

MONDAY, April 12

RAS WORKSHOP - HOW DO WE BEST APPROACH DISINFECTION IN THE RAS LOOP?

Monday, April 12 09.05 - 10.35 Room 1

Moderator: Jaap van Rijn

09.05 Introductory speaker **Chris Good**, followed by panel discussion

RAS WORKSHOP - WHERE ARE WE GOING WITH MONITORING & AUTONOMY?

Monday, April 12 11.00 - 12.30 Room 1

Moderator: Øyvind Fylling-Jensen

11.00 Introductory speaker **Bård Skjelstad**, followed by panel discussion

RAS WORKSHOP - WHAT ARE THE MOST CHALLENGING INTERACTIONS BETWEEN FISH & RAS ENVIRONMENT?

Monday, April 12 14.00 - 16.30 Room 1

Moderator: Damien Toner

14.00 Introductory speaker **Jelena Kolarevic**, followed by panel discussion

TUESDAY, April 13

OPENING SESSION

Tuesday, April 12 09.00-09.45 Room 1

Chairs Gavin Burnell, Nikos Papandroulakis

09:00 Welcome

09:15 AE2020 Student Spotlight Award chaired by Elizavet Syropoulou

EMERGING SPECIES

Tuesday, April 13 10.30 - 12.30 Room 2

Chairs: Covadonga Rodriguez, Deiene Rodriguez Barreto

10.30 **Stefano Lancerotto**, P.H. Mello, P. Tsoukali, L. Calloni, S. Köpper, R. Sarracino, I. Fakriadis, C.C. Mylonas
THE IMPORTANCE OF THERMAL CYCLING FOR PROPER GAMETOGENESIS AND SUCCESSFUL EGG AND SPERM PRODUCTION IN MEAGRE (*Argyrosomus regius*)

10.40 **Seyram K. Amanie-Adjei**, Daniel Adjei-Boateng, Regina E. Edziyie
THE HYDRO-MORPHOLOGY OF THE AFRICAN BONYTONGUE, *Heterotis niloticus* BREEDING POND

10.50 **Raquel Quirós-Pozo**, Francisco Moyano, Khalida Bainour, Sara Ramírez-Bolaños, Anais Ventura-Castellano, Lidia Robaina

EVALUATION OF GROWTH, BIOCHEMISTRY, IMMUNOLOGICAL STATUS, AND ACTIVITY OF DIGESTIVE ENZYMES IN TWO MULLET'S SPECIES (*Liza aurata* AND *Chelon labrosus*), FEED AT TWO DIFFERENT FEEDING FREQUENCIES

11:00 Questions

- 11.15 Renata Goncalves**, Ivar Lund, Dionísio Sousa, Peter Vilhelm Skov
PARTIAL REPLACEMENT OF FISH MEAL WITH SHRIMP WASTE MEAL IN PRACTICAL DIETS FOR EUROPEAN LOBSTER (*Homarus gammarus*, L.) JUVENILES
- 11.25 Adam Powell**, Daniel Cowing, Jacob Scolding, Tamsin Shepherd-Waring, Magnus Johnson, Robin Shields, Dennis Gowland, Susanne Eriksson
DEVELOPMENT OF A COMMERCIAL SCALE LARVAL REARING TECHNIQUE FOR THE NORWAY LOBSTER *Nephrops norvegicus*
- 11.35 I. Zorita**, J.G. Rodríguez, J.M. Garmendia
FEASIBILITY OF BLACK SCALLOP *Mimachlamys varia* (L., 1758) CULTURE IN SUSPENDED CONDITIONS IN WATERS OF THE BASQUE COAST (SE BAY OF BISCAY)
- 11.45 Alvaro Roura**, Miguel Martínez-Pérez, Alexandra Castro-Bugallo
THE LIFE CYCLE OF *Octopus vulgaris* IN CAPTIVITY: GROWTH, REPRODUCTION AND LIFESPAN
- 11.55 Noelia Tourón Besada**, Estefanía Paredes, Sara Campos, Damián Costas, Jose Manuel García-Estévez
COMPARISON OF THE EFFECTIVENESS OF DIFFERENT TAGS IN THE SEA URCHIN *Paracentrotus lividus* (LAMARCK, 1816)

12:05 Questions

NUTRITION

Tuesday, April 13 10.30 - 17.00 Room 3
Chairs: Sandrine Skiba, Mari Moren

- 10.30 Rita Teodósio**, Cláudia Aragão, Luís Conceição, Jorge Dias, Sofia Engrola
DO DIETARY FORMULATIONS INFLUENCE THE METABOLIC FATE OF AMINO ACIDS IN GILTHEAD SEABREAM?
- 10.40 Fernando Naya-Català**, Giulia A. Wiggers Peçanha, María Carla Piazzon, Manuel Ignacio López-Martínez, Itziar Estensoro, Josep Àlvar Calduch Giner, María Carmen Martínez Cuesta, Teresa Requena, Ariadna Sitjà-Bobadilla, Marta Miguel, Jaume Pérez-Sánchez
MODULATION OF GILTHEAD SEA BREAM GUT MICROBIOTA BY A BIOACTIVE EGG WHITE HYDROLYSATE
- 10.50 Daniel Scicchitano**, Luca Parma, Nicole Francesca Pelusio, Serena Busti, Lorenzo Mariani, Lorenzo Morsiani, Federica D'Amico, Marco Candela, Alessio Bonaldo, Francesco Dondi, Manuel Yúfera, Neda Gilannejad, Francisco Javier Moyano, Pier Paolo Gatta
INTERACTION BETWEEN DIETARY LIPID LEVEL AND SEASONAL TEMPERATURE CHANGES IN GILTHEAD SEA BREAM *Sparus aurata*: EFFECTS ON PERFORMANCE, DIGESTIVE CONDITION AND GUT MICROBIOME
- 11.00 Paula Solé-Jiménez**, Fernando Naya-Català, María Carla Piazzon, Itziar Estensoro, Josep Àlvar Calduch-Giner, Ariadna Sitjà-Bobadilla, Danny Van Mullem, Jaume Pérez-Sánchez
HOST DEFENCE AND INFLAMMATORY SIGNALLING IS DRIVEN BY GUT MICROBIOTA IN GILTHEAD SEA BREAM FED FISH MEAL-FREE DIETS
- 11:10 Questions**
- 11.20 André Barreto**, D. Peixoto, W. Pinto, R.J.M. Rocha, L. Conceição, B. Costas
HEALTH PROMOTING ADDITIVES SUPPLEMENTED IN INERT MICRODIETS FOR WHITELEG SHRIMP (*Penaeus vannamei*) POST-LARVAE

- 11.30 Margareth Øverland**, Jeleel Opeyemi Agboola, Byron Morales-Lange, Jon Øvrur Hansen, Brankica Djordjevic, Liv Torunn Mydland
OUT BIOTECHNOLOGICAL PRODUCTION OF MICROBIAL INGREDIENTS FROM BLUE AND GREEN BIOMASS
- 11.30 Joao Reis**, Alexis Weldon, Samuel Walsh, William Stites, Melanie Rhodes, D Allen Davis
PASSIVE ACOUSTIC FEEDERS AS A TOOL TO ASSESS FEED RESPONSE AND GROWTH IN SHRIMP POND PRODUCTION
- 11.40 Barbara Rossi**, Jorge Dias, Andrea Piva, Ester Grilli
A BLEND OF ORGANIC ACIDS AND NATURE-IDENTICAL COMPOUNDS EXERTED ANTI-INFLAMMATORY AND ANTIOXIDANT ACTIVITIES DURING AN INFLAMMATORY CHALLENGE IN EUROPEAN SEABASS (*Dicentrarchus labrax* L.)
- 11.50 Carla Sousa**, Marta Monteiro, Carolina Castro, Filipe Coutinho, Inês Guerreiro, Patrícia Diaz-Rosales, Filipa Fontinha, Pedro Pousão-Ferreira, Elisabete Matos, Aires Oliva-Teles, Paula Enes, Ana Couto
FUNCTIONAL FEEDS TO TACKLE MEAGRE *Argyrosomus regius* STRESS: PHYSIOLOGICAL RESPONSES UNDER CHRONIC AND ACUTE STRESSFUL CONDITIONS
- 12:00 Questions**
- 12.10 Serena Busti**, LUCA PARMA, SARA CIULLI, ENRICO VOLPE, FRANCESCA ERRANI, FRANCESCO DONDI, MARIA CHIARA SABETTI, ELISA BRINI, LORENZO MORSIANI, MAURIZIO MAZZONI, GIULIA LATTANZIO, PIER PAOLO GATTA, ALESSIO BONALDO
EFFECTS OF BIOACTIVE PEPTIDES ON GROWTH PERFORMANCE, PLASMA BIOCHEMISTRY, GUT HEALTH AND STRESS RESISTANCE OF GILTHEAD SEA BREAM AND EUROPEAN SEA BASS
- 12.20 Maria J. Xavier**, Luís E. C. Conceição, Luisa M. P. Valente, Sofia Engrola
NATURAL PLANT EXTRACTS MODULATE GROWTH PERFORMANCE, OXIDATIVE STATUS AND STRESS RESISTANCE OF SENEGALESE SOLE POSTLARVAE
- 12.30 Katerina Kousoulaki**, Lene Sveen, Marialena Kokkali, Aleksei Krasnov, John Sweetman
TRACE ELEMENT SOURCE EFFECTS AND SUPPLEMENTATION LEVEL OPTIMISATION IN DIETS FOR ATLANTIC SALMON
- 12.40 Nicole Francesca Pelusio**, L. Parma, S. Busti, A. De Marco, A. Marchi, L. Mariani, L. Morsiani, F. Dondi, E. Brini, E. Gisbert, K. B. Andree, M. A. Esteban, P. P. Gatta, A. Bonaldo
DIFFERENT FISH MEAL AND FISH OIL DIET LEVELS EFFECTS ON WELFARE AND PERFORMANCE OF EUROPEAN SEABASS *Dicentrarchus labrax* SUBJECTED TO ACUTE CONFINEMENT STRESS
- 12:50 Questions**
- 13:00 LUNCH**
- 14.00 Elli Z. Gkalogianni**, Pier Psfakis, Adamantia Asimaki, Anna Moustogianni, Sofoklis Bouras, Dimitrios Antoniadis, Iannis Zarkadas, Georgios Papapolymerou, Nikolaos Katsoulas, Ioannis Karapanagiotidis
EFFECTS OF FISHMEAL REPLACEMENT BY *Chlorella vulgaris* AND FISH OIL REPLACEMENT BY *Microchloropsis gaditana* AND *Schizochytrium* sp. BLEND ON GROWTH AND FEED EFFICIENCY OF EUROPEAN SEABASS (*Dicentrarchus labrax*)
- 14.10 Federico Melenchón**, Ana María Larrán, Eduardo de Mercado, Pabodha Weththasinghe, Leidy Ximena Lagos Rojas, Luis Mercado, Marcos Cortés Sobarzo, Cristina Tomás-Almenar
INSECT-BASED DIETS FOR RAINBOW TROUT (*Oncorhynchus mykiss*) AND ITS IMPACT ON GUT HEALTH AND PROTEIN UTILIZATION
- 14.20 Anna Tampou**, S. Andreopoulou, I. Nengas, K. Kousoulaki, A. Vasilaki, E. Mente
GROWTH PERFORMANCE OF GILTHEAD SEA BREAM (*Sparus aurata*) FED LOW FISHMEAL DIETS WITH INNOVATIVE INGREDIENTS
- 14.30 Benjamin Costas**, Ana Teresa Gonçalves, Wilson Pinto, Diogo Peixoto, Daniel Afonso, Luis Conceição, Maria Morais, Helena Abreu, Joana Silva, João Navalho, Jorge Dias
EVIDENCE FOR FUNCTIONAL ROLE OF A BLEND OF MICROALGAE AND MACROALGAE ON SENEGALESE SOLE POST-LARVAE ROBUSTNESS

