



**Continental Freshwater Aquaculture  
13-14 December 2007 – Warsaw (Poland)**



**Compilation of Abstracts**

## Continental Freshwater Aquaculture 13-14 December 2007 – Warsaw (Poland)

THURSDAY 13 <sup>TH</sup> DECEMBER 2007		
SESSIONS 1		
Time	Issue	Speaker
08:30	Registration in Gromada Hotel - Warsaw - Poland	
09:30	Official Opening of the Workshop	Jacek Juchniewicz, President of the Polish Trout Breeders Association
		Minister responsible for aquaculture
09:45	Opening Remarks on Profet Policy & Background on EU Research Project Compilation	Courtney Hough (FEAP) - Project Coordinator
10:00	The Water Framework Directive - Implementation in Europe and its effects on Aquaculture - View of the Producer	Nick Read Chairman British Trout Association and FEAP Environment Commission
10:20	The producers' view of the governance of continental aquaculture	Luz Arregui Maraver President ATRUGAL - Galician Trout Farmers Association
10:45	Coffee Break	
SESSIONS 2		
Time	Issue	Speaker
11.30	The Aquatic Animal Health Directive - Status and a review of its relationship with other European Directives (Habitats, Water Framework)	Sigrid Cabot DG SANCO
11:50	Review of the European Strategy for the sustainable development of European aquaculture - including summary of conference deliberations (15-16 November 2007)	Jacques Fuchs DG Research: European Commission
12:10	Impasse - Environmental impacts of alien species in aquaculture	David Bassett British Trout Association
12:35	Questions and Answers with Speakers of Sessions 1 & 2	
13:00	Lunch	
SESSIONS 3		
Time	Issue	Speaker
14.00	Aquaculture and its interface with the Environment	Despina Symons EBCD - IUCN consultant
14.30	Views on the application of European Directives (WFD, Aquatic animal health, habitats) & their effects on Continental Freshwater Aquaculture	Adriana Dembowska National Board for Water Management in Poland
14.45	Views on the application of European Directives (WFD, Aquatic animal health, habitats) & their effects on Continental Freshwater Aquaculture	Laszlo Tolg Hungarian Fish Farmers Association
15.00	Questions and Answers with Speakers of Sessions 3	
15:30	Coffee Break	

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SESSIONS 4		
Time	Issue	Speaker
16.00	Developments in freshwater sturgeon aquaculture	<b>Paolo Bronzi</b> Italian Fish Farmers Association (API)
16.20	Developments in eel aquaculture in Europe	<b>Wim van Eijk</b> Dutch Fish Farmers Association
16.40	Development of sustainability indicators for continental aquaculture - CONSENSUS	<b>Joke Charles</b> EAS Project Officer
17.00	Water recirculation - status, needs and development issues (SUSTAINAQUA Project)	<b>Anna Daczka</b> Polish Trout Association
17.30	Effluent treatment in aquaculture: science and practice (AQUAETREAT Project)	<b>Dr. Vincenzo Zonno</b> University of Salento
17.45	Questions and Answers with Speakers of Sessions 4	

FRIDAY 14 <sup>TH</sup> DECEMBER 2007		
SESSIONS 5		
Time	Issue	Speaker
09:00	Promoting freshwater aquaculture - role of EIFAC and NACEE	Dr. Laszlo Varadi, President European Aquaculture Society
09.30	Developing consumer messages about sustainable aquaculture	Alistair Lane EAS Executive Director
09.50	<b>FINEFISH</b> - Morpho-anatomical abnormalities in farmed fish: An important issue for product quality and production	Dr. Grete Baeverfjord Akvaforsk - Norway
10.15	<b>AQUAGENOME</b> - how genomics can help the fish and shellfish sectors	Dr. Nikolai Mugue Russian Federal Research Institute of Fisheries & Oceanography Department of Molecular Genetics
10:45	Discussion with Workshop Participants	
11:00	Coffee Break	
SESSIONS 6		
Time	Issue	Speaker
11.20	Questions that need answers - future research requirements and European Aquaculture Technology Platform	Courtney Hough FEAP General Secretary
11.40	Skill Development and technology transfer mechanisms	David Murphy General manager AquaTT
12.00	7 <sup>th</sup> Framework Programme - impact on and opportunities for aquaculture	Jacques Fuchs DG Research: European Commission
12.25	Discussion with Workshop Participants	
12.45	Conclusions and recommendations	Rapporteur: Alistair Lane EAS



#### SESSION 1:

#### **JACEK JUCHNIEWICZ**

#### **EU Maritime Policy and the implications to Mediterranean Aquaculture**

##### ***Short CV***

Graduating from Inland Fisheries Faculty in Olsztyn, Jacek Juchniewicz became a successful fish farmer. He is a head of Aller Aqua Poland – fish feed manufacturer. Additionally to that he is a Deputy President of Polish Trout Breeders Association.

