

## AquaTT ANNOUNCEMENTS AUGUST 2009

**August 2009 - Announcements**

This is the Announcement Supplement, which comes with the AquaTT Training News newsletter. These are free e-mail news services provided by AquaTT on European Education, Training and Events in Aquaculture.

Please submit any relevant information for dissemination in the newsletter to [news@aquatt.ie](mailto:news@aquatt.ie)

Please check the [AquaTT Calendar](#) for a comprehensive overview of all Marine Sector related events, including details.

**September 2009****AquaTT Calendar**

September 2009							Print	Week	Month	Agenda
Sun	Mon	Tue	Wed	Thu	Fri	Sat				
30	31	Sep 1	2	3	4	5				
ECSCA Symposium 45: Estuarine goods and services		2nd European Congress of Conservation Biology		British Science Festival						
SAME11 - 11th Symposium on Aquatic Microbial Ecology		International Workshop on the Restoration of Fish Populations		Quality Management						
		BOMOSA Conference Small Scale Cage Farming in East								
6	7	8	9	10	11	12				
British Science Festival		The White Sea Molecular Zoology Summer School		The 13th European Congress of Ichthyology - ECI XIII						
		44th European Marine Biology Symposium								
		<a href="#">+2 more</a>	<a href="#">+3 more</a>	<a href="#">+4 more</a>	<a href="#">+4 more</a>	<a href="#">+2 more</a>	<a href="#">+1 more</a>			
13	14	15	16	17	18	19				
The White Sea Molecular Zoology Summer School		Aquaculture Ass		14th International Conference on Diseases of Fish and Shellfish						
		ECSCA 47: Integrative tools and methods in assessing ecological quality in estuarine and c		European Offshore Wind 2009		AQA 2009 Confer				
		<a href="#">+1 more</a>	<a href="#">+3 more</a>	<a href="#">+4 more</a>	<a href="#">+4 more</a>	<a href="#">+3 more</a>	<a href="#">+1 more</a>			
20	21	22	23	24	25	26				
The White Sea		2009 ICES Annual Science Conference		OceanObs 09 Conference - Ocean information for society.						
		Harmonisation of the Care and Use of Fish in Research		World Aquaculture 2009						
				2009 Forum on Fishery Science and						
27	28	29	30	Oct 1	2	3				
World Aquaculture 2009		24th Annual Texas Shrimp Farming and Marine Finfish Culture Course		2009 Forum on		Conference: "The Philosophy of Science in Use"		World Seafood		
		World Congress on Oils and Fats and the 28th ISF Congress		International Eastern Europe Confer						
		Regional Event o								

Events shown in time zone: Dublin

**October 2009**

- [International Eastern Europe Conference on European Fisheries Fund and opportunities for fishery and aquaculture product processing, 1 – 2 October 2009, Riga \(Latvia\)](#)
- [IAFI World Seafood Congress, 3-7 October 2009, Agadir \(Morocco\)](#)
- [AQUA-TNET Annual Event 2009, 5-7 October 2009, Sant Feliu de Guixols \(Spain\)](#)
- [XII Forum of Marine Resources and Aquaculture of the Galician Rias, 8-9 October 2009, Galicia \(Spain\)](#)
- [GLOBALGAP Tour 2009, 12-16 October 2009, Kuala Lumpur \(Malaysia\)](#)
- [2-Day Aquaculture Course, 13-14 October 2009, Southern Africa](#)

- [Seminar on therapeutics in fish culture, 13-14 October 2009, Spain](#)
- [Asia-Pacific Fishery Commission \(APFIC\) - Regional Consultative Workshop, 13-15 October 2009, Manila \(Philippines\)](#)
- [GLOBALGAP Tour 2009, 14-18 October 2009, Kenya \(Africa\)](#)
- [Association of Scottish Shellfish Growers Annual Conference, 21-22 October 2009, Oban, Scotland \(UK\)](#)
- [Acquacultura Med Conference 2009, \(Aquaculture Mediterranean Aquaculture Conference\), 22-24 October Verona \(Italy\)](#)
- [Global Fisheries & Aquaculture Research Conference, 24-26 October 2009, Cairo \(Egypt\)](#)
- [6th International Symposium on Sturgeon, 25-30 October 2009, Hubei Province \(China\)](#)
- [33rd Annual Seafood Science & Technology Conference, October 26-28, 2009, New Orleans, Louisiana \(USA\)](#)
- [GLOBALGAP Tour 2009, 26-29 October 2009, Washington D.C. \(USA\)](#)

#### **November 2009**

- [Accelerating innovation in Ocean Energy technologies, 2-3 November 2009, Lisbon \(Portugal\)](#)
- [2009 National Forum on Contaminants in Fish, 2-5 November 2009, Portland, Oregon \(USA\)](#)
- [China Fisheries and Seafood Exposition, 3-5 November 2009, Qingdao \(China\)](#)
- [Workshop on the ontogeny of the fish immune system, 4-5 November 2009, University of Copenhagen \(Denmark\)](#)
- [Latin American Conference on Culture of Native Fish, 3-6 November 2009, Province of Buenos Aires \(Argentina\)](#)
- [Asia Pacific Aquaculture Conference, 3-6 November 2009, Kuala Lumpur, \(Malaysia\)](#)
- [Third International Barcode of Life Conference, 7-12 November 2009, Mexico City, North America](#)
- [Regional Workshop "Ecosystem Approach to Fisheries and Aquaculture in the Near East and North Africa Region Facing Climate Change" 10-12 November, Abbassa, \(Egypt\)](#)
- [Science Festival 2009, 12-15 November 2009, Luxembourg-Grund \(Luxembourg\)](#)
- [Ph.D. course "Physical and biochemical methods for analysis of fish as food", 16 - 20 November 2009, Kgs. Lyngby \(Denmark\)](#)
- [Subsea Europe 2009, 24 November 2009, London \(United Kingdom\)](#)
- [The XII National Congress of Aquaculture, November 24-26, 2009, Madrid \(Spain\)](#)
- [Industrial Symposium on Aquaculture and Microencapsulation, 26-27 November, 2009, Puerto Varas, \(Chile\)](#)
- [10 years VLIZ - Flander's Marine Institute, 26-27 November, Ostend \(Belgium\)](#)
- [International Symposium on Aquaculture and Fisheries Education \(ISAFE\), 27-30 November 2009, Bangkok, Thailand](#)
- [First International Symposium on Aquaculture and Fisheries Education, 27-30 November 2009, Bangkok \(Thailand\)](#)
- [World Conference on Biological Invasions and Ecosystem Functioning \(BIOLIEF\), 27-30 September 2009, Porto \(Portugal\)](#)

