SUBMISSION NO. 32
Inquiry into the Role of Science for Fisheries and Aquaculture

NSW GOVERNMENT | Department of Primary Industries

Office of the Director General

RECEIVED
17 MAY 2012
by: .....

DGPO12/179

Chair
Standing Committee on Agriculture, Resources, Fisheries and Forestry
arff.reps@aph.gov.au

Re: NSW Government Submission to inquiry into the Role of Science for Fisheries and Aquaculture

Dear Sir/Madam

The NSW Government welcomes the House of Representatives Agriculture, Resources, Fisheries and Forestry Committee inquiry into the Role of Science for Fisheries and Aquaculture and provides the attached submission for the consideration by the Committee.

NSW has a long and well-regarded history of fisheries management and aquaculture that is founded on, and underpinned by, the best available science. This science is provided by world-class research by our scientists, collaborating scientific institutions and international developments.

NSW would also like to draw the Committee's attention to two major, independent reviews recently commissioned that have relevance to the terms of reference of this inquiry. These are:

- The *Report of the Independent Scientific Audit of Marine Parks in New South Wales* conducted by Associate Professor Bob Beeton, University of Queensland; and
- The *Review of Commercial Fisheries Management of NSW*, conducted by Richard Stevens OAM, Peter Neville and Ian Cartwright.

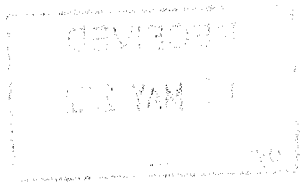
Both reports have been provided to the NSW Government and their recommendations are now under consideration.

I have asked that Dr Geoff Allan, Executive Director Fisheries NSW, ph: email: be available to provide additional information if required.

Yours sincerely

RICHARD SHELDRAKE
DIRECTOR GENERAL

PO Box K220, Haymarket NSW 1240, Australia
Level 6, 201 Elizabeth Street, Sydney NSW 2000
Tel: 02 8289 3903 Fax: 02 9283 7201 www.dpi.nsw.gov.au ABN: 72 189 919 072



Standing Committee on Agriculture, Resources, Fisheries and Forestry

Inquiry into Fisheries and Aquaculture Science

Submission by
DPI NSW

May 2012

EXECUTIVE SUMMARY

The Commonwealth House of Representative's Agriculture, Resources, Fisheries and Forestry Committee announced an inquiry into the Role of Science for Fisheries and Aquaculture on Thursday 29 March, 2012.

The Inquiry will focus on scientific aspects of fisheries and aquaculture including species knowledge, fisheries management, biosecurity, and research and development. The NSW Government welcomes this Inquiry and the opportunity to provide this submission for the consideration of the Committee.

NSW considers the current arrangements regarding fisheries and aquaculture science throughout Australia as being mostly adequate. However, there are some areas which could be improved. These include:

- facilitation of communication between jurisdictions regarding current research activities through the establishment of a national registry of projects;
- further investigation of the barriers relating to the external accreditation for small fisheries as well as the benefits of such accreditation;
- provision of greater Commonwealth support for ongoing resource assessment activities;
- development of a broader knowledge base regarding the impacts of various fishery management strategies; and
- greater assessment of the socioeconomic and ecological impacts of recreational fishing.

The attached submission investigates these issues further with particular reference to the wild fisheries sector. Systems for aquaculture science are generally considered to be well coordinated and effective.

A brief summary of research activities currently undertaken in NSW is attached at Appendix A.

SPECIFIC ISSUES

Inter-jurisdictional communication

As fisheries management, research and compliance is the responsibility of a number of different State, Territory and Commonwealth agencies, efforts are required to ensure that sufficient coordination and collaboration takes place among jurisdictions and inter-jurisdictional bodies. Currently, there are a number of structures and processes in place which are designed to ensure this collaboration occurs and which seek to minimise any duplication of effort between jurisdictions. To date, these cooperative processes have been largely successful in keeping jurisdictions and institutions abreast of new research and developments.

To build upon this success and formalise these processes, NSW recommends the development of a national centralised database or notification register for fisheries and aquaculture-related projects. This would enhance opportunities for further partnership and coordination of effort among jurisdictions.