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## ABSTRACTS

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#### SESSION 1:

#### COURTNEY HOUGH

#### Opening Remarks on Profet Policy - Background on Research Compilation

##### *Short Bio*

After starting in scientific research and development, mainly on food product development, Courtney Hough has worked on the international development of aquaculture for 20 years, specialising in project development, market research and economic assessment. Since 1993, he has also been General Secretary of the Federation of European Aquaculture Producers and has worked on research and network projects in Europe as well as training and educational projects. He coordinated the development and the launch of the 'Aquamedia' communication initiative ([www.aquamedia.org](http://www.aquamedia.org)) and assures its continuing activities.

##### *Contact details*

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#### SESSION 1:

#### **NICK READ**

#### **The Water Framework Directive – Implementation in Europe and its effects on Aquaculture – View of the Producer**

##### ***Abstract***

The talk will be about the origins of WFD, how Member States have been preparing for its implementation and where they have got to in the schedule of the work that this involves.

Nick Read will also discuss the effect of WFD on fish farmers, their concerns and what they can do to help themselves.

##### ***Short CV***

Nick Read has been a trout farmer and processor for more than thirty years, operating an intensive trout farm on a small water supply and producing added value smoked trout products for foodservice and retail market sectors. He has a personal enthusiasm for water treatment systems.

Nick has been Chairman of British Trout Association since 2003 and represents British Trout within FEAP, where he chairs the Environment Commission.

##### ***Contact details***

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#### SESSION 1:

#### LUZ ARREGUI MARAVER

#### WFD and the implementation in Spain from the producers view

##### **Abstract**

The objective of the Water Framework Directive (WFD) is to establish a Community framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater, in order to prevent and reduce pollution, promote sustainable water use, protect the aquatic environment, improve the status of aquatic ecosystems and mitigate the effects of floods and droughts.

Spanish fish farmers are very aware of how quality and quantity of licensed water for their activities is not guaranteed at this moment. In the last years many farms closed or had severe losses after uncontrolled spillages from mining or cattle industry, apart from the frequent conflicts with hydroelectric producers that in some cases cut or low down the water flow.

The WFD could be a way to have a frame where all water users could solve the conflicts. But the key is how it is legally implemented in each country; the Directive itself is not something magic that will solve all the problems of the European waters. It could even add more confusion to our obsolete and disperse Spanish water legislation.

We believe that the new legal framework will be very different in the 27 member states and even will be different in each river basin of Spain, due to our Regional Governments.

On June 2007, the Foundation for a New Water Culture (FNCA) and AQUANET presented in Madrid their joint report "Analysis of the WFD implementation in Spain. 2005-2006". The report is the result of the FNCA's work carried out during 2006 in the AQUANET's action line "Following up of the WFD's implementation in Europe". The Foundation for a New Water Culture presents a critical appraisal of the WFD implementation process in Spain.

The next step of our government was to adapt our current Spanish Water Law in order to fully adapt it to the EU Water Framework Directive's requirements.

But it will not be presented to Parliament for discussion before the general election in 2008, due to lack of consensus on its content.

The main conflicting aspects have to do with the regional authorities claiming for competences and rights on water resources, and with the reluctance of the main water user organizations (irrigators, hydroelectric producers, etc.) to the application of the WFD's principle of water cost recovery and water pricing.



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#### **Short CV**

Luz Arregui Maraver is a graduate in Veterinary Science for the University of Santiago de Compostela (Spain).

She collaborated in several centers across the USA in the area of Ichthyopathology, and later she started working in the family company Grupo Tres Mares S.A., second trout producer of Spain, where she is Fish Health & Quality Manager.

She has also leaded several R&D projects concerning fish vaccines and new trout products, and has launched two different quality standards in her company: BRC and IFS, for fresh and frozen trout processing.

Member of the Technician Committee of AENOR for the development of two quality standards regarding trout production processes for trout and organic trout. Currently she is involved in the drawing up of the UE standards project Aquaculture: Guide to Good Hygiene Practice

Luz Arregui became the president of the Sanitary Defense Area and Producers Organization of Galician Trout Farmers (ATRUGAL) in 2004, which represents the 30% of Spanish trout production, where she was the Chairman in the Organization Committee of two conferences, the first in 2005 and the last one, the Freshwater Aquaculture National Meeting, in June of 2007.