#### **January 2010**

- [6th International Conference on Technology, Knowledge and Society, 15-17 January 2010, Berlin, Germany](#)
- [40th Annual Texas Aquaculture Association Trade Show & Conference, 27-29 January 2010, Texas \(USA\)](#)
- [Seafood Summit, 31 January-3 February 2010, Paris \(France\)](#)

#### **February 2010**

- [12th Fish International – Seafood Exhibition and Marketplace, 21-22 February 2010, Bremen \(Germany\)](#)

#### **March 2010**

- [Ecosystem Modelling for Fishery Management, 8-12 March 2010, Copenhagen \(Denmark\)](#)
- [Aquaculture 2010, 1-5 March 2010, San Diego \(California\)](#)

#### **May 2010**

- [International Sea Lice Conference, 9-12 May 2010, Victoria \(Canada\)](#)
- [Aquaculture UK 2010, 19-20 May 2010, Aviemore \(Scotland\)](#)
- [Australasian Aquaculture International Conference, 23-26 May 2010 Hobart \(Tasmania\)](#)

#### **June 2010**

- [AquaVision, 7-9 June 2010, Stavanger \(Norway\)](#)
- [Global Conference on Aquaculture 2010, 9-12 June 2010, Bangkok \(Thailand\)](#)

#### **July 2010**

- [14th International Meiofauna Conference, 12-16 July 2010, Ghent \(Belgium\)](#)
- [15th Biennial Conference of IIFET, 13-16 July 2010, Montpellier \(France\)](#)
- [Fish and Climate Change, 25-30 July 2010, Belfast \(Northern Ireland\)](#)

#### **August 2010**

- [Aquacultural Engineering Society Issues Forum, 18-19 August 2010, Virginia \(USA\)](#)
- [The 8th International Conference on Recirculating Aquaculture, 20-22 August 2010, Virginia \(USA\)](#)

#### **September 2010**

- [Fish Sampling with Active Methods Meeting, 8-11 September 2009, Ceske Budejovice \(Czech Republic\)](#)

#### **October 2010**

- [Aquaculture Europe 2010, 5-8 October 2010, Porto \(Portugal\)](#)
- [9th International Symposium on Tilapia in Aquaculture \(ISTA9\), 15-19 October 2010, Shanghai \(China\)](#)

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#### **About AquaTT**

[AquaTT](#) devised the free news service "TRAINING NEWS", a free monthly electronic newsletter that serves as an important communication channel for education and training opportunities for the Aquaculture, Fisheries and related Maritime sectors in Europe. It provides information on education and training developments, upcoming events, opportunities for collaboration, job vacancies and student activities.

All old Training News is archived on the AquaTT site: <http://www.aquatt.ie/>

AquaTT welcomes any feedback regarding content, presentation and user-friendliness of the newsletter. Please forward this mail to any colleagues that may be interested. Please submit any relevant information for dissemination in the newsletter to [news@aquatt.ie](mailto:news@aquatt.ie)

DISCLAIMER: AquaTT provides this newsletter as a free service to interested parties. Most of the information is provided by AquaTT. Where it is not, the source of the news is provided in the text of the news brief or else AquaTT attributes the news to the coordinating body as the "Data Source Provider". In no way does this newsletter, by promoting events not coordinated by AquaTT, intend to wrongly or inappropriately claim projects, news, etc. as its own nor is it responsible for incorrect information provided from other sources. "Training News" is a promotional tool and forum for both AquaTT and other organisations.

AquaTT TRAINING NEWS AUGUST 2009

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- Conference: "The Philosophy of Science in Use", 28 September - 2 October 2009, Linköping, Sweden
- 24th Annual Texas Shrimp Farming and Marine Finfish Culture Course, 30 September - 6 October 2009, Texas, USA
- Aquaculture Train-the-Trainer Workshop, 12-13 October 2009, Kuala Lumpur, Malaysia
- Ph.D course "Trust and lottery games", 12-16 October 2009, University of Southern Denmark (Denmark)
- 2-Day Aquaculture Course, 13-14 October 2009, Southern Africa
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- International Symposium on Aquaculture and Fisheries Education (ISAFE), 27-29 November 2009, Bangkok, Thailand
- Ecosystem Modelling for Fishery Management, 8-12 March 2010, Copenhagen, Denmark

## **2. Announcements**

Due to the overwhelming amount of Events in the Maritime sector, AquaTT decided to provide you with a supplement to the AquaTT Training News, specifically for the Announcements. The Announcements supplement is sent out together with Training News. Please [CLICK HERE](#) to go to the archived Announcement Supplements. Please [CLICK HERE](#) for the AquaTT Calendar which gives you a comprehensive overview of all events in the sector.

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## **Education**

### **MSc in Marine Coastal Development, Norwegian University of Science and Technology, Trondheim (Norway)**

The Master of Science in Marine Coastal Development programme is a two-year international multidisciplinary programme. It is especially designed to give the students a broad understanding of the

complex interactions in the marine environment. The programme offers specialization in four lines of study, Aquaculture, Fisheries and marine resources, Marine biology and biochemistry and Environmental analysis and environmental technology.

