



F I S H E R I E S
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C O R P O R A T I O N

Australian Fisheries Economic Statistics Workshop

Proceedings

**6 - 7 February 1997
Brassey Hotel, Canberra**

Cook Wass & Associates Pty Ltd

Australian Fisheries Economic Statistics Workshop Proceedings

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Australian Fisheries Economic Statistics Workshop

Agenda

Thursday: 6th February 1997

Session 1: 1:30 – 3:15pm

Chair: Russell Reichelt	FRDC Chairman	
Peter Dundas-Smith	FRDC	Opening remarks
John Tanzer	QFMA	Fisheries statistics: A state management perspective
Mary Harwood	DPIE	A national policy perspective
Richard Stevens	WAFIC	Fishing industry data needs
Discussion		

Session 2: 3:30 – 5:30pm

Chair: Nigel Scullion	ASIC Chairman	
Gerry Morris	Morris Communications	The New Zealand approach to fisheries statistics
Catherine Cook-Wass	Cook Wass & Associates	Survey results
Perry Smith	ABARE	What's wrong and right with fisheries statistics
Tor Hundloe	UQ	The scoping study
Discussion		

Friday: 7th February 1997

Session 3a: 8.45 – 10.30am

Catch statistics

Chair: Bob Kearney	UC	
Geoff Rohan	AFMA	Addressing AFMA information needs
Nik Dow	NRS	Operational problems with production statistics
David McGlennon	SARDI	Measuring recreational fishing
Chris O'Brien	BRS	Role of the SCF Working Group
Discussion		

Session 3b: 8:45 – 10:30am

Non-catch statistics

Chair: Tony Battaglone	DPIE	
Geoff Heffernan & Marie Flint	ABS	ABS role in trade and other statistics
Rhonda Treadwell	ABARE	Valuing non-commercial fishing uses
David Cox	DPIE	Trade statistics: a users view
Discussion		

Session 4: 10:45 – 12:45pm

Workshop session: Setting priorities

The Workshop was broken into small groups to address key issues, including setting the weighting which should be given to the different areas of the statistics problem, whose responsibility they are, and a framework for addressing them.

Session 5: 1:45 – 3:45pm

Workshop session: Strategic planning

Bringing together a framework for addressing the issues. Using the data generated from the workshop session, priority areas will be identified using a framework based on need and on feasibility to establish a ranking for statistics projects.

Session 6: 4:00 – 4:10pm

Peter Dundas-Smith	FRDC	Closing remarks
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Australian Fisheries Economic Statistics Workshop

Mark Twain once said ‘everyone complains about the weather but nobody ever does anything about it.’ Fisheries statistics fall into a similar category but the aim of this workshop is to do something about it.

The lack of fisheries statistics is an impediment to industry development and sustainable fisheries management. It is essential that the information base be available on economic aspects of the industry to meet the increasing need for timely decisions on what are often complex issues.

FRDC and a range of other organisations have taken some steps toward addressing fisheries statistics issues prior to this workshop. However, it is a difficult problem with many facets.

The importance of the problem is reflected in the strong turnout to this workshop. The objectives of the workshop are to:

- Identify current deficiencies in economic statistics and the means by which these can be addressed; and
- develop agreed strategies to resolve the problems.

If we can at least leave the workshop with a clear understanding of what is needed, why it is needed, what needs to be developed and by whom, we will consider the workshop a resounding success.

Information at the Commonwealth level is generally not needed at a high level of resolution but we use aggregate industry information frequently and this information needs to be timely, regular on an annual basis and accurate.

Key questions at the national level:

- **Size and importance of the fishing industry.**

We need to be able to argue for the inclusion of fisheries in national programs, such as the *Supermarket to Asia*. Profile information is needed to ensure that the industry has access to the resources, decision makers it needs.

- **Resource use conflicts**

We need to know accurately what the value of resource use is both to the fishing industry and to other industries, particularly between recreation and commercial users. How do you consistently value the different uses of the marine environment, whether commercial or recreational fishing tourism or whatever?

In constructing multiple use frameworks economic information is very important. A group is developing a multiple use strategy for the Gulf of Carpentaria and the first question they asked was what are the economically important industries, how much are they worth.

We know very little in relation to Indigenous fishing rights and we need to learn fast. A lot of action is about to happen.

- **Research**

The Government and industry invest \$50 million in research. We need to know whether our research dollar is being spent wisely, what are the returns on that research and where it needs to be focused. There is an increasing demand from the community, whose money it is, to know that it is being spent on the most important areas.

- **Adjustment**

Often you want to know whether a proposal to fix a problem is actually going to fix it. Economic information is at the heart of this. We need to know that funds for management and adjustment are being appropriately targeted.

In terms of enforcement, is it worth spending \$50m in enforcement in a fishery that is only worth \$10m? There are difficult questions in relation to enforcement. For example in remote areas we have to come up with a rational approach to enforcing our sustainability obligations.

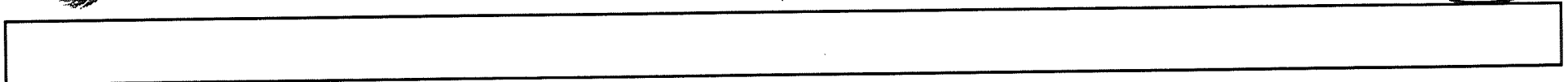
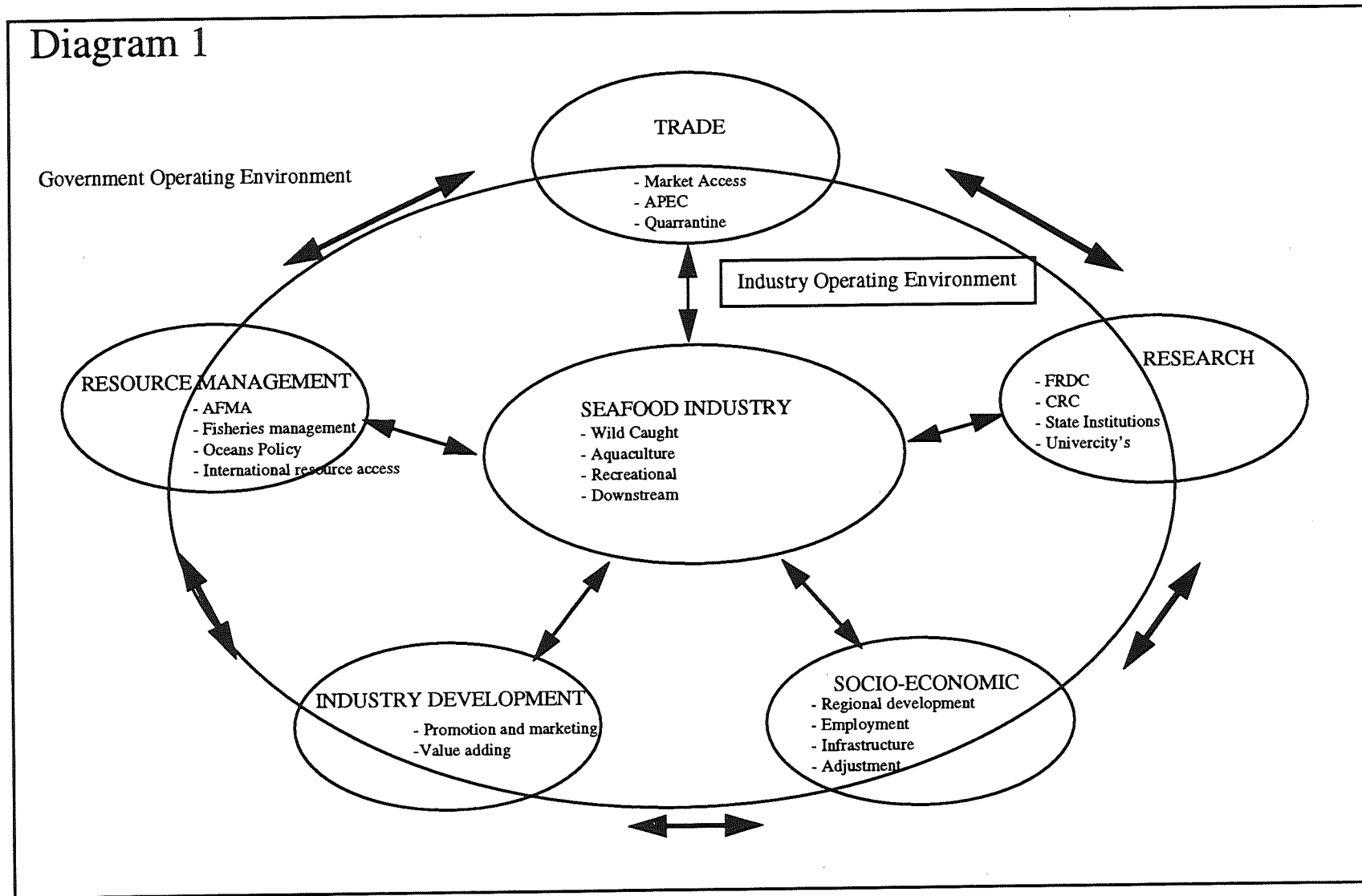
The cost effectiveness of management. Particularly when you are in a regime of sharp levy based systems where you know how many c/kg you are paying for management. You have to know what is being spent on what and why, whether it is a good investment and whether it could have been done better.