Since 2007 she is European Delegate of OPAC (Organizacion de Productores de Acuicultura Continental) for FEAP.

#### **Contact details**

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#### SESSION 2:

#### **SIGRID CABOT**

### **The Aquatic Animal Health Directive – Status and a review of its relationship with other European Directives (Habitats, Water Framework)**

#### **Abstract**

Council Directive 2006/88/EC on animal health requirements for aquaculture animals and products derived thereof, and on the prevention and control of certain diseases in aquatic animals shall be applied by the Member States by 1 August 2008.

The Directive lays down:

- a) the animal health requirements to be applied for the placing on the market, the importation and the transit of aquaculture animals and products thereof,
- b) minimum preventive measures aimed at increasing the awareness and preparedness of the competent authorities, aquaculture production business operators and others related to this industry, for diseases in aquaculture animals,
- c) minimum control measures to be applied in the event of a suspicion of, or an outbreak of certain diseases in aquatic animals.

The Directive covers both fish, molluscs and crustaceans. As regards fish, the following diseases are covered:

- Exotic diseases: EHN and EUS.
- Non exotic diseases: VHS, IHN, ISA, KHV and SVC

#### **Short CV**

Seconded national expert, DG SANCO (Directorate General Health and Consumer Protection), European Commission.

Lawyer, Previously employed by Norwegian Ministry of Fisheries and Coastal affairs, Norwegian Ministry of the Environment, Norwegian Pollution Control Authority, District court of South-west Norway (Sunnhordland tingrett)

#### **Contact details**

##### **Ms. Sigrid Cabot**

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SESSION 2:

**JACQUES FUCHS**

**Review of the European Strategy for the sustainable development of European aquaculture**

***Short Bio***

Scientific Officer in DG Fisheries and Maritime Affairs in charge of the follow-up of 5th and 6th Research Framework Programmes of research in the field of fisheries, aquaculture and marine environment and in the preparation of annual work programmes of the new 7th Research Framework programme (2007-2013).

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#### SESSION 2:

#### DAVID BASSETT

### Impasse - The use of Alien and Locally Absent Species in Aquaculture

#### **Abstract**

Section 1: Overview of Council Regulation (EC) N° 708/2007 concerning the use of alien and locally absent species in aquaculture.

- Background to the Regulation and Objectives
- Scope of the Regulation
- Obligations upon the part of individual Member States
- Development of a system of permits and authorisations
- Implementation of the Regulation and future work programme

Section 2: The Environmental Impacts of Alien Species in Aquaculture (IMPASSE) project.

- Definitions
- Global Trends in Aquaculture and Fisheries
- Facts and Figures and Impacts on Introductions within the EU
- Justification for the need of regulation
- Objectives of the Project
- Reporting and dissemination activities.

#### **Short CV**

David Bassett graduated Master of Arts in History and International Relations from the University of St Andrews (UK) prior to commencing various public sector and policy development roles. As General Secretary of the British Trout Association (BTA), the acknowledged trade association for the United Kingdom trout industry, he represents both the UK table and restocking trout sectors with UK and EU regulatory authorities and agencies in addition to coordinating the UK Trout Quality Assurance Scheme and representing aquaculture interests on a variety of different panels and projects. Through the Federation of European Aquaculture Producers (FEAP) David sits on the steering group for the Environmental Impacts of Alien Species in Aquaculture (IMPASSE) project, developing guidance notes for the application of Council Regulation (EC) N° 708/2007 concerning the use of alien and locally absent species in aquaculture..

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## SESSION 3:

**DESPINA SYMONS****Aquaculture and its interface with the Environment*****Abstract***

Presentation of IUCN and its functioning. The work of IUCN on the Mediterranean Aquaculture and specifically a presentation of the work of IUCN on the recently published IUCN-FEAP guide. Furthermore, aquaculture and the environment as well as the ongoing and future works of IUCN, regarding the development of other guidelines, such as those concerning site selection, certification and fresh water.

***Short Bio***

Despina Symons Pyrovalidou is director since 1989 of the European Bureau on Conservation and Development (EBCD) , a non governmental organization based in Brussels. An active member of the World Conservation Union (IUCN), EBCD collaborates closely with the IUCN, both the European Office and the Mediterranean office, as well as the Marine Programme for which Despina Symons provides the link to the EU institutions and the fisheries-aquaculture sectors. Despina Symons is coordinator of the Fisheries and Aquaculture Working Group for the European Experts Group of IUCN and is partner with IUCN on various projects such as the IUCN-FEAP guidelines for Sustainable Aquaculture in the Mediterranean. Moreover, EBCD provides jointly with IUCN, the Secretariat to the European Parliament Intergroup on Sustainable Development.