For more information please visit [www.ntnu.no/marine](http://www.ntnu.no/marine)

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**One day workshop - Seafood safety and shelf-life prediction, 15 September 2009, Lyngby, Denmark**

This workshop is organised in relation to TAFT 2009. This workshop focuses on the practical use of computer software to manage seafood safety and quality. Visit <http://www.taft2009.org/satellite-event/> for further details and registration. Deadline for registration is 24 August 2009

For further information about the workshop contact Paw Dalgaard at [pad@aqua.dtu.dk](mailto:pad@aqua.dtu.dk) or phone +45-45 25 25 66

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**Conference: "The Philosophy of Science in Use", 28 September - 2 October 2009, Linköping, Sweden**

The main objective of this conference is to discuss how current philosophy of science can be brought more in line with the need to understand, analyze and contribute to scientific endeavours in its various practical and socially relevant uses. The conference specifically addresses young European researchers.

For more information, please see [www.esf.org/conferences/09272](http://www.esf.org/conferences/09272) or contact Matthias Kaiser at [matthias.kaiser@etikkom.no](mailto:matthias.kaiser@etikkom.no)

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**24th Annual Texas Shrimp Farming and Marine Finfish Culture Course, 30 September - 6 October 2009, Texas, USA**

Participants of the course will have an opportunity to interact with approximately 14 different specialists in the field of marine shrimp and finfish mariculture through lectures, laboratory demonstrations and field trips to commercial shrimp and finfish farms and shrimp and finfish research facilities.

For more information please visit <http://www.texasaquaculture.org/> and <http://www.texasaquaculture.org/09%20Course%20Description.pdf>

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**Aquaculture Train-the-Trainer Workshop, 12-13 October 2009, Kuala Lumpur, Malaysia**

The objective of this workshop is to present the structure and documentation for a successful cooperation and implementation of the GLOBALGAP Framework for the scope Aquaculture with the sub-scope Shrimp. GLOBALGAP members have the opportunity to become official Train-the-Publictrainer after taking and passing an exam.

For more information please visit <http://www.globalgap.org>, <http://www.tour2009.org> and [http://www.tour2009.org/cms/upload/Images\\_Header/TTS/Aquaculture\\_Programme\\_Registration\\_Kuala\\_Lumpur\\_VW.pdf](http://www.tour2009.org/cms/upload/Images_Header/TTS/Aquaculture_Programme_Registration_Kuala_Lumpur_VW.pdf)

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**Ph.D course "Trust and lottery games", 12-16 October 2009, University of Southern Denmark (Denmark)**

The Centre for Fisheries and Aquaculture Management and Economics (FAME) is proud to announce the Ph.D course on "Trust and lottery games", which will be held October 12-16, 2009 at the University of Southern Denmark - Esbjerg, Denmark. Laboratory experimentation is an increasingly important field in economics and other social sciences. The main objective of this course is to enable the participants to design, implement and evaluate experimental games, with particular focus on lottery and trust games.

For further information about the course or FAME visit [www.sdu.dk/fame/](http://www.sdu.dk/fame/) or contact [fame@sdu.dk](mailto:fame@sdu.dk)

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**2-Day Aquaculture Course, 13-14 October 2009, Southern Africa**

This Course targets parties who are considering entering the industry and need additional information to confirm and direct their decision. An enormous amount of information is covered during the 2 days aiding the delegate in answering the questions 'is this the right industry for me' and if so how do I proceed'?

Please visit [http://www.aquaafrica.co.za/index.php?page\\_id=84](http://www.aquaafrica.co.za/index.php?page_id=84) for more information or email [leslie@aquaafrica.co.za](mailto:leslie@aquaafrica.co.za)

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**Seminar on therapeutics in fish culture, 13-14 October 2009, Barcelona (Spain)**

This two day seminar will focus on junior and senior scientists and also technical staff involved in fish culture activities interested in the use of antibiotics, external disinfectants and also anaesthetics and other products used to treat fish diseases. The course will be in Spanish as it is mainly focused on the use of therapeutics in Spanish Aquaculture.

For more information please contact Francesc Padros at [francesc.padros@uab.cat](mailto:francesc.padros@uab.cat)

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**Aquaculture Train-the-Trainer Workshop, 26-28 October 2009, Washington, D.C., USA**

The objective of this workshop is to present the structure and documentation for a successful cooperation and implementation of the GLOBALGAP Framework for the scope Aquaculture with the sub-scope Shrimp. GLOBALGAP members have the opportunity to become official Train-the-Publictrainer after taking and passing an exam.

For more information please visit <http://www.globalgap.org>, <http://www.tour2009.org> and [http://www.tour2009.org/cms/upload/Images\\_Header/TTS/Aquaculture\\_Programme\\_Registration\\_Washington\\_VW.pdf](http://www.tour2009.org/cms/upload/Images_Header/TTS/Aquaculture_Programme_Registration_Washington_VW.pdf)

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**Workshop on the ontogeny of the fish immune system, 4-5 November 2009, University of Copenhagen (Denmark)**

The Danish Fish Immunology Research Network and the Research School SCOFDA (Sustainable Control of Fish Diseases in Aquaculture) organise a 2-day workshop on the ontogeny of the fish immune system. Participation is free of charge. For registration and abstracts please contact: [pwk@life.ku.dk](mailto:pwk@life.ku.dk) (deadline October 1, 2009)

For more information please visit [www.dafinet.dk](http://www.dafinet.dk)

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**Ph.D. course "Physical and biochemical methods for analysis of fish as food", 16-20 November 2009, Kgs. Lyngby, Denmark**

The aim of the course is to provide insight into the state of the art of advanced laboratory techniques and methods that are recommended for analysis of fish muscle components relevant in studies of ante mortem (e.g. feed, stress) effects on fish as well as for following post mortem changes in fish. Deadline for application to the course is 25 September 2009.

