



## POSITION DESCRIPTION

Quantitative Geneticist – Aquaculture  
Joint Position: Flinders University and South Australian Research and  
Development Institute (SARDI)

<b>Vacancy Reference No:</b>	08109
<b>Major Cost Centre:</b>	Faculty of Science and Engineering
<b>Organisational Unit:</b>	School of Biological Sciences
<b>Classification:</b>	Research Level B or C
<b>Salary Range:</b>	Level B – \$66 369 - \$78 811 pa full time Level C – \$81 299 - \$93 743 pa full-time
<b>Superannuation:</b>	Employer contribution of 17% of salary Employee contribution of 7% of salary
<b>Total Remuneration Package:</b>	Level B - \$77 652 - \$92 209 pa full time Level C - \$95 120 - \$109 679 pa full time
<b>Employment Type:</b>	Fixed term (3 years), full time with a possible extension depending on funding.
<b>Supervisor (Title):</b>	Dr Graham Mair (Flinders University) and Dr Xiaoxu Li (SARDI)
<b>Closing date:</b>	5.00pm, Monday 19 May 2008

### KEY PURPOSE

The position is jointly funded (50:50) by Flinders University and SARDI as part of the Marine Innovation South Australia (MISA) initiative, through the Australian Seafood Cooperative Research Centre (SCRC). The incumbent will act as the key researcher representing Flinders University and SARDI in the SCRC's research related to the genetic management and improvement in Australian aquaculture under its "Breeding for Profit" theme business plan. Under this position the successful applicant will be actively engaged in research projects in which the host institutions and supervisors are participants focused on selective breeding in finfish (Yellowtail Kingfish – *Seriola lalandi*, Barramundi – *Lates calcarifer*) and shellfish (Abalone – *Haliotis* sp.) and genetic management in Sea Cucumbers. The incumbent will be appointed to and line managed through Flinders University, and based primarily at the School of Biological Sciences on the Flinders University campus in Southern Adelaide, South Australia.

### ORGANISATIONAL ENVIRONMENT

#### Flinders University School of Biological Sciences

The School of Biological Sciences of Flinders University is one of three Academic Organisational Units in the Faculty of Science and Engineering. The School has research and teaching foci in Microbiology, Molecular Biology, Biotechnology, Bioremediation, Plant Biology, Marine Biology, Aquaculture, Biodiversity and Ecology. The incumbent will join an interdisciplinary School of approximately 35 academic staff. The teaching and research activities of the School are supported by a range of technical and administrative infrastructure services.

At Flinders University, Marine Biology/Aquaculture Research is structured as a research cluster within the School of Biological Sciences and has a strong focus on enhancing understanding and promoting management and sustainable use of the aquatic environment with a primary emphasis on the South Australian coastal environment and South Australian aquaculture development. Aquaculture is an important element within the cluster. Research in aquaculture focuses on applied genetics, aquatic animal health, larval rearing and nutrition and production of live foods. There is currently three academic staff specialising in aquaculture with approximately 9 PhD students and six honours students. In addition the School runs a Bachelor of Technology degree program in aquaculture with a current enrolment of 59 undergraduate students.

### **SARDI Aquatic Sciences**

SARDI is a leading research and development institute delivering innovation to enhance the food, fibre and bioscience industries and living environmental systems, working in collaboration with state, national and international collaborators, partners and investors. SARDI currently employs approximately 440 staff in four research divisions (Aquatic Sciences, Innovative Food and Plants, Livestock and Farming Systems, and Sustainable Systems) and a Business Services unit, located at 16 key locations around metropolitan Adelaide, inner country and rural locations.

SARDI Aquatic Sciences is a research provider to the fishing, aquaculture and environment industries. The application of the research outcomes helps to ensure that the research base remains healthy and the information provides a basis for sound management decisions. Staff are located at the South Australian Aquatic Sciences Centre - West Beach, Pt Lincoln and Mt Gambier. The current science program areas are Aquaculture, Wild Fisheries, Inland Waters and Terrestrial Ecology, and Marine Environment and Ecology.

