSTRATES AND FEEDS FOR EARLY STAGE GROWTH OF THE SEA URCHIN Tripneustes gratilla: IMPLICATIONS FOR HATCHERY PROTOCOLS AND PRODUCTION
10.30 Alain Vergnet, Frédéric Clota, Stéphane Lallement, Marie-Odile Blanc, Marc Vandeputte, François Allal, Jean-Jacques Lareyre
DEVELOPMENT OF A GERM STEM CELL GRAFTING PROCEDURE IN EUROPEAN SEA BASS AS AN INNOVATIVE PRACTICAL APPROACH FOR BROOSTOCK MANAGEMENT

SEA CUCUMBER
Friday, September 30 09.00 - 11.00 Marina Room
Chairs: Matthew Slater, Ellen Schagerström

09.00 Arnold Rakaj, Alessandra Fianchini, Luca Grosso, Davide Pensa, Michele Scardi
TOWARD SEA CUCUMBER PRODUCTION AND IMTA APPLICATIONS IN EUROPE: PROGRESS, PROBLEMS AND OPPORTUNITIES

09.15 Jan Sunde, Gyda Christophersen
APPETITE FOR PRODUCTION – FEEDING AND DIGESTION STUDIES IN THE EMERGING SEA CUCUMBER SPECIES Parastichopus tremulus

09.30 Heleen E. Senekal, Peter J. Britz, Clifford L.W. Jones, Matthew J. Slater
THE EFFECT OF WATER TEMPERATURE AND SUBSTRATE ON THE WARTY SEA CUCUMBER Neostichopus grammatus (CLARK) IN A FARMING ENVIRONMENT

09.45 Davide Pensa, Luca Grosso, Alessandra Fianchini, Michele Scardi, Arnold Rakaj
INTEGRATING SEA CUCUMBERS IN FISH AQUACULTURE WASTE RECYCLING: A MODEL OF SUSTAINABLE BLUE GROWTH

10.00 Viviana Pasquini, Pierantonio Addis, Ambra Angelica Giglioli
THE ROLE OF ALGAL BIOFILMS AS CUE FOR SETTLEMENT AND EARLY GROWTH IN THE SEA CUCUMBER Holothuria tubulosa

10.15 Ellen Schagerström, Hanna Lindgren, Kristina S. Sundell
MAPPING TEMPERATURE STRESS IN RED SEA CUCUMBER Parastichopus tremulus USING NON-INVASIVE RESPiroMetry

10.30 Alessandro Lovatelli, Steven W. Purcell
WHY IS FAO WORKING ON THE SECOND EDITION OF ITS GUIDEBOOK ON COMMERCiALLY IMPORTANT SEA CUCUMBER SPECIES OF THE WORLD FIRST PUBLISHED IN 2012?
09.00 Michael Viegas, Carla Aguiar, Maria Salgado, Jorge Dias
IMPROVING MINERAL AND VITAMIN NUTRITION IN EARLY-STAGE SENEGALESE SOLE

09.15 Marta Monteiro, Alexandra Marques, Fátima Piloto, Maria Antónia Salgado, Carolina Castro, Filipe Soares, Luis Conceição, Luisa M.P. Valente
REPLACING FISH OIL BY SUSTAINABLE MARINE LIPID SOURCES IN DIETS FOR TURBOT Scopthalmus maximus: EFFECTS ON GROWTH PERFORMANCE, NUTRIENT BALANCE AND MUSCLE FATTY ACID COMPOSITION

09.30 Valentina Carbone, Giulia Franchi, Simone Lenzi, Davide Troiano, Jessica Teske, Steven Debono, Tania De Wolf
EARLY INTRODUCTION OF MICRODIET IN SEABASS D. labrax LARVAE: EFFECTS OF TOTAL ROTIFER SUBSTITUTION AND ARTEMIA REDUCTION ON LARVAL DEVELOPMENT AND GROWTH PERFORMANCE

09.45 Edoardo Pantanella, Asaad Mohamed, Joseph L.Q. Laranja, Jorge Alarcon, Reda Saleh, Paulo H. de Mello, Seemab Zehra, Aboobucker Abulkasim, Ali Al Shaikhi, Abdulaziz Al-Suwailem
ASSESSMENT OF GROWTH, BODY COMPOSITION AND NUTRIENT PERFORMANCES OF JUVENILES AND PRE-ADULT EUROPEAN SEA BASS Dicentrarchus labrax FARmed IN RED SEA CONDITIONS WITH COMMERCIAL DIETS

10.00 I-Hao Chen, Dimitra G. Georgopoulou, Dimitrios Voskakis, Lars Ebbesson, Nikos Papandroulakis
INDIVIDUAL TELEMETRY OF EUROPEAN SEABASS IN SEACAGES REVEALS BEHAVIOURAL AND POSITIONAL PATTERN CHANGES INDICATING FOOD ANTICIPATORY ACTIVITY

APPETITE REGULATED FEEDING BY AUTOMATED FEED WASTE MONITORING IN CLOSED AQUACULTURE SYSTEMS (CAS)
10.30  **Eoin Murray**, Meritxell Grau Butinyac, Jamie Downes
MAXIMISING BIOMASS GAIN AND FEED CONVERSION EFFICIENCY IN RECIRCULATING AQUACULTURE SYSTEMS USING A NEW REAL-TIME NITRITE AND NITRATE MONITOR

10.45  **Gilles Orazi**, Didier Dumet, Helmi Haddad, Iheb Khelifi, Franck Le Gall
AUTONOMOUS, CONTINUOUS AND REACTIVE-FREE NUTRIENT AND MICRO-ALGAL MONITORING IN SEAWATER

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**BETTER EDUCATION FOR BETTER PROFESSIONALS FOR EUROPEAN AQUACULTURE**
Friday, September 30  09.00 – 11.00  Ponte Room

Organised by: Francesc Padros, Andrea Gustinelli, Maria Constenla, Marialetizia Fioravanti, Alessio Bonaldo