For further information please visit

[http://www.aqua.dtu.dk/English/Education/PhD/methods\\_for\\_analysis\\_of\\_fish\\_as\\_food.aspx](http://www.aqua.dtu.dk/English/Education/PhD/methods_for_analysis_of_fish_as_food.aspx) or contact Alice Jensen [aj@aqua.dtu.dk](mailto:aj@aqua.dtu.dk) or Tel: +45 4525 2581

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**Course "Stock assessment (Introduction)", 11-15 January 2010, ICES, Copenhagen (Denmark)**

The International Council for the Exploration of the Sea (ICES) offers courses led by high-profile

scientists and instructors. The course Stock assessment (Introduction) provides instruction, demonstration, and exercises in population modelling as applied to fishery resources. The general objective of the course is to train stock-assessment scientists and advisors in basic population dynamics and stock assessment. The deadline for the submission of applications is 4 December 2009. Visit the Training web page: [www.ices.dk/iceswork/training/training.asp](http://www.ices.dk/iceswork/training/training.asp)

Contact ICES Secretariat for more information contact Søren Anker Pedersen, Coordinator for Training at [training@ices.dk](mailto:training@ices.dk) or tel: (+45) 33 38 67 52

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**Course "Stock assessment (Advanced)", 1-5 February 2010, ICES, Copenhagen (Denmark)**

The International Council for the Exploration of the Sea (ICES) offers courses led by high-profile scientists and instructors. The general objective of the "Stock assessment (Advanced)" course is to provide additional training for stock assessment scientists who are familiar with the basic techniques of fishery stock assessment. The deadline for the submission of applications is 12 December 2009. Please register online: [www.ices.dk/iceswork/training/registration/](http://www.ices.dk/iceswork/training/registration/)

Contact ICES Secretariat for more information contact Søren Anker Pedersen, Coordinator for Training at [training@ices.dk](mailto:training@ices.dk) or tel: (+45) 33 38 67 52

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**Advanced course: Establishment and Management of Marine Protected Areas for Fisheries, CIHEAM, 8-13 March 2010, Zaragoza (Spain)**

The objective of the course is to provide managers, planners and researchers of marine protected areas with an understanding of how these areas may function and contribute to local fisheries from experiences acquired in different regions by various management and research teams. The deadline for the submission of applications is 18 December 2009.

For more information e-mail [iamz@iamz.ciheam.org](mailto:iamz@iamz.ciheam.org) or visit [www.iamz.ciheam.org](http://www.iamz.ciheam.org)

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**International Symposium on Aquaculture and Fisheries Education (ISAFE), 27-29 November 2009, Bangkok, Thailand**

The symposium will focus on the theme "The Future of Aquaculture and Fisheries Education". Topics include fisheries and aquaculture education, current status of need-based curriculum development, innovative teaching and learning methods, distant/flexible learning, academic and industry partnerships, support for education, research and young fisheries scientists and future direction and strategy.

For more information please visit <http://www.aarm-asialink.info/isafe-2009.pdf>

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**Ecosystem Modelling for Fishery Management, 8-12 March 2010, Copenhagen, Denmark**

The ICES Training Programme intends to broaden our approach to fish stock and ecosystem analysis and make all relevant modelling methods available to our community. The course is planned as a five-day activity, and is intended for scientists with some prior experience with ecosystem modelling. Participants are expected to have at least a cursory familiarity with the Ecopath with Ecosim (EwE) approach and software, which can be downloaded freely from [www.ecopath.org](http://www.ecopath.org). The deadline for the submission of applications is 8 January 2010.

For more information please visit <http://www.ices.dk/iceswork/training/ecosystem.asp>

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**Collaboration**

**Lyndsay Laird Award for innovation in aquaculture 2009**

The Lyndsay Laird Student Award 2009 has been won by Mr Gonçalo Santos, student at Wageningen University, Aquaculture and Fisheries group (the Netherlands) for his poster "Effects of dissolved

carbon dioxide on energy metabolism and stress response in European sea bass (*Dicentrarchus labrax*)". The award, set up by AquaTT in memory of an outstanding individual whose achievements are an inspiration to us all, was presented by Dr Selina Stead, President of the European Aquaculture Society, at the EAS International Conference in Trondheim, Norway on August 16th. The award entitles the winner to select a laptop (to the value of 500 Euros) of his choice, as well as choosing an appropriate publication from Springer.

In 2008, AquaTT set up the Lindsay Laird Student Award for innovation in aquaculture to be awarded for the most innovative poster (in English) submitted by a student concerning research in several areas, especially environmental impact in aquaculture, new candidate species, hatcheries/early life history, stock production, fish diseases, new technologies and genetics/genomics.

Lindsay Laird was a remarkable woman, moving easily between the rival spheres of teaching, research and industry, and excelling in all three. A high achiever, relishing being the first with the latest, she nevertheless hugely enjoyed her contacts with people at all levels in all three areas. She was generous with her ideas, triggering numerous research projects as colleagues approached her always open office door. She virtually ran an unofficial one-woman employment agency handling enquiries from fish farms looking for personnel or advising students or ex-students.

In the words of Professor Priede, Lindsay's husband: "Lindsay Laird will not be forgotten by the many whose lives she touched".

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#### **AQUA-TNET Annual Event 2009, 5-7 October 2009, Sant Feliu de Guixols, Spain**

All AQUA-TNET members and stakeholders are invited to attend this important event to find out about the activities and results of the first year and debate the hot topics in Education and Training. Sant Feliu is a small picturesque town situated on the northern Mediterranean coast of Spain, 120 km from Barcelona and 30 km from Girona. Meeting venue and hotel will be at the same location.

Please contact the AQUA-TNET secretariat at [info@aquatnet.com](mailto:info@aquatnet.com) for further information and registration.

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#### **Other**

##### **SARNISSA - Sustainable Aquaculture Research Networks in Sub Saharan Africa. A new era for strengthening African Aquaculture**

The EC funded SARNISSA project aims to link likeminded individuals throughout Sub Saharan Africa and beyond for their mutual benefit. The aim is to increase access and sharing of information and contacts concerning African aquaculture research and development. SARNISSA has now over 1000 registered stakeholders from across Africa and internationally, with strong European representation.

Please visit <http://www.sarnissa.org/tiki-index.php> for more information.