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#### SESSION 3:

**ADRIANA DEMBOWZKA**

#### **Views on the application of European Directives (WFD, Aquatic animal health, habitats) & their effects on Continental Freshwater Aquaculture**

##### ***Short CV***

Dr Adriana Dembowska is a Deputy Director of the Planning and Water Resources Department in National Water Management Authority in Poland.

The President of National Water Management Authority is a central governmental administrative authority competent for water management matter, particularly for governance and use of waters. His responsibilities include, i.a. representation of the State treasury in relation to the property linked to water management, development of national water-environmental programme, preparation of river basin water management plans (Water Framework Directive), development of flood control and drought prevention plan (Flood Directive), conservation and maintenance of waterworks and the water management investments.

President of the National Water Management Authority is supervised by the Minister responsible for water management (i.e. Minister of the Environment, under Act on Governmental Sectors). As regards water management issues, he shall perform the role of the supreme authority in relation to the Voivodes and Directors of the regional Boards for Water Management.

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## SESSION 3:

**LASZLO TOLG****Views on the application of European Directives (WFD, Aquatic animal health, habitats) & their effects on Continental Freshwater Aquaculture*****Abstract***

Hungary has been the member of the EU since 2004. The implementation of WFD has changed some legislation and rules in the field of using of water. The biggest water users in Hungary are the fish farms in the agriculture. There are 23 000 ha artificial (build) fish ponds in Hungary. The total fish production is 15 000 tonnes per year.

The Hungarian legislation had been strict before the membership, and as we recognized the fish farmers are now more engaged today than the WFD will cause after the implementation. These engagements lay a financial charge on fish farmers. The main problem with the implementation is that the fish farms in Hungary are handled as other industrial units. We, the Hungarian fish farmers think, that the 23 000 ha of ponds are part of the water catchments area of the river Danube in the Carpathian Basin. These areas must get the same protection as other natural water bodies can.

***Short CV***

László Tölgy finished his studies at the University of Agricultural Sciences (Gödöllő, Hungary) 1989-1994. He worked from 1994 till 1997 for the Balaton Limnological Research Institute of the Hungarian Academy of Sciences (Tihany, Hungary) on Fish biology and population dynamics. After that he worked till 2002 for the Fishing Co. Of Lake Balaton (Siófok, Hungary) as the Deputy Manager where he was responsible for production and later he became the Director of Fishing Co. of Lake Balaton. From 2003 till present he is a consultant of the Hungarian Fish Farmers' Association.

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#### SESSION 4:

**PAOLO BRONZI**

#### **The potential for sturgeon aquaculture (current situation and prospects)**

##### **Abstract**

After some information on Acipenseridae, the presentation reports production data and trends of the market, both for meat and caviar, of the recent past and some forecast for the next future. Data are referred mainly to European countries, but there are also some information on historical countries of sturgeon production, like Russia and Iran, and few news on the new emerging actor, China.

Reproduction, rearing and processing techniques are illustrated, mainly for Italy. Information are referred also on restocking and recovery plans for these endangered species that are at present carried out in Europe.

##### **Short CV**

Paolo Bronzi, 1948, Italian, Degree in Biological Sciences Consultant; until 2005 manager at CESI spa, Milan (Italy), formerly Enel's Research Department, where since 1972 acquired a long experience in the field of aquaculture, as manager in research planning and coordination.

The field of specialization is thermal aquaculture, utilizing warm water discharged by power stations. In the last fifteen years was following in particular scientific and technical aspects related to Adriatic sturgeon (*A. naccarii*) rehabilitation in Italy.

Member of the SSG (Sturgeon Specialist Group) of IUCN; Co-founder of the WSCS (World Sturgeon Conservation Society); Co-editor of the book 'Acquacoltura responsabile' (Responsible aquaculture) Unimar; author of over 120 publications.

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## SESSION 4:

**WIM VAN EIJK****Developments in eel aquaculture in Europe*****Abstract***

It is clear that the supply of captured eels will decrease in the near future. The eel is found and exploited in fresh, brackish and coastal waters in almost all of Europe. The low stock of silver eels, needed for spawning, and the lower availability of glass eels will lead soon to restrictive measures. ICES advised the EC to stop all fishery activity as a precautionary measure. CITES decided this summer to put the eel on the red list. There is already the EU Action Plan for the management of the European Eel, an action plan for the recovery of the wild stocks. As it is not yet possible to breed eels, eel farmers are still depending on the wild glass eels.