External accreditation

External accreditation is a process by which fishery operators seek to demonstrate, against internationally agreed criteria, that fish they harvest are from well managed and sustainable sources. Fisheries can apply for certification from accreditation bodies such as the Marine Stewardship Council and the Australian Conservation Foundation.

The increased emphasis on external accreditation of fisheries management has helped focus public and industry attention on the importance of supporting sustainability in this sector. However, accreditation has potentially disadvantaged smaller fisheries operators, which have found obtaining accreditation difficult due to their limited resources. Consequently, these fisheries, which are generally sustainably managed and compliant with legislative requirements regarding management, can suffer from a marketing disadvantage and negative public perceptions. This issue is also experienced in the aquaculture sector.

In light of this issue, NSW recommends that the accreditation process be further explored, with the aim of making it more accessible to smaller operators, and to recognising other mechanisms that are in place to safeguard sustainability in these smaller fisheries, such as compliance with legislative requirements. This process should also include an assessment of the socioeconomic importance of these operators and their importance to local communities.

Funding for resource/stock assessment

Currently the Commonwealth Fisheries Research and Development Corporation (FRDC) does not fund long-term research on resource assessment, as this area is regarded as the responsibility of state jurisdictions.

Resource assessment includes the provision of information on stock levels and the impacts of fishing on the marine environment. This information can be used to develop resource strategies which ensure marine environments are fished and managed in a sustainable manner. The research undertaken to gather this information is an essential part of fisheries science and management.

Ascribing responsibility for the funding and management of resource assessment solely to the states has the potential to limit the amount of research carried out in this area. Furthermore it may relegate cross-jurisdictional issues regarding shared stocks to a lower priority and raise concerns from commercial fishers who contribute to Commonwealth research bodies through research levies. For instance, in NSW, commercial fishers and aquaculture farmers contribute to the FRDC through research levies collected by NSW Department of Primary Industries. These funds are then allocated by the Commonwealth, generally to projects that are of lesser priority than resource and stock assessment.

Alternative management strategies

At present there is a paucity of scientific assessments which examine the efficacy of fishery management strategies and tools, such as zoning restrictions in marine parks. For instance, while the implementation of Ecosystem-Based Fisheries Management (EBFM) in Western Australia has been largely successful, other jurisdictions have received mixed results. Further research of EBFM is required to better understand the benefits of this model as a fisheries management tool compared to other models.

To date, a risk assessment approach has been used in NSW to determine which stocks or species are most in need of management intervention. This approach could be extended to cover the environment more broadly, especially in near-shore and freshwater aquatic systems that are widely impacted by human activities.

To have confidence in any risk assessment, it is necessary to have quality data. This requires better data collection systems for the catch and effort of commercial and recreational fisheries, fishery-independent estimates of stocks, stock-recruitment processes, and movement and migration information. Currently, valuable scientific information to assist a risk assessment approach is collected by state agencies. However, this collection process could be improved through effective collaborations between government agencies, universities and the CSIRO.

Recreational fisheries

NSW notes that the Terms of Reference for this inquiry are focussed on the commercial and aquaculture sectors. However, given the prevalence of recreational fishing in inshore coastal waters and fresh water areas, NSW recommends that the implications of this sector be more broadly considered within the inquiry, both in terms of policy development and funding for research.

For instance, when measuring socio-economic impacts, harvest quantities of target species, interactions with natural habitats and ecological processes, recreational fishing has the potential to have greater impacts than the commercial or aquaculture sectors.

Currently the funding model used to allocate research funding between states by the FRDC is largely based on the commercial and aquaculture production value by a State/Territory. This disadvantages states such as NSW, which have a large recreational sector but modest commercial and aquaculture sectors.

BACKGROUND

The NSW Department of Primary Industries (NSW DPI) is committed to sound, science-based fisheries management and aquaculture. Data used to inform fisheries and aquaculture management is provided by our world-class research scientists and informed by collaborations with scientific institutions and international developments.

Our scientific programs in the fisheries and aquaculture areas are divided into the following units.

Wild Harvest Research

This unit involves research in three main areas concerning the wild fish stocks of NSW:

- **Fisheries assessments:** determines the exploitation status of key finfish and invertebrate species; assesses population-scale impacts of commercial and recreational fisheries; samples and surveys commercial and recreational catches and populations of key species; provides scientific advice on levels of total allowable catches and resource assessments of key species.

