

## 9 RESEARCH

### 9.1 Introduction

The need for accurate and adequate research has been repeatedly emphasised throughout the inquiry as the foundation for management decisions to ensure equitable allocation and sustainable management of the resource. The prioritisation of the limited research funds available must balance the need to provide user groups and managers with the basis for making informed and defensible management decisions and ensure a broader strategic assessment of fish stocks.

Research providers receive funding from a number of private and public sources, including universities, the CSIRO, NSW Fisheries, other fisheries agencies and private consultants. Funding for fisheries-based research is provided by the fishing industry and the State and Federal governments.

### 9.2 Fisheries Research in NSW

Fisheries research in NSW undertaken at the Wollongbar, Grafton, Port Stephens, Cronulla and Narrandera research centres. The Director and Deputy Director of Research are located at the Fisheries Research Institute at Cronulla. The Research Division employs 127 staff, with 36 per cent of total research staff employed on external funding. The budget for NSW Fisheries research in the year 1996/97 was \$8.7 million, with 45 per cent of the total budget derived from external sources.

The NSW Biennial Report of Fisheries Research (1992-1994) outlined the State's research objectives in the *NSW Fisheries Research Strategic Plan* as follows:

1. Identify research priorities in consultation with key client groups.
2. Attract funds from industry and government to support research priorities.

3. Describe the size and distribution of major fish stocks and key species.
4. Describe and assess the catch by all user groups and harvesting techniques.
5. Investigate the dynamics of exploited fish populations.
6. Provide estimates of sustainable catch for key species.
7. Research the relationship between the fish and their environments.
8. Research techniques to minimise the adverse impact of fish harvesting and developments.
9. Research techniques for the enhancement of fisheries and fish habitats.
10. Identify species with aquaculture potential.
11. Develop production techniques suitable for the adoption by industry.

The strategic plan identifies the broad range of responsibilities that must be covered by the limited resources of NSW fisheries. Modification of the existing fisheries legislation and a heightened awareness throughout the community of the impact of habitat degradation on fisheries resources has placed increasing demands on the limited resources available. The Biennial Report stated:

NSW Fisheries' successful stewardship of the new Fisheries Management Act and the progressive move by the NSW Government towards improved use of property rights in the fisheries management process has increased the demand for precise resource assessment and predictions for future catches. At the same time community realisation of the negative effects of habitat destruction and

alteration has increased the pressure for more involvement by fisheries researchers in environmental issues.<sup>1</sup>

Determining which proposals should be given priority and devoting the required resources and time to projects which are generally considered by all user groups to be of primary importance have been one of the principal difficulties associated with prioritisation of fisheries research.

### **9.3 Assessment and Funding of Research Proposals**<sup>2</sup>

The majority of fisheries based research in Australia is funded by the Commonwealth. State-based Fisheries Research Advisory Bodies (FRABs) submit specific research proposals to the Commonwealth Fisheries Research and Development Corporation (FRDC). The FRDC assesses these proposals and directly funds the successful researchers and research institutions.

A 1996 FRDC survey of the quality of fisheries research in Australia was critical of the communication between research bodies in each state and indicated that better communication would result in a more efficient use of the limited research funding available. The survey report stated:

The main factors seen to be influencing the setting of research priorities were fisheries management problems identified by the Department and industry identified needs. None of the research units reported considering research done in other research units when they set their own priorities and there appear to be no mechanisms to consider research being done elsewhere in current priority setting

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<sup>1</sup> NSW Fisheries, *Biennial Report of Fisheries Research 1992-1994*, ISSN 1037-761 p 4

<sup>2</sup> For more information on the relevant advisory bodies see the Standing Committee on State Development *Report on the Fisheries Management Amendment (Advisory Bodies ) Act 1996*

process indicating that there may be duplication of research effort.<sup>3</sup>

The Standing Committee notes that throughout the inquiry, NSW Fisheries has been criticised for an inability to provide concise clear and comprehensive research upon which resource allocation and management decisions can be based. Dr John Harris, Supervisor - River Conservation, indicated that at least some of the problems in satisfying the clients of fisheries research stem from the gradual decline in available resources:

