

# AQUA

# 2012



## Global Aquaculture SECURING OUR FUTURE

### Prague, Czech Republic Sep 1-5, 2012



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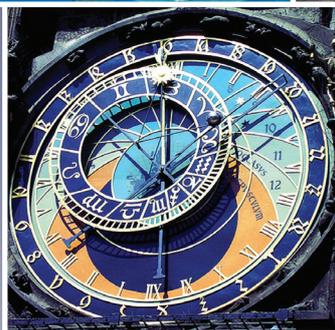
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FACULTY OF FISHERIES AND PROTECTION OF WATERS  
UNIVERSITY OF SOUTH BOHEMIA IN ČESKÉ BUDĚJOVICE

## Welcome to AQUA 2012 and to Prague

Thank you for joining the European Aquaculture Society (EAS) and the World Aquaculture Society (WAS) at this conference and exposition. Our joint events occur every six years. This week the Czech Republic follows in the tradition of the great WAS-EAS meetings hosted by France (Aqua 2000, Nice) and Italy (Aqua 2006, Florence) by warmly welcoming you to Prague.

Our events have several important functions, including exchanging the latest aquaculture research and commercial information, seeing and purchasing the latest equipment, feedstuffs, pharmaceuticals, publications and other products in the seafood market, and networking with colleagues and friends, old and new. The members of our Steering Committee (whose names are listed elsewhere in this directory) have worked very hard to bring you an exciting and comprehensive series of activities. We have two excellent plenary speakers, Petter Arnesen and Geoff Allan, who will be addressing our conference theme – **global aquaculture: securing our future** - from the perspectives of industry and science. Programme Co-Chairs Marco Saroglia, Jose Polanco and Zdeněk Adámek have designed a terrific four-day scientific programme – thirteen concurrent sessions of oral presentations, together with a large display of posters on the balcony overlooking our trade show. A glance at this directory will quickly demonstrate that you have a very wide range of topics, covering all types of marine and freshwater aquaculture and all forms of knowledge development, to choose from this week. At the time of writing the presentation of over 1,200 oral and poster papers have been confirmed. In addition there are several workshops and farmers' sessions to attract your attention.

As always, the trade show is an essential and important component of our event. Over 100 booths have been organised by Mario Stael to bring you the opportunity to see and discuss aquaculture products and services from Europe, the Americas and Asia, all with a global impact on the future commercial success of our industry. Post-conference, on 6 September, two farm tours will provide you with the opportunity to see Czech carp and trout farming at first hand and to enjoy some good food and beer.

AQUA 2012 would not be possible without the enthusiastic cooperation of our hosts, the University of South Bohemia, Faculty of Fisheries and Protection of Waters, together with the support of the Ministry of Agriculture of the Czech Republic. We are also grateful to our sponsors, which include BioMar, Novus, Alltech, MSD, Sintef, Biomin and our media sponsors. The Cooksey family (including Mario Stael), as always, ensure the smooth logistics of our meetings. This year we expect to welcome a new member of their team – Asher, who at 7 weeks old has to be one of the youngest participants ever in an aquaculture conference! Both EAS and WAS recognise that the future success of our Societies and of aquaculture generally is in the hands of our young colleagues and our students, so let this be a good omen. Let's not forget the hard-working teams in the Home Offices of WAS and EAS – take an opportunity to meet with Alistair Lane & Linda Aspeslagh from EAS and Carol Mendoza & Judy Andrasko from WAS this week.

While you are in Prague, one of the most beautiful capitals of Europe, take the opportunity to see the sights. Your choice is endless but a "must-see" is the largest ancient (9<sup>th</sup> Century) castle in the world. Home to Bohemian Kings, Holy Roman Emperors and now the seat of the Czech President, its site includes several superb palaces, churches, museums and gardens, together with the best city views. You can see the castle on the horizon from our conference facilities and you can get there by metro or by walking over the Charles Bridge - the oldest stone bridge on the river Vltava. Climb the tower of the Old Town Hall in the heart of the old city and wonder at its famous astronomical clock. Experience tasty Czech food (if you are not weight-watching!) and relax with a Budweiser Budvar or a Pilsner Urquell. Prague is also full of cultural opportunities. I could continue extolling the pleasures that await you here but space does not permit...

I hope you enjoy AQUA 2012 and your visit to this country and I look forward to meeting you during the conference, in the trade show, and at our social events - especially at SaSaZu on Tuesday evening!



**Michael New, OBE**  
 Chairman AQUA 2012  
 Past-President, EAS (2002-2004)  
 Past-President, WAS (1997-1998)

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# ABSTRACTS

## 1153

**DIGESTIVE APPARATUS AND SENSE ORGANS ONTOGENESIS IN ATLANTIC BLUEFIN TUNA *Thunnus thynnus***

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The reproduction control of bluefin tuna in captivity has been recently achieved and the setting up of proper larval rearing is actually the main challenge to be faced for the conversion of "capture-based" Atlantic bluefin tuna industry in the Mediterranean Sea into a real self-sustained aquaculture.

This study was aimed at improving the knowledge on the early life history of this species, paying a special attention to the digestive apparatus and sense organs ontogenesis in order to optimize larval feeding in rearing conditions.

Fertilized eggs of bluefin tuna (BFT) were obtained from spawning induction of broodstock in net cages at the Mare Nostro hatchery, near the coast of Vibo Marina (Vv) (South Tyrrhenian Sea, Italy). These fertilized eggs were secondly sent to two commercial hatcheries, the Panittica Pugliese (Torre Canne di Fasano (Br), Italy) and the Civita Ittica S.r.l. (Civitavecchia, Italy).

As many as 131 reared and wild BFT were used for studying ontogenetic development and 2 wild adult tunas for describing the adult morphology of all the organs involved in feeding behaviour. Observations were carried out by mean of conventional histological and SEM procedures.

The atlas of morphological features of the entire digestive apparatus (taste buds included) of wild adult tuna is the first original result. Secondly, the study on ontogenetic pattern of alimentary tract and of outer and inner sense organs evidenced that i) BFT early stages at the same length (SL) or age show different ontogenic stages; ii) the differentiation of all organs involved in feeding is achieved very early, inner taste buds included, that is before the notochord flexion. Further, postlarvae showed inner taste buds in all the anterior digestive tract (buccal rim, oro-pharyngeal cavity and anterior oesophagus), conversely to adult (only in pharynx), thus bestowing to the early stages a higher responsiveness than adults to the organoleptic property of food items.

*Characteristics of BFT samples. \* = metres.*

OBSERVATION		AGE (DPH)	SL RANGE (mm)	N	ORIGIN
<b>ORGANOGENESIS</b> (n=132)	Histology (n=73)	0-15	1.6-4.9	38	CIVITA ITTICA
		15-48	3.8-69.1	35	PANITTICA
	SEM (n=59)	0-4	1.6-3.7	12	CIVITA ITTICA
		15-48	3.5-61.7	46	PANITTICA
		-	5.0	1	Wild
<b>DIGESTIVE APPARATUS and SENSE ORGANS in adults</b>	Histology & SEM	adult	2.3-2.5*	2	Wild