

Discussion of Session 3

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Following each presentation, questions were addressed to individual panellists. At the end of the presentations the floor was opened for general discussion.

Aldo Steffe's presentation was followed by several questions about the results of his survey in NSW. Albert Caton was interested to know how far offshore the recreational fishery extended and whether Aldo Steffe had been able to obtain information on specific catch locations. Aldo Steffe replied that each site had been divided into 3 x 3 nautical mile grids and that fishers had been asked which grid they had been fishing in. This allowed them to determine the spatial pattern of fishing effort although they were not attempting to link catches to individual grids. Fishing takes place both inshore and on reefs up to 12 nm offshore. Very often many of the boats are in the same grid.

Dorothea Huber asked Aldo Steffe to comment further on the distinction between the inshore and offshore fishery and also on the importance of tunas and billfishes in the catch. Aldo Steffe responded that whilst they are aware that large boats launching at the ramp were clearly headed for offshore reefs, no distinction is made between the inshore and offshore catches. He had seen

billfishes in the catch at certain locations but they were numerically a minor component.

Referring to the regional differences in species composition, Julian Pepperell was interested in Aldo Steffe's idea of social preferences for fish and wondered whether he had asked people specifically about their reasons for harvesting particular fish species or if it was based on anecdotal evidence. Aldo Steffe confirmed that he had asked and that there were definite differences between regional, social and ethnic groups in their target species.

Alex Julius asked whether Aldo Steffe intended to repeat the survey in two or three years time to see if the fishery had improved or declined. Aldo Steffe replied that this was the reason why it was so important to obtain precise estimates of targeted catch rates as this allowed an objective comparison of fishing quality to be made between years. If estimates were too sloppy, the survey would not have sufficient power to detect an effect.

John Keesing queried the high proportion of 'rare events' in the catch composition in the metropolitan region and wondered if it was related to sample size. Aldo Steffe explained that a high proportion of highly-skilled anglers work out of one particular

boat ramp in the Metropolitan region and they are able to target fish quite specifically. Also, that region is characterized by a multi-species fishery resulting in diverse catches containing a few individuals of a number of species whereas in other areas with more specialized fishing, people catch high numbers of one particular target species such as snapper.

Frank Prokop asked Aldo Steffe what effect bag limits might be having on the skewness of the catch data particularly for species such as snapper and flathead. Also, is he recording catch per fisher or catch per boat as management is targeted at the individual angler. Aldo Steffe replied that they record the total boat catch but also the number of people in the boat. He felt that catch per angler was of little value as often the number of people in the boat is 'fudged' when anglers have caught several times their bag limit. He could not comment on the effect of bag limits as he had not yet subjected the data to detailed analysis.

After *Roland Griffin's* presentation, Rod Lenanton pointed to the high catch rates of barramundi in the Northern Territory survey and asked how much these high rates were dependent on the survival of released fish. Roland Griffin replied that there was no doubt that the survival of migrating juvenile fish caught and released in large numbers at a particular barrage contributed greatly to the availability of older fish upstream, or that some fish are being caught more than once.

Barry Pollack wanted to know whether Roland Griffin had been able to estimate the total recreational catch for comparison with the commercial catch. Roland Griffin replied that he had estimated the total catch in the Mary River and it is in the order of

9 tonnes, although he suspects that this might be an underestimate as many people are now taking up night fishing possibly more successfully. This will need to be addressed. The commercial fishers are not allowed to fish in, or within 5 km of, the Mary River but from a nearby region their catch is 19 tonnes.

Don Gartside enquired whether Roland Griffin had noticed any impact on the recreational catches as a result of restrictions on the commercial fishing industry. Roland Griffin replied that the increase in barramundi catch rates does coincide with exclusion of commercial fishing within the Mary River and with buy-back schemes to reduce overall effort substantially. However, there have also been several good wet seasons in the same time period and rainfall is strongly correlated with recruitment of barramundi. It was therefore not possible to separate out the individual effects and it was likely that increased catch rates were the result of a combination of the two factors.

The discussion moved on to the area of a national recreational fishing database. Stefan Sawynok, who helped to develop the Queensland Sportfish Tagging Program, commented that a similar system to the one proposed by *Neil Trainor* was envisaged for the National Tagging Database. It would operate on the same principles of having a common platform for information storage and retrieval and would have enormous advantages for both researchers and recreational fishing groups in terms of easy access to information of a consistent standard.

John Garvey asked Neil Trainor how you could ensure that after spending large sums of money to set up a national recreational fishing database the government would continue to fund the data collection proc-

ess. Neil Trainor felt that with the recent recognition of the importance of recreational fishing and the seriousness of the resource allocation issue, it will become increasingly necessary to have access to reliable recreational fisheries information.

Aldo Steffe asked Neil Trainor how he would approach the problem of standardisation of data as, for example, there were many alternative ways of calculating fishing effort or catch rates. Neil Trainor agreed that survey data would be the hardest to deal with as standards were still evolving as evidenced by this Workshop. It is an area that would require the combined expertise of each agency involved to resolve. However, there are still a lot of common elements, for example, club records, tagging databases, charter vessel programmes and compliance reports, which should be more compatible.