- **Global level information**

We contribute to the FAO fisheries database which covers world production and value of production and trends and to other international bodies. It is often a challenge to provide this information in the detail required.

Economics of transboundary fisheries such as southern bluefin tuna are important in relation to international negotiations. We need to know how the economics of our industry relates to the rest of the world and the total economic scene.

Diagram 1

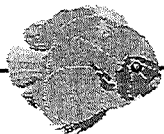


FISHERIES AND AQUACULTURE BRANCH

- ◆ FAB is the central point in DPIE for policy development, advice and co-ordination on national and international fisheries and aquaculture issues.

- ◆ The Branch works closely with the
 - Minister
 - Australian Seafood Industry Council
 - Australian Fisheries Management Authority
 - relevant Commonwealth and State Agencies
 - a range of other non-government organisations

to ensure that Australia's fishing and aquaculture industries are internationally competitive and environmentally sustainable



EXAMPLES OF THE COMPLEXITY OF GOVERNMENT ECONOMIC INFORMATION REQUIREMENTS

- ◆ Imported Fish and Fish Products Taskforce
 - Current data and information systems inadequate
 - Contingency planning hindered
 - Decision making capabilities hindered
- ◆ Salmon Import Risk Assessment
 - Scientific assessment
 - Socio economic implications of disease incursion
- ◆ Foreign Access Fees
 - Fair and equitable return to Australia
 - Cost benefit analysis
- ◆ Review of The National Strategy on Aquaculture
 - Lack of national data on current status of aquaculture species
 - Strong projected growth difficult to plan for
 - Investment opportunities difficult to assess



- **Trade**

We need to be able to know where to target our energies. There is only limited resources available for pursuing Australia's trade interests overseas. You need accurate information to know where to invest that energy. To do that, you must know basic trade information and current issues for the industry. For example, in the APEC environment we need to be able to identify what we are going to seek in terms of the targets for other countries and what we need to change.

- **Industry development**

People want to know what the industry's place is, what they are doing in relation to the environment or whatever. There is a lot of interest out there. The industry *fishfact* pages is the most popular in the Department's web site. Fishfacts covers basic information on a range of topics, such as the productivity of the Australian Fishing Zone or the shape of the aquaculture industry.

This is worthwhile because it helps the profile of the industry and addresses a number of misunderstandings in relation to the industry. However, it must be accurate because it is accessed by a large number of people worldwide.

- **Government inquiries**

We are required to submit material to a large number of government inquiries, often at very short notice. If we don't then it is highly likely that industry will miss out in relation to future developments. Four examples which have recently come up which have identified different aspects of the economic information problem.

- Imported fish and fish products task force exposed fundamental shortcomings in our information base related to what imports are coming in, where they are going, in what form where they are coming from, how are they handled. Risk assessments in those areas have exposed a huge need for economic information on trade and on socio economic features.
- Disease risk assessment. Assessing the socio-economic impact of the incursion of a disease, the impact of keeping the product out, or its impact if allowed in are crucial issues.
- Foreign access fees, which has shown the need for good information on what is it costing to fish, benefits of access. At the heart of this is economic information about those fleets.
- National strategy on aquaculture, which has shown the need for robust GVP statistics, and information on profitability of the industry.

Fisheries management at the state level is more complex than at the national level because it is more issue driven and hence more volatile. We have a substantial commercial sector, a large recreational sector estimated at around 800 000 participants, an indigenous sector particularly in the Cape and Gulf of Carpentaria, and a charter boat sector which has around 350 operators largely operating in the Great Barrier Reef but increasingly in freshwater and estuarine areas.

A factor which people need to bear in mind is the regionalisation of the state. It is decentralised in terms of fishing activities so that the importance of regional information is quite high. At QFMA we purposely put our main focus on the resource and don't set out to manage in the interests of any one of those sectors. We make our attempts to reconcile those competing interests through management plans. In these plans economic information is regarded as important for sustainability issues but critical for addressing allocation issues.

There is a paucity of information across the board, not only economic but biological information. We are in a better position in relation to biological than economic data. There is a strong emphasis on consultation between the management advisory committees and information is essential if you are to reduce the emphasis on political muscle. Consultation based on either emotion or political muscle is unlikely to deliver outcomes that are either fair or sustainable.

The usefulness of management plans depend on being based on good information. This is not an argument for not having them in the absence of good information but they will be subject to considerable criticism and change over the next 5 years due to the lack of information we have to base them on. Management Advisory Committees won't work effectively if they don't have good information on either the current situation or on the implications of various decision options.

Some of the issues in Queensland where economic information is critical include:

- Market forecasting and market news are essential. For example, we need to know what we are dealing with in relation to the live fish trade in SE Asia and the spanner crab market over the next 5 years. What are likely to be the price changes and how is this likely to impact on fishing activities? Industry needs to know for its planning. Management needs to know as it has implications for sustainability and resource allocation.
- We need economic information at a regional level. For example, Bundaberg is heavily dependent on commercial fishing to support income and employment. To what extent we don't know. We are making decisions which impact on the region but we don't have economic information on which to base these decisions. We were facing a decision to close down Hervey Bay for tourism and did not have the information to put to the politicians in relation to the impact. We need better than back of the envelope estimates to make complex decisions.
- We have a problem in relation to excess capacity and overcapitalisation in relation to the trawl sector. The sector wants to deal with it but doesn't have the information in front of it to examine the options and determine the implications. This adds to industry uncertainty and as a result the rumour mill works overtime. The industry needs to know where it is now and where it will be at the end of the process.