**SCHEDULED INTERVENTIONS – Chairs: Francesc Padros, Marialetizia Fioravanti**

09.00  Maria Constenla (UAB) and Andrea Gustinelli (UNIBO)
OVERVIEW OF EDUCATIONAL SYSTEMS IN DIFFERENT COUNTRIES AND THEIR CONTRIBUTION TO PREPARE PROFESSIONALS FOR THE AQUACULTURE SECTOR

09.30  FEAP and EATiP representatives
PROFESSIONAL PROFILES REQUIRED BY THE AQUACULTURE INDUSTRY

10.00  AQUA-VIEW project representative
PROJECTS AIMED AT IDENTIFYING AND DEVELOPING SKILLS AND COMPETENCES IN AQUACULTURE

**ROUND TABLE - Chair Alessio Bonaldo**
10.15  Panelists from industry, public institutions, producer associations, certification bodies, EAS student group reps
WHICH PROFESSIONAL PROFILES DOES THE AQUACULTURE INDUSTRY REALLY NEED AND WHICH EDUCATIONAL PATHS ARE MISSING OR NEED TO BE IMPROVED?
HEALTH MANAGEMENT – GUT HEALTH
Friday, September 30 09.00 - 11.00  Castello 2 Room
Chairs: Eric Leclercq, Byrom Morales-Lange

09.00  Eric Leclercq
HOW TO BREW HEALTHY PERFORMING FISH WITH MODERN YEAST

09.15  Arunjyothi Jawaji, Dina Zilberg, Inna Khozin-Goldberg
BY-PRODUCT FROM COMMERCIAL PRODUCTION OF THE DIATOM
Phaeodactylum tricornutum FOR THE DEVELOPMENT OF ALTERNATIVE
TREATMENT AGAINST PARASITIC DISEASES IN AQUACULTURE

09.30  Md. Kabir Hossain, Md. Shahjahan
EFFECTS OF MULTI-SPECIES PROBIOTICS ON GROWTH AND GUT HEALTH OF
NILE TILAPIA

09.45  Hector Gonzalez Ocampo, Valdez-Chavez Karime Anahi, Fierro-Coronado Arturo

10.00  Geert Wiegertjes, Jules Petit
IMMUNOMODULATATION OF FISH HEALTH BY BETA-GLUCANS

10.15  Byron Morales Lange, Brankica Djordjevic, Liv Torunn Mydland, Eric Leclercq,
Mathieu Castex, Margareth Øverland
MODULATION OF PHYSIOLOGICAL RESPONSES IN ATLANTIC SALMON
EXPOSED TO STRESSOR CONDITIONS: HYDROLYZED Debaryomyces hansenii
IN FUNCTIONAL FEEDS CAN IMPROVE FISH HEALTH AND WELFARE

10.30  Eric Leclercq, Mark Rawling, Mathieu Castex
MITIGATION OF ATLANTIC SALMON WINTER-ULTER DISEASE Moritella viscosa
USING A NOVEL YEAST-BASED FUNCTIONAL INGREDIENT

10.45  Ana Teresa Gonçalves, Rita Jacinto, Jorge Dias
ALTERNATIVE ASSESSMENT OF FISH AND SHRIMP GUT HOMEOSTASIS
AND PERFORMANCE: AN EX-PLANT MODEL TO WEIGH THE EFFECTS OF
FUNCTIONAL INGREDIENTS
PLENARY AND POSTER AWARDS
Friday, September 30 11.30 - 13.00 Anfiteatro Room

11.30 Chiara Petrioli, Alexander Bergrem, Georgia Koutsandria
A DIGITAL ERA FOR AQUACULTURE INNOVATION

MODELLING, ROBOTICS, AUTOMATION AND CONTROL SYSTEM APPLICATIONS
Friday, September 30 09.00 - 17.30 Arengo Room
Chairs: Martin Fore, Fearghal O. Donncha

09.00 Khurram Shahzad, Arne Berge, Åsa Maria O. Espmark
TESTING HYDRODYNAMICS EFFECT ON FLOW WITH CFD MODELING TOOL: CHANGING DIFFERENT INLET NOZZLES AND WATER DIVIDERS ANGLE IN A SEMI-CLOSED CONTAINMENT FLOATING TANK WITH RIGID WALLS

09.15 Andreia Raposo, Ana Nobre, Filipe Soares, Luís Conceição, Luís Valente, Tomé Silva
DEVELOPMENT AND EVALUATION OF GROWTH MODELS FOR NILE TILAPIA

09.30 Konstadia Lika, Orestis Stavrakidis-Zachou, Ep H. Eding, Johan W. Schrama, Nikos Papandroulakis
A NUTRITIONAL BIOENERGETICS MODEL: FISH GROWTH, OXYGEN CONSUMPTION AND WASTE PRODUCTION IN RESPONSE TO FOOD COMPOSITION

09.45 Orestis Stavrakidis-Zachou, Konstadia Lika, Nikos Papandroulakis
A BIOENERGETIC APPROACH TO MODELLING OXYGEN AVAILABILITY IN FISH CAGES; TOWARDS A TOOL FOR EARLY WARNING IN AQUACULTURE

10.00 Adriano Lima, Renzo Rizzi, Roberto Pastres
A BIOENERGETIC MODEL FOR GILTHEAD SEABREAM Sparus aurata AND EUROPEAN SEABASS Dicentrarchus labrax GROWTH AND METABOLISM: THE EFFECT OF DISSOLVED OXYGEN

10.15 Sveinung Johan Ohrem, Eleni Kelasidi, Herman Biørn Amundsen, Bent Haugaløkken, Mats Mulelid, Nina Bloecher
PROJECT RESULTS FROM NETCLEAN 24/7 – PERMANENTLY RESIDENT ROBOT FOR AUTONOMOUS NET CLEANING AND INSPECTION
10.30  Linn Danielsen Evjemo, Espen Eilertsen, Eleni Kelasidi, Nina Blöcher
CHANGE AND RACE FISH MACHINE INTERACTION– EXPERIMENTAL RESULTS
ON THE REACTION OF ATLANTIC SALMON Salmo salar WHEN EXPOSED TO
EXTERNAL INFLUENCE FACTORS