This means that the availability of glass eels for eel farms is under pressure. For inland fisheries an extra circumstance is the high level of dioxins and PCB's which are recently found in wild yellow and silver eels. So the complete eel sector is confronted to day with a lot of threats and the sector finds itself in a very uncertain position.

***Short CV***

Wim van Eijk is working for the Dutch Fish Production Board (Productschap Vis) and is mainly responsible for aquaculture and freshwater fisheries. He is also secretary of the Dutch Association for Aquaculture (Nederlandse Vereniging van Viskwekers, NEVEVI). As secretary of the NEVEVI he participates in the FEAP meetings, mainly at the Freshwater Commission. Within this Commission he is president of the Eel Working Group.

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#### SESSION 4:

**JOKE CHARLES**

#### **Development of Sustainability Indicators for Continental Aquaculture - The CONSENSUS initiative.**

##### ***Abstract***

Europe has a strategy for sustainable development, a position that now includes the development and promotion of sustainable European aquaculture. The strategic objective of CONSENSUS is to provide consumers with, and demonstrate the benefits of, high quality, safe and nutritious farmed fish and shellfish products, grown under sustainable conditions.

One of the main pillars of the initiative is to build sustainable aquaculture protocols based on a number of desired trends for the sustainable development of the industry and supporting indicators by which those trends can be measured.

To this end, 120 stakeholders from 16 countries met in Belgium in 2005 to agree on the desired trends for the sector and to identify indicators by which progress on achieving those trends could be measured. A total of 78 indicators were developed (60 of which for finfish) and grouped into 9 different themes. Implementation issues were also communicated. The indicators were widely disseminated and stakeholder views were sought.

The Code of Conduct of the Federation of European Aquaculture Producers has now been updated to include the themes raised by CONSENSUS, and has selected those indicators that are relevant to the finfish sector, and which can be implemented at farm level. It is hoped that Codes of Practice at National or Species level will also incorporate the indicators and that they may also be used towards the development of sustainability standards.

CONSENSUS is at [www.euraquaculture.info](http://www.euraquaculture.info)

##### ***Short Bio***

Joke Charles has a MSc. in Bioscience Engineering, obtained at Ghent University (Belgium). After doing an internship in a seabream hatchery (as part of the EC Leonardo da Vinci Programme), she started working for the European Aquaculture Society on the EU-funded projects CONSENSUS and PROFET Policy.

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**SESSION 4:****ANNA PYC****Water recirculation – status, needs and development issues  
(SUSTAINAQUA Project)*****Abstract***

SustainAqua – ‘Integrated approach for a sustainable and healthy freshwater aquaculture’ is a Collective Research project funded by the European Commission under the Sixth Framework Programme that started in September 2006 and will last 3 years. During this time the consortium of 23 partners from 12 different countries will carry out specific research, training and dissemination activities in the field of producing healthy and tasty freshwater fish and other economical valuable by-products mainly by optimising nutrient chains, water management and energy efficiency.

The project comprises of five case studies concerning five different fish species. One of them, in which Polish Trout Breeders Association is involved, is directed at recirculation systems designed for trout production in Denmark.

***Short CV***

Anna Pyc graduated from Inland Fisheries Faculty of University in Olsztyn. After working for Agency of Modernisation and Restructuring of Agriculture, dealing with structural funds for aquaculture she was leading a project in WWF concerning EU funds in the Baltic Sea region. Since then she is working in Aller Aqua Poland as Marketing and R&D Manager. At the same time she is a member of Board of the Polish Trout Breeders Association.

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#### SESSION 1:

#### VINCENZO ZONNO

#### Effluent treatment in aquaculture: science and practice - (AQUAETREAT Project)

##### **Abstract**

AQUAETREAT (Improvement and Innovation of AQUAculture Effluent TREATment Technology) is a European project looking at the need and the methods for land-based fish farms to improve the management of their wastewater and solids; to minimise any negative environmental impact of their operations; and to optimise the recovery, disposal and re-use of effluent components.

The project has assessed appropriate water filtration equipment and practice and has devised and tested innovative effluent treatment and waste recuperation methods. The research and the assessments have been guided by, and completed in close collaboration with, three commercial fish farms:

- growing Sea Bream and Sea Bass in a seawater flow-through system in Italy;
- growing trout in a freshwater flow-through system in France;
- growing trout in a freshwater recirculation system in Denmark.

