DESCRIPTION

The aim of Aquaculture is to publish and make available the highest quality international scientific contributions concerning to aquaculture. The Journal publishes disciplinary, interdisciplinary and transdisciplinary aquaculture research related to the science of aquaculture. The scope of Aquaculture includes the traditional priorities of its sections, but also includes papers from non-traditional scientific areas such as sustainability science, social-ecological systems, as well as aquaculture of various species for ornamental, conservation and restoration purposes.

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Original research papers and reviews with a regional context and focus, can be submitted to Aquaculture’s open access companion title, Aquaculture Reports.

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Aquaculturists, Fisheries Scientists, Marine Biologists.

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GUIDE FOR AUTHORS

INTRODUCTION

Types of paper

Research Papers should report the results of original research. The material should not have been previously published elsewhere. Articles are expected to contribute new information (e.g. novel methods of analysis with added new insights and impacts) to the knowledge base in the field, not just to confirm previously published work.

Review Articles can cover either narrow disciplinary subjects or broad issues requiring interdisciplinary discussion. They should provide objective critical evaluation of a defined subject. Reviews should not consist solely of a summary of published data. Evaluation of the quality of existing data, the status of knowledge, and the research required to advance knowledge of the subject are essential.

Short Communications are used to communicate results which represent a major breakthrough or startling new discovery and which should therefore be published quickly. They should not be used for preliminary results. Papers must contain sufficient data to establish that the research has achieved reliable and significant results.

Technical Papers should present new methods and procedures for either research methodology or culture-related techniques.

The Letters to the Editor section is intended to provide a forum for discussion of aquacultural science emanating from material published in the journal.

Contact details for submission

Papers for consideration should be submitted via the electronic submission system mentioned below to the appropriate Section Editor:

Nutrition:
Vertebrate Nutrition: D.M. Gatlin
Invertebrate Nutrition: M.T. Viana
Larval Nutrition: Q. Ai

The Nutrition Section welcomes high quality research papers presenting novel data as well as original reviews on various aspects of aquatic animal nutrition relevant to aquaculture. Manuscripts addressing the following areas of investigation are encouraged:

1) determination of dietary and metabolic requirements for various nutrients by representative aquatic species. Studies may include environmental/stress effects on animal's physiological responses and requirements at different developmental stages;
2) evaluation of novel or established feedstuffs as well as feed processing and manufacturing procedures with digestibility and growth trials. Such studies should provide comprehensive specifications of the process or evaluated ingredients including nutrients, potential anti-nutrients, and contaminants;
3) comparison of nutrient bioavailability from various ingredients or product forms as well as metabolic kinetics of nutrients, food borne anti-nutrients or toxins;
4) identification of key components in natural diets that influence attractability, palatability, metabolism, growth reproduction and/or immunity of cultured organisms;
5) optimization of diet formulations and feeding practices;
6) characterization of the actions of hormones, cytokines and/or components in intracellular signaling pathway(s) that influence nutrient and/or energy utilization.
7) evaluation of diet supplementation strategies to influence animal performance, metabolism, health and/or flesh quality.
8) evaluation of nutritional strategies oriented to environment-friendly aquaculture and high-quality products.

Manuscripts concerning other areas of nutrition using novel or advanced methods are also welcome. Please note that in regard to various diet additives such as probiotics, prebiotics, herbal extracts, etc., a very large number of papers have already been published. Therefore, Aquaculture will not continue to accept manuscripts that present initial and preliminary investigations of such additives. Manuscripts addressing these and other feed additives will be accepted for review only if they are
of the highest scientific quality and they represent a significant advance in our knowledge of the mechanisms involved in their metabolism. Manuscripts may also be considered if they present clinical efficacy data generated in large-scale trials and economic cost-benefit analysis of these applications.

**Aquaculture Production Science:**
Jian Qin

The Aquaculture Production Science (PS) is dedicated to research on improvements and innovations in aquatic food production.