14:40 Questions

- 14.50 Aiman Imentai**, Božidar Raškovic, Christoph Steinbach, Carlos Yanes-Roca, Tomas Policar
EFFECTS OF FIRST FEEDING REGIME ON DEVELOPMENT OF DIGESTIVE SYSTEM IN PIKEPERCH
(*Sander lucioperca*) LARVAE
- 15.00 G.D.P. Konnert**, F. Muhammad, Y. van Leur, S.W.S. Gussekloo, W.J.J. Gerrits, K. Masagounder, J. Mas-Muñoz, J.W. Schrama
SUB-OPTIMAL WATER TEMPERATURE PROMOTES MUSCLE FIBRE RECRUITMENT IN NILE TILAPIA
Oreochromis niloticus
- 15.10 Carmen Navarro-Guillén**, Paolo Gamberoni, Manuel Yúfera, Verónica de las Heras, Isacio Siguero, Neda Gilannejad, Gonzalo Martínez-Rodríguez, Carmen Navarro-Guillén
DIGESTIVE CAPACITY IN DEVELOPING GREATER AMBERJACK USING MOLECULAR AND BIOCHEMICAL APPROACHES
- 15.20 Wilson Pinto**, Maria Morais, Sara Castanho, Ana Candeias-Mendes, Pedro Pousão Ferreira, Luís E. C. Conceição
ARE HIGH LIPID/ENERGY DIETS BENEFICIAL FOR MARINE FISH LARVAE?

15:30 Questions

- 15.40 Marina Machado**, Cláudia Serra, Aires Oliva-Teles, Nuno M. Santos, Benjamín Costas
METHIONINE AND TRYPTOPHAN PLAY DIFFERENT MODULATORY ROLES IN THE EUROPEAN SEABASS
(*Dicentrarchus labrax*) INNATE IMMUNE RESPONSE AND APOPTOSIS SIGNALLING- AN IN VITRO STUDY
- 15.50 Andreia I. G. Raposo**, F. Soares, L. E. C. Conceição, L. M. P. Valente, T. S. Silva
EVALUATION OF BODY COMPOSITION MODELS OF NILE TILAPIA
- 16.00 Guillaume Morin**, Karine Pinel, Karine Dias, Iban Seilliez, Florian Beaumatin
VEGETAL-BASED DIETS INDUCED MOLECULAR DYSREGULATION IN CARNIVOROUS FISH: FOCUS ON AMINO ACID TRANSPORTERS IN RAINBOW TROUT (*Oncorhynchus mykiss*) CELL LINES
- 16.10 Trond M. Kortner**, Åshild Krogdahl, Kirsti Præsteng, Elin Valen, Marcelo Chacon, Liat Koch, Amir Bitan, Amos Tandler, Anna Szabo, Sandra van Vlierberghe, Rebecca Heavyside, Grethe Rosenlund, David Peggs, Pedro F. Costa, Ricardo Ribeiro, Radmila Pavlovic, Sara Panseri, Nicole Verdile, Rolando Pasquariello, Tiziana A. L. Brevini, Fulvio Gandolfi
FISH-AI: DEVELOPING AN ARTIFICIAL INTESTINE FOR THE SUSTAINABLE FARMING OF HEALTHY FISH

16:20 Questions

- 16.30 Ingvill Tolås**, Tharmini Kalanathan, Ana Christina da Silva Gomes, Floriana Lai, Sissel Norland, Koji Murashita, Ivar Rønnestad
DISTRIBUTION OF *npv* mRNA IN THE BRAIN OF ATLANTIC SALMON (*Salmo salar*, L.) AND RESPONSES TO GASTROINTESTINAL FULLNESS AND FASTING
- 16.40 Jérôme Roy**, Yvan Mercier, Lenny Tonnet, Christine Burel, Laurence Larroquet, Geneviève Corraze, Frederic Terrier, Stéphane Panserat, Sandrine Skiba-Cassy
OMEGA-3 LONG CHAIN POLYUNSATURATED FATTY ACIDS DHA AND EPA DROVE THE FEEDING BEHAVIOUR OF JUVENILE RAINBOW TROUT

16:50 Questions

CIRCULAR ECONOMY, RESOURCE REUSE AND ENVIRONMENTAL FOOTPRINT

Tuesday, April 13 10.30 - 17.00 Room 1

Chairs: Johan Verreth, Geert Wiegertjes

- 10:30 Johan Verreth, Geert Wiegertjes**
INTRODUCTION

- 10.35 Jaap van der Meer**
TROPHIC EFFICIENCY IN MARINE SYSTEM
- 10.45 Yngvar Olsen**
ECOLOGICAL CONCEPTS INTRODUCED TO MANAGE AQUATIC FOOD PRODUCTION
- 10.55 Killian Chary**, Daniele Brigolin, Myriam Callier
WHAT IS THE ROLE OF FARM SCALE MODELS IN IMPLEMENTING THE ECOSYSTEM APPROACH TO AQUACULTURE (EAA)? OVERVIEW OF THE MODELS AND OF THEIR APPLICATIONS.
- 11.05 Henrice Jansen**
THE CONTRIBUTION OF LOW TROPHIC AQUACULTURE (SHELLFISH) TO CIRCULAR FOOD SYSTEMS
- 11:15 Questions**
- 11.40 Isabel Fuentes-Santos**, M^a José Fernández-Reiriz, Uxío Labarta, X. Antón Álvarez-Salgado
BIOLOGICAL CARBON BUDGET OF MUSSELS CULTURED IN THE GALICIAN RIAS (NW SPAIN): CO₂ STORAGE OR SEQUESTRATION?
- 11.50 Ronan Cooney**, Alexandre Tahar, Michael Kennedy, Eoghan Clifford
LIFE CYCLE ASSESSMENT OF IRISH FRESHWATER AQUACULTURE
- 12.00 Maite Ciudad**, Saioa Ramos
ENVIRONMENTAL FOOTPRINT OF SEABASS PRODUCTION IN THE MEDITERRANEAN SEA
- 12.10 Shraddha Mehta**, Jon Gregersen
SALMON FROM THE NORTH: INSIGHT INTO THE CARBON FOOTPRINT OF SALMON FROM FAROE ISLANDS AND LOW EMISSION TRANSPORT TO THE MARKET
- 12:20 Questions**
- 12:30 LUNCH**
- 14.00 Jianguang Fang**
IMTA AS A MARINE EXAMPLE OF CIRCULAR AQUACULTURE
- 14.10 Barry Antonio Costa-Pierce**, David Fredriksson, Adam St. Gelais, Tobias Dewhurst, Andrew Drach
DOWNSCALING THE SEAWEED REVOLUTION: CAN VIABLE SEAWEED BIOECONOMIES BE CREATED IN ARCTIC/NORTH ATLANTIC RURAL AREAS?
- 14.20 Harry W. Palm**
AQUAPONICS IN MECKLENBURG-WESTERN POMERANIA, NORTHERN GERMANY: INTEGRATION OF AQUACULTURE PRODUCTION INTO REGULAR FARMING PRACTICES SUPPORTS RESOURCE EFFICIENCY AND THE CIRCULAR ECONOMY
- 14.40 Anne-Jo van Riel**, Marit A.J. Nederlof, Geert F. Wiegertjes, Imke J.M. de Boer
THE ROLE OF AQUACULTURE IN CIRCULAR FOOD SYSTEMS
- 14:50 Questions**
- 15.15 Margareth Øverland**, Jeleel Agboola, Byron Morales-Lange, Jon Øvrum-Hansen, Brankica Djordjevic, Liv Torunn Mydland
BIOTECHNOLOGICAL PRODUCTION OF MICROBIAL INGREDIENTS FROM BLUE AND GREEN BIOMASS
- 15.25 Erik-Jan Lock**, Gopika Radhakrishnan, Nina Liland, Josef Daniel Rasinger, Ikram Belghit
USING INSECTS TO RE-VALORIZE WASTES FOR AQUATIC FOOD PRODUCTION – OPPORTUNITIES AND CHALLENGES
- 15.35 Alicia Estévez**, Bruno Iñarra, Mikel Orive, David San Martin
BREWERY BY-PRODUCTS AS PROTEIN INGREDIENTS IN GILT HEAD SEABREAM AQUAFEDS

