

# DISCUSSION OF SESSION 6

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Discussion which followed each of the four panel presentations is recorded here, followed by a more general discussion.

Chris Chubb commented to *Russ Reichelt* that scientists are sometimes asked by industry and managers to provide information or advice which scientists regard as premature or based on insufficient data. Managers should not pressure scientists to assess the alternatives for a fishery under these circumstances. Managers should be prepared to take the advice from scientists, including being prepared to take "no" for an answer.

Tony Koslow agreed about advice based on insufficient data, but assessing the stability of the fishery based solely on economics also gives cause for concern. Industry would prefer to maintain stability well above the ecological "bottom line" for the fishery. We should be cautious about "boom or bust" scenarios that destabilise or shut down fisheries, particularly when the scientific information about the fishery is inadequate to forecast the rate at which the "bottom line" is being approached.

Chris Chubb was interested to hear from Chris Francis about biological limits and reference points, from experience in New Zealand fisheries.

Chris Francis responded that the dangerous idea of biological limits and reference points became popular with fisheries managers in New Zealand, probably attracted by the possibility of

cheaper management because this would require less scientific effort and the need to act only when the fishery crossed some "bottom line". This is wrong. Management decisions are usually based on previous expensive monitoring and are not simple. Implementation of the "bottom line" involves consideration of the uncertainty of the situation. After declaring that a fishery is below the "bottom line" and fishing should stop, scientists must be prepared for industry to say "prove it!"

Richard Tilzey asked *Ian Somers* to describe the new format of the workshops that have been successful with the Northern Prawn Fishery.

Ian Somers replied that there was an agenda for the meeting, which included a couple of presentations including ones by himself and Neil Loneragan. There were about 80 fishers present. At the annual preseason workshop there were usually about 120, but when it was analysed who were there, there were only about 15 to 20 actual fishers. So the workshop that they (i.e. industry) organised and invited the scientists to was very effective in that many fishers attended. They changed the format by breaking into groups of 6 to 8 people, so that anyone who wished to speak could do so. Instead of the scientists telling the fishers about recent research, the reverse applied; the fishers told the scientists about their ideas and observations. Remember that fishers are spending more time than researchers in collecting data, and that a lot

of their data are not recorded. The workshop was productive with the exception of the agenda item on future research. Industry wanted only minimal, inexpensive research and highly visible projects.

Don Hancock noted that in his presentation Ian Somers has recognised an important point that we should all take to heart: unless you get out and learn what the fishers think of you, you cannot respond to them. In this process, salutary lessons can be learned. As an example, a fisher being encouraged to participate in a new research project, pointed out that when the fisher had "gone bust," the scientist would still be drawing his salary. Further, at a rock lobster meeting, one fisher suggested that the scientists did not want industry to catch any rock lobsters. When they were catching, it was doom, and when they were not catching, it was gloom. Another fisher questioned the validity of the scientists' analyses, given that they were based on data provided by fishers (and known by industry to be unreliable). Scientists need to find out how industry perceives them and be prepared to respond.

Chris Chubb suggested that fishers are creative and will use this to get around management rules. The adaptive nature of their fishing strategy must be anticipated, particularly where the effectiveness of management measures is at stake. Another point is that managers, like models, are as good as the information they get, and scientists must be prepared to talk to the fishers so that their observations are included in the input to management. In the process of interacting with fishers, scientists will earn their respect. In the long run, although industry may not like the advice given by scientists, there will be mutual respect and agreement.

Following *Tony Smith's* panel presentation on management strategy evaluation, Chairperson Richard Tilzey stressed that in the evaluation process, there are no clear performance criteria for managers. These would be worth considering.

Rick Buckworth responded that there are many levers that a manager can pull in stock management. The question that emerges as fishers participate more in the decision-making process is the extent to which fishers should have access to the levers, ie. the inputs and outputs of the models. If fishers have increased access, managers may be uncomfortable with the process. As an example, it may be unworkable to set a TAC by this method.

Tony Smith thought that fishers like the approach because it provides a longer-term view and a better understanding of the basis for the manager's decisions. Managers are less receptive, perhaps because they may not wish to make the objectives etc. explicit. In reality, specifying a rule that would apply, for example setting a TAC, may not be practical because inevitably politics must be considered.

Rick Fletcher suggested to Tony Smith that an additional component that should be added to the decision table for evaluation would be the status of the stock.

