

AQUALABS

Advanced Laboratory Training Courses in Aquaculture for Early-Stage Researchers

The Challenge

According to the United Nations Food and Agriculture Organization (FAO) Fisheries and Aquaculture Department, aquaculture is one of the fastest growing food-producing sectors, accounting for nearly 50 per cent of the world's food fish. In order to fulfil this role, a strong research support-base must be linked to an adequate supply of sufficiently skilled personnel.

AQUALABS, within the framework of Marie Curie Conferences & Training Courses, provided short-term training opportunities to allow researchers to network and keep abreast of the latest scientific developments in their field. The action was targeted primarily at early-stage researchers and researchers with up to 10 years of experience. AQUALABS supplemented traditional third-level scientific curricula, by offering a cohesive series of events covering several related themes, involving the relationship between theory and application, and different contributions to the resolution of the same set of problems. From an organisational point of view, AQUALABS represented a successful economy of scale, in organising the series in the same format, with shared teaching resources. AQUALABS allowed for education, training, and the exchange reliable information on intertwining, multidisciplinary subjects for the responsible management of aquaculture.

Project Objective

AQUALABS aimed to provide short-term training opportunities to allow early-stage researchers to network and understand the latest scientific developments in aquaculture. Sub-objectives were assigned to each of the six short training courses and one large-scale conference, in-line with the following themes:

- Quality in Fish Products
- Molecular Biology and Ecology
- Design & Operation of Recirculation Technologies
- Freshwater Aquaculture and the Environment
- Aquatic Animal Disease Diagnostics
- Fish Welfare
- Acquisition of complimentary skills: communication, project management, etc.

EATiP Thematic Area of Relevance

- TA1:** Product Quality, Consumer Safety and Health
- TA2:** Technology and Systems
- TA3:** Managing the Biological Lifecycle
- TA4:** Sustainable Feed Production
- TA5:** Integration with the Environment
- TA6:** Knowledge Management
- TA7:** Aquatic Animal Health and Welfare
- TA8:** Socio-Economics and Management

Key Words

Applied research, training, career development, mobility, education, teaching, lifelong learning, Innovation Union, Europe 2020, Marie Curie Actions

Project Information

Contract number:
13325

Contract type:
Marie Curie Conferences and Training Courses

Action line:
MOBILITY-1.4.1 Series of events (SCF)

Duration:
24 months (01/12/2004 – 03/11/2006)

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Key Points

- Provided early-stage researchers with the opportunity to acquire practical skills and critical fieldwork experience in themes linked to the European Commission Sixth Framework Programme: environment, ethical production, food safety and traceability.
- Allowed for the subsidized mobility of researchers.
- Afforded early-stage researchers with the chance to grow their peer networks and benefit from engaging with keynote speakers and subject-matter experts.
- Customized curriculum to meet topical issues, which might not otherwise be accommodated by formalized training.
- Introduced broad, professional competencies, such as communication and project management, required to complement research endeavours.
- Advanced the discussion and debate on both technical scientific approaches, and European Research Area priorities.

Output Highlights

Course content for each of the following titles was developed. A summary of the curriculum for each event could be made available to future hosts. The series could be updated and repeated, or new courses could be devised using the AQUALABS model. This might be particularly interesting for third-level institutions, public research organizations, business associations, commercial R&D units, innovation agencies, public administrations, or SMEs.

AQUALAB 1: Molecular Biology and Ecology in Aquaculture

- Institute of Applied Biotechnology, University of Kuopio; Applications of biotechnology are expected to make advances to increase aquaculture volume and its degree of intensification to a level meeting the demand set by the industry. Marker assisted selection programmes, enhanced utilization of feed and improved fish health are example areas where molecular biology will offer new opportunities.

AQUALAB 2: Quality in Fish Products

- National University of Ireland, Cork - University College Cork; Throughout Europe, there is significant research and development effort to produce high quality nutritious food, including fish produce, for the growing consumer market. It is important that food production is carried out in an environmentally sustainable manner and that consumer health, nutrition and awareness are taken into account. In addition, the development of HACCP protocols and quality systems is critical for development of the industry.

AQUALAB 3: Freshwater Ecology and the Environment

- Research Institute for Fisheries, Aquaculture and Irrigation (Hungary); The advantages of freshwater aquaculture in ensuring world food security and reducing unemployment are undeniable. Focus is on low input and organic freshwater aquaculture systems, which can have positive effects on surrounding ecosystems. This will include looking at how well-managed aquaculture systems have ecosystem services utilised by the nearby communities with some beneficial effects on the natural environment.

AQUALAB 4: Fish Welfare

- University of Insubria; There is increasing interest across Europe in the welfare condition of farmed fish and the public perception of the industry. There is a growing demand for documentation on safe and ethically defensible production. Farmers are increasingly aware of the importance of these elements for better production. The course focuses on advanced monitoring methods and protocols that minimise the negative welfare effects on farmed fish.

AQUALAB 5: Aquatic Animal Disease Diagnostics

- University of Stirling; Disease, a major source of lost productivity and additional cost for fish farmers, is linked to concerns about environmental and food safety implications of using therapeutic chemicals, such as antibiotics. Disease is also a major constraint in developing new species for aquaculture. This course extends to diagnostic techniques, which are employed and widely applicable to farmed and wild fish from fresh, marine, tropical and temperate environments.

AQUALAB 6: Design & operation of Recirculation Systems

- Wageningen University; The development of recirculation technology in the Netherlands, Denmark, Scot-

land and Norway, gave Europe a strong advantage in this high-technology application. There is now world-wide interest in recirculation systems, for freshwater (smolts, tilapia, different perch species, sturgeon) and for marine fish species (turbot, sea bass, sea bream, sole, flounder). The main incentive for this heightened interest is growing environmental concern for the use of water resources, and the discharge of wastewater from fish farms.

AQUALAB 7: Acquisition of complementary professional skills

- AquaTT Limited; Top researchers exhibit a range of competencies in addition to their research skills. Effective written and verbal communication is required to effectively present work progress and results to peers and the public. Networking and business development skills will generate opportunities to collaborate with European and international colleagues. An awareness of financial concepts and budgets enhance a researcher's ability to author proposals, manage staff, and organise meetings.

Next Steps – Suggested Actions/Follow On



Policy

- Research funding for this type of action is no longer available. The last call for proposals for Marie Curie Conference and Training Courses was published on 18 January 2006. There may be some benefit to engage with National Contact Points to see if this type of action could be brought back into the FP7 or FP8 Work Programme.



RTD

- Review the course titles and see what research outcomes since 2006 could be used to update the curriculum.



Knowledge Transfer

- Market the courses as stand-alone, fee-based training opportunities for third-level institutions, public research organizations, business associations, commercial R&D units, innovation agencies, public administrations, or SMEs.

Other

- Accreditation schemes and/or qualification frameworks could be investigated to bring credibility to the course curricula.