- 15.45 Filippo Faccenda**, Michele Povinelli, Gabriella Pereira, Filipe Soares, Rodrigo Mendes, Jorge Dias, Bela Buck, Johan Johansen, Luís Conceição
ECO-EFFICIENT AQUAFEED FORMULATIONS FOR RAINBOW TROUT: EFFECTS ON PERFORMANCE, WASTE AND SENSORIAL ANALYSIS
- 15.55 Ana Margarida Fernandes**, Luis E.C. Conceição, Josep A. Caldach-Giner, Bruna Silva, Gabriella V. Pereira, Benjamin Costas, Fernando Naya-Català, M. Carla Piazzon, Jorge M.O. Fernandes, Ariadna Sitjà-Bobadilla, Jaume Pérez-Sánchez
EVALUATION OF GROWTH PERFORMANCE, OXIDATIVE STRESS AND IMMUNE RESPONSE IN GILTHEAD SEABREAM FED WITH NOVEL FEED FORMULATIONS
- 16.05 Marc Verdegem**, Kazi Kabir, Tran Huu Tinh, Tran Ngoc Hai, Mike Phillips, Johan Verreth, Johan Schrama
OPTIMIZING RESOURCE USE IN POND ECOSYSTEMS
- 16:15 Questions**
- 16.45 Remigiusz Panicz**, Piotr Eljasik, Agnieszka Troszok, Malgorzata Sobczak, Slawomir Lisiecki, Arkadiusz Nedzarek, Jacek Sadowski
ECO-INTENSIFICATION OF COMMON CARP FARMING IN EUROPE. FIRST LESSONS LEARNT FROM THE GAIN PROJECT.
- 16.55 Leire Arantzamendi**, Marga Andrés, Oihane C. Basurko, Izaskun Zorita, Jane Maher, M^a Jose Suárez, Ainara Pocheville, Manuel González, Lien Van der Schueren
BIOGEARS: DEVELOPING BIOBASED ROPES FOR USE IN MUSSEL AND SEAWEED AQUACULTURE AND CREATION OF BIOBASED VALUE CHAINS AND CIRCULAR ECONOMY
- 17.05 Alexandre Tahar**, Ronan Cooney, Alan Kennedy, Eoghan Clifford
ECOAQUA PROJECT: SUPPORTING THE SUSTAINABLE DEVELOPMENT OF THE IRISH FRESHWATER AQUACULTURE INDUSTRY
- 17:15 Questions**

HATCHERY TECHNOLOGIES AND PRACTICES

Tuesday, April 13 14.00 - 17.00 Room 2
Chairs: Alicia Estevez, Nikos Papandroulakis

- 14.00 Laura Ballesteros-Redondo**, Harry Palm, Hanno Bähns, Adrian Bischoff
EFFECT OF DIFFERENT MICROALGAE DIETS ON *Apocyclops panamensis* (MARSH, 1913) AS A LIVE FOOD FOR FISH LARVAL REARING
- 14.10 Tania De Wolf**, Giulia Franchi, Letizia Chiappi, Simone Lenzi, Steven Debono, Jessica Teske, Geert Rombaut
ADVANTAGES ON THE USE OF ARTEMIA IN THE LARVAL REARING PROTOCOLS OF THE 2 MAIN MEDITERRANEAN AQUACULTURE SPECIES SEABREAM (*S.AURATA*) AND SEABASS (*D.LABRAX*)
- 14.20 François Allal**, Sara Faggion, Alain Vergnet, Frédéric Clota, Marie-Odile Blanc, Pierre Sanchez, François Ruelle, Marc Vandeputte
SEX DIMORPHISM IN EUROPEAN SEA BASS (*DICENTRARCHUS LABRAX* L.): ULTRA-SMALL RFID TAGS TO INVESTIGATE SEX-RELATED GROWTH PATTERNS DURING VERY EARLY LIFE STAGES
- 14.30 Adam Powell**, James Hinchcliffe, Kristina Sundell, Markus Langeland, Aleksandar Vidakovic, Ingrid Undeland, Nils-Gunnar Carlsson, Susanne Eriksson
IMPROVING THE FEEDING REGIME AND SUSTAINABILITY OF EARLY LIFE STAGE EUROPEAN LOBSTER, *Homarus gammarus*
- 14.40 Carmen Navarro-Guillén**, Ismael Jerez-Cepa, André Lopes, Sofia Engrola
IN OVO ARGININE SUPPLEMENTATION IMPROVES RESILIENCE AGAINST CHALLENGING CONDITIONS IN ZEBRAFISH LARVAE
- 14:50 Questions**

- 15.05 Claudia Di Biagio**, Zachary Joseph Dellacqua, Arianna Martini, Paul Eckhard Witten, Clara Boglione
MEDAKA, *Oryzias latipes*, A MODEL FOR MARINE REARED FISH SPECIES: EFFECT OF REARING DENSITY AND VOLUME ON THE SKELETON DURING LARVAL REARING
- 15.15 George Franz**, Lars Lewerentz, Bianka Grunow
DEALING WITH A TOUGH CHILDHOOD - MORPHOMETRIC AND VIDEO ANALYSIS OF EMBRYONIC TO LARVAL PIKEPERCH (*Sander lucioperca*)
- 15.25 Laura Ballesteros-Redondo**, Harry Palm, Hanno Bähres, Adrian A. Bischoff
EFFECT OF DIFFERENT DIETS CONTAINING ROTIFERS AND COPEPODS AS FIRST FEEDING ON *Sander lucioperca* (LINNAEUS, 1758) LARVAE
- 15.35 Prince Ofori-Darkwah**, Daniel Adjei-Boateng, Regina Esi Edziyie, Nelson Wilson Agbo, Ivar Lund
ONTOGENIC DEVELOPMENT OF AFRICAN BONY TONGUE, (*Heterotis niloticus*) (CUVIER, 1829) LARVAE FROM THE YOLK SAC STAGE TO COMPLETE ABSORPTION OF THE YOLK SAC
- 15.45 Zachary Dellacqua**, Claudia Di Biagio, Arianna Martini, Marisol Izquierdo, Clara Boglione
DISTINGUISHING THE IMPACTS OF REARING DENSITY VERSUS TANK VOLUME ON THE SKELETAL QUALITY AND DEVELOPMENT OF *Sparus aurata* DURING THE HATCHERY PHASE
- 15.55 Jessica Teske**, Tania De Wolf, Giulia Franchi, Valentina Carbone, Pieter Joos, Simone Lenzi, Steven Debono
EARLY DRY FEED INTRODUCTION IN GILT HEAD SEABREAM *Sparus aurata* LARVAE: INFLUENCES ON ROTIFER CONSUMPTIONS, LARVAL GROWTH AND PERFORMANCE
- 16.05 Leticia Luján**, Sara Sousa e Brito, Sara Castanho, Catia Marques, Laura Ribeiro, Pedro Pousão
EFFECT OF WATER TEMPERATURE ON GROWTH AND SKELETAL DEVELOPMENT IN MEAGRE (*Argyrosomus regius*)
- 16:15 Questions**

WEDNESDAY, April 14

CLIMATE CHANGE

Wednesday, April 14 10.00 - 11.00 Room 3
Chairs: Lynne Falconer, Smaragda Tsairidou

- 10.00 Gary F. Kett**, Sharon A. Lynch, Marcel A. K. Jansen, Sarah C. Culloty
THE IMPACT OF UV RADIATION ON PACIFIC OYSTER *Crassostrea gigas* HEALTH AND DEVELOPMENT OF PATHOGENS *Vibrio aestuarianus* AND OSTREID HERPESVIRUS-1 (OSHV-1 MICROVAR)
- 10.10 Md Jakiul Islam**, Andreas Kunzmann, Matthew James Slater
CLIMATE CHANGE INDUCED EXTREME AMBIENT WINTER COLD TEMPERATURE EFFECTS IN EUROPEAN SEABASS (*Dicentrarchus labrax*): GROWTH PERFORMANCE, METABOLIC AND PHYSIOLOGICAL RESPONSES
- 10.20 Orestis Stavrakidis-Zachou**, Konstadia Lika, Michail Pavlidis, Mohamed H. Asaad, Nikos Papandroulakis
THERMAL TOLERANCE AND BIOLOGICAL PERFORMANCE OF EUROPEAN SEABASS *Dicentrarchus labrax* REARED UNDER HIGH TEMPERATURES
- 10.30 Binyam Dagnachew**, Ingunn Thorland, Borghild Hillestad, Anne Kettunen
GENETIC VARIATION FOR CLIMATE CHANGE RESILIENCE IN GROWTH OF ATLANTIC SALMON
- 10.40 Patrícia Anacleto**, Ana Luísa Maulvault, Sara Castanho, Luísa M.P. Valente, Sara Sousa, Cristina Soares, Cristina Delerue-Matos, Valentina F. Domingues, Pedro Pousão-Ferreira, Rui Rosa, António Marques
OCEAN WARMING AND ACIDIFICATION IMPACTS ON NUTRITIONAL QUALITY OF SENEGALESE SOLE *Solea senegalensis*

