SUBMISSION NO. 12
Inquiry into the Role of Science for Fisheries and Aquaculture

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School of Environment, Science and Engineering

May 3, 2012

To: The Committee Secretariat,
House Standing Committee on Agriculture, Resources, Fisheries and Forestry
House of Representatives

RE: "Inquiry into the Role of Science for Fisheries and Aquaculture"

I make this submission as Aquaculture Operations Manager, employed with Southern Cross University at the National Marine Science Centre, Coffs Harbour NSW. I have a PhD in aquaculture and some 15 years aquaculture experience in private industry, university and state fisheries research centres. In reference to the inquiry into the role of science for fisheries and aquaculture, I make the following points:

- The scientific knowledge of most aquaculture species lags well behind that of domesticated land animals. High quality science is critical to the further development of the aquaculture industry, for its long-term sustainability, and to reach its potential role in food security. The detailed scientific knowledge of a species' biology is fundamental to its aquaculture success, as it is for predicting the impacts of climate change or increasing fishing pressure on natural populations.
- In reference to funding for aquaculture research, in recent times this has followed the large established industries (tuna, salmon, edible and pearl oysters, prawns etc), leaving the development of new species or fledgling industries with high prospects hopelessly under-funded. The paucity of funding has led to a culture of intense competition between research centres rather than collaboration and cooperation. Many research centres are under-funded and consequently under-utilised.
- Aquaculture development presents several issues in terms of sustainability, which can be addressed through appropriate scientific R&D. Issues such as the potential for pollution, the sustainable sourcing of feed ingredients, and the management of pests and diseases to prevent impacts on wild stocks are examples.
- Aquaculture development is reliant on a high scientific R&D input. A typical research program aimed at developing a new species for aquaculture must cover topics such as:

    - Natural breeding biology, domestication, methods of manipulating and controlling the breeding cycle and exploring factors which affect broodstock egg quality.

- A thorough understanding of the physical and nutritional needs of larval stages which often form the bottleneck to reliable mass production.
- Similarly the physical and nutritional needs of the juvenile and post-juvenile stages to market size must be researched so that the economics of production can be assessed and optimised.
- An assessment of potential pest and disease agents and control measures for them, as these are capable of severely impacting the aquaculture industry where the spread of disease in water is many times faster than on land.
- After the establishment of an industry, production refinements such as strain assessments, genetic improvements, vaccines and methods to improve product quality can be focussed on.

- Excessive governance was recently identified as a major threat to development of, and investment into, the aquaculture industry. Governance arrangements need to reflect the risks posed, and be carefully considered.

Thankyou for the opportunity to provide input into this inquiry.

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