Tony Smith agreed, saying that his presentation was a simplified version, not a comprehensive version. The uncertainties in the estimate are a function of how you manage the stock.

Jean Chesson believed that one of the strengths of the approach described by Tony Smith is its recognition of multiple objectives. This has increasing importance as assessments expand beyond "fishing for the fishing industry" to address the socio-economic and environmental objectives inherent in fisheries management. These additional objectives can be addressed using the management strategy evaluation approach. Sometimes these objectives will be acting in opposition to each other and sometimes one approach may satisfy a number of objectives simultaneously.

Tony Smith agreed. The analyst must emphasise the trade-offs of alternative outcomes, without being prescriptive. There may not be an optimal outcome in terms of all the objectives.

Neil Loneragan made the first comment on Geoff Rohan's paper on management needs, by saying that information from researchers may be aligned with the "old rules of the game". New requirements, such as ecologically sustainable development, are changing the rules. Will the management needs change with this new legislation?

Geoff Rohan responded that in rewriting the rules, it is useful to ask: what is ecologically sustainable development in fisheries? Discussions on this in the Australian Fisheries Management Authority include the difficulty of putting a figure on the harvest level that would achieve ecologically sustainable development, recognising that there could be many harvest levels that would be sustainable. How do we determine the management parameters for shooting at a moving target? We need to define the upper and lower levels, identify with monitoring where we are up to, and remain within the target range.

Stewart Frusher felt that in the evaluation of alternative management strategies, we should be able to balance the social and lifestyle constraints against the economic imperatives. Social objectives would include maximising employment. Developments that improve productivity may have attendant costs in the deterioration of social objectives.

Geoff Rohan responded that economic efficiency in a fishery may be balanced against reduced employment, but the alternative of labour-intensive methods is not the solution. Management has a responsibility to anticipate problems and "get it right" in the first place, in order to minimise the problem and pain of adjustment.

Rob Day's view was that the industry's willingness to pay to reduce uncertainty may include socio-economic objectives as criteria in the evaluation of management strategies.

Geoff Rohan responded that issues of attitude and culture are difficult to measure but are nevertheless intrinsic to successful management.

In the South East Fishery, dissatisfaction with restrictions on gemfish and orange roughy catches showed the readiness of ordinary people to take to the streets in protest about management decisions. It must be in people's best interests to abide by the rules, else the system breaks down. Peer pressure and community acceptance are the ideal way to enforce the rules, rather than relying solely on punishment for breaking the rules.

Rob Day asked if anyone was looking at how to design those management strategies?

Geoff Rohan answered that management strategies must recognise the importance of the human element, in addition to numbers, catch or production levels. Important factors include trust; confidence in the people and the system; and awareness that people and understanding are crucial to success.

Nic Bax said that Geoff Rohan had differentiated between the owners of the harvest and the owners of the resource. The present approach is to maximise or optimise the harvest, by focussing on key indicators or minimum levels of stock. This will assist the harvesters, not the owners of the resource. Assisting the owners is a more complex question, requiring more expensive research. By concentrating on the harvesters, will the owners get a short shrift?

Geoff Rohan responded that in describing fisheries as a community resource, it should be acknowledged that the owner of the resource (the community) has had a poor return for a long time. To meet the costs of management, enforcement, and research, a lot of fisheries have been subsidised by the rest of the community. Should the community get a return from good management in the form of a resource rent, or at least some relief by way of a reduction in the subsidy, by managing the fisheries such that they are productive enough to stand on their own feet?

Issues of compensation, community resources and property rights are still to be resolved in the courts. A previous high court

decision found that wild fisheries resources belong to the community. Industry has focussed on harvest rights, including a licence to fish, and an output measure in the form of quota. As a manager, a fundamental concern is that there is a resource and that there continues to be one. Allocation of the rights to the resource is a policy or political question; which is the responsibility of government.

Tony Koslow commented that socio-economic factors have been recognised as important for some time in the management of fisheries in the USA. Problems in Australian fisheries, such as the response to ITQs, could perhaps be circumvented by addressing the socio-economic constraints. Is economic performance one of the ultimate criteria for fisheries operators? Should socio-economic factors be encouraged as part of the research effort?

Geoff Rohan's response was that in evaluating proposals to study the socio-economic aspects of fisheries, it may be unclear what will be achieved in terms of resource management. There is a role for organisations such as ABARE (Australian Bureau of Agricultural and Resource Economics), in monitoring the effects of change and identifying which sectors are affected. Before we start further research, we must address the question: What would you do with the information if you had it? To what extent do we need to be involved in socio-economic issues? Often, the research stops at that point.