The Aquaculture Program at SARDI provides scientific and technical advice across government, industry and the community in respect of key issues associated with the sustainable development and management of aquaculture in brackish, freshwater and marine environments. It comprises four Subprograms: Aquatic Animal Health & Welfare; Nutrition and Feed Technology; Propagation and Systems; and Genetics, Reproduction and Biotechnology.

SARDI's Genetics, Reproduction and Biotechnology Subprogram has mainly focused on research in aquaculture genetics, shellfish immunology and reproduction biology. This program has established strong linkages with local and international research organisations.

### **Marine Innovation South Australia (MISA)**

Both Flinders University and SARDI are members of MISA, which is an initiative of the South Australian Government to improve the network of research organisations involved in aquatic sciences research in South Australia (also including Adelaide University and the SA Museum) and to fill capability and infrastructure gaps so as to enhance competitiveness at a national level, including capturing research funding to deliver on industry priority research needs.

### **The Australian Seafood Cooperative Research Centre (SCRC)**

The SCRC is a federal initiative to deliver applied research and development outcomes to participating Australian fisheries and aquaculture industries. Both Flinders University and SARDI were instrumental in the development of the SCRC and are major research providers within it. SCRC research providers provide services, through approved projects, to collaborating aquaculture and fisheries organisations and companies.

The SCRC is coordinating its key research activities through the development of Theme Business Plans and is currently developing such a plan entitled “Breeding for Profit”. Under this Business Plan it is expected to invest up to AU\$ 1 million per annum in aquaculture genetics related research requested by CRC industry partners producing Oysters, Prawns, Abalone, Yellowtail Kingfish, Barramundi and Sea Cucumbers. The plan is focused on outcomes related to increasing the proportion of Australian Aquaculture production that is both domesticated and genetically improved, implementing genetic improvement programs achieving significant genetic gains, and enhancing national cooperation in the implementation and commercialisation of genetic improvement in Australian Aquaculture.

The Quantitative Genetics Research Scientist will work with existing staff at Flinders and SARDI to develop, establish and manage a portfolio of research projects within Flinders and SARDI through the SCRC that will involve collaboration with scientists from other state, national or international research institutions and industry partners. As part of these projects, the applicant will be expected to participate in the appointment and supervision of project staff and undergraduate and postgraduate students where necessary to achieve the project objectives. In developing and undertaking these projects, the incumbent will prepare grant funding applications; undertake specialised scientific and technical research around selective breeding and the application of quantitative genetic theory to the management of genetic diversity in cultured species; collate and analyse data; and document, discuss and disseminate results; as well as manage and report on project milestones and budgets, and liaise with collaborating research institutions.

#### **KEY SKILLS and RESPONSIBILITIES**

The Quantitative Genetics Research Scientist’s broader objectives will be to enhance linkages between Flinders University and SARDI and, through their co-supervisors, help manage their institution’s inputs into the SCRC’s research programs in aquaculture genetics.

The key R&D skills required of the incumbent will include the ability to prepare research and development proposals in consultation with aquaculture industry sectors and/or companies within these sectors; investigate quantitative genetic and associated issues and their impact on aquaculture production; and to communicate the results of research to relevant industry groups. The applicant will require high level science skills (with a focus on quantitative genetics), such as innovation, breeding program and experimental design, data analysis, the interpretation and reporting of results, and effective communication, as well as strong technical know-how and knowledge of commercial breeding programs in aquaculture or other agricultural sectors.

In addition and as part of Flinders University’s contribution, the incumbent may be required to assess and help develop collaborative educational and training opportunities based around the teaching program at Flinders University (including the supervision of honours and postgraduate students) and the education and training programs of the SCRC, and to contribute to relevant discussion groups, meetings and teaching.

The key responsibilities and selection criteria identified for this position should be read in conjunction with the Flinders University Academic Profile for the relevant academic classification, available at <http://www.flinders.edu.au/ppmanual/staff/acprofiles.html>.