We have a similar situation in the Gulf of Carpentaria where there are 110 gillnet operators. The operators believe there should be 60-70 but they have no basis for saying that, other than their experience in the fishery. They need to know what their likely profitability will be at the end of the adjustment process to allow them to enter the adjustment debate. The Northern prawn industry had available to them information on where the industry would be at the end of the

adjustment process and this facilitated the debate and moved the process on. In relation to southern bluefin tuna it may be argued that there was considerable economic information available prior to the adjustment process. However, the availability of regional information in relation to WA operators prior to the changes would have allowed the regional issues to be better addressed.

- We are moving down the cost recovery path and need to be able to identify the costs of management and the benefits of that management in order to be able to justify this to the industry.
- Water resources and coastal developments impact on fisheries. We need to have the facts to put to the debate in relation to whether these processes should go ahead. Fisheries managers and the industry finds it hard to contribute effectively.
- Social and cultural information is required to rationally deal with the current debates, particularly in relation to native title. We don't have the information but there are operators in the Gulf who do.

In summary, Queensland fisheries are entering a critical phase. We are entering a number of new areas in relation to tourism, development, adjustment issues. We need good information to develop good policies. Not just good economic information but also good stock assessment information. Hopefully the two go hand in hand but we need to address the problems now.

I would like to talk about some of the things the industry has, what it doesn't have and what it would like to avoid.

What we have

I like the Australian Fisheries Statistics. One of the reasons is because it is produced quickly. While I accept that there are some errors in it, I don't think it would have the same value if produced 12 to 18 months later.

In WA we also have a good relationship with the Fisheries Department in relation to information. They prepare an annual state of the fisheries publication and they are open in relation to the provision of information.

We hear about the black hole in relation to economic information. It is a big industry but the economics of it are spread among only a small number of major players. Ninety-five percent of the product is exported, you are only talking about half a dozen prawn and scallop exporters, a dozen rock lobster exporters and maybe the same in pearls. If you want information and if you are in the industry, that information is available to you. Possibly not analysed but the raw data is freely available. One of the reasons that the industry will make the information available to an organisation like WAFIC is because they see that WAFIC needs it on the industry's behalf and it won't be used against them.

The sort of information they provide is accurate and verifiable. For example, I will briefly run through some of the information that I called up in relation to rock lobster holding or farming.

- Annual rock lobster production by country – it doesn't relate to a particular year but it could.
- Exports, including live exports
- The season's catch in Australia and New Zealand, and live exports.
- Exports to Japan by Australia / New Zealand.

What it shows is that they export when we don't. If you are looking at deferring exports what do you have? You have all the costs of holding and financing the product, management and mortality losses so the game may not be worthwhile. Market share information is available and it can be available very quickly.

What we would like to have

The main thing we would like to have is involvement. Industry commissioned research means that when you put out questionnaires you can put them to people who will give you accurate information. They won't give you the responses you want particularly, but at least they will be honest with you and you can verify the raw data.

For example, this questionnaire was sent out on the 18 December, but a very large proportion of the industry was not available at the time. Had industry been involved with the questionnaire they would have told you that.

In the scoping paper, in the last column of the last page - who is going to do this data gathering - it has academics etc - Industry can do it too!

If there is to be economic modelling we would like it to be industry friendly so that we can do it too and plug in alternative product mixes, prices and exchange rates.

What we don't want

Coercive data collection, which is a red rag to a bull. Census requirements to provide information or the linking of the provision of data to licences has to be avoided.

Avoidance of due process. We have a process all research has to go through, including the research subcommittee of the management advisory committees, before it should be approved. Once approved and when the work is being done the process is reversed to ensure that the results are acceptable. We had an example of avoidance of due process where data was collected and the report had a huge number of errors to my mind and yet the summary said it could be used for management purposes.

The New Zealand fisheries economic review

The purpose

The key purpose of the publication is to get the ear of government and the business community, the creation of a perspective of the industry and a basis for comparison with other industries.

Any document has to be credible, but it is difficult to dispute a report which is well laid out, properly documented and referenced. It is one thing to provide the data, another to provide the commentary and interpretation.

Sources

The document uses information from a range of sources, principally Government and the Fishing Industry Board. The New Zealand Ministry of Fisheries plays a large role in providing industry and catch data. Most data is robust but there are problems in relation to some statistics, mainly in relation to industry structure and some aquaculture industries. Valuation needs to be consistent across species and years and needs to be carefully explained. We employ a consultant (ex FIB) to cover developments and interpretation.

Export data is vitally important, politicians want to know how much is exported in what form, how much value adding, jobs created and so on. The accuracy of exports data relies on exporters using the right species codes so there is human error involved. We try to relate the information regionally at the aggregate level but have found the costs of further disaggregation are prohibitive.

Promotion

The document release is widely promoted with a major launch in Wellington for political audiences, in Auckland for financial industry and Nelson for the regional audiences. We specifically segmented what we were going to do and went out and did that. Why? Politically we wanted government to stop tinkering with the legislation. We wanted the financial sector to regard the fishing industry as a sound investment, we have a sustainable management regime and what it means. In Nelson, which is the fishing industry capital of NZ, we specifically hammered the fisheries management issues, impediments to industry growth, new plants and waste disposal, the delays in getting consents for aquaculture.

We also used people in the industry who hadn't been used before. For example, in Wellington we had a young fisherman who was developing his fathers company. They run 8 boats out of Napier, specifically on fish supplying restaurants in the North Island. He came and told the politicians what is important to him and the impact of issues, such as cost recovery, on his operations. This was extremely well received and we used this as a media platform and we used it again in Auckland we invited the main financial weeklies. We had two major features in these.

By positioning the document as a credible source the media reads it, mix with the right people and ask the right questions. When an issue does come up they are already semi-informed and know who to talk to.

We promote the industry as a cohesive, motivated and responsible industry of New Zealand. The industry has been seen as a moaner so here we go out to counteract this to promote the industry as one which has its act together.

Costs involved

The New Zealand situation is different to that of Australia because we only deal with one government, and Ministry of Fisheries. So Australia may be New Zealand multiplied by seven.

Some estimate of the above line costs involved

- Cost of sourcing, data around \$25k by using outside consultants.
- Printing and publishing, around \$50k.

We have certainly overcooked it with the printing. There is widespread interest in the document and we are certainly not going to reprint it. We will prepare a new one later this year.

- Promotion around 25%
- The cost of FIB salary time would be around \$50 k.

Lessons learnt

- It is a worthwhile task but must have the resources committed to it;
- Industry knowledge and involvement is essential in terms of credibility of the document;
- The data must be right;
- Team approach is essential;
- Must promote the document and the industry;
- It must be forward looking. Stay with the main game. Multipliers are very time consuming and subject to various interpretations. Get to the first base first.
- Some refinements are possible, such as a smaller glossy document. The supporting supplementary tables could be run off on a laser printer.