10.45  Eleni Kelasidi, Sveinung Johan Ohrem, Herman Biørn Amundsen,
Bent Haugaløkken, Linn Danielsen Evjemo, Biao Su, Espen Eilertsen,
Magnus Oshaug Pedersen, Leif Magne Sunde
SINTEF ACE ROBOTIC LAB – AUTOMATION AND ROBOTICS TO DRIVE UP
EFFICIENCY AND MINIMISE RISKS IN FISH FARMS

11.00  BREAK

11.30  Plenary and Poster Awards

13.00  LUNCH

14.30  Ana Paula Lima, Nuno Dias, Bernardo Teixeira, Diana Viegas, Hugo Silva,
Luis Lima, Marco Gonçalves, Carlos Pinho, José Almeida
INTELLIGENT MONITORING SYSTEM FOR INDOOR AQUACULTURE TANKS

14.45  Bas de Vos, Mark Cyrus, Brett Macey, John Bolton, Theo Batik
THE DEVELOPMENT OF MACHINE VISION TO MEASURE SEA URCHINS

15.00  Dimitra Georgopoulou, Charalabos Voudaskis, Nikos Papandroulakis
TRACKING AND ANALYSIS OF THE SWIMMING ACTIVITY OF EUROPEAN
SEABASS Dicentrarchus larbax IN SEA CAGES AND ITS RELATION TO FEEDING

15.15  Dinara Bekkozhayeva, Petr Cisar
NON-INVASIVE (PHOTO) INDIVIDUAL FISH IDENTIFICATION OPEN ACCESS
LARGE DATA BASE

15.30  Kana Banno, Marianna Anichini, Kurt E. Auning, Pål Haugen, Kjell Almaas,
Stig A. Tuene, Lars C. Gansel
MONITORING THE SPATIAL DISTRIBUTION OF FARMED FISH IN LARGE
COMMERCIAL SEA CAGES DEPLOYING A MULTI-BEAM SONAR

15.45  Ievgen Koliada, Petr Cisar, Jan Urban, Oleksandr Movchan
AUTOMATED FISH MONITORING AND SAMPLING IN RAS USING OAK-D

16.00  Jan Urban
EVALUATION AND COMPARISON OF USING UVA AND IRA IMAGING SYSTEMS
TO OVERPASS THE LIMITATION OF WATER CLOUD ABSORBANCE
16.15 **Marianna Anichini**, Kana Banno, Filipe M.F. Gonçalves, Lars C. Gansel, Ricardo Torres
AUTOMATIC DETECTION OF GROWTH-STUNTED PHENOTYPE IN FARMED ATLANTIC SALMON: A NEW INSIGHT INTO QUANTIFY THEIR DISTRIBUTION AND BEHAVIOUR BASED ON A MACHINE LEARNING APPROACH

16.30 **Petr Cisar**, Jan Regenda, Zdenek Adamek, Jakub Polensky
MACHINE LEARNING FOR OBJECTIVE ESTIMATION OF FISH LOSSES CAUSED BY CORMORANT AND OTTER

16.45 **Stephan Ende**, J. Tjong, R. Thiele, M.S. Ur-Rehman, B. Wecker, K. Landsch, Chr Bukas, M.J. Slater, J Henjes
COMPUTER VISION BASED COUNTING OF SHRIMP IN REAL FARM CONDITIONS

17.00 **Espen Eilertsen**, Sveinung Johan Ohrem, Aya Saad, Finn Olav Bjørnson, Oscar Nissen, Tore Norheim Hagtun, Odd-Gunnar Aspaas, Alexia Artemis Baikas
AQUAGRAPHER – USING GRAPH DATABASES TO VISUALIZE AND OPTIMIZE DECISIONS IN AQUACULTURE

17.15 **Ahmed Abid**, Elisa Ravagnan, Franck Le Gall, Nikos Papandroulakis, Tamás Bardócz, Christian Jjensen, Nicolas Prost
NORMALIZING DATA MODELS FOR INTEROPERABILITY IN AQUACULTURE

**NUTRITION – DIGESTIBILITY AND SUSTAINABILITY**
Friday, September 30  09.00 - 17.30   Anfiteatro Room
Chairs: Jan van Eys, Jesse Chappell

09.00 **Reda Saleh**, Asaad Mohamed, Edoardo Pantanella, Joseph Leopoldo Q. Laranja, Paulo H. de Mello, Seemab Zehra, Aboobucker Abulkasim, Ali Al Shaikhi, Abdulaziz M. Al-Suwailem
ASSESSMENT OF APPARENT DIGESTIBILITY OF DIETS AND INGREDIENTS FOR GILTHEAD SEABREAM *Sparus aurata*, SOBAITY BREAM *Sparidentex hasta* AND ASIAN SEABASS *Lates calcarifer* UNDER THE RED SEA CONDITIONS

09.15 **Daniel Montero**, Francisco J. Moyano, Samira Sarih, Antonio Serradell, Ramón Fontanillas, Félix Acosta, Silvia Torrecillas
NUTRITIONAL INNOVATIONS IN SUPERIOR GILTHEAD SEABREAM *Sparus aurata* GENOTYPES: IMPLICATIONS IN THE UTILIZATION OF EMERGING NEW INGREDIENTS THROUGH THE STUDY OF THE PATTERNS OF SECRETION OF DIGESTIVE ENZYMES
09.30 Herve Lucien-Brun, Brian C. Small, Seunghan Lee, Ronald W. Hardy, Kabir Chowdhury, Vikas Kumar
APPARENT NUTRIENT AND ENERGY DIGESTIBILITY OF COMMERCIAL FEED INGREDIENTS WITH OR WITHOUT PROTEASE IN RAINBOW TROUT

09.45 Odunayo Tovihó, Áron Molnár, Attila Kertész, Krisztina Takács, Otilia Antal, András Nagy, Milán Fehér, Péter Bársomy
EFFECT OF TEMPERATURE ON DIGESTIVE ENZYME ACTIVITY OF EURASIAN PERCH Perca fluviatilis

10.00 Enno Fricke, Matthew Slater, Reinhard Saborowski
BROWN SHRIMP Crangon crangon PROCESSING REMAINS ENHANCE GROWTH OF WHITE SHRIMP Litopenaeus vannamei

10.15 Peter Horstmann, Roel M. Maas, Jeroen Kals, Satya Prakash, Thomas W.O. Staessen, Fotini Kokou, Johan W. Schrama
STARCH – AN ANTINUTRITIONAL FACTOR FOR YELLOWTAIL KINGFISH Seriola lalandi?