10:50 Questions

IMTA AND AQUAPONICS

Wednesday, April 14 10.00 - 12.30 Room 2

Chairs: Frank Kane, Simon Goddek

- 10.00 Lauriane Vilmin**, Luca A. van Duren
MODELLING INTERACTIONS AND FEEDBACKS BETWEEN INTEGRATED MULTI-TROPHIC AQUACULTURE AND THE RECEIVING ENVIRONMENT IN THE NORTH AND AEGEAN SEAS
- 10.10 Alan MacDonald**, Sofia Franco, Natalia Serpetti
CREATION OF A NOVEL TOOL FOR THE AQUACULTURE INDUSTRY TO DELIVER HEALTHY AND SUSTAINABLE SEAFOOD
- 10.20 Joanne Casserly**, Frank Kane
CO-CULTURE OF ATLANTIC SALMON *Salmo salar*, SCALLOP *Pecten maximus* AND KELP *Alaria esculenta* AT A PILOT SCALE MULTI SPECIES RESEARCH SITE - IMPAQT PROJECT
- 10.30 Gercende Courtois de Viçose**, C. Hannon, C. Jones, M. Slater, S. Huchette, D. Weich, D. Taylor, Y. Wu, P. Britz, P. James
LAND BASED INTEGRATED MULTI-TROPHIC AQUACULTURE (IMTA) OF LOW TROPHIC SPECIES: AQUAVITAE PROJECT'S CASE STUDY

10:40 Questions

- 10.55 Vlastimil Stejskal**, Simona Paolaci, Marcel Jansen, Damien Toner
AN INNOVATIVE MULTITROPHIC AQUACULTURE SYSTEM WITH MINIMAL WATER ABSTRACTION, UTILISING DUCKWEED FOR BIOREMEDIATION
- 11.05 George Malindretos**, Panagiotis Kinanlis, Joanne Casserly, Frank Kane
ACTIVITY BASED RESOURCES ALLOCATION (ABRA) MODEL ON ASSESSING COST-EFFECTIVENESS OF IMTA INSTALLATIONS
- 11.15 Elisa Ravagnan**, Tania Li Chen, Pauline O'Donohoe, Unai Pérez Sautu, Philippe Cousin, Samuel Dupont, Michele Stanley, Luis Poersch, Marie Elisabeth Smith, Tomás Chalde, Marine Desoche, John Bolton, Nolwenn Beaume, Erik Hannisdal, Nick Loubser, Patricia Erig Anyanwu, Brett Macey, Olivier Denoual
A COLLABORATIVE ECOSYSTEM FOR ATLANTIC AQUACULTURE
- 11.25 Tobias Lipsewers**
AQUAPONICS IN FINLAND – CURRENT STATE AND THE FINNISH AQUAPONICS SOCIETY (FAPS)

11:35 Questions

- 11.50 Lorenzo Fruscella**, Benz Kotzen, Sarah Milliken
ORGANIC AQUAPONICS IN THE EUROPEAN UNION: TOWARDS SUSTAINABLE FARMING PRACTICES
- 12.00 Paraskevi Stathopoulou**, Evangelia Tsoumalakou, Theophilos Vanikiotis, Efi Levizou, Panagiotis Berillis
COMBINED CULTIVATION OF *Oreochromis mossambicus* AND *Eruca vesicaria* IN AN AQUAPONIC SYSTEM

12:10 Questions

LATEST RESEARCH AND INNOVATION IN THE UK (ARCH)

Wednesday, April 14 10.00 - 12.30 Room 4

Chairs: Herve Migaud, Joanna Gosling

- 10.00 Joanna Gosling**, Herve Migaud, Andrew Rowley, Charles Tyler, Sam Martin
ARCH-UK: MAXIMISING THE POTENTIAL OF COORDINATED NATIONAL RESEARCH

- 10.10 Johnathan Napier**
HOW AGRICULTURE CAN HELP AQUACULTURE BECOME GREENER
- 10.20 Jason Holland**, Marc Faber, Carolina Tafalla, Christopher Secombes
TACKLING PROLIFERATIVE KIDNEY DISEASE (PKD): UTILITY OF FUNCTIONAL GENOMICS TO INFORM ON PARASITE VIRULENCE AND THERAPEUTIC APPROACHES
- 10.30 Tamsyn Uren Webster**, Sonia Consuegra, Carlos Garcia de Leaniz
MICROBIOME EARLY LIFE SENSITIVITY: OPPORTUNITIES FOR AQUACULTURE
- 10:40 Questions**
- 11.00 Trevor Telfer**
CARRYING CAPACITY & FUTURE OPPORTUNITIES FOR EXPANSION IN UK
- 11.10 Ross Houston**
ACCELERATING GENETIC IMPROVEMENT OF AQUACULTURE SPECIES USING GENOMIC TOOLS
- 11.20 Elizabeth Cottier-Cook**, Claire Gachon, Juliet Brodie, Louise Shaxson, Flower Msuya, Amelia Buriyo, Anicia Hurtado, Victor Ferriols, Phaik Eem Lim, Nidhi Nagabhatla
GLOBALSEAWEED STAR - SAFEGUARDING THE FUTURE OF THE SEAWEED INDUSTRY IN DEVELOPING COUNTRIES
- 11.30 Neil Auchterlonie**
THE SEAFOOD 2040 PROGRAMME IN ENGLAND: WORK IN SUPPORT OF FISHERIES, AQUACULTURE AND SEAFOOD DEVELOPMENT
- 11:40 Questions**

RECIRCULATING AQUACULTURE SYSTEMS (RAS)

Wednesday, April 14 11.00 – 12:30 Room 3

Chair: Åsa Espmark, Kevin Torben Stiller

- 11.10 Marlene Lorgen-Ritchie**, L. Chalmers, M. Clarkson, J. Taylor, H. Migaud, S. A. M. Martin
TEMPORAL DYNAMICS OF THE GUT MICROBIOME IN ATLANTIC SALMON DURING SMOLTING IN AN INDUSTRIAL RECIRCULATING AQUACULTURE SYSTEM AND FOLLOWING SW TRANSFER
- 11.20 Yale Deng**, Fotini Kokou, Ep Eding, Marc C.J. Verdegem
EFFECT OF THE REARING ENVIRONMENT AND DIETARY PROBIOTIC ON THE GROWTH AND GUT MICROBIOTA OF NILE TILAPIA (*Oreochromis Niloticus*) LARVAE
- 11.30 Ana Nobre**, Filipe Soares, Tomé Silva, P. Rema, Luis Conceição
AQUAFEED EVALUATION UNDER SPECIFIC FARMING CONDITIONS – A RAS APPLICATION
- 11.40 J.L. Rodríguez**, E. Murari, E. Peláez, E. Pérez
PREONGROWING OF TURBOT (*Scophthalmus maximus*) SUBJECT TO THREE FEEDING RATE IN A RECIRCULATION SYSTEM.
- 11.50 Aran Lavi**, Ytzhak Rozenberg, Yariv Abramovich
GUIDELINES AND RECOMMENDATIONS TO ENHANCE WATER BIOSECURITY AND PROMOTE FISH PRODUCTION USING ULTRAVIOLET DISINFECTION
- 12.00 John Davidson**, Steven Summerfelt, Casey Grimm, Gregory Fischer, Christopher Good
ESTABLISHING STANDARD OPERATING PROCEDURES FOR PURGING OFF-FLAVOR FROM RAS-PRODUCED ATLANTIC SALMON (*Salmo salar*)
- 12:10 Christopher Naas**, Werner Kloas, Andreas Müller-Belecke
PHYSIOLOGICAL EFFECTS OF NACL APPLICATION ON JUVENILE PIKE-PERCH *SANDER LUCIOPERCA* REARED IN RECIRCULATING AQUACULTURE SYSTEMS – A PILOT STUDY.