This section supports worldwide dissemination of the results of innovative, globally important, scientific research on production methods for aquatic foods from fish, crustaceans, mollusks, amphibians, and all types of aquatic plants. Contributions are encouraged in the following areas:
1) Improvement of production systems that results in greater efficiencies of resource usage and sustainability of aquaculture;
2) Effective applications of technologies and methods of aquaculture production for improved stocking regimes;
3) The use of new species and species assemblages; and,
4) Investigations to minimize aquaculture wastes and improve water quality, including technologies for nutrient recycling in aquaculture ecosystems, and potential synergy of aquaculture and other food production systems using methods such as polyculture and integrated aquaculture. Aspects of seafood processing and technology will not be considered in this section although aquaculture techniques that may influence the nutritional value of aquaculture products will be considered.

**Physiology:**
Vertebrate Physiology: A. Takemura
Invertebrate Physiology: M. Wilder

The Physiology Section welcomes high quality papers that present either novel research data or original reviews. The content must be relevant to solving aquaculture problems on all aspects of the physiology of cultured aquatic animals and plants.

Submitted manuscripts must have a valid hypothesis or objective, clearly state the relevance to aquaculture, have proper experimental design with appropriate controls and utilize appropriate statistical analysis. Mention of trade names is limited to the main text.

Relevant physiological topics include, but are not limited to:
1) Reproductive and endocrine physiology, including control of development and sex differentiation, induced ovulation and spermiation, gamete quality, storage and cryopreservation, physiology of gynogenetic, and triploid and transgenic organisms
2) Cardiorespiratory, muscle and exercise physiology
3) Osmoregulatory physiology
4) Digestive physiology, including endocrine and environmental regulation of growth
5) Larval physiology and ontogeny, including metamorphosis, smolting and molting
6) Performance under variable culture conditions, including temperature, water quality, rearing density, and stress and disease physiology
7) Physiology of harvest and handling techniques

**Genetics:**
J.A.H. Benzie

The Genetics Section welcomes high-quality research papers presenting novel data, as well as critical reviews, on various aspects of selective breeding, genetics and genomics. Submitted manuscripts must have a valid hypothesis or objective, clearly state the relevance to aquaculture, have proper experimental design with appropriate sample size and controls and utilize appropriate statistical analysis.

Relevant genetics topics include, Relevant physiological topics include, but are are not limited to:
1) Breeding programs using classic selection procedures, markers or combining marker assisted selection with classic selection
2) Applications of crossbreeding and interspecific hybridization
3) Evaluation of commercially important phenotypes among cultured strains, populations or stocks
4) Applications of biotechnology and genetic manipulation methods
5) Development of linkage maps, identification of QTL or association of commercially important traits with specific gene(s). Where appropriate, linkage maps should include co-dominant markers, such as microsatellite DNA and SNP markers, to enable application to other populations and facilitate comparative mapping.

Aquaculture will NOT accept manuscripts dealing with the application of well-described techniques to yet another species, unless the application solves a specific biological problem important to aquaculture production; or manuscripts dealing with gene cloning, characterizing of microsatellites, species identification using molecular markers, EST papers with small collections, or mapping papers with a small number of markers, unless the papers also deal with solving a biological problem that is relevant to aquaculture production. Aquaculture will not accept manuscripts focusing mainly on population genetics studies that are based on RAPD and AFLP markers, since the dominance and multilocus nature of the fingerprints are not suitable for making inferences about population genetic diversity and structure.

**Economic and societal aspects of aquaculture:**
M. Dey

The Economic and societal aspects of aquaculture section of the journal Aquaculture invites articles at the interface of natural and social sciences that address the broader roles of aquaculture in global food security and trade.

Achieve production in a cost-effective manner to optimize the relationship among productivity, sustainability, and economic profitability; consider aquaculture development with food security, employment and human wellbeing; incorporate aquaculture development with government policy, market environments, and business management

Aims and scope of the Economic and societal aspects of aquaculture section are the: global dissemination of interdisciplinary knowledge regarding the management of aquatic resources and resulting impacts on people. Interconnections with other sectors of food production; resource management and implications for societal impact. Going beyond a narrow techno-centric focus, towards more holistic analyses of aquaculture within well-defined contexts. Enquiry based on understanding trajectories of change amid the global challenges of climate change and food security. Mixed methods and approaches that incorporate and integrate both social and natural sciences. Relevance for the diverse range of policy makers, practitioners and other stakeholders involved. Articles that take a value chain approach, rather than being wholly production orientated, are encouraged.