One of the main results of the project is the manual on effluent treatment in aquaculture: science and practise. The manual has been written based on the experience of farmers, companies and research institutes working together on this project. The management and potential use of by-products have also been tested and evaluated, and are discussed in the manual.

The manual is intended to be a practical guide for land-based aquaculture in the implementation of water treatment technology, to improve a farm's environmental efficiency and credentials, and to assist with European environmental compliance.

##### **Short CV**

Biologist, Dr. Zonno has more than 20 years of research experience in the field of fish physiology and aquaculture. Since June 1988 till 2000, Dr. Zonno worked at the Laboratory of General Physiology, Department of Biology, University of Lecce (now Università del Salento), and actively collaborated onto various research projects concerning teleosts intestinal and renal physiology for aquaculture purposes. Since 2001, he is the technical director of the Marine Aquaculture and fisheries Research Centre, at Acquatina (Frigole-Lecce) (Italy) and he is coordinating 2 European Projects: AQUAETREAT and AquAgris.

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SESSION 5:

LASZLO VARADI

Promoting freshwater aquaculture – role of EIFAC and NACEE

**Abstract**

The share of freshwater aquaculture is only 23% of the total aquaculture production in the European Union, however freshwater aquaculture plays very important role in the socio-economy in number of EU countries, especially in Central and Eastern Europe. Local supply of aquatic organisms (mainly fish) is coming exclusively from freshwater areas in ten EU countries, eight of them in Central and Eastern Europe.

The two main cultured freshwater species are rainbow trout and common carp, which amount to 74% of the total freshwater aquaculture production in the EU. Trout is produced mainly in flow-through systems intensively while carps in earthen ponds extensively. There are many common issues in freshwater and marine aquaculture development, such as technology development (feed, disease, welfare etc), processing and marketing, regulation, however the main specific issues in freshwater aquaculture development are water availability and environment interaction.

About fifty percent of the freshwater aquaculture production is coming from extensive pond fish farming, which became a specific segment of the EU aquaculture after the enlargement of the European Union. Extensive ponds are integral part of the ecosystem, the landscape and the rural economy, thus besides their production function provide various services that contributes to the maintenance of biodiversification, the improvement of water- and landscape management, the development of local tourism, the preservation of tradition and as a whole to the improvement of the quality of rural life. Extensive ponds can also be combined with intensive fish farming, when the effluent water from an intensive fish farm (either tank, raceway or pond) can be treated in the extensive pond.

Extensive fish farming is that particular sector of the EU aquaculture, where the driving force of the development is not the increase of the production, but the improvement of services. A bottleneck of the development is that the particularities (multi-functional character) of extensive pond fish farming are not widely recognised and acknowledged.

Most of the trout in the EU is produced in conventional flow-through systems, however there have been efforts to minimize environmental impact through decreasing water requirement of the systems and nutrient load to the receiving water body. Model farms in Denmark illustrate well the possibilities in new type of trout production systems. Water requirement can be decreased by 82% in systems where the same amount of fish is produced intensively in concrete raceways occupying only a part of the total area, while the remaining earthen ponds are used for water treatment. Water demand and environment-friendliness is also improved at numerous farms by the utilization of pure oxygen and effluent treatment.

The amount of market size fish that is produced in recirculating aquaculture systems (RAS) is only about 3% of the total market size fish production in the EU, however there is a steady increase in the fish production which comes from various type of recirculating systems. The main species that are produced in RAS are and African catfish and eel, however there are significant efforts in order to diversify production. The aquaculture strategy of the EU is encouraging the use of RAS, which a promising tool to increase freshwater fish production with minimal water use and environmental

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impact, however further R&D work is required to improve economical viability of recirculating aquaculture systems.

Technical and technological development is very important to overcome constraints and utilize opportunities for sustainable development of EU freshwater aquaculture, however the importance of wide stakeholder cooperation has also been recognised as important contributor to the development of this particular sector of the EU. While there have been good results in the development of stakeholder communication and cooperation in EU aquaculture during the past years, the better involvement of some European aquaculture organisations would contribute further to the promotion of freshwater aquaculture development in the European Union. Special attention may be given to the Network of Aquaculture Centres in Central and Eastern Europe (NACEE), which has members from those 15 EU and non-EU countries, where freshwater pond fish production is the main type of aquaculture. The statutory body of FAO, the European Inland Fisheries Advisory Commission (EIFAC) is another important European organisation, which can also contribute to improve linkages between inland fisheries and aquaculture and -similarly to NACEE- between EU and non-EU countries, which can also promote freshwater aquaculture in the European Union and also beyond its borders.