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##### **The Israeli Journal of Aquaculture – Bamidgeh (IJA) now available as peer reviewed free registration electronic Open Access Journal**

From January 2010, the IJA will appear exclusively as a peer reviewed free registration electronic Open Access Journal.

Free registration forms and more information concerning the OA project are given at [www.siamb.org.il](http://www.siamb.org.il)

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##### **New: Irish Society for Ocean Studies (ISOS)**

Work is underway to establish the Irish Society for Ocean Studies (ISOS), an organisation representing



all those engaged in the study of the oceans on the island of Ireland. While ISOS will cater particularly for students of ocean studies of all kinds, membership is open to all those interested or involved with the sea.

If this sounds like something that you might be interested in being a part of then please check out the website [www.isos.ie](http://www.isos.ie) and register your interest at <http://www.isos.ie/register.php>.

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### **Expert speakers sought for Industrial Symposium on Aquaculture and Microencapsulation**

A Bioencapsulation Research Group are organising an industrial symposium on Aquaculture and Microencapsulation on November 26-27, 2009, in Puerto Varas, Chile. The main objective is to promote networking and collaborative projects. They are seeking academic and industrial experts, in microencapsulation for aquaculture or valorisation of sea products, to act as speakers. If you are interested please contact Denis Poncelet at [no-reply@bioencapsulation.net](mailto:no-reply@bioencapsulation.net)

See a draft of the project at <http://bioencapsulation.net/Chile2009/>

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### **PiscesTT Jobs**

#### **Job vacancies, MSc & PhD vacancies and student placements on [WWW.PISCESTTJOBS.COM](http://WWW.PISCESTTJOBS.COM)**

PISCES TT jobs is a valuable free tool for employers, employees & students in the aquatic resources. Its service aims to foster an efficient means by which to link job-seekers, students, graduates and others seeking work and placements in the aquaculture, fisheries, and related sciences sectors with companies and organisations seeking qualified employees.

Employers can post job vacancies (including permanent, temporary job vacancies, MSc/PhD and student placement positions) and job-seekers can post CVs, thus facilitating human resource development in the industry.

At the moment there are 17 new vacancies. If you are interested in viewing or posting a job vacancy or registering for the service, please go to <http://www.piscesttjobs.com/> or contact [aquatt@aquatt.ie](mailto:aquatt@aquatt.ie)

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### **Student Corner**

#### **Student submissions to AquaTT Training News**

We welcome submissions from current students interested in presenting their views and experiences on the industry and education in Europe. The newsletter reaches more than 4000 recipients on a monthly basis and will serve as a good forum to get your ideas out to the differing sectors involved in the industry. An email stating your background and the potential title of your article should be sent to [aquatt@aquatt.ie](mailto:aquatt@aquatt.ie) for review.

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### **About AquaTT**

AquaTT devised the free news service "TRAINING NEWS", a free monthly electronic newsletter that serves as an important communication channel for education and training opportunities for the Aquaculture, Fisheries and related Maritime sectors in Europe. It provides information on education and training developments, upcoming events, opportunities for collaboration, job vacancies and student activities.

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COMPARATIVE GROWTH STUDY OF WILD- AND HATCHERY-PRODUCED ARCTIC CHARR (SALVELINUS ALPINUS L.) IN A COLDWATER RECIRCULATION SYSTEM

Sten Ivar Siikavuopio, Steinar Skybakmoen, Bjørn-Steinar Sæther-2009

Aquacultural Engineering 41(2): 122-126

Abstract:

The growth performance of Arctic charr of wild (W) and hatchery (H) origin was compared in a commercial coldwater recirculation system (Villmarksfisk, Bardu, 68°N, 19°E, Norway). The initial individual body mass was 115 g and similar between groups. The rearing temperature was 9.2 °C and the fish were held under continuous light (24:0 L:D). At the end of the experiment (day 240), the average body mass of the H fish was 451 g compared to 231 g in the W fish. The accumulated mortality of wild Arctic charr was about 40%; 10 times higher than the mortality of hatchery-produced Arctic charr (4%). The difference in growth performance and survival rate impose a great disadvantage of using this wild caught fish as compared to commercially available hatchery-produced Arctic charr in coldwater recirculation system. However, further improvements in the production chain (catching, live transport, quarantine, size grading, etc.) may still make production of wild caught Arctic charr profitable, especially as it demands a higher price in niche markets.

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CLONAL COMPOSITION OF BRACHIONUS PLICATILIS S.S. AND B. SP. 'AUSTRIA' HATCHERY STRAINS BASED ON MICROSATELLITE DATA

Spiros Papakostas, Alexander Triantafyllidis, Ilias Kappas, Theodore J. Abatzopoulos-2009

Aquaculture 296(1-2): 15-20

Abstract:

The recent application of different molecular techniques to *Brachionus plicatilis* hatchery strains has revealed the presence of five members of what is now known as the *B. plicatilis* complex of cryptic species and has offered new perspectives to the aquaculture industry via a genetically-oriented strain management. In this work, we have employed the high versatility of microsatellites to increase the resolution of previous genetic analyses and study the clonal composition of two of the rotifer species found in hatcheries, namely the *B. plicatilis* s.s. and *B. sp. 'Austria'*. A total of 69 *B. plicatilis* s.s. and 78 *B. sp. 'Austria'* individual rotifers from 13 hatchery strains were genotyped at seven and three microsatellite loci, respectively. Wild population samples and laboratory clones were used as reference material. Sample relationships were inferred using genetic distance estimates from the allele frequencies of the resulted genotypes. A notably low clonal diversity was found in hatcheries. Some of the strains were actually clonal cultures. In many cases, rotifers with the same multilocus genotype were present in two or three different strains. Interestingly, most *B. sp. 'Austria'* rotifers found in hatcheries have significant genetic similarities. Overall, our results indicate that hatcheries exploit a very small fraction of the available *Brachionus* genetic diversity even at the intra-specific level. Rotifer circulation practices seem to be a major cause for this outcome. There is a growing evidence that the aquaculture industry could benefit from the use of new *Brachionus* clones and/or species.