12:20 Questions

DISEASE PREVENTION & TREATMENT (INCL. PARASITES)

Wednesday, April 14 10.00 - 17.00 Room 1
Chairs: Pantelis Katharios, Maria Chiara Cascarano

- 10.00 Ahmed Noor El Deen**, Hussan Osman
STUDIES OF SOME PREVAILING PARASITIC FISH DISEASES IN THE EXAMINED SOME CULTURED MARINE FISHES AT ISMAILIA PROVINCE, EGYPT
- 10.10 Michele De Noia**, Joshka Kaufmann, Russell Poole, Philip McGinnity, Martin Llewellyn
NON INVASIVE IN-SITU RAPID TEST TO DETECT THE PRESENCE OF THE NEMATODE PARASITE, *Anguillicola crassus*, IN THE EUROPEAN EEL, *Anguilla anguilla*.
- 10.20 Sara Albuixech-Martí**, Sharon A. Lynch, Sarah C. Culloty
DISEASE DYNAMICS AND PARASITIC TRANSMISSION BETWEEN *Cerastoderma edule* AND SHOREBIRDS IN THE IRISH COAST
- 10.30 Adam Brooker**, Andrew Davie, Herve Migaud
COMPARISON OF BALLAN WRASSE *Labrus bergylta* AND LUMPFISH *Cyclopterus lumpus* DELOUSING PERFORMANCE UNDER SUMMER AND WINTER CONDITIONS AND THE IMPACT OF CRYPTIC SEA LICE COLOUR VARIANTS
- 10:40 Questions**
- 10.55 Sofie Barsøe**, Ansgar Straatman, Dagoberto Sepúlveda, Niccolò Vendramin, Niels Lorenzen
LONG TERM TESTING OF A VLP-BASED VACCINE AGAINST VIRAL NERVOUS NECROSIS IN EUROPEAN SEA BAS *Dicentrarchus labrax*
- 11.05 Guro Løkka**, Amr A. A. Gamil, Øystein Evensen, Trond M. Kortner
THE RAINBOW TROUT *Oncorhynchus mykiss* INTESTINAL EPITHELIAL CELL LINE RTgutGC IS PERMISSIVE TO IPNV, SAV3 AND ISAV
- 11.15 Katarzyna Pala**, Michalina Alicka, Karolina Lechowicz, Ivanna Zlobenko, Paweł Polański
FIELD EVALUATION OF ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY POINT-OF-CARE DIAGNOSTIC DEVICE FOR PRESENCE OF SAV (*Salmonid alphavirus*) IN FARMED ATLANTIC SALMON (*Salmo salar*) IN NORWAY
- 11.25 Sara Ciulli**, Francesca Errani, Samuele Zamparo, Enrico Volpe
ASSESSMENT OF VIRUCIDAL EFFECT OF A COMMERCIAL BIOCIDES AGAINST TWO DIFFERENT STRAINS OF NERVOUS NECROSIS VIRUS, BETANODAVIRUS
- 11:35 Questions**
- 11.50 Yoannah François**, Marie Villa, Bruno Peyrou, Pierrick Haffray, Thierry Morin, Anastasia Bestin
TOWARD A SELECTION TO IMPROVE TURBOT *Scophthalmus maximus* RESISTANCE TO EDWARDSIELLOSIS
- 12.00 Md. Golam Rbbani**, Artem Nedoluzhko, Prabhugouda Siriappagoudar, Joost Andre M Raeymaekers, Jorge Galindo Villegas, Jorge Manuel de Oliveira Fernandes
circRNA, miRNA AND mRNA MUSCLE TRANSCRIPTOMES INDICATE THEIR ROLE IN GROWTH REGULATION IN NILE TILAPIA
- 12.10 Valeria Macchia**, Fabian Grammes, Andrew Davie, Andrew Reeve, Thomas Moen, Alexandra Adams, Andrew Desbois, Rowena Hoare
QUANTIFICATION OF *FLAVOBACTERIUM PSYCHROPHILUM* IN IMMERSION CHALLENGED ATLANTIC SALMON (*SALMO SALAR*) SELECTED FOR DISEASE RESISTANCE
- 12:20 Questions**

12:30 LUNCH

14.00 Sergio Fernández-Boo, Rafaela A. Santos, Joana Azevedo, Pedro N. Leão, Benjamin Costas, Claudia R. Serra, Ana García
SEARCHING FOR ANTIMICROBIAL PEPTIDES FROM SEA URCHIN *Paracentrotus lividus* COELOMIC FLUID

14.10 Gerald N Misol Jr, Pantelis Katharios, Constantina Kokkari
BIOLOGICAL AND GENOMIC CHARACTERIZATION OF A NOVEL JUMBO BACTERIOPHAGE, vB_VhaM_pir03 WITH BROAD HOST LYTIC ACTIVITY AGAINST *Vibrio harveyi*

14.20 Jasmine Heyse, Ruben Props, Pantipa Kongnuan, Peter De Schryver, Geert Rombaut, Tom Defoirdt, Nico Boon
REARING WATER MICROBIOMES IN *Litopenaeus vannamei* LARVICULTURE ASSEMBLE STOCHASTICALLY AND ARE INFLUENCED BY THE MICROBIOMES OF LIVE FEED PRODUCTS

14.30 Pierrick Kersante, Guillaume Le Reste, Benoit Diringier, Juan Quimi, Renaud Sergheraert, Joël Duperray
FREE AMINO-ACIDS MIX MADE OF POULTRY KERATIN IMPROVES SURVIVAL OF WHITELEG SHRIMP POST LARVAE (*LITOPENAEUS VANNAMEI*) IN CASE OF ACUTE HEPATOPANCREATIC NECROSIS DISEASE AND WHITE SPOT SYNDROME VIRUS CHALLENGES

14.40 Annette Boerlage, Tran Thi Tuyet Hoa, Tran Thi My Duyen, Dang Thuy Mai Thy, Nguyen Thi Thu Hang, Roger W Humphry, Nguyen Thanh Phuong
THE EFFECT OF HUSBANDRY PRACTICES ON COMMON DISEASES OF STRIPED CATFISH (*Pangasianodon hypophthalmus*) NURSERIES IN THE MEKONG DELTA OF VIETNAM

14:50 Questions

OFFSHORE AQUACULTURE AND MULTIUSE OF SPACE

Wednesday, April 14 14.00 - 17.00 Room 2

Chairs: Tim Attack, Bela Buck

14.00 Eva Strothotte, Maria Jaeger, Ivana Lukić, Ioanna Drigkopoulou, Roderik Hoekstra, Manuel Lago, Olga Mashkina, Luc van Hoof, Steven Degraer, Eef Brouwers, Nancy Nevejan, Hans Sørensen, Alex Ziemba, Elias de Korte, Rieke Santjer, Ghada El Serafy, Annelies Declercq
MULTI-USE PLATFORMS IN MARINE SPACE - A VIABLE APPROACH FOR THE EUROPEAN MARITIME INDUSTRY AND LOCAL ECOSYSTEMS?

14.10 Bernat Morro, Lynne Falconer, Carlos Díaz-Gil, Tom P. Adams, Dmitry Aleynik, Sonia Rey-Planellas
SHOULD WE GO OFFSHORE? A CASE STUDY OF OFFSHORE ATLANTIC SALMON AQUACULTURE IN FARMS OFF THE WEST COAST OF SCOTLAND

14.20 Suzannah-Lynn Billing, George Charalambides, Paul Tett, Michelle Giordano, Carlo Ruzzo, Felice Arena, Anita Santoro, Fabrizio Lagasco, Silvia Vela, Giulio Brizzi
COASTAL COMMUNITY PERCEPTIONS OF MULTI-USE OFFSHORE INSTALLATIONS COMBINING FISH FARMING WITH RENEWABLE ENERGY SYSTEMS

14.30 Eva Strothotte, Maria Jaeger
A CONCEPT FOR INTERACTIVE COMMUNITY WORKSHOPS IN THE MULTI-USE OFFSHORE SECTOR

14:40 Questions

14.55 Jon Hardwick, Helen Smith, Keith Davidson, Max Holloway, Dmitry Aleynik
A METHODOLOGY FOR CLASSIFYING PHYSICAL CONDITIONS AT OFFSHORE AQUACULTURE SITES IN WESTERN SCOTLAND USING OUTPUT FROM A SPECTRAL WAVE MODEL

15.05 Max Holloway, Dmitry Aleynik, Andrew Dale, Thomas Adams, Keith Davidson
MODELLING OF AQUACULTURE IMPACTS AND THE MOVE TO MORE EXPOSED LOCATIONS: WHAT SCALES DO WE NEED TO RESOLVE?

- 15.15 Mat Roberts**, Harrison Carmody, Michael Barry, Meadhbh Moriarty, Alexander Murray, Glenn Shiell, Louise Bruce
MODELLING SEA LICE DISPERSAL USING A STAGE STRUCTURED MOTILE PARTICLE TRACKING MODEL
- 15.25 Katie E. Costello**, Damien Haberlin, Sharon A. Lynch, Rob McAllen, Ruth M. O'Riordan, Sarah C. Culloty
REGIONAL DIFFERENCES IN ZOOPLANKTON-ASSOCIATED BACTERIAL COMMUNITIES AND AQUACULTURE PATHOGENS ACROSS TWO SHELF SEAS
- 15.35 Matt Lewis**, Rory O'Hara Murray, Simon Neill, Peter Robins, Jonathan Demmer, Alice Goward Brown, Sam Fredriksson
THE POTENTIAL OF COMBINING MARINE RENEWABLE ENERGY AND OFFSHORE AQUACULTURE
- 15:45 Questions**
- 16.00 Michael O'Shea**, John Fitzgerald
ASSESSING THE RENEWABLE POWER POTENTIAL FOR OFFSHORE FIN FISH AQUACULTURE
- 16.10 John Fitzgerald**, Michael O'Shea
"NET9": A STEP-CHANGE IN MARINE FIN-FISH PRODUCTION COSTS AT OFFSHORE LOCATIONS, THROUGH THE APPLICATION OF INNOVATIVE FLEXIBLE STRUCTURAL TECHNOLOGY
- 16.20 Jorrit-Jan Serraris**, Linda Kemp, Robbert Jak, Stefan Matthes
SYSTEMATIC HYDRODYNAMIC MEASUREMENTS AND NUMERICAL MODELLING OF AQUACULTURE STRUCTURES
- 16:30 Questions**

