Australian aquaculture genetic support capability

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Non-Technical Summary

Project 2012/767 Australian aquaculture genetic support capability

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PROJECT OBJECTIVE:
Engage, through a tender process, a suitably qualified consultant to undertake and deliver an independently researched and economically validated Business Case on the viability of an autonomous or semi-autonomous genetic services unit for the Australian aquaculture industry.

OUTCOMES ACHIEVED
The outcome of the project is a CRC Legacy Proposal for the development of required capability and systems to deliver genetic services, and business development for new commercial clients

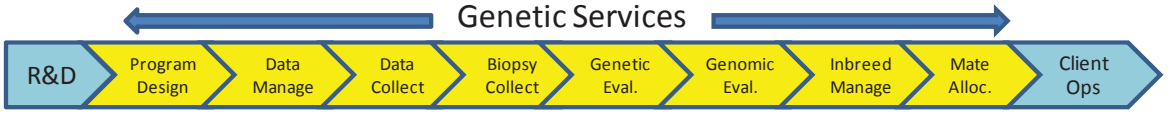
LIST OF OUTPUTS PRODUCED
SCA Marketing Final Report and accompanying confidential financial model, records of interview and client value propositions - 'Selective Breeding for Aquaculture Business Case Analysis' May 2013.

This project was undertaken to provide the proponents (CSIRO and CRC) with an independent assessment of a business case upon which to progress a strategy and develop an implementation plan for the delivery of essential genetic services to commercial aquaculture selective breeding programs.

The services of SCA Marketing were engaged to undertake the business analysis project. This involved the conduct of 14 interviews (eight with current or future industry users of genetic services, two with genetic research providers, one with an international and one with a national genetic services provider, and two with R&D funding providers), reviewing the industry sector and genetic services domain, and development of financial and risk assessment models, and value propositions for five selected clients.

Key for the project analysis was clarity on what the 'services' being considered were and the differentiation of these from research and development. Clarify on this issue is of particular importance given the current situation where commercial genetic services are tightly bundled with, and often funded by, scarce R&D funds at the detriment of essential research. If genetic services can be funded on a user pays basis instead of drawing on industry R&D resources the benefits would include the acceleration of R&D.

The general headings to describe genetic services as opposed to research and client operations are shown in the following graphic (see Appendix 4 for further detail).



The consultants concluded that it is unlikely that a private sector firm independent of CSIRO and the CRC would consider delivering such services to this industry. Key to this is the well established relationships between industry and research providers, the development of the necessary capability critical mass and domain knowledge, and the lack of financial returns available in the short to medium term.

The importance of the client - R&D provider relationships was discussed in the R&D provider interviews. It was agreed that the GSU would not in any way replace these relationships but would build upon them. R&D and service providers acknowledged their limitations with their lack of staff and the use of students to backfill needed capability. Furthermore R&D providers recognised the opportunity for partnerships/collaboration with an independent unit to enable scale up of their industry client's major projects and welcomed the future prospect to explore partnership and collaboration

To achieve an independent unit to deliver genetic services to the national and international aquaculture community, SCA Marketing research proposed three distinct phases:

Phase 1. Transition 2013-2015. Capability and system development within CSIRO, client and partner value propositions developed, new business development; funding to support CSIRO strategy required through CRC legacy project.

Phase 2. Launch 2015-2017. Move to a 'profit centre' model with CSIRO; provision of commercial genetic services, further business and capability development; funding needed to bridge gap between full service and subsidised service.

Phase 3. Scale up 2017-2020. Full independence with demand driven capability expansion and timing of spin-off.

The business case concluded that it was high risk to establish an independent services unit; there were many assumptions, including industry growth. However the concept was not unattractive and was essential for industry sustainability, as there was strong commitment from the existing capability centre in CSIRO, and understanding and support from the industry, and other R&D and service providers.

The future of aquaculture in Australia and the Asia region is very strong and will rely heavily on commercial selective breeding programs that will require a commercial genetic service capability critical mass. The return on investment in the next few years for the development of this capability will be high and place Australia as a lead player in the region and in the Asian Century.

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1. Introduction and Background

1.1 Need

A proven requirement for sustainable and efficient primary production is well managed selective breeding programs of domesticated stock. This was recognised for Australian aquaculture in establishing the Seafood CRC Breeding for Profit Theme outcomes and strategies.

Breeding programs are long-term investments delivering incremental gains based on selection decisions made on a combination of expert advice, phenotype and genotype data analyses and sound breeding objectives. This combination, and the essential data management and analytical systems required, are beyond the scope of any single aquaculture company to provide in-house. Like the animals in the breeding program, the provision of these capabilities needs to have continuity and a long-term delivery plan.

CSIRO has over 15 years co-investment with multiple sectors of the Australian aquaculture industry in R&D to deliver commercial selective breeding programs to meet individual needs. While delivering on the R&D, CSIRO considered the strategies for its clients to obtain the required future commercial genetic services. Local options for delivering this capability are limited, partly due the current lack of programs requiring the services and the size of the programs.