- **Fisheries biology**: investigates the life history characteristics (age, growth, reproduction, movements, habitat-relationships) of key fish and invertebrate species, conducts population modelling, and provides advice on effects of fishery management regulations on key species.

- **Fisheries technology**: develops and tests commercial and recreational fishing gear to improve selectivity and reduce unwanted catches, develops by-catch reduction devices, assesses survival of key fish and invertebrate species following catch and release for recreational and commercial fishing, estimates impacts of fishing gear on the selectivity and mortality of key species, and provides management advice on fishing gear regulations.

Additionally, the Wild Harvest Research Unit has key research collaborations with the Fisheries Research and Development (R&D) Corporation, NSW Recreational Fishing Trusts, Australian Research Council (ARC), Catchment Management Authorities, Auckland University, most Universities in NSW and the Sydney Institute of Marine Science.

For additional information, please see
http://www.dpi.nsw.gov.au/research/areas/fisheries-and-ecosystems/wild-fisheries

Aquaculture Research

This unit develops improved technology for new and existing aquaculture industries, including for stock enhancement. Main research areas are:

- **Mollusc Research**: Develop technology for breeding molluscs, including edible oysters, pearl oysters, abalone, scallops and clams. Maintain and develop the Sydney rock oyster selective breeding program. Evaluate the impact of pollutants and stressors (including climate change) on commercial mollusc species.

- **Finfish production and enhancement research**: Develop technology for breeding finfish, including native freshwater fish species and marine species such as Australian bass, snapper, mulloway and yellowtail kingfish. Research finfish nursery and grow-out production systems.

- **Aquaculture nutrition**: Develop of cost effective diets and feed management strategies for existing and emerging aquaculture industries.

The aquaculture Research Unit has research collaborations with the Australian Seafood CRC and other NSW Government agencies and CSIRO. University collaborators include the Universities of NSW, Sydney, Macquarie, Western Sydney, UTS, James Cook, Tasmania, Newcastle, and Deakin. Other major stakeholders in NSW DPI aquaculture research include the Fisheries R&D

Corporation, ARC, Recreational Fishing Trusts, the Australian Centre for International Agriculture Research, Ridley Aquafeeds and the United Soybean Board.

For additional information, please see
http://www.dpi.nsw.gov.au/research/areas/aquaculture

Aquatic Ecosystems Research

This unit is responsible for research into the aquatic ecosystems of NSW, on which all our fish stocks depend. The main research areas are:

- **Freshwater biodiversity & habitats**: monitoring the condition of riverine systems; distribution, abundance and genetics of freshwater threatened & pest species, impacts of pest species and control techniques, evaluating fishways, active restoration of in-stream habitats, and freshwater fish stocking.

- **Marine biodiversity & habitats**: monitoring resource condition, evaluation of floodgates & other barriers in estuaries, mapping of seabed habitats, distribution and abundance of marine and estuarine threatened & pest species, impacts of pest species and control techniques, and evaluating effectiveness of marine protected areas.

- **Ecosystem function**: quantitative assessments of the functioning of aquatic systems, connectivity between systems, evaluating ecosystem-based management, modelling, and climate change impacts. The current focus is on ecosystem modelling for coastal NSW.

This unit has research collaborations with the Murray-Darling Basin Authority and other government agencies in NSW, Victoria, South Australia and Queensland. Fish pest projects are managed through the Invasive Animals Cooperative Research Centre. Coastal work often involves partnerships with other NSW government agencies. Ecosystem modelling is done collaboratively with CSIRO. Overseas projects are funded through ACIAR. University collaborators include the Universities of Griffith, Newcastle, Wollongong and members of the Sydney Institute of Marine Science (Macquarie University, University of Sydney, University of Technology Sydney and University of NSW).

Biosecurity research is undertaken in collaboration with scientists from our Centre for Animal and Plant Biosecurity Science together with scientists and managers involved in wild fisheries, aquaculture and aquatic ecosystems. Biosecurity research and diagnosis helps underpin policies for translocation, hatchery assurance and quarantine.

For additional information, please see
http://www.dpi.nsw.gov.au/research/areas/aquatic-ecosystems