PRECISION AQUACULTURE (SENSORS, AI, INTERNET OF THINGS, BIG DATA)

Wednesday, April 14 14.00 - 17.00 Room 4

Chair: Merete Schröder, Martin Føre

- 14.00 Edouard Royer**, Roberto Pastres
ESTIMATION OF RAINBOW TROUT *Oncorhynchus mykiss* RESPIRATION RATE WITHIN A COMMERCIAL RACEWAY USING A DATA ASSIMILATION APPROACH
- 14.10 Edouard Royer**, Matteo Bolzonella, Roberto Pastres
TESTING A REAL TIME WEIGHT MEASUREMENT SYSTEM IN A TROUT RACEWAY.
- 14.20 Matteo Bolzonella**, Edouard Royer, Roberto Pastres
AN INDIVIDUAL-BASED BIOENERGETIC MODEL OF RAINBOW TROUT *Oncorhynchus mykiss*
- 14.30 Adriano Coutinho de Lima**, Edouard Royer, Roberto Pastres
DISSOLVED OXYGEN CONSUMPTION AND INTRA-TANK DISTRIBUTION OF TROUT BIOMASS
- 14:40 Questions**
- 14.55 Dimitra Georgopoulou**, Orestis Stavrakidis-Zachou, Nikos Mitrizakis, Vaggelis Chalkiadakis, Nikos Papandroulakis
TRACKING AND ANALYSIS OF THE MOVEMENT BEHAVIOUR OF EUROPEAN SEABASS *Dicentrarchus labrax* IN AQUACULTURE SYSTEMS
- 15.05 Espen Eilertsen**, Eleni Kelasidi, Eirik Svendsen, Martin Føre, Leif Magne Sunde
ADAPTATION OF THE INDUSTRY 4.0. PRINCIPLES TO REALIZE THE NEXT GENERATION OF SMOLT PRODUCTION UNITS
- 15.15 Dimitri Trotignon**, Amine El-Farsi, Lucas Schaeffer, Maxime Paris, Samuel Dupont, Charlotte Dupont
MACHINE LEARNING FOR AQUACULTURE, IMPROVING WATER QUALITY MANAGEMENT AND USE PREDICTIVE MAINTENANCE TO ENSURE DATA RELIABILITY.

- 15:25 Sveinung Johan Ohrem**, Håvard Løvseth Seehuus, Martin Føre, Eleni Kelasidi, Nina Bloecher
PERMANENTLY RESIDENT ROBOT FOR AUTONOMOUS NET CLEANING AND INSPECTION
- 15:35 Julian Pforth**, Maria Jaeger, Eva Strothotte
COMPARISON OF CONCEPTS FOR REMOTE MONITORING IN AN OFFSHORE MULTI-USE PROJECT
- 15:45 Questions**
- 16:00 Filipe Soares**, Ana Nobre, Ricardo Severino, João Cruz, Luís Conceição, Tomé Silva
NUTRIENT-BASED MODELS AS BENCHMARKING, MONITORING, AND FORECASTING TOOLS
- 16:10 Frank Kane**, Panagiotis Vlacheas
IMPAQT – AN INTELLEGIENT MANAGEMENT SYSTEM FOR INTEGRATED MULTI-TROPHIC AQUACULTURE
- 16:20 Renata Serradeiro**, Giannis Zarifis, Helena Abreu, François Hubert, José Leitão, Sofia Cardoso, Ana Nobre
DATAMINING FOR AQUACULTURE PRODUCTION ANALYSIS – APPLICATION TO AN OYSTER NURSERY AND A SEAWEED FARM
- 16:30 Kana Banno**, Håvard Kaland, Alberto Maximiliano Crescitelli, Stig Atle Tuene, Grete Hansen Aas, Lars Christian Gansel
A NOVEL SYSTEM FOR WILD FISH MONITORING AT AQUACULTURE SITES - ARTIFICIAL INTELLIGENCE IN WILD FISH ABUNDANCE ANALYSIS
- 16:40 Questions**

EAS STUDENT GROUP WORKSHOP

Wednesday, April 14 14.00 - 17.00 Room 3
Chair: Elisavet Syropoulou, Christopher Naas

- 14:00 Elisavet Syropoulou**
WELCOME, STATUS OF THE EAS STUDENT GROUP AND INTRODUCTION TO THE WORKSHOP
- 14:10 Aideen Kearney**, Paul Mosnier, Silvia Blanco
WE COULD HAVE BEEN IN CORK! ALL YOU NEED TO KNOW ABOUT IRELAND
- 14:25 Johan Verreth**
HOW TO PREPARE FOR AN INTERVIEW (EXPERT FROM THE ACADEMIA)
- 14:35 Goncalo Santos**
HOW TO PREPARE FOR AN INTERVIEW (EXPERT FROM THE INDUSTRY)
- 14:45 Questions**
- 15:05 Simon John Davies**, Emmanouil Malandrakis
CAREER PATHS IN THE ACADEMIA
- 15:25 Catarina Martins**, Benedict Standen
CAREER PATHS IN THE INDUSTRY
- 15:45 Questions**
- 16:05 Luis Conceição**, Rodrigo Mendes & Ana Nobre
SPAROS: INNOVATION IN FISH NUTRITION WITH OPPORTUNITIES FOR AQUACULTURE STUDENTS
- 16:15 Maria Jaeger**, Esther Blanco
INTRODUCING THE YOUTH4OCEAN FORUM
- 16:25 Anil A. Tellbüscher**
WHO ARE YOU AND WHAT ARE YOUR EXPECTATIONS FROM THE EAS SG? (*SURVEY OUTPUT BY ANIL*)

16:35 Christina Zantioti, Christos Siapazis
NATIONAL NETWORKS – LET’S SCALE DOWN!

16:45 Questions

17:30 Student Reception

THURSDAY, April 15

MICRO- AND MACRO-ALGAE

Thursday, April 15 10.00 - 12.30 Room 2
Chairs: Julie Maguire, Luisa Valente

- 10.00 Luis Resende**, Cláudia Moreira, A.Carla Garcia, A.Cristina Rocha
MACROALGAE IN EUROPE: A QUANTITATIVE AND QUALITATIVE ANALYSIS OF TRENDS AND FUTURE OPPORTUNITIES
- 10.10 Urd G. Bak**, Jóhannus Kristmundsson, Drew Resnick, Floor Marsman, Ólavur Gregersen, Gunnvør á Norði
OFFSHORE PRODUCTION OF *Saccharina latissima* IN THE FAROE ISLANDS AND THE CHALLENGE OF SCALING UP IN THE ATLANTIC OCEAN
- 10.20 Mette Nielsen**, Peter Schmedes
UPDATED HATCHERY AND CULTIVATION METHODS FOR *Palmaria palmata* CULTIVATION ON LAND AND AT SEA
- 10.30 Damiano Spagnuolo**, Antonio Manghisi, Marina Morabito, Javier Cremades, Giuseppa Genovese
PATHOLOGIES OF MACROALGAE: RISK TO TAKE INTO A NEW FARM MANAGEMENT VISION
- 10.40 Silvia Blanco González**, Laurence Jennings, Olivier P. Thomas, Julie Maguire
VARIATION OF HIGH-VALUE BIOACTIVE COMPOUNDS FROM *ALARIA ESCULENTA* CULTIVATED ON LONG-LINES IN BANTRY BAY, IRELAND.
- 10:50 Questions**
- 11.05 Anastasia Lytou**, Eirini Schoina, Yunge Liu, Nikolaos Evangelopoulos, Kati Michalek, Michele Stanley, Efsthios Panagou, George-John Nychas
INVESTIGATION OF THE MICROBIOLOGICAL QUALITY AND SAFETY OF FARMED EDIBLE SEaweeds *Alaria esculenta* AND *Saccharina latissima*, OBTAINED FROM SCOTLAND (UK) IN TWO DIFFERENT YEARS
- 11.15 Mariana Ferreira**, Carla Teixeira, Helena Abreu, Joana Silva, Benjamin Costas, Luisa M.P. Valente
ANTIMICROBIAL AND ANTIOXIDANT ACTIVITIES OF MICRO- AND MACROALGAE, SINGLE OR BLENDED, UNRAVEL THEIR POTENTIAL USE FOR AQUAFEEDS
- 11.25 Lucilla Iacumin**, Maria Messina, Luisa M.P. Valente, Francesca Tulli
EFFECT OF THE CELL DISRUPTION TECHNIQUE ON THE IN VITRO MICROALGAE ANTIMICROBIAL ACTIVITY
- 11.35 Greta Gaiani**, Anna Toldrà, Sandra Leonardo, Àngels Tudó, Karl Andree, María Rey, Takeshi Tsumuraya, Masahiro Hirama, Jorge Diogène, Carles Alcaraz, Ciara O’Sullivan, Mònica Campàs
BIOANALYTICAL DEVICES FOR THE DETECTION OF CIGUATOXINS AND DNA FROM THE CIGUATOXIN-PRODUCING GENERA *Gambierdiscus* AND *Fukuyoa*