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## COMMUNAL SPAWNING LEADS TO HIGH POTENTIAL FOR INBREEDING IN GADOID AQUACULTURE

Edward A. Trippel, Rick M. Rideout, Patrick T. O'Reilly, Christophe M. Herbinger, Steven R.E. Neil, Lorraine Hamilton-2009

Aquaculture 296(1-2): 27-35

### Abstract:

The potential for relatedness to play a role in haddock (*Melanogrammus aeglefinus*) mate selection was tested in order to examine the potential for inbreeding in the culturing of this species. A total of 14 egg batches were produced in a communal spawning tank containing three full-sibling families over a 22 day period. Three females and seven males participated in these matings among the five females and eight males present. Based on genotyping results of fertilized eggs, there was no preference for mating with unrelated individuals (i.e. no avoidance of mating with siblings). The maximum number of males contributing to the fertilization success of an egg batch was three but with a single dominant male fertilizing a majority of the eggs for each batch. Only three of the egg batches produced appeared to have been fertilized entirely by a single male.

The degree of relatedness among F1 commercial haddock broodstock was investigated relative to that of wild Bay of Fundy haddock. This comparison was intended to estimate how rapidly inbreeding could accumulate in a haddock population under cultivation when limited control was exerted over the actual communal mating. Allele richness (standardized numbers of alleles) was markedly lower in the aquaculture samples relative to the wild population (by approximately 25%). The size-selected F1 haddock sample exhibited slightly lower levels of observed heterozygosity and gene diversity than a random sample of F1 haddock, but marginally higher allele richness. The reduced family diversity coupled with the fact that haddock do not appear to avoid mating with kin could potentially lead to a high degree of inbreeding in the absence of the infusion of additional wild broodstock.

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## CHILLED STORAGE OF WALKING CATFISH (*CLARIAS MACROCEPHALUS*) SEMEN

Verapong Vuthiphandchai, Itthinan Thadsri, Subuntith Nimrat-2009

Aquaculture 296(1-2): 58-64

### Abstract:

The aim of the present study was to determine changes in sperm quality of walking catfish (*Clarias macrocephalus*) during its spawning season, and develop a simple and efficient protocol for the chilled storage of semen at 4 °C. Semen samples were evaluated monthly during April–November in 2006. Percentage of spermiating males and sperm motility peaked during the middle of the spawning season, June–September. Sperm density and seminal plasma osmolality increased significantly ( $P < 0.05$ ) throughout the spawning season, while semen pH did not change during this period. The effects of extender, dilution ratio and timing of chilled storage on successful storage period of extended semen were examined during the years 2006–2007. Fresh semen was diluted 1:1 with several sperm extenders, calcium-free Hanks' balanced salt solution (Ca-F HBSS), Hanks' balanced salt solution (HBSS), extender 7 (NaCl 5.780 g, KCl 2.558 g, CaCl<sub>2</sub>·2H<sub>2</sub>O 0.103 g, NaHCO<sub>3</sub> 0.235 g, MgCl<sub>2</sub>·6H<sub>2</sub>O 0.220 g, pyruvate 6.0 g, citric acid 0.100 g, HEPES buffer 2.380 g in 1000 mL distilled water), extender 13 (NaCl 8.760 g in 1000 mL distilled water), and modified Cortland, in tissue culture flasks. Longest successful storage period of sperm was 10 days with Ca-F HBSS. Semen diluted with Ca-F HBSS at 1:1, 1:2 or 1:4 ratios significantly lengthened ( $P < 0.05$ ) the storage period over those at dilutions of 1:9 or 1:19. To determine the effect of season on the success of chilled storage, semen diluted with Ca-F HBSS at a ratio of 1:4 was prepared at three sampling intervals in the beginning (May), middle (August) and end (November) of spawning season in 2007. Extended semen prepared in August remained motile ( $20 \pm 3.1\%$ ) for as long as 10 days, whereas those prepared in May or November were immotile on days 9 and 7 of storage, respectively. Extender-preserved semen was capable of fertilizing eggs as efficiently as fresh semen within two days of storage. A significant decrease in fertilization and hatching rates of extender-preserved semen compared to fresh semen on days 4 and 6 was due to low

sperm motility. These results demonstrate that semen of walking catfish can be stored for short term at 4 °C without appreciably affecting motility and fertilization.  
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THE EFFECT OF FOOD TYPE AND QUANTITY ON EGG PRODUCTION AND NUCLEIC ACID CONTENT OF ACARTIA SINJIENSIS

Luiz Felipe Mendes Gusmão, A. David McKinnon-2009

Aquaculture 296(1-2): 71-80

Abstract :