John Keesing wondered who would be responsible for managing and maintaining the individual, customised, agency databases once they had been set up by the developer group. Neil Trainor replied that this had not yet been addressed.

During more general discussion Aldo Steffe was asked by John Darby if he asked fishers whether they enjoyed their trip so as to determine if angler enjoyment is declining over time. Aldo Steffe responded that they were not asking for attitudes or opinions although they did carry a comment sheet. One of the reasons for this was that it was necessary to keep interview duration down to a minimum so as to maximise the number obtained as there is often a peak retrieval period during which several boats return to the ramp at once.

On that note, chairperson David McGlenon called for comments from the floor, and in particular from recreational fishers, on what constitutes fishing quality and whether in fact it is useful to attempt to measure it. Baden Hopgood, Chairperson of the Victorian Recreational Fishermens' Advisory Council, didn't think that as a general rule you could measure fishing enjoyment as it was all things to all people.

In the US, Steve Malvestuto explained, they consistently ask anglers to rate their fishing success as good, fair, poor, or excellent and try to correlate these ratings with harvest rates. In some cases, e.g. where fish are being caught for food, they are strongly correlated; in others, such as catch and release fisheries, they are not. They also ask anglers how satisfied they are with the facility they launched from and questions about the state of the environment. Thus, there might be some simple rank type data that can be collected to get at socio-cultural information.

Mike Cappel thought that it is fundamentally important to study angler motivation but that one should seek collaborators in the fields of anthropology and sociology rather than dabbling in areas in which we have little expertise. He stressed that there are people interested in getting involved in such work.

Barry Jones was of the opinion that the most satisfying aspect of fishing was the knowledge that the fish are there and one has a chance of catching them irrespective of whether or not one is successful every time. Alex Julius agreed but stressed that for people who spend a lot of money to go, say, barramundi fishing in the Northern Territory, there is a certain expectation of

catching a fish which, if not met, leads to disappointment.

Tim McLarnen pointed out that one factor which had so far not been mentioned was that ethnic background has a large part to play in determining not only target species but also attitudes toward fishing. He asked if Aldo Steffe had looked into this. Aldo Steffe replied that whilst not investigating it specifically, the influence of certain ethnic groups had clearly spread and more people are now, for instance, targeting squid. Rudy van der Elst followed this up by saying that setting management targets in South Africa was proving to be a big challenge because of social and ethnic differences in enjoyment and motivation. Satisfying the needs of a wealthy recreational angler may not suit the needs of an artisanal fishing community. Attempts had been made to extract this kind of information from different fishing groups with varying degrees of success. It was found for instance that ski boat fishers wanted a diversity of fishing experiences and catches.

David McGlennon suggested that it was necessary to make some progress on this issue in order to set management objectives in the future. Up till now the focus has been on biological management and this may at some stage become less important. Enjoyment on the other hand has not been quantified enough to set management goals. He asked how the managers of recreational fisheries are judging their own performance success if they are not utilising some of these criteria.

Frank Prokop responded to this by saying that over time the agenda for recreational fisheries management has shifted away from purely biological stock assessment into consideration of socio-political issues.

It is important to find a compromise between what is biologically necessary, socially acceptable and politically expedient. Most fisheries agencies are therefore trying to devolve the decision-making process as much as possible to the client groups and involve as many people as practicable in deciding management aims to improve the chances of reaching a generally acceptable solution.

Gary Henry has been investigating what makes a good angling experience in NSW where anglers claim that catch rates are declining but effort and expenditure on fishing are increasing. He is doing such things as improving access to impoundments and getting anglers involved in things that they consider worthwhile such as education and stocking programmes. Recreational fishers also like to be involved in management aspects including data collection, analysis and dissemination. He suggested that there is a whole range of aspects of recreational fisheries management which anglers are keen to participate in and which are divorced from simply providing a sustainable catch.

Andrew Sanger believed that in Tasmania one of the reasons why their freshwater fishery has been so popular is that they have provided a broad range of specialized fisheries close to major population centres. He felt that offering a diversity of experiences is important in satisfying anglers.

John Smith spoke about the high level of apathy and disinterest about management amongst recreational fishers generally. Public meetings are very often poorly attended and when submissions are sought on matters of their interest, response rates are very low.

Laurel Teirney described an attitudinal survey conducted in the freshwater river fishery in New Zealand in which anglers were asked to rate rivers according to certain values such as scenic beauty, solitude, ease of access, proximity to home, catch rates, size of fish, etc. Results showed that 'wilderness' rivers were valued highly for their scenic beauty and the size of fish caught, while the amount of fish taken was of low importance, whereas in 'recreational' rivers the onus was on high catch rates. A multiple regression showed a relationship between catch rate and area of fishable water, perhaps due to food availability. This led to a process of selection of nationally important rivers for protection in which all anglers were involved.