11:45 Questions

FISH WELFARE

Thursday, April 15 10.00 - 12.30 Room 1

Chairs: Chris Noble, Lars Stien

- 10.00 Cláudia Raposo de Magalhães**, Denise Schrama, Chatsirin Nakharuthai, Surintorn Bunanantanasarn, Dominique Revets, Annette Kuehn, Sebastián Planchon, Marco Cerqueira, Raquel Carrilho, Ana P. Farinha, Pedro M. Rodrigues
COMPARATIVE ANALYSIS OF THE STRESS RESPONSIVE HEPATIC PROTEOME AND GENE EXPRESSION: IDENTIFICATION OF STRESS BIOMARKERS
- 10.10 Rita Azeredo**, Marina Machado, Patricia Pereiro, Andre Barany, Juan Miguel Mancera, Benjamín Costas
NEUROENDOCRINE AND OPIOID RECEPTOR GENES IN A TELEOST BRAIN - RESPONSE TO ACUTE INFLAMMATION
- 10.20 Lene Sveen**, Elisabeth Ytteborg, Lill-Heidi Johansen, Gerrit Timmerhaus
DEEP NEURAL NETWORK ANALYSIS - A PARADIGM SHIFT FOR HISTOLOGICAL EXAMINATION OF HEALTH AND WELFARE OF FARMED FISH
- 10.30 Lina Weirup**, Carsten Schulz, Henrike Seibel
FISH WELFARE EVALUATION INDEX BASED ON THE PREVALENCE AND SEVERITY OF EXTERNAL MORPHOLOGICAL DAMAGE
- 10:40 Questions**
- 10.55 Stephen Gyamfi**, Rigina Esi Edziyie, Kwasi Adu Obirikorang, Daniel Adjei-Boateng, Peter Vilhelm Skov
WATER QUALITY DYNAMICS IN EARTHEN PONDS WITH AND WITHOUT FISH
- 11.05 Tamara Wind**, Stephan Hofer, Alexander Brinker, Mark Schumann
TRANSPORTATION OF LIVING FISH - OPTIMISATION OF RELEVANT WATER QUALITY PARAMETERS DURING COMMERCIAL TROUT TRANSPORT WITH AND WITHOUT AERATION
- 11.15 Åsa Maria Espmark**, Kevin Stiller, Khurram Shahzad, Britt Kristin Reiten, Yuriy Marchenko, Jascha Gerwins, Filip Strand Radonjic, Bernhard Eckel, Carlo Lazado, Arne Berge
ATLANTIC SALMON *Salmo salar* POST-SMOLT WELFARE AND PERFORMANCE IN FISHGLOBE SEMI-CLOSED CONTAINMENT SYSTEM
- 11.25 Diogo Peixoto**, Marina Machado, P. Santos, Ana Ricardo, Inês Duarte, Rita Azeredo, Benjamín Costas
DIETARY TRYPTOPHAN SUPPLEMENTATION MODULATES THE IMMUNE RESPONSE TO ACUTE INFLAMMATION IN EUROPEAN SEABASS (*Dicentrarchus labrax*) JUVENILES UNDER STRESSFUL CONDITIONS
- 11:35 Questions**

SELECTIVE BREEDING

Thursday, April 15 10.00 - 15.00 Room 3

Chairs: Antti Kause, John Bastiaansen

- 10.00 Marc Vandeputte**, Geneviève Corraze, Jérôme Doerflinger, Florian Enez, Frédéric Clota, Frédéric Terrier, Mathilde Horat, Laurence Larroquet, Nicolas Dechamp, Vincent Petit, Pierrick Haffray, Sandrine Skiba-Cassy, Mathilde Dupont-Nivet
EVALUATION OF GENETIC GAIN IN RAINBOW TROUT FED STANDARD OR "FUTURE" DIET AFTER 10 GENERATIONS OF MULTI-TRAIT SELECTION IN THE AQUALANDE SELECTIVE BREEDING PROGRAM
- 10.10 Martin Prchal**, Jinfeng Zhao, David Gela, Jan Kašpar, Pavel Lepič, Vojtech Kašpar, Martin Kocour
SIMPLIFIED METHOD FOR GENETIC SLAUGHTER YIELDS IMPROVEMENT IN COMMON CARP UNDER EUROPEAN POND CONDITIONS
- 10.20 Benan Gulzari**, John W.M. Bastiaansen, Varun Raj Nammula, Hans Komen
GENOTYPE BY ENVIRONMENT INTERACTION IN TWO COMMERCIAL PRODUCTION SITES OF GILTHEAD SEABREAM *Sparus aurata* IN THE MEDITERRANEAN

- 10.30 Anastasia Bestin**, Sophie Cariou, Jean-Sébastien Bruant, Florian Enez, Marc Vandeputte, Pierrick Haffray
COMBINING DATA FROM SUCESSIVE COHORTS TO INCREASE THE ACCURACY OF ESTIMATED BREEDING VALUES: A CASE STUDY IN A GILTHEAD SEA BREAM (*Sparus aurata*) COMMERCIAL LINE
- 10:40 Questions**
- 11.00 Gareth Difford**, Siri Horn, Katinka Dankel, Bente Ruyter, Binyam Dagnachew, Borghild Hillestad, Anna Sonesson, Nils Kristian Afseth
HIGH THROUGHPUT PHENOTYPING REVEALS THE HERITABLE LANDSCAPE OF NEAR-INFRARED AND RAMAN SPECTROSCOPIC MEASUREMENT TO GENETICALLY IMPROVE LIPID CONTENT IN ATLANTIC SALMON FILLETS
- 11.10 Siri Horn**, B. Ruyter, M.L. Aslam, K. Tsakoniti, B. Gulzari, J. Bastiaansen, C. Peñaloza, R. Houston, A.K. Sonesson
GENETIC PARAMETERS OF LIPID-RELATED PRODUCTION TRAITS AND MUSCLE FATTY ACIDS IN GILTHEAD SEABREAM (*Sparus aurata*)
- 11.20 Chantal Roozeboom**, Hans Komen, John W. M. Bastiaansen
COMPARING SELECTION RESPONSE AND INBREEDING LEVEL IN FAMILY AND GROUP MATING DESIGNS OF SEA BREAM AND SEA BASS
- 11.30 Antti Kause**, Antti Nousiainen, Heikki Koskinen
ROLE OF SELECTIVE BREEDING IN THE IMPROVEMENT OF FEED EFFICIENCY AT RAINBW TROUT FARMS
- 11:40 Questions**
- 12.00 Ana Corrochano-Fraile**, Stefano Carboni, Michaël Bekaert, Andrew Davie
BLUE MUSSEL (*Mytilus edulis*) GENOME TO STUDY GENE UNDERGOING POSITIVE SELECTION
- 12.10 Cathaysa Pérez García**, Laura Cristina Pachón Meza, Álvaro Lorenzo Felipe, Sergio León Bernabeu, Juan Manuel Afonso, Hyun Suk Shin, Juan Sánchez, María Jesús Zamorano
DEVELOPMENT OF MULTIPLEX PCRs OF MICROSATELLITES FOR EUROPEAN SEABASS (DICENTRARCHUS LABRAX) AND THEIR APPLICATION IN THE CHARACTERIZATION OF BROODSTOCK
- 12:20 Questions**
- 12:30 LUNCH**
- 14.00 Fabian Grammes**, Valeria Macchia, Andrew Reeve, Sandra Adams, Thomas Moen, Hoare Rowena
A MAJOR QTL FOR *Flavobacterium psychrophilum* RESISTANCE IN ATLANTIC SALMON (*SALMO SALAR*)
- 14.10 Clémence Fraslin**, A. Nousiainen, H. Koskinen, R.D. Houston, A. Kause
GENOMIC BASIS OF RESISTANCE TO *Flavobacterium columnare* IN RAINBOW TROUT
- 14.20 Alvaro Lorenzo Felipe**, Fernando Naya Català, Sergio León Bernabeu, Hyun Suk Shin, Josep Calduch Giner, Enrique Haro, María Jesús Zamorano, Jaume Pérez Sánchez, Juan Manuel Afonso
GENETIC ARCHITECTURE OF MORPHOLOGICAL ABNORMALITIES TRAIT IN GILTHEAD SEABREAM
- 14.30 M. Carla Piazzon**, Fernando Naya-Català, Erick Perera, Oswaldo Palenzuela, Ariadna Sitjà-Bobadilla, Jaume Pérez-Sánchez
GENETIC SELECTION FOR GROWTH DRIVES DIFFERENCES IN INTESTINAL MICROBIOTA COMPOSITION AND PARASITE DISEASE RESISTANCE IN GILTHEAD SEA BREAM
- 14:40 Questions**
- 15.00 Yousri Abdelhafiz**, Yousri Abdelhafiz, Jorge M. O. Fernandes, Simone Larger, Davide Albanese, Omid Jafari, Artem V Nedolizhko, Claudio Donati, Viswanath Kiron
BREEDING STRATEGY INFLUENCES THE BACTERIAL COMMUNITIES OF FEMALE NILE TILAPIA (*Oreochromis Niloticus*) REARED IN A RECIRCULATING AQUACULTURE SYSTEM

15.10 Kristin Rosendal, Ingrid Olesen
BREEDING FOR LICE RESISTANCE IN NORWEGIAN FARMED ATLANTIC SALMON: AN IGNORED (OR INSIGNIFICANT) PATH FOR SUSTAINABLE INNOVATION?