#### **Short CV**

László VÁRADI, is Director of the Fish Culture Research Institute (HAKI), Szarvas, Hungary, where he has been working since 1975. He holds B.Sc. in Mechanisation of Agriculture (1972), and M.Sc. in Agricultural Water Management (1974) from University of Agriculture, Gödöllő, Hungary and PhD. (2001) in Integrated aquaculture from University of Debrecen, Hungary. He has 30 years experience in aquaculture research, development, and training. His main research field is the development of water efficient and environment friendly aquaculture production systems. He works regularly for development assistance programmes in developing countries as consultant. Presently he is President of the European Aquaculture Society and Chairman of the Aquaculture Sub-Commission of FAO/EIFAC. He is the focal point for the Network of Aquaculture Centres in Central and Eastern Europe (NACEE) as director of the coordinating institution of NACEE.

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## SESSION 5:

**ALISTAIR LANE****Developing Consumer Messages about Sustainable Aquaculture  
- The CONSENSUS initiative*****Abstract***

Sustainability is everywhere! Fish stocks are in decline! But consumers are confused...On the one hand, we are being told to eat more fish (and shellfish) for their proven health benefits and on the other, we are told to eat less, due to sustainability issues.

The strategic objective of CONSENSUS is to provide consumers with, and demonstrate the benefits of, high quality, safe and nutritious farmed fish and shellfish products, grown under sustainable conditions.

One of the main pillars of the initiative is the development of balanced information for consumers, showing the benefits of sustainable European aquaculture and its products, with the firm message that aquaculture is the only way to fill the gap between supply and demand for seafood.

European Consumer organisations are increasingly asked by their subscribers about food issues. These are frequently related to food choices, food quality and food safety. There are mixed perceptions of aquaculture in Europe, but also a recognition that more seafood will come from aquaculture.

CONSENSUS partners have now drafted a brochure that is targeted at the 40 member organisations of the European Consumers' Organisation (BEUC) and the Euroconsumers network. Messages from this brochure are being tested on consumers in several European countries.

CONSENSUS is at [www.euraquaculture.info](http://www.euraquaculture.info)

***Short Bio***

Alistair Lane has a MSc. in Marine Biology (University College of North Wales, UK), following his BSc Hons degree obtained in Plymouth. He worked in the aquaculture feeds business for 10 years in UK, France and Spain, with responsibilities in distribution, marketing and general management. He has been the Executive Director of EAS since March 2000. He has a special interest in communication and in networks. He is an expert evaluator for the EU Research Framework Programmes and for the Research Council of Norway.

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#### SESSION 5:

#### GRETE BAEVERFJORD

### **FINEFISH - Morpho-anatomical abnormalities in farmed fish: An important issue for product quality and production**

#### **Abstract**

The FINEFISH Collective Research Project is a new initiative supported by the European Commission. The aim of the project is to generate new scientific and practical knowledge to help SME hatcheries reduce the incidence of malformations in the major fish species used in European aquaculture production, thus increasing productivity and quality.

High numbers of malformed fish can cause severe financial losses for small and medium-size enterprise (SME) growers of almost all aquaculture species across Europe. A wide-scope research effort is needed to identify the causes and develop solutions. Coordinated by FEAP (Federation of European Aquaculture Producers), this 3-year project will combine hands-on experience and scientific know-how through interaction between SMEs, the IAG and research scientists, in order to ensure that the project addresses the RTD requirements of the industry.

Available scientific knowledge and practical experience on the causes of malformation problems led to the identification of the following focus areas: 1) rearing temperatures, with emphasis on early life stages, 2) nutrition, with focus on nutritional quality and impact on bone mineralization of both starter and grower diets, and 3) tank environment, including gas supplementation and hydrodynamics. The project will include the following farmed fish species: Atlantic salmon, cod, rainbow trout, sea bass and sea bream.

#### **Short CV**

Dr. Grete Baeverfjord graduated in Veterinary Science and she made her PhD in pathology. She works as a senior researcher at AKVAFORSK. Her main theme of research is non-infectious pathology of farmed fish, with a particular interest in malformations. At the moment she is the technical manager of the FINEFISH project.