... When I became responsible for the freshwater research section approximately a decade ago, seven scientists were funded directly from government sources answering to the position of leader, but now there are only two. It has been a long, slow decline. It has not happened at any one stage, but it has coincided with an enormous increase in the number and severity of issues that we feel are directly affecting fisheries and which we should attempt to deal with.<sup>4</sup>

The quality of fisheries research is further influenced by the time frame associated with the majority of research projects and constraints on funding available to carry out more strategic ongoing research. The NSW Fisheries submission argued that current funding arrangements did not allow for effective long term monitoring necessary for stock assessment and the determination of management strategy effectiveness. The submission stated:

It is important to point out that the current level of external funding of research programs carried out by NSW Fisheries is high (approximately 40 per cent), and that external agencies generally will not fund long term monitoring studies. Such studies, which are so basic to our understanding of the state of our fisheries resources, need therefore to be funded by the Department. Commitments

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<sup>3</sup> Elizabeth Gordon Werner (1996). *Fisheries Research Quality Survey*, Fisheries Research and Development Corporation, ISBN 0 7310 9400, p 5

<sup>4</sup> Evidence of Dr Harris, April 2 1997, p 18

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to externally funded projects in recent years have meant that these studies have been under resourced in the past, but this cannot continue. Funding such projects in the future may, therefore, necessitate some re-prioritisation of existing research programs.<sup>5</sup>

The Department has requested more funding to carry out strategic and ongoing research which is not accommodated in the current framework. Dr Rick Fletcher, Director of Fisheries Research, outlined the proposal as follows:

The greatest difficulty the Division will encounter in producing these status reports and stock assessments in general will be the lack of resources to conduct ongoing monitoring. This style of research provides a long time series of data for use in detailed stock assessments. The changing nature of exploitation as new management plans are introduced, in addition to the natural fluctuations in abundance of stocks that occur through environmental influence on recruitment, means that these assessments should be completed on a regular basis to ensure that the true status of stocks are known. Thus the collection of this information needs to be a core activity of the Department which would form the basis of all other research activities.

Currently, less than 50 per cent of research funding is sourced from recurrent expenditure and, if only operating budgets are used, the figure is even lower. Thus, the majority of projects completed recently have been externally funded and while they have been prioritised on the basis of answering specific problems related to major fisheries management issues, they have been of short term duration (one to three year investigations) and therefore "tactical" in nature. External funding agencies will not fund the required ongoing monitoring which they rightly see needs to be derived directly from government sources.

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<sup>5</sup> Submission 42, NSW Fisheries, p 33

A proposed enhancement project has been submitted to Treasury which would increase funding to fisheries research and therefore enable the basic information necessary for the fisheries assessments described to be carried out within the commercial coastal and rivers sections. The alternative of massively re prioritising the NSW fisheries research budget, which could still only accommodate a part of the additional monitoring activities, would require entire sections ceasing operations. All of these are, however, presently considered core business and consequently lead to significant Departmental outcomes.<sup>6</sup>

## **9.4 Review of Fisheries Research**

### **9.4.1 Premiers Department Report on the Review of the Operations of NSW Fisheries**

In January 1996 the Premiers Department released its *Report on the Review of the Operations of NSW Fisheries*. The review was conducted by two Premiers' Department officers, Ricardo Ramirez and John Slidziunas. The authors found that there was a lack of cohesion between the divisions of NSW Fisheries. The report commented that the lack of cohesion had resulted in research which was not sufficiently oriented to the core objectives of the Department, and stated:

The review found NSW Fisheries operating in a fragmented manner, with divisions more intent on securing their own growth and influence than on working cooperatively towards Departmental goals. This makes it necessary to take steps to refocus the Department towards its core business, restructure the agency to ensure such focus is maintained, and provide the policy means to give it strategic direction.