We are doing this for exactly the same reasons as you have in organising this workshop:

- Getting the decisions by decision makers, whether by politicians, government or the business community right in the first place.
- Influencing investment decisions
- Promoting the industry and industry cohesion

Australian Fisheries Statistics was developed in 1990 to bring together a range of statistics on the industry. The purpose behind the development of the publication was as a means for assessing the outlook for the industry and dealing with requests for information from a wide cross section of government, industry and the community. Moreover, State Fisheries officers were having the same problems. There was very little information on the seafood industry in Australia that was not either very difficult to get or out of date. No aggregate production statistics or GVP had been published for 5 years.

The objective was to set up a framework for a low cost (to all co-operators) publication which covered the most recent three years fisheries production and trade. While ABARE puts the data together and publishes it, it is a collaborative effort, involving a number of different organisations at the Commonwealth, State, and individual company level. It is not costless, either to the organisations or the individuals involved.

In aggregate terms, it has raised the profile of the seafood industry. However, it is now used for a range of purposes for which it was never intended and the information requirements of both industry and government have become more demanding, both in terms of the coverage and the level of resolution needed and in terms of when it is needed.

The series is now used as the official value of the industry, is used to set the allocation and disbursement of research funds to the industry and in some areas, to set industry levies. More importantly, it is used for a wide range of decision making in terms of identifying opportunities and constraints on the industry. Requests for information in relation to the seafood industry now tend to be in relation to what is produced, where it is produced, and how it is used. The greatest number of inquiries relate to the use of fisheries resources and to marketing issues.

Australian Fisheries Statistics attempts to provide a summarised version of commercial production, value of production, trade and industry structure. The problems reflect those of fisheries statistics generally. It is geared to the production sector. It is a low resolution publication that included only summary information but provides the basis to monitor longer term changes. It makes no pretence at assessment of the processing, wholesaling and retailing sectors or at the consumer level, interstate trade or seafood consumption.

It does not cover related marine industries, such as charter, recreational fishing and the like. It uses a particular definition of what is included and excluded. Marine reptiles, flora, and aquarium fish are excluded. It generally does not include foreign fishing.

- Production estimates used are summaries, based on state and Commonwealth catch statistics collections.
- GVP measures the value of production at a consistent point in the production process, in this case ex vessel or, in the case of aquaculture, at the farm gate, so as to exclude marketing costs. Valuation statistics are either those developed by the State fisheries or developed by ABARE on the basis of either sales at the main market centres or from contact with traders.
- Trade statistics are summaries of Australian Bureau of Statistics trade statistics.
- Structural statistics provide some information on the operating units involved in each sector of the fishing industry.

The problems which impact on Australian Fisheries Statistics include:

Production statistics

- Data currency

Australian fish statistics attempt to provide 3 years statistics, with an estimate of the current financial year's production and complete estimates of the two previous years.

There are significant lags involved in processing logbook returns in relation to some fisheries. To use these statistics as the basis for current catch statistics requires that all fisheries statistics meet a common set of milestones. To achieve these milestones imposes an additional workload on those collating state statistics, as they have a different timetable. Compensation for the marginal costs involved may assist in collation.

It is impractical to expect complete enumeration of current year data within such a short time frame. For current year statistics, it should be feasible to develop accurate estimates based on a proportion of the returns. However, it should be feasible to ensure that the previous year is complete.

- Data coverage

Some of the catch statistics are not inclusive, but only focus on target species. For example, northern prawn logbooks only record prawn catches not other species such as squid which are taken in commercial volumes.

While they record species, there is no information on sizes. This information is important as there are as many differences in value based on size distribution as there are on species. If you are managing a fishery, this information can be crucial.

- Locational detail

There is no information on where the product is landed. One of the most commonly asked questions is what is the production from North Queensland (or wherever). With Commonwealth fisheries this is often difficult to assess.

- Accuracy

There is potential for various distortions to the accuracy of catch statistics. These include:

- The impact of different management regimes. For example, with ITQ in one fishery and no ITQ in an adjacent fishery there are incentives to record catches in the adjacent fishery.
- The misreporting of catches. There is a range of reasons for misreporting which require examination to establish the causes and corrective action to address them.

- Aquaculture statistics

In some states there are no reliable estimates of production as no collections are made. There is no organisation overseeing the development and maintenance of aquaculture statistics. ABARE has recently completed a review of the aquaculture industry.

- Confidentiality

A requirement for national statistical collections is that there have to be a minimum number of operators within a category before it can be shown. This becomes a problem in relation to fisheries where there are a small number of operators. The right of confidentiality has to be balanced against the public's right to know how a public resource is used.

- Year base

AFS presents information on a financial year base. Much of the information it uses is collected on either a calendar year or a fishing season. There is no standard in the industry.

Some of the applications of AFS require different year bases. For example, FAO requires annual data on a calendar year

Valuation of catches

- The general principle is that value of production should be the ex vessel value (or in the case of aquaculture, the farm gate value). This is applied by using the most proximate market less the costs involved in getting it there. Problems include:
- Establishing the appropriate markets and prices to use. There is a large number of marketing channels used in all sectors of the industry. Very often there is no dominant market which sets the prices. Even when there is a dominant market, some problems emerge in using those prices. For example, the most obvious dominant markets in relation to the South east fishery are the Sydney and Melbourne Fish Markets:
 - For some species, the volume sold at the markets is only minor and other channels dictate the price. For example, the prices paid by Tasmanian processors are crucial for obtaining valuation of some species.
 - The distribution of products can change significantly in a short period of time. Without monitoring, this can lead to major errors in the basis for valuation.
 - There is the implicit assumption that all fish of the same species has the same value. This is not generally the case. Source of fish, fishing method and size all have an impact. In the absence of standard grades it is not feasible to assess the basis for price changes – whether a change in returns is due to market demand and supply or due to changes in supply composition.
 - There are differences between the methods of valuing fish sold at the two markets. At the Sydney Fish Market the average price is used while in Melbourne the modal price is used. In Melbourne not all product is sold at open auction as a proportion is pre sold.
 - There is a large dispersion of prices around the mean, so the price used can misrepresent prices for some operators. This can be reduced with standard size grading.
- For some species the most proximate market is overseas (eg yellowfin, bluefin tunas, kuruma prawns). Trade statistics are generally amalgamated, reducing the feasibility of identifying exports or export values from this source.
- Identifying marketing costs depends on access to information from surveys or other studies.

Trade Statistics

- The Harmonised System framework used to collect the statistics prevents identification of trade in most individual species.
- There may be a large amount of classification error involved. This is supported by the wide variation in unit values within the cells and is an area which requires examination.

Structure statistics

- The seafood industry is very diverse and it is very difficult to give a summary of industry structure by fishery. Key problems include:
 - The base for management varies widely throughout Australia. In some states the individual fisher is the base, some the boat.
 - Operators are often licensed for multiple fisheries so there are major problems in establishing the overlaps in assessing employment, boat numbers and the like.