#### **WORKING RELATIONSHIPS**

The incumbent is responsible to the Executive Dean, Faculty of Science and Engineering through the Head of School and the immediate supervisor in the School of Biological Sciences. At SARDI the incumbent is responsible to the Chief Scientist through the Aquaculture Program leader within the Aquaculture program and the Genetics, Reproduction and Biotechnology Sub-program leader.

## **UNIVERSITY and SARDI EXPECTATIONS**

All staff are expected to:

- contribute to the efficient and effective functioning of the team or work unit in order to meet organisational objectives. This includes demonstrating appropriate and professional workplace behaviours, providing assistance to team members if required and undertaking other key responsibilities or activities as directed by one's supervisor;
- perform their responsibilities in a manner which reflects and responds to continuous improvement; and
- familiarise themselves and comply with the University's and SARDI's Occupational Health and Safety and Equal Opportunity Policies.

## **ADDITIONAL INFORMATION**

Given the nature of the joint appointment, the incumbent would be expected to negotiate the time spent on campus with the Head of School and the immediate supervisor.

## **SELECTION CRITERIA**

(Note for intending applicants – applicants should address each selection criterion individually and should argue their case by citing evidence to support their claims rather than presenting a list of facts only).

### **Essential criteria**

1. A PhD in a relevant field of genetics
2. Demonstrated thorough knowledge of the principles of quantitative genetics and selective breeding
3. Demonstrated experience in the primary techniques used to research quantitative genetics and selective breeding including a familiarity with the use and application of genetic data management and analysis software tools
4. Demonstrated detailed and up to date knowledge of the application of quantitative genetics in commercial breeding programs and an understanding of the potential for the integration of molecular genetics techniques into such programs
5. Demonstrated publication of research results in scientific and popular forms
6. Evidence of working cooperatively with other staff and with students to achieve goals in research and teaching across sectors
7. Demonstrated effective communication with scientists, policy makers and regulators and with all levels of industry
8. Proven ability to attract significant external funding for research

### **Desirable criteria**

1. Demonstrated knowledge of unique issues in the application of quantitative genetics and selective breeding in aquaculture
2. Demonstrated experience in the application of quantitative genetics and selective breeding to aquaculture
3. Demonstrated capacity to supervise honours and postgraduate students and/or evidence of high quality tertiary teaching
4. Knowledge of molecular techniques applicable to selective breeding

## **SELECTION OF CANDIDATES**

Candidates will be evaluated on merit against all of the various components that make up this position description. Assessment will take into account all information that is determined to be appropriate, eg written application, qualifications, interview, work samples, skills testing and referee reports.

### **INFORMATION FOR PROSPECTIVE STAFF**

All nominees should read the *Essential Information for Applicants*, available at <http://www.flinders.edu.au/employment/app.php> If you are unable to access this information on the web site, please contact the contact person nominated below.

Information about Flinders University, living and working in Adelaide and employment at the University is available at <http://www.flinders.edu.au/employment/whyflin.php>

Information about SARDI is available at <http://www.sardi.sa.gov.au/>

Information about the Australian Seafood CRC is available at <http://www.seafoodcrc.com>

### **CONTACT DETAILS**

For further information about the position contact Associate Professor Graham Mair on +61 8 8201 5968 or by email at [graham.mair@flinders.edu.au](mailto:graham.mair@flinders.edu.au)

### **SUBMITTING AN APPLICATION**

All applicants must complete an *Application for Employment Cover Sheet* available at <http://www.flinders.edu.au/hrd/html/forms/EmployApplication.doc> and lodge this with their application.

Applications, together with the *Application for Employment Cover Sheet*, may be lodged by email to [jobapplications@flinders.edu.au](mailto:jobapplications@flinders.edu.au) or by post to Personnel, Policy and Practice, Flinders University, GPO Box 2100, Adelaide, South Australia 5001.

Further information regarding procedures for mailing, e-mailing, faxing or delivering applications are provided in the *Essential Information for Applicants*. Please do **not** forward applications to the contact person nominated as the contact person.

**Name of Authorising Officer:** Prof Warren Lawrance  
Executive Dean, Faculty of Science & Engineering

**Name of Authorising Officer in Human Resources:**  
Ms Mandy Price

**Date of last update:** April 2008