10.30 Koen Meynen, Adrian Hernandez, Alexander Orloff, M. Rajalekshmi
EFFECT OF A NUTRIENT ABSORPTION ENHANCER AND BILE ACIDS IN ENERGY REDUCED DIETS FOR ATLANTIC SALMON PRE-SMOLTS

10.45 Inma Sánchez, Daniel Checa, Marta Escamilla
IFISHENCI PROJECT: THE ROLE OF NUTRIENT ASSIMILATION IN THE CIRCULAR ECONOMY

11.00 BREAK

11.30 Plenary and Poster Awards

13.00 LUNCH

14.30 Elisavet Syropoulou, Satya Prakash, Daan Smeenge, Philip A.J. Prabhu, Detmer Sipkema, Johan W. Schrama, Fotini Kokou
DIETARY CARBOHYDRATE SOURCES FOR EUROPEAN SEABASS REARED IN RECIRCULATING SYSTEMS: IMPACTS ON DIGESTIBILITY AND WASTE PRODUCTION

14.45 Iani Chihaia
SOY PRODUCTS AS SUSTAINABLE INGREDIENT IN AQUA DIETS; WITH SPECIAL REFERENCE TO U.S. SOY
15.00  **Esau Arana**, Philip Kemp, Sirri Kayhan, Jesse Chappell
THE IN-POND RACEWAY SYSTEM (IPRS) TECHNOLOGY: PROMOTING THE USE OF HIGH VALUE FEEDS AND INGREDIENTS FOR OPTIMIZING PRODUCTION AND PROFIT

15.15  **Vanessa I. Fuchs**, Matthew J. Slater
SEASTAR MEAL AS AN ALTERNATIVE PROTEIN SOURCE IN DIETS FOR WHITELEG SHRIMP *Litopenaeus vannamei*

15.30  **Luca Parma**, Alicia Estevez, Phelly Vasilaki, Arianna Marchi, Lorenzo Morsiani, Lorenzo Mariani, Francesco Dondi, Elisa Brini, Marco Candela, Daniel Scicchitano, Pier Paolo Gatta, Alessio Bonaldo
REFINING ORGANIC AQUAFEEDS FOR RAINBOW TROUT, GILTHEAD SEA BREAM AND MEAGRE: IMPLICATION ON GROWTH, FISH HEALTH AND PRODUCT QUALITY

15.45  **Alejandro Buentello**, Vladimir Muñoz, Paula Gamas, Daniella Acevedo, Mario Reguera
FIRST SUCCESSFUL ATLANTIC BLUEFIN TUNA *Thunnus thynnus* FEEDING DEMONSTRATION WITH FORMULATED DIETS: THE ONLY SUSTAINABLE FUTURE FOR TUNA FARMING

16.00  **Marta Monteiro**, Rafaela S. Costa, Tiago Sá, Katerina Kousoulaki, Lars Thoresen, Luísa M.P. Valente
EXPLORING THE POTENTIAL OF LOW TROPHIC SPECIES *Alitta virens* TO REPLACE FISH MEAL IN DIETS FOR EUROPEAN SEA BASS

MARINE YEAST *Candida sake* CULTURED ON HERRING BRINE WASTE AS PROTEIN AND OMEGA-3 SOURCE FOR RAINBOW TROUT *Oncorhynchus mykiss*

16.30  **Jan van Eys**
THE USE OF SOY PRODUCTS AS A REPLACEMENT OF FISH MEAL IN AQUA DIETS
09.00  Thomas Butler, Pieter Oostlander, Jeroen De Vree
CHEMOSTAT OPERATION AND PRODUCTIVITIES IN A 25L TUBULAR SYSTEM AT DIFFERENT LIGHT INTENSITIES AND DILUTION RATES

09.15  Barbara Guimaraes, Belén Villarreal-Toribio, Tamara García-Barrera, Ana Arias-Borrego, Pieter Gremmen, René H. Wijffels, Maria J. Barbosa, Sarah D’Adamo
EFFECT OF SULPHUR ON SELENIUM ACCUMULATION IN Nannochloropsis oceanica

09.30  Erik-jan Malta, Maria del Mar Agraso Martínez, Alexandra M. Klonowski, René Groben, Viggo T. Marteinsson, Julia Engelmann, Henk Bolhuis
TOWARDS AN OPTIMUM MICROBIOME COMPOSITION FOR CULTIVATION OF THE SEAWEED Ulva ohnoi: RESULTS FROM THE SIMBA PROJECT

09.45  Xinxin Wang, Marthe Blikra, Tor Evense, Dagbjørn Skipnes, Philip James
GROWTH AND MINERALS COMPOSITION OF CULTIVATED SUGAR KELP IN THE NORTH OF NORWAY: SITE SELECTION, DEPTH AND SORI ORIGIN

10.00  Adrian Macleod, Kati Michalek, Callum O’Connell, Alison Mair, Adam Hughes, Michele Stanley
OPTIMISING SEEDING AND PRODUCTION METHODS FOR COMMERCIAL KELP CULTIVATION

10.15  Kati Michalek, Adrian K. Macleod, Michael Ross, Richard Abell, Michele S. Stanley
THE OPTIMUM HARVEST TIME FOR CULTIVATED KELP SPECIES Saccharina latissima AND Alaria esculenta DEPENDS ON THEIR INTENDED APPLICATION

10.30  Henrice Jansen, Long Jiang, Lander Blommaert, Ole Jacob Broch, Klaas Timmermans, Karline Soetaert
CARRYING CAPACITY AND SPATIAL VARIABILITY OF THE CULTIVATED Saccharina latissima IN A DUTCH COASTAL BAY: A MODELING ASSESSMENT