AFMA's Data Requirements

AFMA's management data collection system is based on five ongoing systems

- Catch and disposal records (CDRs), which cover
 - weight by species at wharf
 - product form, to whom sold etc
- Logbooks (by vessel), which cover
 - catch by species (whole weight on deck)
 - effort by method / units of gear / time
 - location (latitude / longitude or grids)
 - bycatch, discards
- Vessel Monitoring System, which uses GPS to identify vessel position
 - this system has potential for real time data transfer
- Prior Reporting requirements, which provide for 2 hour advance notice of landing. This provides data on estimated catch by species, destination.
- Dockside monitoring, which will use electronic scales to record landings.
 - this system also has potential for real time data transfer

We also use a range of other information for direct fisheries management, including:

- financial statistics, to determine industry/government attributable costs;
- species values, to determine quota levies; and
- compliance statistics for both domestic and foreign fleets.

Objectives of AFMA fisheries management

We aim to achieve 3 objectives:

- Ecologically Sustainable Development, which requires us to address issues of impacts on the environment and intergenerational equity (Generally addressed through the stock assessment process);
- Economic efficiency of the fleet; and
- Cost effective management.

These objectives are generally implemented through the development of:

- Annual operating plans /reports;
- Fisheries management plans; and
- Fishery assessment groups (FAGs processes), which open biological and economic objectives to wider scrutiny.

As an organisation we have tended to focus on ESD issues on the main fisheries but there is a need to focus more on the economic side of fishery assessment and to broaden the fisheries covered.

We rely on economic surveys to measure profitability. Within the surveys program we need to be able to identify the impacts of management (and isolate the impacts of non management factors) on the industry; and also information on structural adjustment, to assess whether management is meeting its objectives within the time frame. The key issues in relation to surveys are the frequency of assessment, the timeliness of surveys and availability of results for management decisions.

In assessing economic efficiency there are a range of factors involved. In output controlled (ITQ) fisheries reliance is on market forces to achieve efficiency but we still need to assess if this is happening. In input controlled fisheries, a key factor is the effectiveness in containing effort growth. We need to be able to measure changes in technical efficiency in order to make the necessary adjustments to fishing effort. We also need to have confidence in catch valuations. Recent improvements undertaken by ABARE go some way toward addressing the problems.

To illustrate the economic information needs, the SEF (Draft) Plan objectives are to:

- Pursue sustainable use of resources;
- Rebuild depleted fish stocks;
- Encourage economically efficient industry in harvesting SEF resources;
- Promote a cooperative approach;
- Increase asset security; and
- Implement efficient and cost effective management.

To assess the effectiveness of fisheries management in achieving these goals we are looking to establish and implement biological and economic reference points. In relation to the economic goals this may take the form of establishing that there has been an improvement in the economic efficiency of the SEF, measured in terms of:

- a periodic assessment of operating costs;
- levels of structural adjustment; and
- relative movements in yield value and returns on investment.

Longer term economic information requirements

- More active economic modelling role of FAGs. This is likely to entail:
 - AFMA/MACs to set requirements;
 - ABARE to identify measurement of performance; and
 - FRDC to fund economic assessments.
- Identification of the impacts of fisheries management (net of market changes).
- Refinements to valuation of production.
- Improved sectoring within fleet.
- Fleetwide assessment of changes
 - Needs to cover all fisheries under management control
 - .. issues of marginal returns to additional coverage need to be addressed
 - Frequency of assessment needs to be determined but it needs to be a planned process

Operational Problems in Collection of Fisheries Statistics

Fisheries are a small industry in Australia, especially in relation to the degree of effort required by Government in managing the resource. At the same time, management of Australia's fisheries is split between eight jurisdictions. If this is a divide-and-conquer approach, it is working well. As the cycles of interest and attention within each Government wax and wane, so do the fortunes of their statistical data collection systems. To do the job well requires long term development of expertise, client relationships and information technology. None of the eight jurisdictions has done it very well over the last ten years or so.

The information technology required is not simple. Fisheries being such a complex and arcane industry, the databases required in order to collect, collate and disseminate statistical information are correspondingly intricate and complex. The knowledge needed to successfully create such a database takes time to accumulate, and is not part of the training of most of the personnel managing fisheries (ie. fisheries biologists). Yet each of the eight jurisdictions, with the commendable exception of Queensland, has insisted on creating its own database for fisheries statistics. The fish cross borders, so do the fishermen. Why can't the databases? The result is, in several instances, the squandering of public money as small agencies reinvent the wheel. The systems they create are inferior to what we could have if a few agencies got together and did it properly. The future for these systems is not good given their cost of upkeep and the small industry base already referred to.

I have heard the view that fisheries management and research require different types of data and that therefore there should be separate databases for these two purposes. In some fisheries (particularly Commonwealth managed) we see licensees filling out the same information, at differing levels of summarisation, on up to three different forms. This is a good way to alienate the client! Rather than fragment the data collection, it is far better to collect the data once, if possible, and build a data processing system which can produce information outputs to suit all the down-stream clients. Doing this well is the result of learning from the past and improving it – Governments find this difficult because individuals move on and their expertise is lost. Victoria's data collection has been criticised as being "too detailed", however it has enabled us to supply both our research clients and our management clients with adequate information. Mind you, the researchers are always asking for more detail, and threatening to collect their own statistics, duplicating the statutory data collection. The answer here is to try and make the main collection flexible enough to incorporate additional, perhaps voluntary data.

Fisheries data can be summarised in so many different ways, owing to the large number of interacting entities involved, for example, vessels, skippers, ports, species, gear etc. To handle this the database needs to be sophisticated in both its storage structure and its summarisation algorithms. We have approached this in two ways. First, by processing raw data into a summary database, which aggregates the data into several fine-grained matrices. This data can then be further aggregated to produce almost all data reports required. Second, we wrote a "user specified retrieval" system, which takes some very general and flexible retrieval specifications via a user-friendly interface, and executes powerful and general retrieval program to produce the aggregated and selected data. This output is then often further processed in a spreadsheet where tables and charts are easy to produce.

Client relationships also take time to develop. Much is said about the poor quality of data input to and output from the fisheries statistics databases. Little is done on the ground to rectify the basic problem of "garbage in". In Victoria, we found that the supply-side clients are very receptive to

some decent treatment. The first step was to realise that suppliers of information can hardly be expected to put much effort into their data if they never see the results. Indeed, the results are often used to justify policies and plans with which they disagree. We took the approach of feeding information back to the suppliers, and asking for their comments. The first attempt at this was the Victorian Fisheries Catch and Effort Bulletin, produced annually for the last 3 years. This was possibly the first time that our clients had any evidence that they were regarded as important in the process of information gathering, and produced a very gratifying positive response. Fishermen told us that at last they had some idea of “where their figures went to.” This followed the introduction of penalty infringement notices for non-submission of returns, unfortunately necessary. Today, our client relations have reached the point that fines are rarely applied, as they are not needed any more. Our most recent step was to send individual licensees their own detailed data along with their annual supply of stationery. This was an idea we had long wanted to implement but treated carefully because of the confidential nature of the data and the danger of it accidentally going to the wrong recipient. We eventually overcame this by printing the address on the data report and using this in a window envelope – human errors avoided! Once again the results were dramatic and some long-standing errors in our data were immediately cleared up. Another service provided has been detailed and graphic summaries of individuals’ data on request, for example when a licensee was seeking bank finance.