**Immunology:**
J. Galindo-Villegas

The Immunology section aims to attract high-quality manuscripts dealing with the understanding and characterization of the innate and adaptive immune mechanisms and defense systems, from molecules and cells to tissues impacting the variated aquatic organisms generated through controlled culture means. Functional studies are preferred over those merely descriptive and without a clear scope among aquacultured organisms. Developments and new notions in the understanding of host-microbe interactions, immunostimulation, vaccination, trained immunity, immune-tolerance, etc. determined via using state-of-the-art techniques like (meta)genomics, transcriptomics, metabolomics or proteomics on specific target species, or explicitly demonstrated in lower taxa model-organisms with a clear further application in aquaculture are highly encouraged.

**Disease:**
Microbial interaction: P. Bossier
Parasites and Parasite Control: M. Longshaw
Viral interactions: F. Kibenge

The Disease sections welcomes critical reviews and high quality articles containing novel data on all aspects concerning diseases of farmed aquatic species. The aims of the section are: description of new and emerging diseases including characterization of the causal agent(s), development in the
understanding of fish pathogens for example including new methods of growth where this has been a problem for fastidious organisms, pathogenicity and epizootiology, developments in the diagnosis of disease going beyond the use of standard well used methods, and methods of disease control, notably new developments in vaccines, immunostimulants, dietary supplements, medicinal plant products, probiotics, prebiotics and genetically-disease resistant stock. Relevance to aquaculture must be demonstrated. Articles, which adapt well known methods without further refinement of those methods, are unlikely to be accepted.

**Omics:**
Manuscripts concerning "omics" will be carefully screened irrespective of phylogenetic level. Manuscripts based entirely on in silico and/or in vitro data without functional screening will be rejected unless their predictive value is explicitly identified and justified. For qPCR, the correct use of nomenclature is required as is the mandatory inclusion of more than one (at least) reference gene for nor

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Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

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Reporting sex- and gender-based analyses

Reporting guidance
For research involving or pertaining to humans, animals or eukaryotic cells, investigators should integrate sex and gender-based analyses (SGBA) into their research design according to funder/sponsor requirements and best practices within a field. Authors should address the sex and/or gender dimensions of their research in their article. In cases where they cannot, they should discuss this as a limitation to their research's generalizability. Importantly, authors should explicitly state what definitions of sex and/or gender they are applying to enhance the precision, rigor and reproducibility of their research and to avoid ambiguity or conflation of terms and the constructs to which they refer (see Definitions section below). Authors can refer to the Sex and Gender Equity in Research (SAGER) guidelines and the SAGER guidelines checklist. These offer systematic approaches to the use and editorial review of sex and gender information in study design, data analysis, outcome reporting and research interpretation - however, please note there is no single, universally agreed-upon set of guidelines for defining sex and gender.

Definitions
Sex generally refers to a set of biological attributes that are associated with physical and physiological features (e.g., chromosomal genotype, hormonal levels, internal and external anatomy). A binary sex categorization (male/female) is usually designated at birth ("sex assigned at birth"), most often based solely on the visible external anatomy of a newborn. Gender generally refers to socially constructed roles, behaviors, and identities of women, men and gender-diverse people that occur in a historical and cultural context and may vary across societies and over time. Gender influences how people view themselves and each other, how they behave and interact and how power is distributed in society. Sex and gender are often incorrectly portrayed as binary (female/male or woman/man) and unchanging whereas these constructs actually exist along a spectrum and include additional sex categorizations and gender identities such as people who are intersex/have differences of sex development (DSD) or identify as non-binary. Moreover, the terms "sex" and "gender" can be ambiguous—thus it is important for authors to define the manner in which they are used. In addition to this definition guidance and the SAGER guidelines, the resources on this page offer further insight around sex and gender in research studies.

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For transparency, we require corresponding authors to provide co-author contributions to the manuscript using the relevant CRediT roles. The CRediT taxonomy includes 14 different roles describing each contributor’s specific contribution to the scholarly output. The roles are: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; and Writing - review & editing. Note that not all roles may apply to every manuscript, and authors may have contributed through multiple roles. More details and an example.

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