15:20 Questions

PRODUCT QUALITY, VALUE AND MARKETS

Thursday, April 15 14.00 - 17.00 Room 1

Chairs: Damien Toner, John Fagan

14.00 Hanne Jorun Sixten, Raja Mansingh Rathore, Jon Vestengen, Marie Hillestad, Ivar Rønnestad, Katerina Kousoulaki
SIDE STREAM PRODUCTS FROM WHITE FISH CATCH FOR SUSTAINABLE AQUACULTURE GROWTH

14.10 Apollon Thomas, Spyros Konteles, Sotiris Ouzounis, Spyros Papatheodorou, Aliko Tsakni, Dimitra Houhoula, Theofania Tsironi
CHARACTERIZATION OF SKIN, GILLS AND GUT BACTERIAL MICROBIOME OF MODIFIED ATMOSPHERE PACKED GILTHEAD SEABREAM USING NEXT-GENERATION SEQUENCING

14.20 Ane del Rio, Jan Weber, Joachim Molkenitin, Elisa Jiménez, Miguel Ángel Pardo
TRACING THE GEOGRAPHICAL ORIGIN OF THE MEDITERRANEAN MUSSEL (*Mytilus galloprovincialis*) IN FOOD AUTHENTICATION USING STABLE ISOTOPE AND TRACE ELEMENT ANALYSIS

14:30 Questions

14.55 Laura López-Mas, Anna Claret, Violeta Stancu, Karen Brunsø, Irene Peral, Elena Santa Cruz, Athanasios Krystallis, Luis Guerrero
NEW FISH PRODUCT IDEAS GENERATED BY EUROPEAN CONSUMERS

15.05 Raquel Llorente, IRENE PERAL, MONICA IBARGUEN, ANA BELEN NARANJO
NEW AQUACULTURE FISH PRODUCTS FROM CONSUMER TO THE MARKET

15.15 Sonia García Muñoz, Raquel Llorente, L. López-Mas, L. Guerrero, Irene Peral
IS THERE ROOM IN THE FISH MARKET FOR THE DEVELOPMENT OF NEW AQUACULTURE PRODUCTS?

15.25 Kyra Hoevenaars, Tamas Bardócz, Marco Setti
FOOD AND LOCAL, AGRICULTURAL, AND NUTRITIONAL DIVERSITY

15:35 Questions

15.50 Georgia Bayliss-Brown, Cliona Ni Cheallachain, Lucy Watson
ADVANCING IRISH AQUACULTURE THROUGH THE IMPLEMENTATION OF A KNOWLEDGE TRANSFER METHODOLOGY AND STAKEHOLDER ENGAGEMENT

16.00 Catherine Mariojouis, Terhi Latvala, Rafael Ginès, Laurent Muller
DO CONSUMERS WANT INFORMATION ABOUT AQUACULTURE ?

16.10 Sofia C. Franco, B. Clark, H. Scheulter, S. Kuznesof
PUBLIC PERCEPTION AND ACCEPTANCE OF AQUACULTURE AND FARMED SEAFOOD IN EUROPE

16.20 Justine Delettre, Fabien GIRARD, Florence HURON, Florie LOTH OVINE, Karina MARCANO, Philippe VALLETTE
RESPONSIBLE PRODUCTION FOR SHRIMP (*Penaeus vannamei*) IN ECUADOR – HOW MR.GOODFISH PROGRAMME AND EARTHWORM FOUNDATION WORK WITH TO PROPOSE SUSTAINABLE SHRIMP TO FRENCH MARKET ?

16:30 Questions

SHELLFISH PRODUCTION, RESTORATION AND CONSERVATION

Thursday, April 15 14.00 - 17.00 Room 2
Chairs: Zoe Holbrook, Stefano Carboni, Dorothy Leonard

- 14.00 Federica Di Giacinto**, Camilla Bertolini, Luigi Carbone, Giuseppina Mascilongo, Ludovica Di Renzo, Miriam Berti, Carla Giansante, Nicola Ferri, Roberto Pastres
ENVIRONMENTAL PARAMETERS INFLUENCING VALVE MOVEMENTS OF MANILA CLAM FARMED IN VENICE LAGOON: PRELIMINARY RESULTS
- 14.10 Christina J. Thiele**, Malcolm D. Hudson, Andrea E. Russell, Giovanna Sidaoui-Haddad
MICROPLASTIC EXPOSURE NOT DETECTED IN *Ostrea edulis* L. FROM BROODSTOCK CAGES FOR RESTOCKING EFFORTS
- 14.20 Zoë Holbrook**, Chris Hutton
HOW SLIPPER LIMPETS *Crepidula fornicata* ALTER THE HYDRODYNAMIC ENVIRONMENT AT THE SEABED, AND THE IMPLICATIONS FOR OYSTER *Ostrea edulis* RESTORATION
- 14.30 C. John Klein**, Dorothy Leonard
REPURPOSING OF BRIDGE MATERIALS FOR OYSTER REEF RESTORATION
- 14:40 Questions**
- 14.55 Susan Fitzer**, Rona McGill, Sergio Torres Gabarda, Brian Hughes, Michael Dove, Wayne O'Connor, Maria Byrne
SELECTIVELY BRED OYSTERS CAN ALTER THEIR BIOMINERALISATION PATHWAY, PROMOTING RESILIENCE TO ENVIRONMENTAL ACIDIFICATION
- 15.05 Camilla Bertolini**, Ilaria Bernardini, Daniele Brigolin, Massimo Milan, Valerio Matozzo, Roberto Pastres
A BIOENERGETIC MODEL TO ADDRESS CARBON SEQUESTRATION POTENTIAL OF SHELLFISH FARMING: EXAMPLE FROM *Ruditapes philippinarum* IN THE VENICE LAGOON
- 15.15 Maoxiao Peng**, João CR Cardoso, Deborah M Power
INSIGHTS INTO CHITIN REGULATION AND SHELL FORMATION IN THE MANTLE OF BIVALVES IMPORTANT FOR AQUACULTURE
- 15.25 Patricia Diogo**, Gonçalo Bastos, Cristiana Gastão, Ana Marreiros, Alexandre Rodrigues, António Falcão, Victória del Pino, João Navalho
DEVELOPMENT OF A COMMERCIAL MICROALGAE DIET FOR BIVALVES APPLIED TO PORTUGUESE OYSTERS (*Crassostrea angulata*) JUVENILES
- 15:35 Questions**
- 16.00 Faiz Ur Rahman**, Karl B. Andree, Margarita Fernandez-Tejedor, Maria J. Figueras, Dolors Furones
FIRST REPORT ON *Malaciobacter marinus* AS A POTENTIAL BACTERIAL PATHOGEN FOR PACIFIC OYSTER *Crassostrea gigas*
- 16.10 Gennaro Lettieri**, Rosaria Notariale, Alessia Ambrosino, Alfredo Di Bonito, Caterina Manna, Marina Piscopo
MOLECULAR EFFECTS ON SPERMATOOZOA OF *Mytilus galloprovincialis* EXPOSED TO MERCURY CHLORIDE
- 16.20 Chelsea Caprice Broughton**, Johanna Bailey, Darren Green, Stefano Carboni
SPAT MORTALITY IN FARMED BLUE MUSSELS *Mytilus edulis* IN SCOTLAND
- 16.30 Tim Regan**, Michaela Byrom, Tim P. Bean
PROFILING MICROBIAL COMMUNITIES FOR HEALTHIER OYSTER HATCHERIES.
- 16:40 Questions**

GENOMIC RESEARCH, TOOLS AND APPLICATIONS

Thursday, April 15 15.30 - 17.00 Room 3
Chair: Costas Tsigenopoulos

- 15.40 Mário Jorge Araújo**, Maria Lúcia Sousa, María Vázquez, Laura Rodriguez-Lorenzo, Monica Quarato, Maria V. Turkina, Santiago Cabaleiro, Begoña Espiña, Alexandre Campos
PROTEOMIC ALTERATIONS IN TURBOT (*Psetta maxima*) TISSUES AFTER EXPOSURE TO COMMERCIAL TITANIUM DIOXIDE AND SILVER NANOPARTICLES
- 15.50 Pauline Jehannet**, Arjan Palstra, Leon Heinsbroek, Leo Kruijt, Ron Dirks, William Swinkels, Hans Komen
WHAT GOES WRONG DURING EARLY DEVELOPMENT OF ARTIFICIALLY REPRODUCED EUROPEAN EEL (*Anguilla anguilla*)? CLUES FROM THE LARVAL TRANSCRIPTOME AND GENE EXPRESSION PATTERNS.
- 16.00 Lisen Li**, Liliana Anjos, Deborah M Power
DYNAMIC CHANGES OF THE PROTEOME IN THREE PERCIFORM FISH DURING EARLY DEVELOPMENTAL STAGES
- 16.10 Babak Najafpour**, Patricia IS Pinto, Katerina Moutou, Adelino VM Canario, Deborah M Power
DIVERGENT BACTERIAL COMMUNITIES OF EGGS FROM DIFFERENT HATCHERIES OF EUROPEAN SEA BASS AND GILTHEAD SEA BREAM
- 16.20 Ronan Griot**, François Allal, Florence Phocas, Sophie Brard-Fudulea, Romain Morvezen, Pierrick Haffray, Anastasia Bestin, Yoannah François, Thierry Morin, Charles Poncet, Alain Vergnet, Sophie Cariou, Joseph Brunier, Jean-Sébastien Bruant, Bruno Peyrou, Pierre-Alexandre Gagnaire, Marc Vandeputte
GENOME WIDE ASSOCIATION STUDIES REVEALED ONE STRONG EFFECT QTL FOR VIRAL NERVOUS NECROSIS RESISTANCE IN EUROPEAN SEA BASS (*Dicentrarchus labrax*)
- 16.30 Katy Paul**, Jonathan D'Ambrosio, Florence Phocas
MOLECULAR INBREEDING AND GENETIC LOAD FOR FEMALE REPRODUCTION TRAITS IN A RAINBOW TROUT SELECTED LINE
- 16:40 Questions**