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<sup>6</sup> W J Fletcher (1996). *Review of Research Programs*, NSW Fisheries September/October 1996, NSW Fisheries Research Institute, pp 21-22

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The research effort needs to be directed more sharply into the areas which are essential for the achievement of NSW Fisheries core objectives. The review found that the direction of research was very much influenced by the search for extra, external funding and by the researchers need to publish scientific papers in order to be considered for promotion.<sup>7</sup>

Professor Robert Kearney, former Director of Fisheries Research and present Head - Department of Resource, Environmental and Heritage Sciences, University of Canberra, was critical of the review's findings and maintains that they were incorrect and politically motivated. Professor Kearney stated:

... in essence I believe that almost all of the factual statements relating to research are wrong in that report and I say that unqualified. They are wrong. I found it a rather strange review. To come out at that time and make all these statements that were factually wrong.<sup>8</sup>

I think you should know that in the course of the compilation of that document I spoke to the people who subsequently authorised it and presented it and indicated my concerns and they indicated to me that they were certainly, in parts of it, under clear instructions from the Minister's office to carry out the review in the way in which they were doing.<sup>9</sup>

Professor Kearney was also critical of the report's recommendation to sell the fisheries research vessel Kapala, stating:

The second major statement was on the fisheries research vessel Kapala, that the Kapala is apparently run down and

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<sup>7</sup> NSW Premiers Department, *Report on the Operation of NSW Fisheries*, January 1996 p 1

<sup>8</sup> Evidence of Prof Kearney, 12 May 1997, p 50

<sup>9</sup> Evidence of Prof Kearney, 12 May 1997, p 51

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in need of an overhaul which may cost up to \$250,000. The Department's vessel at that stage was 25 years old. It was in excellent condition. In fact, it was still on its original engine, hardly a statement of a vessel that was run down. It was in excellent condition considering its age.

It said that "The vessel appears to operate without an operational plan or overall direction of her program and its activities may be of little direct value to the management of State Fisheries". That was clearly a statement that was wrong. The Research Institute when I took over it concentrated on Commonwealth managed fisheries exclusively and you could have made that statement then. However, it was not the case at the time this review was done.<sup>10</sup>

Dr Glaister, Director of NSW Fisheries, indicated to the Committee that the decision to sell the Kapala resulted from an assessment of the condition of the vessel and discussions with the Australian Fisheries Management Authority (AFMA) concerning the responsibility of the type of research Kapala was carrying out.

Briefly, the vessel is some 28 years old, in need of major refurbishment. The estimates to refurbish it vary, but they have been around \$1.5 to \$2 million. There is a need to replace the winches, most of the electronics, the motors, and some structural changes to the vessel. It is a purpose-built fish trawler. It has been used for other research, but mainly it has been built for fish trawling.

There have been a number of reviews, and they have all concluded that the vessel is basically unsuitable for non-trawl work. It is currently working on revisiting some sampling that it did 20 years ago to look at the impacts of fishing that have occurred over that time.

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<sup>10</sup> Evidence of Prof Kearney, 12 May 1997, p 50

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The decision was based on the fact that I have had some extensive negotiations with the Australian Fisheries Management Authority, Richard Stevens, looking at working in the south east trawl fishery, which is a Commonwealth-managed fishery, one of the major fisheries. AFMA considered the request to make a commitment to undertaking some long-term research work. They basically declined.

I made further representations. It was one of the first jobs that I did when I joined the Department. Again, there was a negative response. Finally, there was a decision from AFMA that they were not interested in supporting that work. Given that decision, really a review of research in the Department showed that there was not any work for the boat, and based on that conclusion I made the decision.<sup>11</sup>

When asked how offshore research would be conducted in the future, Dr Glaister replied:

I am reviewing our offshore compliance needs at the moment. If we did need to have an offshore research vessel capacity, we would be looking at a multi-use vessel that could also be used for compliance. To answer your question, we could either charter a research vessel, we could purchase a multi-purpose vessel, or we could lease a research vessel.

There are a number of ways of undertaking the work, including observer programs on commercial vessels, egg and larvae surveys using smaller, high-speed vessels, and a properly conducted acoustic survey would also deliver that kind of outcome.<sup>12</sup>

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<sup>11</sup> Evidence of Dr Glaister, 26 May 1997, p 44-45

<sup>12</sup> Evidence of Dr Glaister, 26 May 1997, p 45

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#### **9.4.2 Review of Research Programs September/ October 1996**

Primarily as a response to the Premiers Department review, Dr Fletcher conducted his own review of research programs in September/October of 1996. The report indicated that the major deficiencies were not the nature of the research projects being conducted but in an awareness of how this was directly related to the management of the relevant fishery.