10.45  Sophie J.I. Koch, Elisa Ciravegna, Sander van den Burg
PROSEAWEED – LEARNING FROM INTERNATIONAL EXPERIENCES

11.00  BREAK

11.30  Plenary and Poster Awards

13.00  LUNCH
14.30 Laura E. Healy, Xianglu Zhu, Brijesh K. Tiwari
VALUE ADDITION TO AQUACULTURE SEAWEED FOR NOVEL FOOD DEVELOPMENT

14.45 Rahel Suchintita Das, Brijesh K. Tiwari, Marco Garcia-Vaquero
INVESTIGATING THE POTENTIAL OF HYBRID ULTRASOUND-MICROWAVE TECHNOLOGY IN GREEN EXTRACTION OF PHYTOCHEMICALS FROM FRESH BROWN MACROALGAE Alaria esculenta

15.00 Giulia Micallef, N. Nadanasabesan, A.M. Palihawadana, S. Chowdury, G.K. Vasanth, Z. Johnson, M. Sørensen, V. Kiron
INVESTIGATING THE USE OF DEFATTED Desmodesmus in ATLANTIC SALMON FEEDS DURING THE GROW-OUT PHASE IN SEA

15.15 Petronilla Mwangudza, Clifford Jones, Brett Macey
EFFECT OF OF PROCESSED (BIOSECURE) MACROALGAE ON GROWTH AND HEALTH OF ABALONE Haliotis midae

15.30 Sander van den Burg, Sophie Koch, Jon Barlow
SAFE SEAWEED BY DESIGN: SUPPORTING THE SEAWEED SECTOR TO ENSURE SEAWEEDS ARE SAFE FOR HUMAN CONSUMPTION AND THE ENVIRONMENT

15.45 Mariana Cerca, Amanda Sosa, Fionnuala Murphy
FROM FARM TO WHERE? THE OBSTACLES OF SEAWEED-BASED SUPPLY CHAINS

OTHER CONTRIBUTIONS 2
Friday, September 30 09.00 - 17.30 Parco Room
Chair: Ivo Monteiro, Morgana Angelo

09.00 Luca Grosso, Davide Pensa, Alessandra Fianchini, Arnold Rakaj
TOWARD BENTHIC HEALTH IN SHELLFISH PRODUCTIVE AREAS: EVALUATION OF THE MEDITERRANEAN SEA CUCUMBERS Holothuria tubulosa AND Holothuria polii AS EXTRACTIVE SPECIES IN CO-CULTURE WITH THE MUSSEL Mytilus galloprovincialis

09.15 Morgana Angelo, Laura Ribeiro, Pedro Pousão-Ferreira, Raquel Quinta
ASSESSING THE POTENTIAL OF AN I-RAS SYSTEM USING Ulva sp. AND Sparus aurata

09.30 Steinar Wasmuth
FISH SLUDGE – A PROBLEM OR A RESOURCE?
09.45  Sara Magalhaes, Tiago Aires
ASSESSING THE BEST FEEDING STRATEGY IN GSB AND ESB TO MODULATE FILLETS’ N3/N6 FATTY ACIDS RATIO

10.00  Christian Lindberg, Ron Volpe
THE ROLE OF TRACEABILITY AS AN ENABLER OF SOCIAL AND ENVIRONMENTAL SUSTAINABILITY IN GLOBAL SHRIMP SUPPLY CHAINS

10.15  Bård Misund
INCREASING PRODUCTION COSTS IN SALMON AQUACULTURE: THE IMPACT OF REGULATION, DISEASES AND SEA LICE INFESTATIONS

10.30  Stefan Teerlinck
EUROPEAN PERCID FISH CULTURE GROUP (EPFC) AS A KNOWLEDGE SHARING PLATFORM

10.45  Carlos Yanes-Roca, Karolina Ranglova, Michael Bures, Jiri Masojidek, Tomas Policar Policar, Lukas Veseli
USE OF CHLORELLA DURING PIKEPERCH Sander lucioperca LARVAL CULTURE

11.00  BREAK

11.30  Plenary and Poster Awards

13.00  LUNCH

14.30  Lúcia Vieira, Diogo Filipe, Rui Magalhães, Marta Ferreira, Rodrigo Ozório, Aires Oliva-Teles, Isabel Belo, Helena Peres
NUTRITIONAL EVALUATION OF DIETS INCLUDING A SOLID-STATE FERMENTED PLANT-FEEDSTUFF MIXTURE WITH Aspergillus niger FOR EUROPEAN SEA BASS Dicentrarchus labrax

14.45  Catarina Oliveira, Rui Magalhães, Diogo Filipe, Luiz Navarro, Isabel Belo, Aires Oliva Teles, Helena Peres
COMBINING ALKALINE WITH AUTOCLAVING TREATMENT FOR THE IMPLEMENTATION OF Codium tomentosum IN DIETS FOR EUROPEAN SEABASS Dicentrarchus labrax

15.00  Rocio Robles-Arozarena, Laura Bermudez, Albert Girons, Waldo G. Nuez-Ortin
LYSOPHOSPHOLIPID SUPPLEMENTATION IMPROVES FEED INTAKE AND GROWTH OF TILAPIA Oreochromis sps. REARED AT LOW TEMPERATURE
15.15 Franck Ducharne, Romain Menard, Cameron Richards, Piet Verstraete, Niti Chuchird
EFFECT OF INSECT MEAL AND INSECT OIL ON PERFORMANCE, DIGESTIBILITY AND RESPONSE TO CHALLENGE TEST WITH Vibrio parahaemolyticus INJUVENILE WHITE SHRIMP Litopenaeus vannamei

15.30 Francesca Bianco, Maurizio Mazzoni, Luca Parma, Antonina De Marco, Giorgia Bignami, Giulia Lattanzio, Paolo Clavenzani, Alessio Bonaldo
RECENT ADVANCES IN CHEMOSENSING MECHANISMS IN BIVALVE MOLLUSCS: MORPHOLOGICAL AND MOLECULAR INVESTIGATIONS