All of the client-relations work has been so successful partly because our staff have treated their industry clients as an important part of the process. It is important to remember that the statistics collection staff are likely to be those in contact with fishermen more often than the rest of the fisheries bureaucracy altogether, and are the “front-desk” of the management agency. It is generally well recognised that fisheries biologists must be closely involved in the production of fisheries statistics if errors are to be recognised and also to ensure that appropriate data is collected. While we have found this to be true, I would estimate that the data suppliers are the more important factor.

The above remarks are a very short summary of what has been ten years of innovative and fruitful work, which in turn built on earlier work done by Terry Walker. I predict that sometime over the next ten years it will all be lost. The individual jurisdictions find it too difficult to maintain the high standards required. Today the task of collecting the statistics requires fewer staff, owing to more sophisticated computer systems, and the “critical mass” of expertise cannot be maintained. Usually a single key staff member is behind the quality of the process, and their departure results in major deterioration. Once the statistics area has been left to rot for a few years, management may realise the mistake and try to rebuild from scratch again, but the damage takes years to undo.

It may be unrealistic to propose the amalgamation of all the fisheries management jurisdictions, however something needs to be done. The OCS arrangements are a step in the right direction, but still leave us with the same number of small agencies. Out-sourcing of the IT component is likely to bring the loss of the specific knowledge that is needed for high quality results, but may make it possible for agencies to share skills and software. Perhaps the problems of fisheries management are a reflection of the imperfections inherent in our Federal political structure, but in today’s climate of change in government we need to actively pursue better forms of organisation that will deliver better results.

Recreational Fisheries Catch Collection: Methodologies and Problems

1. Introduction

I have been asked to speak on "catch collection methodologies and problems in assessment of recreational fishing". I will do this by describing the survey methods that are available - along with their strengths and limitations. I will then look at use of the methods in past Australian studies and the types of data which have been collected - in particular, I will look at the type of economic data that have been collected and the methods which have been used to collect them. Finally, I will comment on the issues which I consider to be the most important in terms of recreational fishery data collection.

Let me start by stating that recreational fisheries are highly variable. This is self evident but in the light of the issues we are discussing at this Workshop (survey strategies, funding, etc) it is critical to understand the complexity of the recreational fishery. Perhaps even more importantly, there is generally no sampling frame within which to design a survey ie there is no list of names from which to subsample. There are exceptions of course but it is a significant difference to sampling the commercial fishery.

2. Sampling Methodologies

With these thoughts in mind, let us consider some of the methodologies available (Table 1). The methods have been grouped into major categories but can contain numerous variations. While I will be discussing their attributes for catch data collection, the comments are equally valid for economic data collection. Please consider them in that light. The list is in approximate order from the most direct and expensive down to the cheapest and most indirect. The final choice is always a compromise between the resources available (time, money, people), spatial scale, type of info and accuracy required.

Table 1: Catch Collection Methods

	Strengths	Limitations
On-Site		
Creel Surveys	direct observation accuracy of information correct species & numbers	costs \diamond spatial scale avidity bias language impediments
Off-Site		
Omnibus (Personal)	medium costs \diamond spatial scale understanding of questions	recall, rounding bias prestige bias language impediments
Telephone	medium-low costs understanding of questions	recall, rounding bias prestige bias language impediments
Diaries	low costs	refusal rate recall, rounding bias avidity bias
Mail	low costs time for respondents to answer	return rates avidity bias recall, rounding bias understanding of questions

Given the need to compromise, I thought it would be useful to show you the relative popularity of these methods in past Australian studies. The data come from a review of all marine and omnibus studies published between 1974 and 1993, but exclude strictly freshwater studies (Table 2). Creel surveys have been by far the most commonly used - however, the compromise is that most of these have been conducted in relatively small areas - bays and inlets and metropolitan coasts. The omnibus studies were generally Statewide or National. However, it was a characteristic of other studies that they were conducted in relatively small study areas. The result was that there are a large number of results available which contribute substantial but scattered and piecemeal information. This is not intended as a criticism of past researchers (as I am one of them), but is a comment on the lack of a systematic approach taken by agencies in the past.

Table 2: Summary of Data Collection Methods

	No
Creel surveys (n=59)	
- Roving	29
- Access	20
- Combined	7
- Unknown	3
Diary	6
Omnibus	12
Historical	9
Aerial	4
Other	1
Questionnaires (n=41)	
- Postal	16
- Telephone	5
- Personal	9
- Self	7
- Combination	3
- Other	1

Efforts over the last few years have changed that to a degree - most States/Territories have completed or are working on recreational studies which are comprehensive in their spatial scale and I will comment more on that later.

3. Data Collected

Let us now look at the types of data which these past studies have collected, again from marine studies between 1974 and 1993 (Table 3). The primary purpose of the studies has been the collection of catch information and so CPUE, effort and harvest have been the primary outputs. It reflects the common impetus for commencing studies being conflict over resource sharing. In addition to the primary catch output, many studies collected demographic data (eg age composition, catchment areas by postcodes, sex breakdown, etc).

There have been a number which also collected economic data - particularly Qld, Vic and NSW - and I will look more closely at these now.

Table 3: Summary of the types of information collected from recreational fishing studies 1972-93

State	CPUE	Effort	Harvest	Species Comp ⁿ	Size Comp ⁿ	Demo-graphic	Economic
National	-	1	1	-	-	2	2
QLD	16	13	12	10	12	7	8
NSW	14	11	12	14	7	13	6
Vic.	7	7	7	7	5	8	9
Tas.	1	1	-	-	-	1	1
SA	13	8	7	10	6	6	3
WA	5	5	4	3	1	5	3
NT	4	4	4	-	3	4	2
TOTAL	60	50	47	44	34	46	34

The type of economic data collected has been heavily oriented to expenditure (Table 4). They have generally been categorised as capital items (boats, trailers, outboards, etc), tackle, gear and specialist clothing, and recurrent expenditure (bait, fuel, accommodation, etc). Data relating to capital items has been collected in many different ways - current market value, replacement cost, original cost. Expenditure on other items has been collected on per trip, month and year bases and often expanded into annual estimates.

Table 4: Economic Data

Data Types	
Value / Cost / Expenditure	
- Capital	18
- Gear	22
- Operating	21
Willingness to pay	4
Other	6
Data Collection Methods	
Creel	16
Omnibus	5
Telephone	4
Mail	8
Self	3

Willingness to pay has been a few times on questions such the WTP for their days fishing, to buy out commercial licences, have more fish available. Willingness to sell has also been used for the right to fish in the study area. Other economic data have included demand functions for recreational fishing, value placed on fishing rights, etc.

Most economic data have been collected by creel surveys - during the interview with an angler, they are asked questions relating to the cost of their trip or value of their boat. Mail surveys have also been commonly used and have the claimed advantage of allowing the respondents time to think about answers on costs and values. In general, all of the usual survey techniques have been used to collect economic data.