In general, unlike the impressions, most of the research projects being conducted were related to the core activities of the Department. Probably the major deficiency I perceived was the link between the individual project and how it fitted into the larger scheme of influencing the subsequent management of the relevant stock or fishery. Thus there is a need to change the focus of individuals from merely working on projects to working on fisheries/stocks with the project being seen as only part of the process and not an end in itself. There are probably a number of reasons why this has occurred including the short term nature of most funding, and the previous open access style management in which the actual fisheries themselves were difficult to identify.

The report went on to suggest strategies that would provide a greater focus for research and develop research programmes which specifically identify the areas of need for each fishery.

The two main strategies that will assist in the process of ensuring that a global, yet focussed research is undertaken are: First, I have instigated a new publication that will be produced on an annual basis entitled "Status of the Stocks". This document will contain summaries of all the data and current assess on each stock / fishery/habitat. These could be expanded later to include information on the major management and compliance issues.

... The second strategy that will help with the commercial areas will flow from the formulation of the new management plans. Each of these will have performance

indicators that relate to the status of the stocks which will therefore require frequent/annual updates. This should provide the framework in which all research in these areas can be formulated and focussed. For example the two fisheries where this has already happened (Abalone and Rock Lobster) both have a clear research focus.<sup>13</sup>

The Standing Committee recognises the limitation of the existing trend toward the short term externally funded research projects. The existing funding mechanisms have encouraged the management and staff of NSW Fisheries to prioritise projects designed to attract funds rather than consider the long term strategic needs of fisheries management. This has created a reactive and myopic environment in which the effort fails to focus on the more strategic research which will determine the long term sustainability of fish stocks. State and Federal agencies which fund fisheries research must recognise the importance of the need for a more proactive approach, with greater emphasis on long term monitoring programmes to assess the status of stocks and the effectiveness of current management strategies.

## **9.5 Criticisms of Research**

### **9.5.1 Relevance of Research to Client Groups**

Criticisms of the current research structure indicate there is dissatisfaction with the relevance of some research proposals to the client groups and a perceived politicisation of the research effort. The commercial sector remains critical of the current method of allocating research funds. Mr March, Chairman of Oceanwatch indicated to the Committee that the commercial sector desired to play a more instrumental role in the participation and determination of research projects.

Ownership of research is possibly the single most important thing that you can give to the fishing industry. They have got gut feelings on what knowledge is needed. They have

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<sup>13</sup> W J Fletcher, *Review of Research Programs NSW Fisheries*, September/October 1996, p 21

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also got gut feelings on what knowledge is not needed. Currently, under the guidance of Queensland and New South Wales, we are spending \$600,000 on research projects into mullet. Any fisherman worth his salt could have given you 99 per cent correct answers if you asked him at the pub, but the researchers wanted to do dollars on getting answers to questions that the fishermen already know.<sup>14</sup>

Prof Kearney indicated that the determination of research effort must remain an objective process that it is not under the control of any single user group.

That is a very difficult and complex issue because industry clearly needs to be advised of what is going on and needs to play a role. You have to be very careful with the balance. When you have natural resources that are over-exploited or in danger of exploitation, you have to be careful of industry's input. I do not believe industry should be the final custodian of what research is done.

The real role should be in identifying the problem and in suggesting the ways of fixing those problems that involve industry action. However, they must not be the final custodian of research projects carried out in assessment of the total resource, or setting catches taken from that resource. It is a very difficult narrow line you have to walk.<sup>15</sup>

### 9.5.2 Internal Review of Research Proposals

The change in the administration of NSW Fisheries resulted in a change in the policy for the internal review of research publications. Formerly, approval was gained via a review by the Director of Research; currently the approval of all research publications rests with the Director of Fisheries. The Master Fish

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<sup>14</sup> Evidence of Mr March, April 3 1997, p 74

<sup>15</sup> Evidence of Prof Kearney, May 12 1997, p 57

Merchants Association (MFMA) outlined the industry's concern regarding the changes to the review procedure as follows:

The MFMA has previously found the Fisheries Research Department to be efficient and Professional. The Associations Requests in regard to catching sector research had received very helpful and detailed replies. This professional relationship had worked both ways, for example, some merchants had assisted the Department with research (for instance snapper farming).