John Glaister thought that by including socio-economic factors at the research level, it would make management authorities address the question of whether economic efficiency should be the only objective. However, Geoff Rohan said that he was not advocating economic efficiency as the only objective in management and did not interpret that as part of the previous question. The question of maintaining a sustainable resource is, however, a personal priority.

Derek Staples mentioned that at the recent World Fisheries Congress, social scientists made

up 8% of the participants, along with a few economists and biologists. A paper by a social scientist included an evaluation of the economic damage that fishery scientists have done over the years to society!

Chairperson Richard Tilzey then opened more *general discussion* of Session 6, with the comment that the socio-economic arena merits discussion. On the one hand, the rational economist would favour two mega-boats taking the catch as efficiently as possible; on the other hand, there are the livelihoods of numerous small boat fishermen. There will always be a tug-of-war between the factions favouring either group.

Phillip Sluczanski took up Derek Staples' comment about the World Fisheries Congress; 8% of the participants were socio-economists and say 3% of them were anthropologists. You may think these are far out, but Ian Somers' talk was really about social anthropology! There was a question about what use it is to involve socio-economists and social anthropologists in the process of change in fisheries. Very often the barriers to change in fisheries are that we fail to look at the whole fisheries management process and the roles of the various players in a systematic, scientific way. Anthropologists are good at looking at the process of change, the barriers, how to motivate change. We need to get cross-discipline input, possibly with encouragement from FRDC for such studies, to break down the barriers.

Richard Tilzey agreed that improved communication is generally considered to be a priority for all players. As Ian Somers had said, all should have a long-term approach to resource utilisation. Communication between the multiple users of a resource facilitates a corporate approach to management. This is now happening in the Northern Prawn Fishery, as it becomes more unified. As a further issue, with the reorganisation of AFMA's Management Advisory Committees to give them greater authority in resolving management issues, should industry

have the dominant say in research priority setting? Cost-recovery is an inescapable issue, and industry naturally seeks to keep the levies they pay at a minimum. Should industry-driven research priorities, probably short-term and expedient in nature, be paramount, or should a longer-term viewpoint in support of strategic research have more weight?

In John Glaister's view, the issue of property rights is central. If industry, who own the rights, are not going to be an important part of the research-setting process, then management should not necessarily have followed that path.

Richard Tilzey agreed, but did not believe that we have determined what the property rights are. If a fisher was sure of property rights and a long-term share of the resource, then that should motivate him to take a strategic perspective. In the meantime, we are in a "law of the commons" black hole and will remain uncertain of the outcome until it is determined by the courts.

Nic Bax asked whether we correctly define the customers as the fishing industry? The automotive industry in the USA has realised the importance of safety and longevity in their product. Should we identify the public who buy the fish as the customer, rather than the fishing industry?

Richard Tilzey commented that it needs to be established whether the community is willing to pay more for the research and management of fisheries resources.

Geoff Rohan responded that in the economic approach, research is a cost in the harvest process. In terms of the research significance, despite its intrinsic value, we are all part of a production process; ie. the harvesting sector.

Jeremy Prince was of the view that industry is in transition, and is understanding the need for monitoring as part of the production process. We should be prepared to challenge the viewpoint that industry's thinking is for the short term. In the longer term, industry wants stability

and a long-term place in the production process. Industry will be prepared to pay for monitoring of the catch as a part of this process. We cannot afford to attribute only short-term objectives to industry. It is part of a longer-term interactive education process.

Doug Ferrell believed that industry, in their support for the research effort, regard fisheries as a community asset. Ecologically sustainable development must be demonstrated in terms of future production.

To Richard Tilzey the question was, not that the responsibility exists, but who is responsible?

Russell Reichelt said that in the last eighteen months there has been a radical change in the attitude of the Japanese tuna industry after the Atlantic stock of the northern bluefin tuna was nominated for Appendix 2 of the CITES listing. There was a lot of discussion about reversible onus of proof. The Japanese are now more cooperative. Some animals such as White Rhino have appeal as 'charismatic megafauna'. The public ownership of the fisheries resource carries a responsibility for scientists in advising management for the multiple users of the resource. On another level, the responsibility is shared by all those who enjoy a good meal of fish.