4. Medium to Long-Term Challenges

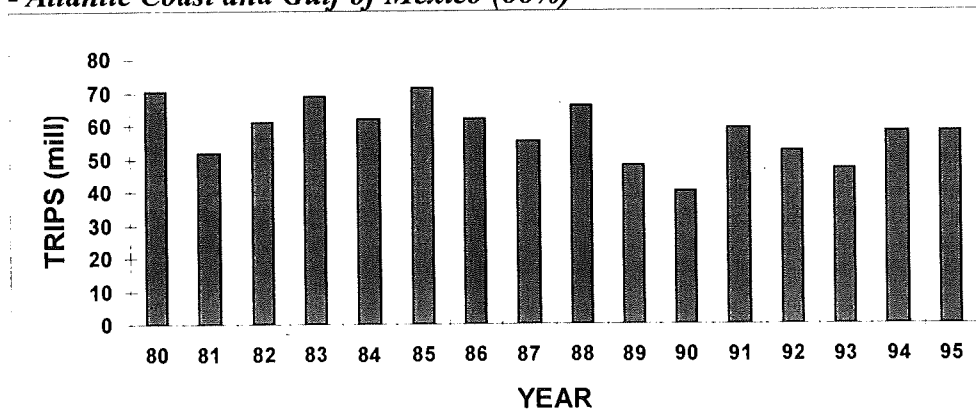
Finally, let me now make some brief comments on issues I consider important in the medium to long term. I have grouped these under four headings but all are inter-related.

a) time series data collections

Very few areas have been studied more than once - most have been snapshots over a 12 month period or less. Why does this matter? - the first response to that is that if it doesn't matter, why are commercial fishery statistics collected every year? Let me give you an example of why I think it is important to collect recreational fishery data regularly.

One of the enduring paradigms in fisheries management is that recreational fishing effort is always on the increase - reasons given usually relate to increased leisure time, disposal income, population increases, etc. For all of those reasons, I think there are compelling opposites. But rather than argue the point, let me show you some data from the US where national recreational fishery statistics have been collected since 1980 (Fig. 1). It can be argued from these data that recreational fishing effort has been relatively stable for many years. No-one is in a position to argue one way or the other whether this situation also exists in Australia.

**Figure 1. Marine Recreational Fishing in the United States
- Atlantic Coast and Gulf of Mexico (88%)**



Source: National Marine Fisheries Service Annual Statistics

b) inclusion in overall fishery statistics collection

Recreational fishery statistics continue to be overlooked when agencies plan and budget for systematic data collection. Each agency spends \$10s 000 on commercial C&E ignoring the regular reports which show the relative impact of some recreational fisheries is high. I am concerned that the scoping paper continues this tradition.

c) standardisation

Past collection has been varied such that information cannot be readily compared. The Working Party discussing a national survey has covered some of this ground ie types of data required, format, etc.

d) funding

The expansion of recreational fishery surveys in scope over the last 3 years has largely (but not totally) been due to the availability of FRDC funds. Individual agencies have neither the resources nor the inclination to fund the types of surveys required.

Australia needs to know how much fish it produces and what it is worth. Production and value information are used domestically to determine Commonwealth management levies, and State and Territory fisheries research funding arrangements; to monitor industry performance; policy formulation and resource assessment. At an international level, Australia reports the tonnage and the value of its fish production to the Food and Agricultural Organisation (FAO).

Currently, national fisheries statistics are collated and published by the Australian Bureau of Agricultural and Resource Economics (ABARE) as an annual statistics bulletin entitled 'Australian Fisheries Statistics' (AFS). Exchanges of data between the fisheries agencies and ABARE are guided by the Fisheries Statistics Working Group (FSWG) which comprises State, Territory and Commonwealth data managers. The FSWG was formed by the Standing Committee on Fisheries and Aquaculture, and is supported by the State and Territories fisheries agencies, ABARE, the Bureau of Resource Sciences (which supplies Chair and secretariat services), CSIRO, the Australian Fisheries Management Authority and the Australian Bureau of Statistics.

The national fisheries statistics are derived from a variety of sources. Production data are supplied (usually) by FSWG members who have gathered and summarised data from various sources within their own organisations. Price data are supplied by the Melbourne and Sydney fish markets, State and Territory fisheries departments, the Australian Fisheries Management Authority, and industry. Trade data are supplied by the Australian Bureau of Statistics.

The FSWG has addressed many issues associated with the production of the AFS including data quality, data standardisation and data exchange. To date, the FSWG has produced a range of reports including on the collection of commercial fisheries statistics in Australia, guidelines for the collection of fisheries statistics, and data interchange formats and protocols.

Improving Australia's fisheries statistics

Notwithstanding the good work of ABARE and the FSWG in improving the AFS, there are many outstanding issues which require further work. The FSWG has identified the following topics as needing attention in the first instance:

Aggregation of data

While the production estimates supplied to ABARE are usually aggregated by species and region (which improves value estimates), a more aggregated form of the data (by species-group and State) usually appears in the AFS. Because of this, the production data are virtually useless for stock assessments (which require fine-scale data), and I suspect, they also are of limited use to economists and other regional agencies within States (eg. local councils and fisheries coop's). Although the AFS are adequate for reporting to FAO and calculating the GVP, it is highly likely they could be more useful and to appeal to a wider audience if they were less aggregated.

Completeness and duplication

For many species-groups, production figures from the recreational and/or aquaculture sectors are not collected or not available for commercial reasons so total production is underestimated. The FSWG is aware that information from the recreational and aquaculture sectors is incomplete and/or of unknown quality, and it has begun to investigate ways of including dependable data from these sectors in the AFS.

There is need to identify and eliminate situations which cause duplication of information. For example, it is possible that a fishing vessel working in waters that cross two or more jurisdictions supplies its catch information to two or more fisheries agencies, resulting in an inflation of both the national production and value statistics. Similarly, the transshipment of aquaculture stock across jurisdictions may also confound the statistics.

Timing

Asynchrony of production and financial information can contribute to inaccuracies in the AFS. For example, production is likely to be supplied as a calendar year estimate whereas economics information is likely to be based on financial year. There is a need to clarify the data collation process and ensure that production and price information are sourced from comparable time periods.

Delays in receiving information from fisheries agencies can also affect the match of production and economics information, and are likely to be a major cause of values having to be "predicted", "estimated" or "assumed to be the same as previous years". The FSWG plans to discuss the use of electronic data transfer to increase the timeliness of data exchange.

Estimates of production value

The processes by which production values are estimated has not been examined by the FSWG. Despite recent studies on trade and domestic price estimates, the FSWG, like ABARE, has been concerned at the lack of research into the provision of fisheries economic information. It is timely that a workshop on fisheries economic statistics is being conducted.

The future

The FSWG exists to guide the production of the AFS publication. It has been one of the best examples of inter-agency collaboration in the country. The FSWG is supported largely through the goodwill of the Directors of State, Territory and Commonwealth fisheries agencies - and the influence that the Research Committee and SCFA has on them.

The AFS publication exists through the support of FRDC and ABARE on a budget of about \$60K per year. Despite being used widely, the future of the AFS (and the FSWG) is not certain as there is no long-term commitment to fund continued data collection, data collation and publishing. I believe the AFS is an essential publication, it can be improved, and the FSWG should continue to work toward this.

Over the coming year, the FSWG will examine the processes used to collate production data, focussing on data completeness and duplication, timing and aggregation. We will also examine new issues such as confidentiality of data and the legal issues associated with the acquisition of data; and continue to provide steering advice to national initiatives such as the development of the national recreational fisheries database (the SIRFIS project).

The FSWG recognises that an examination of the provision of fisheries economic information is overdue and strongly supports this workshop.