It came as a surprise when the research Department, unofficially, expressed to the MFMA their concerns about the deteriorating relationship between Fisheries senior management and the catching sector. The catching sector had withdrawn practical support previously provided to Department researchers. The commercial fishers intimated, as the reason for the withdrawal of their support, the concern that the thrust of research papers when finally released, varied somewhat from results indicated from the original results taken on board the fishing vessels. The industry wide conjecture is, that if the content of the a draft report was not commensurate with Ministerial and Fisheries Department preferred results, such reports were subject to significant editorial change. Such speculation is destabilising for industry and associated research.<sup>16</sup>

In response to questions put by the honourable Ian Cohen, Dr Glaister sought to clarify the current arrangements regarding the review of research material and outlined the rational regarding the change in the procedure for research reviews. Dr Glaister stated:

**Dr GLAISTER:** The responsibility for research delivery rests with the Director of Fisheries Research, Dr Rick Fletcher. However, there are also responsibilities that I have, as the Chief Executive Officer for Fisheries. Those include

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<sup>16</sup> Submission 80, Master fish Merchants' Association of NSW, p 16

responsibility for management, research and operations. The requirement that research outputs are sent through to the Director of Fisheries merely recognises that responsibility. I have, in former times, been an active researcher myself, and in some areas of research I believe I can value-add to some of that work. But the main reason, basically, is to ensure that research outputs are consistent with departmental policy.

**The Hon. I. COHEN:** Can you understand why people may perceive that there may be an unhealthy amount of interferences in research that should be independent?

**Dr GLAISTER:** I would agree that science needs to be independent. I do not know whether I would agree that it is unhealthy that I take that interest because, as I say, I am responsible to the Minister for the administration of New South Wales Fisheries, and an important part of our work is that involved with research. So I see it as entirely consistent that I take an interest in the outputs from the research section.<sup>17</sup>

Prof Kearney, previous Director of Fisheries Research, supported management proposals which strengthened the dialogue between the management and Research Divisions of Fisheries.

I think it is important that the Director of the Department be made aware of all research findings. In fact, it was one of my areas that I had been pushing both while I was with the New South Wales Government and since I left, that one of the things that governments have done in recent years is let research and policy get too far apart.

Many a Minister has said to me that it is easy to make good decisions if you are given good advice. Unfortunately, in New South Wales Government in recent years, the

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<sup>17</sup> Evidence of Dr Glaister, May 19 1997, p 5

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research and policy divisions of various departments have got further and further apart and that is not peculiar to New South Wales Fisheries. I was keen to address that. I think it is important that the policy and management are fully advised of research outcomes but I do not believe there should be any direction of what research should be published in the peer review literature. I think that would be inappropriate.<sup>18</sup>

None of the principal research scientists examined by the Committee felt that the research emanating from the Research Institute was undergoing significant editorial change in order to present Departmental management policies in a more favourable light, and in general saw the closer association of the Research and Management Divisions as a desirable and necessary management policy. For example, Dr Geoffrey Allan, Head - Aquaculture Research, said that he had never had modification made to any of his research reports.<sup>19</sup> Dr Phillip Gibbs, Principal Researcher - Coastal Conservation and Research, indicated that the current review procedures were consistent with accepted scientific review practices:

The involvement of science is such that in terms of writing reports, the reports go through for editing and there is various editing done by our peers and colleague at various times on scientific reports. Modification of those is left to the editorial licence of the person who wrote it.