15.45 Yahia Mahmud, Mohammad Moniruzzaman, Sonia Sku, Parvez Chowdhury, Mohosena Begum Tanu, Selina Yasmine, Md. Nazmul Hossen, Taesun Min, Sungchul C. Bai
NUTRITIONAL EVALUATION OF SOME ECONOMICALLY IMPORTANT MARINE AND FRESHWATER SHELLFISH SPECIES OF BANGLADESH

16.00 Jean-Baptiste Baudet, Benoît Xuereb, Agnès Poret, Thibault Charles, Frank Le Foll, Romain Coulaud
INFLUENCE OF TEMPERATURE AND DIET QUALITY ON LARVAL PERFORMANCE OF Palaemon serratus

16.15 David S. Peñaranda, Sara Ferrando-Juan, Juan Antonio López-González, Macarena del Mar Jurado, Ana Tomás-Vidal, Silvia Laura Falcó, Silvia Martínez-Llorens, Miguel Rodilla, Francisco Javier Moyano, M. Jover
EFFECT OF CARBON SOURCE ON Penaeus vannamei PRODUCTION UNDER BIOFLOC TECHNOLOGY (BFT)

16.30 Wilson Wasielesky, Kiefer Menestrino, Lucélia Borges, Dariano Krummenauer, Mariana Holanda
THE REUSE OF BIOFLOC MATURE WATER IN SHRIMP CULTURE OF Litopenaeus vannamei IN SUPERINTENSIVE BFT SYSTEM
14.30 Carlo Lazado, Elisabeth Ytteborg
CHALLENGES AND OPPORTUNITIES IN THE APPLICATION OF THE 3R (REPLACEMENT, REDUCTION, REFINEMENT) PRINCIPLES IN AQUACULTURE RESEARCH: INSIGHTS FROM NORWAY

14.45 Joseph Humble, Raminta Kazlauskaite, Chloe Heys, John Sweetman, Philip Lyons, Stephanie Connelly, William Sloan, Martin Llewellyn
UTILISING SALMOSIM, AN IN VITRO SIMULATOR OF THE GUT OF ATLANTIC SALMON Salmo salar TO ASSESS A MANNAN PREBIOTIC FOR FERMENTATION INTO VOLATILE FATTY ACIDS BY THE SALMON MICROBIOME

15.00 Junjie Zhang, Susana V. Gonzalez, Vasco C. Mota, Carlo C. Lazado, Alexandros G. Asimakopoulos
DETERMINATION OF THE OXIDATIVE STRESS BIOMARKERS OF 8-HYDROXYDEOXYGUANOSINE AND DITYROSINE IN GILLS, SKIN, DORSAL FIN, AND LIVER TISSUE OF ATLANTIC SALMON Salmo salar PARR

15.15 Francesca Bertolini, Mehis Rohtla, Camilla Parzanini, Jonna Tomkiewicz, Caroline Durif
BLOOD TRANSCRIPTOMICS AND MACHINE LEARNING, A NON-LETHAL APPROACH FOR FISH RESEARCH: A CASE STUDY ON SALINITY HABITAT HISTORY OF EUROPEAN EEL Anguilla anguilla

15.30 Fulvio Gandolfi, Rolando Pasquariello, Radmila Pavlovic, Marcelo A. Chacon, Nicole Verdile, Federica Camin, Yanxian Li, Guro Løkka, David Peggs, Ramon Fontanillas, Amos Tandler, Trond M. Kortner, Amir Bitan, Tiziana A.L. Brevini
DEVELOPMENT OF A RAINBOW TROUT INTESTINAL PLATFORM FOR PROFILING THE ABSORPTION OF AMINO ACIDS AND SMALL PEPTIDES OF AN IN VITRO DIGESTED FEED

AQUAPONICS
Friday, September 30  14.30 - 17.30  Castello 1 Room
Chairs: Hendrik Monsees, Benz Kotzen

14.30 Vincent Gennotte, Alicia Noël, Renaud Nivelle, Carole Rougeot
TOWARDS A SUSTAINABLE AQUAPONIC FARM MODEL IN BELGIUM: PRODUCTIVITY AND ECONOMIC ANALYSIS OF TWO CONTRASTING FISH PRODUCTION MODELS (TILAPIA VS. PIKEPERCH)
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<th>Time</th>
<th>Authors</th>
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<tr>
<td>14.45</td>
<td>Hendrik Monsees, Rebecca John, Gösta Baganz, Georg Staaks, Werner Kloas, Daniela Baganz</td>
<td>IMPROVED FERTILIZER MANAGEMENT FOR SMALL TO MEDIUM SIZED COMMERCIAL DECOUPLED AQUAPONIC SYSTEMS</td>
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<td>15.00</td>
<td>Lorenzo Fruscella, Benz Kotzen, Sarah Milliken, Marcos Paradelo Perez</td>
<td>SOIL-BASED AQUAPONICS: THE EFFECTS OF SOIL ADDITION AS INVESTIGATED IN NINE DIFFERENT EXPERIMENTS</td>
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<td>15.15</td>
<td>Lu Xu, Ulrich Knaus, Harry W. Palm, Appelbaum Samuel, Christopher J. Ziethen</td>
<td>AQUAPONICS PRODUCTION OF WHEATGRASS <em>Triticum aestivum</em> IN DIFFERENT HYDROPONIC SUBSTRATES WITH AFRICAN CATFISH <em>Clarias gariepinus</em></td>
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<td>15.30</td>
<td>Radek Gebauer, Roy Koushik, Ewumi Azeez Folorunso, Anil Tellbüscher, Andrea Bohatá, Jan Mráz</td>
<td>AQUAPONICS IN CESKE BUDEJOVICE, CZECH REPUBLIC: RESEARCH AND KNOWLEDGE TRANSFER TO FARMERS</td>
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<td>15.45</td>
<td>Sara Pinho, Jéssica Pacheco, Luiz H. David, Magdiei Oliveira, Karel Keesman, Maria Célia Portella</td>
<td>ON-DEMAND COUPLED FLOCPONICS SYSTEMS AS AN ALTERNATIVE APPROACH TO REDUCE THE PROTEIN LEVEL OF TILAPIA JUVENILES’ DIET IN INTEGRATED AGRI-AQUACULTURE PRODUCTION</td>
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<td>16.00</td>
<td>Ze Zhu, Karel Keesman, Amit Gross</td>
<td>CARBON BALANCE IN ZERO WASTE COUPLED AQUAPONICS WITH ONSITE ANAEROBIC TREATMENT UNDER THE DESERT CONDITION</td>
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<td>16.15</td>
<td>Faiqa Atique, Petra Lindholm-Lehto, Juhani Pirhonen</td>
<td>CAN BABY SPINACH <em>Spinacia oleracea</em> IN AN AQUAPONIC SYSTEM SPEED UP THE NITRIFICATION PROCESS IN MATURING BIOFILTER AND REDUCE THE OFF-FLAVOR COMPOUNDS?</td>
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<td>16.30</td>
<td>Paula Senff, Eléa Gérard, Océeane Polowczyk, Victor Piga, Jérémie Grosjean, Christophe Robin, Pascal Fontaine</td>
<td>EFFECT OF PLANT BIOACTIVE MOLECULES ON STRESS AND IMMUNITY OF EUROPEAN PIKEPERCH <em>Sander lucioperca</em> IN AQUAPONICS</td>
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<td>16.45</td>
<td>Andrew Ray, Jill Fisk, Leo Fleckenstein</td>
<td>NON-HALOPHYTE PLANT SPECIES IN BRACKISH WATER AQUAPONICS</td>
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14.30 Júlia Clols-Fuentes, Julien A. Nguinkal, Patrick Unger, Bernd Kreikemeyer, Harry W. Palm
BACTERIAL COMMUNITY IN AFRICAN CATFISH *Clarias gariepinus*
RECIRCULATION AQUACULTURE SYSTEM UNDER DIFFERENT STOCKING DENSITIES

