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This paper must be cited as:

Horváth, Á.; Asturiano Nemesio, JF.; Rosenthal, H. (2012). On the biology of fish gametes: summary and recommendations of the Third International Workshop, Budapest and Gödöllo, Hungary, 2011. *Journal of Applied Ichthyology*. 28(6):863-864. doi:10.1111/jai.12099.



The final publication is available at

<https://dx.doi.org/10.1111/jai.12099>

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Additional Information

Foreword

On the biology of fish gametes: workshop content, conclusions and recommendations

After two very successful special workshops in Vodňany, Czech Republic in August 2007 and Valencia, Spain in September 2009, the Third International Workshop on the Biology of Fish Gametes was held between September 7 and 9, 2011 in Budapest and Gödöllő, Hungary. The meeting was organized by Diamond Congress Kft. and the Department of Aquaculture of Szent István University.

Following the tradition of the previous bi-annual workshops the scope of the scientific content expanded further, incorporating into this conference also several specific contributions not only on the gametes of fish but also dealing with gametes of other aquatic organisms.

The workshop was attended by 82 scientists representing research institutions of 17 countries. Attendees presented their works in 31 oral and 48 poster presentations. These numbers indicate a stable attendance by a core group of scientists while attracting also the attention of their students and the interest of industries involved in developing modern equipment and methodologies used in gamete research. The number of presentations was comparable to those of the previous workshops which means that the subject attracted most of the experts working in the field despite the growing economic crisis during the preparatory period, indicating the importance of the subject area and the need for continued exchange of information and intensified cooperation in an area of growing relevance for species conservation and aquaculture applications. From all presentations, 28 contributions passed the international peer review process and are presented in this special issue of the Journal of Applied Ichthyology

Workshop sessions were organized along three major topics:

- a) **Gamete preservation** including short- and long-term preservation as well as cryogenic storage of fish sperm, eggs, oocytes and primordial germ cells (PGCs);
- b) **Gametogenesis**, including development of PGCs, spermatogenesis and oogenesis in various species;
- c) **Gamete quality** which included a broad range of subjects from sperm morphology or motility to proteomics, regulation of fertilization processes and toxicology. This wide array of topics also signifies the importance and diversity of studies carried out on aquatic gametes as well as the continued interest of scientists in the biology, function and regulation of these reproductive cells.

Following the sessions, a day of practical work was held in Gödöllő, the location of Szent István University. Activities of this day included presentations by the sponsors of the workshop (such as that of a novel CASA system), visits to the laboratories of the Department of Aquaculture (with practical demonstration in the laboratories, such as the zebrafish facility, the cryopreservation, microscopy and ongoing work in the histology laboratories as well as the molecular biology lab of the Center of Excellence). A roundtable discussion on pressing issues related to basic and applied research on aquatic gametes and reproductive biology concluded the workshop.

As previously addressed in the recommendations of the 2nd Workshop in Valencia, the need for standardization of test procedures in aquatic gamete research was also highlighted as urgent during this 3rd meeting, including intercalibration exercises to determine potential sources of error as well as harmonization of procedures to obtain comparable results between laboratories. This was seen as of particular importance for the application of results to aquaculture practices. Included in

such standardization should be the format of reporting of scientific results as well as the proper use of well-defined specific terminology. This should be accompanied by the development of detailed guidelines for both, methodological studies and internal review (assessment) of results.

An initiative originally presented by Dr. Giovanni Sansone at the 1st workshop in Vodňany was developed into a planned COST Action which was submitted to the European Union for funding. The planned objectives for the COST Action were as follows:

- To review the current state of knowledge related to different aspects of research on aquatic species gametes.

- To coordinate activities related to the main research goals in this area by meetings of expert scientists. These meetings should also be dedicated to perform intercalibration exercises and develop standardized protocols for techniques employed and methods used for the final analysis. It is also the objective to identify gaps in research and technology, to avoid overlapping of research funded by EU and/or national sources, and to explore ways of transfer of knowledge of practical importance to the aquaculture industry.

- To reach a consensus on protocols and guidelines (using internationally defined terminology, units of measurement and format of reporting). To reach this goal, extensive consensus building is needed that permit the use of results in relational studies.

- To train students and young scientists (by short-term scientific missions and training courses), organizing courses for specific techniques and activities.

- Maximize the dissemination of results at different levels and using different channels. Our intention is arriving from the street level to the elaboration of recommendations for national or international agency calls (EU, bilateral cooperations).

- To continue the series of biennial International Workshops on Biology of Fish Gametes as a forum for the exchange of information among researchers directly involved in the proposal, as well as other groups interested in this scientific area. A respective website has already been initiated for the next Workshop (see. <https://sites.google.com/site/fishgametes2013/home>).

As a consequence of the decision taken at the workshop and the subsequent submission of the proposal, we are glad to announce that the submitted application for a COST action was finally funded under the number FA-10509 (*“Assessing and improving the quality of aquatic animal gametes to enhance aquatic resources. The need to harmonize and standardize evolving methodologies, and improve transfer from academia to industry”*; AQUAGAMETE). This network of scientists from more than 20 countries involved in aquatic gamete research will ensure the continuation of this series of workshops and foster further development and innovation in the area of science we all share.

Ákos Horváth, Juan F. Asturiano and Harald Rosenthal
Special Issue Editors