As such CSIRO has developed some capability and a strategic plan for the transfer of the delivery of the required capabilities and systems, to the predicted 8 to 10 Australian and international breeding programs, to an autonomous or semi-autonomous unit by 2015 to 2017. To deliver this strategy requires additional investment in the development of the essential capabilities and systems during the transition phase from 2013 to 2015.

However, critical to the strategy and further investment was the need for an independent assessment of the economic and management viability of the proposed strategy and an autonomous unit, and potential uptake by identified national and international breeding programs of the services to be provided. This critical assessment was required before further investment in establishing the proposed independent genetic services unit and in developing the essential capability and systems.

A CRC Legacy project was proposed with two stages, with a clear Go/No-go point after the first stage. Stage 1, reported here, involved an independent consultant completing a Business Case analysis and assessment of the proposed strategy and services unit. Stage 2 will be developed based on the findings of Business Case presented here. The implementation stage (Stage 2) if approved would involve developing the proposed Unit, training and delivering the essential capability and systems for the Unit, and business development to create demand and partnerships for the long-term viability of Australian aquaculture breeding programs.

1.2 Objectives

Engage, through a tender process, a suitably qualified consultant to undertake and deliver an independently researched and economically validated Business Case on the viability of an autonomous or semi-autonomous genetic services unit for the Australian aquaculture industry.

2. Methods and Results

A project committee was established of G. Mair and N. Robinson representing the CRC, and N. Elliott and P. Kube, representing CSIRO.

A Request for Quote (Appendix 1) for a business assessment of delivery of genetic services for aquaculture breeding programs was sent to six (6) potential providers on 21st December 2012.

Responses were received from five consultants, resulting in two full quotations.

The project committee interviewed both consultant groups on two occasions before agreeing to award the tender to SCA Marketing (Tas) Pty Ltd. A Contract for Services was established between SCA Marketing and CSIRO, and the project commenced 18th February 2013.

The process followed by the consultants included:

- Review of current situation
- Gathering industry knowledge through 14 Confidential interviews, comprising eight (8) aquaculture ventures, two (2) genetic service providers as potential partners/competitors, two (2) R&D funding agencies, and two (2) research providers.
- Development of value propositions for key clients
- Preparation of a financial model and analysis
- Development of a pathway to delivery
- Risk analysis

SCA Marketing delivered a Final Report "Selective Breeding for Aquaculture. Business case Analysis" (Appendices 2 to 4)

3. Benefits and Adoption

This project has the potential to benefit all existing and future aquaculture sectors in Australia and the neighbouring Asian aquaculture community through the independent assessment of the risks and benefits of developing a critical mass of capability to deliver core commercial services to essential long-term breeding programs.

In addition the assessment shows the potential to benefit aquaculture genetic research and education providers through the expansion of core capability needs and opportunities.

The project proponents are embracing the project conclusions and assessments with the development of project plans to fund the initial stage of capability and system development, collaboration opportunities, and new business development.

4. Planned Outcomes

The overall planned outcome is a self-supporting aquaculture applied genetics and selective breeding capability that will provide the required commercial genetic services and systems for multiple commercial selective breeding programs. While

identified as high risk this still remains a viable and achievable outcome if there is additional investment in 2013 to 2015 to create critical mass.

The benefits of this project for improved genetic capabilities and systems will be directly available to existing commercial breeding programs (e.g. Saltas, ASI) by 2015, and benefits to additional Australian and international breeding programs being developed or proposed for development will be realised in later years.

Linkages with CRC Milestone Outcomes

This project links to CRC Milestones 1.3.1 (New genetic tools developed for genetic management and improvement of at least two aquaculture species) and 1.3.5 (Production efficiency gains from genetic, health management and nutritional interventions quantified to inform long-term strategies and estimate commercial benefits) in providing a sound foundation for the development and delivery of essential genetic tools and capability to deliver to long-term breeding strategies that will deliver commercial returns on investment.

5. Conclusion

The engagement of consultants to provide an independent analysis of the strategy and business case was cost-effective and has provided a foundation upon which the key investors CSIRO and CRC can make sound financial long-term decisions.

The consultants concluded:

- private sector investment in the provision of aquaculture genetic services independent of CSIRO and the CRC is unlikely,
- development of capability critical mass and domain knowledge is essential,
- three development phases are required before an independent unit would exist, the first from 2013 to 2015 requires CRC investment to support CSIRO commitment
- development of an independent unit is high risk, but the concept was not unattractive and was essential for industry long-term sustainability

Based on the independent analysis in Stage 1, the proponents propose to submit Stage 2 of the proposal for CRC Legacy investment with the CSIRO to:

- Develop human and system capability for on-going delivery of genetic services for commercial aquaculture selective breeding programs,
- Develop value propositions, and investigate and secure new business opportunities for the delivery of the services and further determine the future demand, and
- Explore partnership and collaboration opportunities for the genetic services unit.