Laurie Gwynne added that amongst the 4000 submissions received during the recent Queensland State Government enquiry into recreational fishing, a recurring theme was conflict and conflict resolution. It was clear that a conflict-free fishery was something that anglers would value. As a result, the QFMA was now considering a number of commercially-free fishing areas which may go some way towards satisfying some anglers. David McGlennon pointed out that despite this, there are plenty of recreational-only fisheries where anglers are dissatisfied. It seems there is an evolution of complaints beginning with commercial fishers and progressing on to other things once they have been excluded.

Murray MacDonald asked Peter Davies about the use of data obtained through recall questionnaires, in particular the confidence that is placed on catch and effort estimates. Work in the United States suggests that people's ability to accurately remember such details declines rapidly

within a matter of days or weeks. Peter Davies replied that he was well aware that these estimates would be 'rubbery' and that creel surveys were likely to yield more accurate results. However, they were a cheap tool which could be useful for monitoring trends and were standard from year to year.

Andrew Sanger commented that in the case of the Tasmanian trout fishery the anglers were a dedicated group and were able to recall catch details accurately. Roland Griffin on the other hand had found recall bias to be a major problem in a 1986 household survey in the Northern Territory. This would be addressed in a forthcoming survey by regular fortnightly phonecalls to obtain information before it was forgotten. David McGlennon questioned why they did the survey on an annual basis rather than, for example, monthly, with a smaller sample size. This would help to overcome the problem. Roland Griffin replied that this was an historical system based on the licensing process.

Julian Pepperell then asked Steve Malvestuto to comment on the five-yearly National Marine Recreational Fishing Survey which takes place in the United States and which relies on angler recall.

Steve Malvestuto described it as a complemented survey where, because of the recognition of the difficulty of obtaining accurate species harvest information through the mail or by phone, hundreds of staff are hired to conduct a random, stratified sample of landings at sites along the coastline. This is complemented by a phone survey which is used to obtain total effort estimates within each stratum as a proportion of the population in the area.

Stratum estimates are multiplied by harvest rates to give a total harvest figure. Thus, two different survey techniques are used in tandem to produce an efficient and cost-effective sampling method. It supplies national statistics five-yearly so that trends can be monitored. On the whole, it has proved to be very useful and the information generated is felt to be reliable. The data do not provide site-specific intensive information for regional fisheries management so many of the states must supplement with their own marine recreational fishing surveys for certain bodies of water.

Rob Day was concerned that, considering that the normal intention in gathering recreational fishery information was to provide management advice, there should be a representative of the management arm associated with recreational fishing surveys who could liaise with fishers about how the information will be used in management and how they can be involved in the implementation of management actions. Laurie Gwynne felt that this was the role of management advisory committees which should be highlighting and coordinating research directions.

David McGlennon brought the discussion back to the subject of a national survey, which Australia does not have at the moment, and asked whether there was any support for one. Frank Prokop replied that it had been a very strong recommendation from the National Recreational Fishing Policy that such a survey be instigated; however, disagreement exists amongst the various fisheries management agencies as to who should fund one. He agreed that a regular national survey could provide valuable baseline information and should be seen as a high priority for funding applica-

tions and he suggested that perhaps this Workshop could strengthen the push for that. David McGlennon pursued the topic by asking Frank Prokop what information managers, in Western Australia for instance, would get out of a national survey, that they didn't already have. Frank Prokop replied that several positive outcomes had been identified by the committee and were listed in the appendices to the NRFP discussion paper. Not the least of these was a continued time series of participation rates to see whether there had indeed been a recent explosion in recreational fishing effort as alleged or if it was actually a recent realisation on the part of government of the extent of recreational fishing. Furthermore, it would elicit spatial and temporal patterns in concentrations of fishing effort. (For instance, in NSW and Qld, fish stocking programmes have resulted in increased fishing effort in freshwater impoundments). This kind of knowledge would allow changes to be made in the emphasis of research and management to reflect such shifts. David McGlennon responded to this by asking whether it was true that one would, in fact, obtain information that it was worthwhile to measure from a national survey, citing the example of the highly consistent participation rates found in all surveys.

Nick Caputi felt that it was essential to establish a long-term database such as we have for the commercial fisheries although it remained to be decided what model should be adopted. It was likely to be more cost-effective to do this on a national scale. Ross Winstanley followed up by saying that the group of people involved in drafting the NRFP were emphatic in their view that there was a lot of value to be had out of a national survey and unanimous in feel-

ing that the Commonwealth Government could best financially benefit recreational fisheries programmes by funding a periodic national survey of socio-economic values.

Colin Buxton finished the Session by describing the creel survey being conducted by the National Linefish Research Group into all aspects of linefishing in South Africa. Their questionnaire covers four categories of information: angler information, catch and effort information, economic value and angler attitudes, not only to fishing but also to management and compliance, in order to discover how they perceive management decisions. He ended by stressing that you cannot simply force regulations on people; they must feel that they are actively participating in the management of their own resource.