Jeremy Prince referred to the case of eastern gemfish, where we need to prove that the stock is in trouble. Industry may inherently distrust 'the system' of research and management because gemfish is the only industry they have; their investments and future income depend on a continuing harvest.

Geoff Rohan emphasised that a stable environment is of paramount importance to fishers. They must have the framework in place, so they can develop access rights. They need to know and anticipate changes in the rules for access in order to secure an equitable share.

Richard Tilzey used the South East Fishery as an example; despite the fact that the new

management plan has placed output controls (i.e. TACs) on 16 species, currently we are unable to provide yield estimates for more than five of these species. Industry says they cannot afford funding for the necessary research on the remaining species. Are we behind the eight-ball, in terms of the of the data needs we have for this fishery? The questions facing managers cannot be answered without an adequate information base.

Geff Rohan referred to the point made by Chris Francis, that rational decisions must be made based on the size of the resource. Small resources may deserve only 'rule of thumb' estimates and may not justify expenditure of research funds.

Mike Moran commented that reversing the burden of proof puts the burden on the exploiter, but it may end up like the mining industry, where industry does the resource assessment. The government will not pay for the assessment. In this scenario, consultants flourish at the potential risk of good objective assessments.

Phillip Sluczanski suggested that an independent agency such as CSIRO should set up an audit scheme, and act as auditors in setting biologically acceptable standards.

Frank Prokop's response was that managers should put questions to researchers, but this process has inherent bias. There is little career reward for scientists in providing information to managers, and their reputations may be diminished (relative to publishing scientific papers) among their scientist colleagues. Peer review of scientists should include assessment of the quality of their advice to management, in addition to their publications.

Richard Tilzey added that the peer review process could arguably include review of management performance against stated objectives.

Derek Staples remarked that research previously regarded as esoteric, is in some cases now valued by managers. The prediction of

future management information needs is a major problem.

Richard Tilzey advised that some approaches, such as ecosystem or trophodynamic approaches, require expensive research, but may yield long-term advantages.

According to David Smith, success stories in fisheries management involve stability and long-term relationships among scientists, industry and managers. There should be no rapid turnover of the key players in the industry/scientist relationship.

Jeremy Prince said that licence prices provide an indication of how much fishers can gross in one year. In a managed fishery, this may be 1.5 to 2 times the amount in a developmental fishery. The amount may be even up to 6 times in a managed fishery. The time that a fisher has been operating in a fishery may be important, in terms of the ability to recoup the costs of the licence.

Richard Tilzey emphasised that a long-term view must be maintained for management of industries such as forestry and fisheries. It could be argued that forest management has suffered from the historically ingrained priority of supplying timber industry demand; at the expense of long-term sustainability. Managers of natural resources will always have a regulatory role, but should be above suspicion in terms of their long-term objectivity.

Jean Chesson acknowledged Jeremy Prince's point about the cost of licences to fishermen and the need to recoup costs in the short-term. She suggested further that even in the long term, the objectives of industry may differ from those of scientists.

Craig Shaw said that taking out more than one licence in a fishery, in the hope of maintaining a diversified income, may involve a fishery having many inactive licences. In setting regulations, management must keep up with the active players.

Richard Tilzey agreed. The doors are closing on access to fisheries around Australia. In this climate, many fishers are buying up endorsements to keep on the shelf for speculative purposes. Some form of performance criterion should be required to maintain an endorsement.

In Rick Fletcher's experience, the operators with a longer history in a fishery will look after the fishery, but new players have a huge debt to service and will play the game harder.

Richard Tilzey, as Chairperson, closed the discussion of Session 6, by summarising the outcomes of the Session in very few words; a continuing theme was the importance of quality communication. Adequate communication and trust between manager, fisher and scientist, were seen as essential to resolving resource management issues. Current major obstacles to communication were seen as the uncertainties about resource property rights and the persistence of parochial attitudes in many fisheries. There was much discussion on ways to achieve this communication, with several successful examples being cited.

Participants were nervous about the implications of setting biological reference points for resource management. Chris Francis had described examples of the general inertia towards changing established management measures, such as the resistance to reducing TAC levels. It was generally agreed that unless such biological reference points were derived from adequate information about a fishery, they are a potentially misleading tool. The need for explicit, stated management objectives was raised. The usefulness of risk analysis had been debated. Many participants opined that management decisions should not be based solely on biological, or economic information; sociological factors should be included. Any further discussion of these issues would now need to be deferred to the final General Discussion.