Both food type and quantity have a strong effect on the egg production, RNA:DNA ratio and RNA content of the copepod *Acartia sinjiensis*. Copepods were fed limiting (150 µg C l<sup>-1</sup>) and non-limiting (1500 µg C l<sup>-1</sup>) concentrations of *Tetraselmis chuii* (Prasinophyceae), *Pavlova salina* and *Isochrysis aff. galbana* (Prymnesiophyceae), and *Chaetoceros muelleri* (Bacillariophyceae). Saturation of copepod egg production was estimated for *Tetraselmis* and *Pavlova* offered in a wide range of concentrations (0–1500 µg C l<sup>-1</sup>). Under non-limiting food conditions, *A. sinjiensis* produced more eggs when fed *Tetraselmis* (mean 17.6 eggs female<sup>-1</sup> day<sup>-1</sup> = efd) and *Pavlova* (14.2 efd), and produced fewer eggs when fed *Isochrysis* (9 efd) and *Chaetoceros* (7.6 efd). RNA:DNA ratio (mean 7) and individual RNA content (mean 2 µg RNA ind<sup>-1</sup>) were significantly higher in females fed abundant *Tetraselmis* in comparison to the other algae. Under food-limiting conditions, *A. sinjiensis* could still produce eggs when fed *Pavlova* (3.3 efd) and *Tetraselmis* (1.7 efd), but failed to produce eggs when fed *Isochrysis* and *Chaetoceros*. In food-limited females RNA:DNA ratios and individual RNA content were variable and lower than animals fed non-limiting algae concentrations. The saturation of egg production was 714 µg C l<sup>-1</sup> for *Tetraselmis* and 509 µg C l<sup>-1</sup> for *Pavlova*. The relationship of RNA:DNA ratio and food concentration followed a similar function to egg production, with a saturation level of 509 µg C l<sup>-1</sup> for *Tetraselmis*. Egg production was positively correlated with female size only in animals fed *Tetraselmis* at 1500 µg C l<sup>-1</sup>; all other algae and food concentrations were uncorrelated with female size. Of the algal species tested, *Tetraselmis* and *Pavlova* are candidate algae for use in *A. sinjiensis* culture. Egg production saturates around 500 µg C l<sup>-1</sup>, as is the case in other *Acartia* species. Both RNA:DNA ratio and RNA content of the females were sensitive to different food type and concentration, and have the potential to be used as an alternative method for the identification of optimal food for use in *Acartia* culture. These observations have important implications for the understanding of the dynamics and productivity of this species in coastal environments of tropical Australia, and also its potential use in aquaculture and ecotoxicology.

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EFFECT OF AN HERBIVOROUS DIET ON ENERGY BALANCE OF LITOPENAEUS VANNAMEI AT SELECTED ONTOGENETIC STAGES

Carlos Maldonado, Gerard Cuzon, Emilio Guzmán, Roberto Brito, Luis Soto, Leticia Arena, Gabriela Gaxiola-2009

Aquaculture 296(1-2) : 123-128

Abstract:

Herbivorous (20% vegetable protein, 40% carbohydrate) and carnivorous diets (40% marine animal protein, 20% carbohydrate) were experimentally tested to assess their effect on the energy balance and energetic substrates utilized by postlarvae (PL's /15 days) and juvenile shrimp (3–6 g) of *Litopenaeus vannamei*. Postlarval stage 60 (PL60, early juveniles) shrimps fed HeD and CaD diets, then late juveniles (3–6 g) acclimated to the same diets were tested for their respective energy partitioning potential.

No significant differences ( $p > 0.05$ ) on growth were obtained in early juveniles (mean final wet weight of 0.19 g). However in late juvenile stages a significant difference ( $p < 0.05$ ) in growth rate was observed. In terms of energy partitioning, both early and late juveniles seem to spend more energy in

respiratory metabolism than in the elimination of excretion products. A change in feed composition based on quality protein sources induced some modifications on shrimp's activity measured by heat increment. Shrimps fed with an herbivorous diet showed a higher heat increment. Interestingly, the early stages of *L. vannamei* display a remarkable capacity to assimilate a plant protein-based and a high carbohydrate level diet. Such capacity with a stimulation of genes would lead to a good adaptation of juveniles receiving all-plant diets to sustain growth performances up to a marketable size. The implications of these findings for the shrimp farming feeding costs are briefly discussed.

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#### ABALONE EGG-LAYING HORMONE INDUCES RAPID OVARIAN MATURATION AND EARLY SPAWNING OF THE GIANT FRESHWATER PRAWN, *MACROBRACHIUM ROSENBERGII*

Piyada Ngernsoungnern, Apichart Ngernsoungnern, Wattana Weerachayanukul, Prasert Meeratana, Peter J. Hanna, Prasert Sobhon, Prapee Sretarugsa-2009

Aquaculture 296(1-2) : 143-149

Abstract:

Egg-laying hormone (ELH) is a peptide hormone that is involved in spawning and egg-laying behaviors in many mollusks. The present study demonstrated the presence of an ELH-like hormone in the ovary of the freshwater prawn, *Macrobrachium rosenbergii*, using a polyclonal antibody against abalone ELH (aELH). The immunoreactivity against aELH (aELH-ir) was detected in follicular cell type 2 (Fc2) of stages 0 to III ovaries, and in the cytoplasm of mature oocytes of stage IV ovaries. In contrast, there was no aELH-ir detected in the central nervous system (CNS). The effect of aELH on reproductive processes in this species was determined by *in vivo* bioassays, using intramuscular (i.m.) injections. The gonadosomatic index (GSI) values of control prawns at 15 days post-treatment was  $0.5 \pm 0.1\%$  ( $\bar{X} \pm$  S.D.), but  $5.8 \pm 0.6\%$  when treated with 50 ng/g BW of aELH, and  $5.4 \pm 1.1\%$  with a 500 ng/g BW dose. The time for ovarian maturation and spawning of the control group was  $40.0 \pm 3.4$  days, but only  $22.0 \pm 2.4$  days following injections with 50 ng/g BW of aELH, and  $21.2 \pm 2.8$  days with a 500 ng/g BW dose. However, there were no differences in the number of eggs spawned and fertilization rates after aELH treatments. These findings support the hypothesis that an ELH-like hormone is present in *M. rosenbergii*, and could have a significant role in female spawning.

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#### SCREENING FOR PROBIOTICS OF GREENSHELL™ MUSSEL LARVAE, *PERNA CANALICULUS*, USING A LARVAL CHALLENGE BIOASSAY

Aditya Kesarcodi-Watson, Heinrich Kaspar, M. Josie Lategan, Lewis Gibson-2009

Aquaculture 296(1-2) : 159-164

Abstract:

A bioassay was developed to screen and select bacterial strains as probiotics for an alternative to antibiotic usage in the management of bacterial pathogens of Greenshell™ mussel (GSM) larvae, *Perna canaliculus*. Sixty-nine isolates originating from a GSM hatchery environment were tested for probiotic activity in larval pathogen-challenge bioassays conducted in tissue culture dishes (TCDs). *Vibrio splendidus* and a *V. coralliilyticus/neptunius*-like isolate, *Vibrio* sp. DO1, were the tested pathogens. Forty of the tested isolates afforded larval survival significantly greater than pathogen controls ( $p < 0.05$ ). The bioassay technique achieved a 58% success rate in searching for putative probiotics and highlighted the benefit of including the host animal in the first stage of the screening procedure. The time of inoculation of putative probiotic strains prior to pathogen challenge influenced the outcome of the assay. A pre-exposure period of 20 h revealed a greater number of potential probiotics than a two-hour pre-exposure period. Pilot challenge tests, under normal hatchery conditions, confirmed the usefulness of the TCD screening method in recognising effective probiotics.

