



UNIVERSITY OF LAS PALMAS DE GRAN CANARIA  
GIA

PhD candidates and Post-Doc positions

The Research Group in Aquaculture ([www.giaqua.org](http://www.giaqua.org)) from Las Palmas de Gran Canaria University ([www.ulpgc.es](http://www.ulpgc.es)) offers 3 PhD candidates and 2 Post-Doc positions for 2014-2019. For further information, please contact Marisol Izquierdo [mizquierdo@dbio.ulpgc.es](mailto:mizquierdo@dbio.ulpgc.es)

*Code: PhD candidate 1*

*Subject:* Micronutrients requirements of marine fish fed very low levels of fish meal and fish oil: implications for bone metabolism.

*Description:* The study will be part of the on-going research project ARRAINA, funded by the European Commission.

Sustainable development of aquaculture requires the use of high quality ingredients of terrestrial or marine origin that are able to completely replace fishmeal and fish oil fulfilling nutritional requirements. However, this replacement may lead to several alterations such as increased incidence of mesenteric fat, decreased antioxidant status or changes in skeletal growth and bone morphology, even when diets are formulated to satisfy the theoretical nutrient requirements for essential fatty acids or amino acids, suggesting nutritional imbalances with regard to other micronutrients. The objective will be to identify and test minerals, vitamins and other FM and FO specific molecules, that need to be added to feeds with high levels of plant products to avoid reduced performance and alterations in bone morphology in farmed fish. The effect of these feeds on nutrient metabolism, skeleton macro- and micro-morphology, and biological and molecular markers will be studied.

*Qualifications:* The researcher should have experience in studies on bone deformities, histopathology or fish nutrition.

*Duration:* up to three years

*Annual salary:* 23059,66 €

*Starting date:* June 1st 2014

*Code: PhD candidate 2*

*Subject:* Nutritional programming of marine fish for a better utilization of vegetable oils  
*Description:* The study will be part of the on-going research project ARRAINA, funded by the European Commission.

Complete removal of fish oil in fish diets is required to promote the sustainable development of aquaculture and for that, fast growing high quality fish that are better adapted to utilize diets without fish oil are necessary. Two different strategies will be investigated to achieve this goal: nutritional programming and inheritance. Fish oil is rich in omega 3 highly-unsaturated fatty acids (n-3HUFA), essential for marine species, due to their low bio-conversion ability. Plant oils lack n-3HUFA but contain their precursors. The genes of enzymes bio-converting these precursors may be nutritionally regulated. Nutritional conditioning would allow fish genome adaptation for a better utilization of diets without fish oil. The objective of the study will be to define the dietary factors that influence the epigenetic profile, the most sensitive time-windows and the

length of nutritional intervention required to produce juveniles that utilize better vegetable oils.

*Qualifications:* The PhD candidate should have experience in molecular studies or fish nutrition.

*Duration:* up to three years

*Annual cost:* 23059,66

*Starting date:* June-September 1st 2014

### Code PhD candidate 3

*Subject:* Effect of selected antioxidant nutrients to prevent Systemic Granulomatosis in meagre

*Description:* The study will be part of the on-going research project DIVERSIFY, funded by the European Commission.

Feeding meagre during weaning and grow out with diets developed for other marine fishes negatively affect the fish appearance and fillet quality and may be the cause of Systemic Granulomatosis. The disease is characterized by multiple systemic visceral granulomas. The disease may lead to reduced growth and physiological performance during grow-out and, in addition, it affects the final product, making it unacceptable to the consumer. The aim of this study will be to test the combined effect of selected vitamins (such as vit E, vit C and carotenoids) and minerals (such as Se, Mn or Fe) on fish performance, biomarkers of fish metabolism, health analysis and pathological assessment.

*Qualifications:* The PhD candidate should have experience in pathology or fish nutrition.

*Duration:* up to three years

*Annual cost:* 23059,66 €

*Starting date:* June 1st 2014

### Code: Post Doctoral position 1

*Subject:* Fish health and welfare in fish fed vegetable ingredients

*Description:* Part of the study will be included in the on-going research project ARRAINA, funded by the European Commission.

The use of high levels of plant-based proteins and lipid sources has a wide range of metabolic effects that may affect fish health, particularly after long feeding periods. If bacterial and viral defence mechanisms are suppressed by nutritional unbalances, on a long term disease resistance may be reduced. The health consequences of long term feeding with diets containing very high levels of plant ingredients will be determined by molecular, immune-histochemical and clinical markers. Thus, the immune-competence of fish fed control and experimental diets will be analysed using different markers and assays, including pathogen and stress challenges following an allostatic approach. The studies will include: gut morphometric studies and gut microflora; welfare status and stress resistance; disease resistance; histopathology and innate immunity. The objective of the study will be to assess the health and welfare effects of long term feeding with alternative feeds replacing FM and FO in sea bass and improve the knowledge on the mechanisms involved in the dietary nutrients role on modulation of pathogenesis and infection in fish.

*Type of position:* Post Doctoral position

*Qualifications:* Applicants should hold a PhD in fish immunology or fish pathology, and have a proven ability using molecular techniques. The position allows few teaching hours at bachelor, MSc and PhD levels, including supervision of MSc and PhD projects. Emphasis will be placed on research, teaching and communication skills. Evaluation of the applicant will be based on documented material, including pedagogical training, presentation of academic work, experience from supervision and teaching of master-level candidates and PhD candidates, as well as other related skills. Applicants short-listed for the position may be invited for interview.

*Duration:* 3-5 years

*Annual cost:* 39000 €

*Starting date:* To be agreed with the candidate

*Code: Post Doctoral position 2*

*Subject:* Juvenile production in fast growing species

*Description:* Part of the study will be included in the on-going research project DIVERSIFY, funded by the European Commission.

The high demand of fish consumption in the European market have promoted the increase in seafood imports during the last years. This demand could be partially matched by the increase in European Aquaculture production. Fast growing large size fish species that may also provide excellent opportunities for processing and development of value added products are considered excellent candidates for the expansion of the aquaculture industry in Europe. But one of the main bottlenecks for the production of these species is the lack of reliable numbers of high quality juveniles available for grow out to market weight. The main objective of this study will be to improve the hatchery protocols for enhanced production of high quality juveniles from fast growing species.

*Type of position:* Post Doctoral position

*Qualifications:* Applicants should hold a PhD in fish larval rearing and have a proven ability producing marine fish larvae. The position allows few teaching hours at bachelor, MSc and PhD levels, including supervision of MSc and PhD projects. Emphasis will be placed on research, teaching and communication skills. Evaluation of the applicant will be based on documented material, including pedagogical training, presentation of academic work, experience from supervision and teaching of master-level candidates and PhD candidates, as well as other related skills. Applicants short-listed for the position may be invited for interview.

*Duration:* 3-5 years

*Annual cost:* 39000 €

*Starting date:* To be agreed with the candidate

## Applications

Applications should be written in English and must be sent by e-mail to Natalia Carque ([ncarque@proyinves.ulpgc.es](mailto:ncarque@proyinves.ulpgc.es)) indicating in the subject the code of the position to apply.

Applications should contain:

1. CV including previous positions, academic marks, experience in research institutions, list of publications and participation in projects, specially in relation to finfish with bibliographical references
2. Testimonials and certificates for each item provided in the cv
3. Support letter and contact details for two referees
4. Research proposal (max 5 pages)
5. A brief statement of teaching experience in the post-doc applications.
6. Other documents which the applicant would like to present
7. If relevant, a list of projects with information on funding agency, years of duration and the funds received.