14.45 Zhitao Huang, Lea Risnes, Blanca Magdalena Gonzalez Silva, Stein Wold Østerhus, Olav Vadstein, Ingrid Bakke
THE POTENTIAL APPLICATION OF A PARTIAL Nitrification - ANAMMOX BIOFILM-BASED PROCESS FOR NITROGEN REMOVAL IN RAS

15.00 Sanni Leea Aalto, Kim J. de Jesus Gregersen, Elisavet Syropoulou, Marja Tiirola, Per Bovbjerg Pedersen, Lars-Flemming Pedersen
THE EFFECT OF FOAM FRACTIONATION AND OZONATION TO WATER QUALITY AND MICROBIAL COMMUNITIES IN RAS

15.15 Brett Macey, Marissa Brink-Hull, Nokofa B. Makhahlela, Morgan J. Brand, Mark D. Cyrus, John J. Bolton
IMPACT OF *Ulva lacinulata* ON THE MICROBIOME OF ABALONE-Ulva IMTA SYSTEMS

15.30 Marissa Brink-Hull, Mark Cyrus, Aimee Cloete, John Bolton, Brett Macey
USING SEA URCHIN FAECES AS A DIETARY SUPPLEMENT FOR JUVENILE ABALONE: EFFECTS ON GROWTH, SURVIVAL AND THE MICROBIOME

15.45 Fotini Kokou, Yale Deng, Roel Maas, Ep Eding, Marc Verdegem, Johan Schrama
DIET AND REARING ENVIRONMENT EFFECTS ON MICROBIAL COMPOSITION IN THE GUT: THE CASE OF NILE TILAPIA

16.00 Marwa Mamdouh Tawfik, Marlene Lorgen-Ritchie, Monica Betancor, Stuart McMillan, Etzbieta Król, Alex Douglas, Samuel A.M. Martin
GUT MICROBIOTA IN ATLANTIC SALMON AFTER NUTRITIONAL PROGRAMMING WITH A VEGETABLE-BASED DIET

16.15 Federico Moroni, Daniel Montero, Simona Rimoldi, Silvia Torrecillas, Alicia Herrera, May Gómez, Genciana Terova
THE EFFECT OF POLYPROPYLENE MICROPLASTICS AND CHEMICAL POLLUTANTS ON EUROPEAN SEA BASS *Dicentrarchus labrax* GUT MICROBIOTA
16.30 **Salvador Lladó**, Orestis Stavrakidis-Zachou, Marc Clos-Garcia, Montse Bosch, Nikos Papanoulakis, Pablo Sánchez-Cueto
IFISHIENCI: GREATER AMBERJACK’S *Seriola dumerili* MICROBIOME MODULATION AS CONSEQUENCE OF CLIMATE CHANGE WARMING SIMULATION

16.45 **Socorro Toxqui Rodriguez**, Fernando Naya-Català, Paul Holhorea, Josep Calduch-Giner, Carla Piazzon, Ariadna Sitjà-Bobadilla, Jaume Pérez-Sánchez
EFFECTS OF HIGH STOCKING DENSITY AND MILD HYPOXIA ON GILTHEAD SEA BREAM INTESTINAL TRANSCRIPTOME AND MICROBIOME

17.00 **Ingrid Bakke**, Anette Voll Bugten, Kari Johanne Kihle Attramadal, Ragnhild Olsen Fossmark, Trond Waldemar Rosten, Olav Vadstein
THE RELATIONSHIP BETWEEN REARING WATER MICROBIOMES AND FISH MICROBIOMES IN RAS FOR SMOLT PRODUCTION: IMPACT OF MEMBRANE FILTRATION AND ORGANIC LOADING

**OFFSHORE AND MULTI-USE**
Friday, September 30 14.30 - 17.30 Tempio 2 Room
Chairs: Hans Bjelland, Bela H. Buck

14.30 **Eva Strothotte**, Tim Staufenberger, Julian Pforth
MULTI-USE SYSTEMS – A SOLUTION TO COMPETING INTERESTS IN OFFSHORE SPACE? FIRST LESSONS LEARNED FROM THE GERMAN NORTH SEA PILOT

14.45 **Tim Staufenberger**, Julian Pforth, Eva Strothotte
IMPORTANCE AND FINDINGS OF THE GERMAN NEARSHORE TEST SITE IN THE MULTI-USE OFFSHORE PROJEKT UNITED