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## SHORT COMMUNICATION

### NON-ADDITIVE GENETIC EFFECTS CONTRIBUTE TO LARVAL SPINAL DEFORMITY IN TWO POPULATIONS OF CHINOOK SALMON (*ONCORHYNCHUS TSHAWYTSCHA*)

Melissa L. Evans, Bryan D. Neff-2009

Aquaculture 296(1-2): 169-173

#### Abstract:

Losses due to larval spinal deformities are widespread in hatchery production. However, the aetiology of this disease remains unclear in most fishes, despite overwhelming evidence for a genetic role in other vertebrate taxa. We examined the contribution of additive and non-additive genetic effects and maternal effects to the incidence of spinal deformity in 50,800 larval Chinook salmon (*Oncorhynchus tshawytscha*) derived from a full factorial quantitative genetic breeding experiment conducted on two populations from British Columbia, Canada. The overall incidence of spinal deformity was low at only 0.69% and 0.05% of offspring in the Big Qualicum and Quinsam populations, respectively. However, spinal deformities affected 34% and 13% of families within the two respective populations, and up to 21% of offspring were affected within susceptible families. Non-additive genetic effects, but not additive or maternal effects, were significantly associated with spinal deformity in larvae. In the Big Qualicum population, non-additive genetic effects explained 100% of the total phenotypic variance in spinal deformity, whereas 80% of the phenotypic variance was explained by non-additive genetic effects in the Quinsam population. Relatedness between parents and offspring sex was not associated with spinal deformity. These results contrast to other studies of salmonids that have shown the effects of additive genetic variance on spinal deformity in later life-history stages and relatedness between parents on larval spinal deformity. Our results instead indicate that the interaction between parental genomes outside of inbreeding plays an important role in the occurrence of spinal deformity in Chinook salmon larvae.

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### POTENTIAL DELIVERY OF WATER-SOLUBLE PROTEIN HYDROLYSATES TO MARINE SUSPENSION FEEDERS BY THREE DIFFERENT MICROBOUND PARTICLE TYPES

Umur Önal, Chris Langdon-2009

Aquaculture 296(1-2) : 174-178

#### Abstract:

Spray-dried zein particles (SDZP), spray-water zein particles (SWZP) and gelatin-alginate beads (GAB) were prepared containing a defined dietary mixture and their performances were compared for delivering the soluble fraction of protein hydrolysates. Measures of performances of these three different microbound particle (MBP) types included inclusion, encapsulation, retention and delivery efficiencies in addition to T50 (time to 50% retention) values.

SDZP had higher inclusion (IE) and encapsulation efficiencies (EE) compared to those of SWZP and GAB. A maximum IE of 66.60% and EE of 10.01% were achieved for SDZP. Although elimination of water from the manufacture process resulted in significantly higher inclusion and encapsulation efficiencies for SDZP, retention efficiencies and leakage profiles of all particle types were similar and followed a biphasic pattern with an initial burst release followed by a slower phase. Delivery of hydrolysates by SDZP was greater than for other MBP types with fifty percent of the initial hydrolysate retained after 36 min suspension in water.

SDZP provides a more effective delivery vehicle for soluble protein hydrolysates than the other MBP types evaluated in this study. This, in turn, may help overcome limitations in the delivery of water-soluble nutrients and formulation of artificial diets for marine fish larvae and other suspension feeders. (Çanakkale Onsekiz Mart University, Fisheries Faculty, Department of Aquaculture, Çanakkale, 17100, Turkey; email of Umur Önal: [umuronal@yahoo.com](mailto:umuronal@yahoo.com))

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## HORMONAL INDUCTION OF OVULATION AND SPERMATION IN ATLANTIC COD (GADUS MORHUA)

Amber F. Garber, Susan E. Fordham, Jane E. Symonds, Edward A. Trippel, David L. Berlinsky-2009  
*Aquaculture* 296(1-2) : 179-183

### Abstract:

Captive, wild-caught female Atlantic cod, *Gadus morhua*, from Georges Bank (n = 19) were divided into three treatment groups based on body weight and diameter of the largest clutch of oocytes present. Treatments administered were an intramuscular implant of one of two gonadotropin releasing hormone analogues — (D-Ala<sup>6</sup>, Pro<sup>9</sup>-NH<sub>2</sub>)-LHRH ethylamide (LHRHa, 150 µg) and salmon gonadotropin releasing hormone analogue (sGnRHa, 150 µg, OvaplantR), or a saline injection (control). Over a period of 20 days, 12 of 14 implanted and one control fish ovulated. There was no significant variation between egg volumes and percent fertilization ( $P \geq 0.4968$ ) of implant-treated and naturally ovulating females; however, significant variation did exist for the estimated number of hatched larvae among treatments ( $P = 0.0169$ ). Non-spermiating captive wild-caught Atlantic cod males (n = 11 Georges Bank) were divided into two treatment groups (OvaplantR and saline control) based on body weight. Large volumes of milt with high motility and spermatocrits were obtained from each of five OvaplantR-treated males starting 6 days post-implant. Over a 27 day period, each of six control males produced milt at least once, but in small volumes with variable motility and low spermatocrits. Milt volumes of the OvaplantR-treated males were higher than naturally spermiating males ( $P = 0.0002$ ), but had similar motilities and spermatocrits ( $P \geq 0.0462$ ). These results demonstrate the effectiveness of GnRHa implants in inducing ovulation and spermiation in Atlantic cod broodstock without adversely affecting gamete quality.

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