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SESSION 6:

**NIKOLAI MUGUE**

**AQUAGENOME – how genomics can help the fish and shellfish sectors**

***Abstract***

In recent years, a relatively large number of projects investigating the biology of aquaculture species through genomic approaches have been funded both at European levels and national levels. These have generated an extensive core of genomic tools and expertise that is spread among European research laboratories. However, this scientific resource is not coordinated within research and transfer to the European aquaculture industry is still in its infancy. In this context, the objectives of AQUAGENOME are:

1. to coordinate the ongoing and future national and international research projects in the field of genomics in fish and shellfish European aquaculture and support diffusion of genomic approaches within research laboratories
2. to enhance the transfer of information and knowledge towards the aquaculture industry.

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## ABSTRACTS

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#### SESSION 5:

#### COURTNEY HOUGH

#### Questions that need answers – future research requirements and European Aquaculture Technology Platform

##### **Abstract**

To assure the successful sustainable development of European aquaculture, encompassing all of its different facets – freshwater and marine, there are many demands for innovative research and development so as to support the objectives foreseen by the professional sector. The creation of a Technology Platform for European aquaculture, involving all European aquaculture stakeholders, was announced in November 2007 and its goals and objectives have been agreed; an update on achievements and progress will be provided in the presentation.

##### **Short Bio**

After starting in scientific research and development, mainly on food product development, Courtney Hough has worked on the international development of aquaculture for 20 years, specialising in project development, market research and economic assessment. Since 1993, he has also been General Secretary of the Federation of European Aquaculture Producers and has worked on research and network projects in Europe as well as training and educational projects. He coordinated the development and the launch of the 'Aquamedia' communication initiative ([www.aquamedia.org](http://www.aquamedia.org)) and assures its continuing activities.

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## SESSION 6:

**DAVID MURPHY****Skill Development and technology transfer mechanisms****Abstract**

The European aquaculture technology platform presents an exciting opportunity for the industry to promote its united vision for the sector. Whilst much of the focus will be placed on research priorities, “Knowledge management” has appropriately been identified as a key issue and as such a Working Group has been created. Horizontal pillars have also been created to deal with education and training, technology transfer and communication. This presentation will explore the challenges associated with “knowledge management” and the horizontal pillars in order to stimulate discussion on the area. It is important to remember that the horizontal challenges are not unique to aquaculture but are occurring across all scientific and technological fields, thus the solutions and methodology may exist elsewhere.

Key Questions for European Aquaculture;

- How can we successfully exploit knowledge to remain competitive in the face of increasing global competition?
- How can we raise public awareness of a sustainable aquaculture industry in a way that leads to informed policy making?

**Short Bio**

**AquaTT** is an international foundation which provides project management and training services to support the sustainable development of Europe’s aquatic resources. David Murphy has been the general manager of AquaTT since 2000 and has led initiatives to help AquaTT meet its objectives including; coordinating the European thematic network on Education and Training for Aquaculture Fisheries and Aquatic Resource Management ([www.aquatnet.com](http://www.aquatnet.com)) (120 partners, >70 training institutes), dissemination (Training News 3,500 recipients per month), event management (workshops, exhibitions), education and outreach programmes ([www.planetaqua.ie](http://www.planetaqua.ie)), vocational pilot projects ([www.waveproject.com](http://www.waveproject.com)) and the design, development and delivery of state-of-the-art training programmes (Aqualabs).

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AquaTT is an international foundation which provides project management and training services to support the sustainable development of Europe's aquatic resources

Read more @ <http://www.aquatt.ie>

#### SESSION 6:

#### JACQUES FUCHS

#### 7th Framework Programme—impact on and opportunities for aquaculture

##### **Abstract**

Aquaculture is a self-sustainable industry that demonstrates a high potential for innovation and technology development, and should thus cater for its own R&D needs, aided by national research programmes and general Community incentives such as those supporting SME research. There is also a clear need for scientific support of EU-wide aquaculture aspects within the CFP, including health and environmental issues. This presentation gives an account of the possibilities for aquaculture research under FP7. Under the Seventh Framework Programme, research in aquaculture is covered mostly by the Cooperation Programme, in particular Theme 2 "Food, Agriculture, Fisheries and Biotechnology", and the Capacities programme, in particular the SMEs specific measures. Under Theme 2, a number of topics related to the improvement of health and environmental standards, whilst assuring the quality and safety of aquaculture products, in fully controlled and integrated production systems, will be covered. The SME-specific research actions are designed to solve technical problems of SMEs by means of research and innovation and are therefore very appropriate for aquaculture, in particular for areas such as new species and technologies.

##### **Short Bio**

Scientific Officer in DG Fisheries and Maritime Affairs in charge of the follow-up of 5th and 6th Research Framework Programmes of research in the field of fisheries, aquaculture and marine environment and in the preparation of annual work programmes of the new 7th Research Framework programme (2007-2013).

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