15.00 **Hans Bjelland**, Esten Ingar Grøtli, Jan Tore Fagertun, Heidi Moe Føre, Ørjan Selvik, Trine Thorvaldsen, Ingunn Holmen, Kristine Størkersen
EXPOSED AQUACULTURE OPERATIONS: NORWEGIAN CHALLENGES AND SOLUTIONS

15.15 **Per Arild Aland**
REDUCING RISK IN OPERATION OF EXPOSED HIGH VOLUME, ADVANCED FISH FARMS – HOW TO MAINTAIN SAFETY OF ASSET, PERSONNEL, MAINTAIN FISH WELFARE AND PREVENT FISH ESCAPE FOR OFFSHORE FISH FARMS

15.30 **Trine Thorvaldsen**, Ingunn Marie Holmen, Kristine Størkersen
SAFE OPERATIONS IN AQUACULTURE
15.45 Langley Gace, Felipe Ramirez
DUCK-AND-COVER AQUACULTURE: THE FUTURE OF MEDITERRANEAN AND MIDDLE EAST AQUACULTURE

16.00 Heidi M. Føre, Trine Thorvaldsen, Tonje C. Osmundsen, Frank Asche, Ragnar Tvetenás, Jan T. Fagertun, Hans V. Bjelland
INNOVATIVE FISH FARM DESIGNS IN NORWEGIAN SALMON FARMING

FLAT OYSTER AND SEAWEED AQUACULTURE AND OFFSHORE OYSTER RESTORATION IN THE BELGIAN PILOT OF THE H2020 UNITED PROJECT

16.30 Jingzhe Jin, Robert Indergård, Halgeir Ludvigsen, Biao Su
NUMERICAL MODELLING OF A TYPICAL MARINE OPERATION SCENARIO IN AQUACULTURE WITH RIFLEX AND SIMO IN SIMA WORKBENCH

16.45 Kristine Cherry, Kristy Beard, Phaedra Doukakis
AQUACULTURE OPPORTUNITY AREAS: A NEW APPROACH TO U.S. AQUACULTURE DEVELOPMENT

HEALTH MANAGEMENT – PREVENTION
Friday, September 30  14.30 - 17.30  Castello 2 Room
Chairs: George Rigos, Francesc Padros

14.30 Nora Navarro-Gonzalez, Aylar Saba Shirvan, Lionel Pineau, Stéphane Corvec, Eric Batard, Ségolène Calvez
ANTIMICROBIAL RESISTANCE IN INDICATOR BACTERIA FROM A RECIRCULATING AQUACULTURE SYSTEM AND COMPARISON WITH CLINICALLY IMPORTANT ISOLATES

14.45 Christopher Good, Travis May, Natalie Redman, Brian Vinci, Feng Xu, Lars Henrik Østergaard, Kevin Mann
EVALUATING ENZYMATIC PRODUCT APPLICATION FOR THE BREAKDOWN OF HYDROGEN PEROXIDE FOLLOWING ROUTINE TREATMENTS IN AQUACULTURE SYSTEMS
15.00 Rob McFarling, Lyndsay Christie, Ellen Blaker, Mickael Teixeira Alves, Ronny van Aerle, Eduarda Santos, Ioanna Katsiadaki
EARLY DEVELOPMENTAL EXPOSURE TO HEAT SHOCK IN RAINBOW TROUT
Oncorhynchus mykiss ALTERS RESPONSE TO STRESSORS BUT DOES NOT AFFECT SURVIVAL FOLLOWING INFECTION WITH BACTERIAL PATHOGEN Yersinia ruckeri

15.15 Carlo Lazado, Maia Eggen, Danilo Carletto, Vasco Mota
RISKS OF PERACETIC ACID-BASED DISINFECTANT TO ATLANTIC SALMON PARR REARED IN RECIRCULATING AQUACULTURE SYSTEMS

15.30 Kristine Vedal Størkersen, Deni Ribicic, Eivind Lona, Andreas Misund, Merete Bjørgan Schrøder, Trine Thorvaldsen, Cecilie Salomonsen, Hans Tobias Slette
BIOSECURITY IN SMOLT HANDLING: RESULTS FROM A STUDY OF PROCEDURES IN NORWEGIAN FISHFARM AND WELLBOAT COMPANIES

15.45 Maria Constenla, Maria Letizia Fioravanti, Sara Ciulli, Andrea Gustinelli, Carlos Zarza, George Rigos, Francesc Padrós
DISEASES RISK ASSESSMENT ASSOCIATED WITH THE MOST RELEVANT INFECTIOUS AND PARASITIC DISEASES IN SEABREAM AND SEABASS FARMING SYSTEMS IN EUROPE

16.00 Niall Vine, Angel Maapea, Brett Macey
THE EFFICACY OF VARIOUS CHEMICALS IN THE DISINFECTION OF DUSKY KOB Argyrosomus japonicus EGGS AND HATCHERY WATER

16.15 Verónica Chico, Maria Salvador-Mira, Iván Nombela, Sara Puente-Marin, Luis Perez, Luis Mercado, Maria del Mar Ortega-Villaizan
ANTIVIRAL FUNCTION OF NKEF AGAINST VHSV IN RAINBOW TROUT

16.30 Maria del Mar Ortega-Villaizan, Maria Salvador-Mira, Patricia Aceituno, Mauricio Rojas-Peña, Veronica Chico, Luis Perez, Nerea Roher
ANTIVIRAL EVALUATION OF A NOVEL PROPHYLACTIC TOOL FOR THE PREVENTION OF VIRAL DISEASES IN FISH

16.45 Celia Garcia-Quintanilla, Veronica Chico, Marisa Rodriguez-Arques, Francisco Javier Alvarez-Martinez, Vicente Micol, Maria Herranz-Lopez, Maria del Mar Ortega-Villaizan
ANTIVIRAL ACTIVITY OF MEDITERRANEAN AROMATIC PLANTS AGAINST VIRUSES OF INTEREST IN AQUACULTURE