If there are issues related to management or recommendations which impact upon the Government of the day, it is perfectly reasonable for senior management to provide input at that point.<sup>20</sup>

Dr Harris supervisor of river conservation research, although supportive of closer association of research and management divisions questioned the

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<sup>18</sup> Evidence of Prof Kearney, 12 May 1997, p 72

<sup>19</sup> Evidence of Dr Allan, 12 May 1997, pp 2-3

<sup>20</sup> Evidence of Dr Gibbs, 12 May 1997, p 3

efficacy of having all research publications reviewed by the Director of Fisheries. Dr Harris stated;

Firstly, the arrangements for approving research publications have changed with the new administration over the last year or so, to the extent that we now have a directive that any research results have to be approved by the Director of Fisheries. That has been a major change because in the past it has been the responsibility of the Director of Research to provide approval. In the past I have commonly had a number of interactions with the Director of Research about particular research reports, where, as part of the policy and review process changes have been made, but internally at the research institute it has always been the practice that we have day-to-day contact as researchers with the managers in our field. We make best use of that because we come from different perspectives on to the same issues and it is important that we do have a good level of communication. Commonly as part of that we, as researchers, learn and improve our output. We certainly actively seek the advice of managers who are relevant to our area and their response to particular findings and the ways that those are interpreted, so it is an interchange that is an important part of our overall processing, I believe.

... I think the Director of Fisheries cannot hope to have technical control over all the detailed items within his Department. I think that is impossible for any person, no matter how skilled. I think there is a need in any well structured, efficiently functioning organisation to devolve the responsibility for its various components to the appropriate people, and I think there is a major issue there.<sup>21</sup>

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<sup>21</sup> Evidence of Dr Harris, 2 Apr 1997, p 30

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Although the Standing Committee recognises that the Director of Fisheries should be kept informed of all Departmental activities, there is a need to ensure that the Department's research is perceived to be strictly independent. Accordingly, the Standing Committee recommends:

### **Recommendation 27**

**That the Director of Fisheries be advised of research results but not hold power of veto over the publication of those results.**

### **9.5.3 Determination of Research Priorities**

The then Chair of the Committee, the Hon Patricia Staunton MLC, indicated that it was important that the clients of fisheries research have a perception that research is carried out in an objective and transparent fashion. Ms Staunton questioned the Director of Fisheries research over the need for a more objective system which clearly defined how research was prioritised.

... Dr Fletcher. Do you have within your division or is there within Fisheries what I would call a fisheries research policy? Do you have a proper research committee? Does it have terms of reference? Is there a proper, objectively based, transparent process whereby research priorities are determined? At the moment it seems to be a bit of hit and miss and anecdotal. Do you understand what I am saying? That is one of the criticisms that the Committee is getting: there is no objectively based, transparent process that goes into determining research priorities; it is what some particular person in the Department thinks is a good idea rather than something based on sound, objective data and criteria that somebody can point to and say, "There are the guidelines. There are the ground rules. This is the committee that has made the decision. It is truly representative. The process is transparent." Whilst you may not please all of the people all of the time, at least the

majority of people in the industry can be satisfied that you know what you are doing.<sup>22</sup>

Dr Fletcher indicated that it was the intention of the Department to restructure the way in which research was prioritised to provide a more clearly defined process:

Really what we are attempting to do now is set up teams within the whole department. If there was a team on, say, rock lobsters then the team would include a manager, a researcher and the operations staff. They would have regular meetings at which problems would come up and issues such as project proposals would be discussed. They would agree as a team beforehand. That would be one of the better ways. Once they get in place the germ of an idea for a project, a proposal could be put around at that type of forum and then the reasons for the project being put up would be discussed, and what management implications there would be if the project was successful would be discussed. If it was deemed to be sufficiently useful you would then go to industry and discuss the proposal. If they were in agreement then it would continue through.<sup>23</sup>

The Standing Committee believes that, although there are no indications of impropriety in the development or approval of fisheries research, the lack of an objectively based, transparent process to determine research is creating the perception amongst user groups that the process is being manipulated in order to cast the Department in a favourable light. The Standing Committee therefore recommends:

### **Recommendation 28**

**That the Advisory Council on Fisheries Research should identify, as a priority, a consultative process to develop clear and consistent guidelines for the**

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<sup>22</sup> Evidence of Dr Fletcher, 2 April 1997, p 22-23

<sup>23</sup> Evidence of Dr Fletcher, 2 April 1997, p 22-23

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Department and the Advisory Council on Fisheries Research for the identification, prioritisation, assessment, peer review and publication of research. This process should identify a consultative role for each Advisory Council and Management Advisory Committee.

That NSW Fisheries engage each Advisory Council and Management Advisory Committee in the process of identifying key research and data needs.