ABS Role in Trade and other Statistics

While we have had no direct involvement in fisheries statistical work since the late 1980's, we do have a range of statistical collections which cover fisheries either in whole or in part. I propose to briefly outline these collections and their sources.

The basis for all statistical collections is the Australian and New Zealand Standard Industrial Classification. This is designed to partition the economy into various sectors. Marine fishing and aquaculture is a subclass of the category Agriculture, Forestry and Fishing. However, for some collections, the industry is difficult to identify separately.

- Seafood processing fits into Other Food Manufacturing. There is a separate class for Seafood Processing so we can identify something there.
- Fish wholesaling is a class within the Food and Tobacco wholesaling
- In retail trade, fish is amalgamated with meat and poultry trading.

All of our collections fall into one of two groups: Economic Statistics and Social Statistics. The fishing industry falls across both.

Economic statistics

Economic statistics are geared toward development of National Accounts. We have been running for many years a number of industry based collections as part of the Economic Activity framework. One of these is manufacturing surveys, which is based on a sample of around 22,000 businesses, including fisheries processing. It covers major economic variables down to the state level. In the 1994-95 survey we found that there were 4,368 people employed in seafood processing, paying \$98 million in wages and salaries and having \$1.1 billion in turnover.

As an adjunct to the manufacturing census or surveys we used to collect detail on monthly production by commodity for businesses involved in food processing. This series was stopped in 1993-94 due to budget constraints. In this we used to collect detail on production of all prepared seafood products.

Several other surveys of relevance which are run irregularly within the Bureau are the wholesale trade survey, run in 1981-82 and 1991-92 and covers fish wholesaling (4,174). It had 343 national units employing 3,500 people with turnover of \$1.3 billion. We are planning to run a wholesale trade survey with respect to 1998-99 and results would be available in 2000.

The retail census is a similar story. However, seafood is covered in a range of classes with other products so the detail is missing. There is detail on a number of items of interest, such as sport and angling equipment.

In the agriculture sphere we have maintained a series on apparent consumption of foodstuffs for around 60 years and covers all foodstuffs produced in the economy. We take production, add imports and subtract exports and make adjustment for things like wastage and that gives us an estimate of what is available for apparent consumption. The most recent data I have is for 1992-93

where apparent consumption was 9.7 kg, double what it was in the late 1950's and 60's and it has been trending up. The series is broken into fresh and frozen and some detail on processed.

Social Surveys

There are a number of social surveys of relevance. The best known of these is the Labour Force Survey, which covers employment and unemployment. It collects information about labour force and a range of other statistics about the population. It can be produced by geographic area (capital city, balance of state) age, education status, family / ethnic group and occupation of the main person of the household. While it does not relate specifically to the fishing industry we can get out estimates of employment in the fishing industry for each month at a very broad level.

Each month we run supplementary surveys in conjunction with the Labour Force Survey They are limited, probably covering 5-10 minutes at the end of that survey. In April 92, we ran a survey on home production of foods, including fish products so we effectively asked people what they produced and consumed at home, including fish caught. The bad news was that there is a large demand for slots in the survey. We did put in a bid to cover recreational fishing in 1992 which wasn't successful. However, this is one avenue which is available to the industry if they are planning ahead. Planning for the next triennium is occurring in the next 12 months.

The population census is the most comprehensive collection we have, and provides detail on employment at a fairly fine level of detail, down to occupation within an industry. You can produce tables of cross classification by age etc. It is a very powerful tool which is potentially available to the industry.

Household expenditure surveys are another such tool. It is run irregularly, the last being in 1993-4. It produces detail on expenditure by product type such as fresh fish and other seafood, frozen fish and other seafood, canned and bottled, processed fish and processed seafood. In 1993-94 the average expenditure on fish and other seafood was \$2.35/week. It provides detail on expenditure patterns on other items of interest which may potentially be accessed by the industry.

Trade Statistics

The data which we use and other organisations, such as ABARE, also use comes from data reported to the Australian Customs Service by customs agents. What is included in the statistics is moveable goods which cross the customs frontier. Transhipped goods, temporary exports or imports and the aircraft or ships carrying them are not included.

We have an international standard for what is included, which is set by the United Nations. Some important exclusions relate to fish products caught on the high seas by Australian ships and landed abroad are not included as they don't cross the customs frontier. Fish landed in Australian ships to Australian ports are considered Australian product and are therefore not included in trade. Fish landed in Australian ports by foreign vessels are considered as imports. We exclude low value entries to rationalise the level of data entry so that any trade of less than \$250 is excluded for imports and \$500 for exports.

The classifications we use have been used since 1988. At the time it was introduced there was a lot of discussion because many of the fish are Northern Hemisphere species. Australian and NZ customs made representations to have local species included and, because it was a majority decision it was not agreed to. I have to say at the outset that it is unlikely that that situation will change because of the need to report to an international standard.

However we do have additional species information in the classification for some items. We asked existing users whether they wanted to retain the information contained in the old classification. Where people said they did we included it. The situation now is that we have to stick within the international classification but, subject to some conditions being met, can include more statistical codes. These conditions include support from industry, there must be significant trade involved. We also need to be careful and the need to retain data confidentiality in relation to trade within a cell so that say Fred Smith says that I am the only exporter of that product in that state and my trade can be identified. We do maintain a link between trade and industry. We charge \$1,725 per investigation.

Most of the editing of data is done by ABS. It generally makes a difference of between 1 & 2% in the gross value of trade. We check unit values by comparison with trade over the last 6 months and use that to set the unit value ranges for the next 6 months. We do follow up where data appears to be wrong, including talking to agents and exporters, where we get queries. We rarely get queries from people other than ABARE in relation to fish statistics.

There is a legal requirement for confidentiality to protect the identity of importers and exporters. If there is an objection it is investigated. If found correct we close up the classification at the finest level possible such that there is still some information available. Once the data is restricted then we can't go back and make the information available. We do review each of the restrictions every year. At the moment, we have some restrictions on the exports of rock lobster and pearls. We currently have no restrictions on imports.

Data is available on a monthly basis through subscriptions of around \$25 for 3 items. Imports are available 13 days after the end of the month and exports 21 days.

We have extensive evaluation of data quality. We reconcile our data with other country data and are in the process of doing reconciliations with Japan, NZ and Korea. We also look at the revisions to the data over time.

Measuring Recreational Fishing

Recreational fishing provides a range of benefits. However, unlike commercial fishing where the output is sold in markets, there is no market in which the value of recreational fishing is revealed.

There are three alternatives for incorporating non-market values (ie. recreational fishing) in decision making. Often in cost / benefit analyses non-market values have been based on the quantification of only market values with non-market values, such as recreational fishing, being taken into account in a qualitative fashion. Multi-criteria frameworks use weights for market values and the various types of non-market values such that they may then be added together to yield a net benefit estimate. However, the application of this framework is limited by the condition that the affected parties reach general consensus on the weights. The final alternative is to obtain dollar estimates of all values to use in cost-benefit analysis.

Non-market valuation techniques have the potential to provide a dollar estimate of the value of recreational fishing. There are a number of non-market valuation techniques which could be used to value recreational fishing, such as travel cost, defensive expenditure, contingent valuation and choice modelling. In addition to these the benefit transfer method (inexpensive alternative) can be employed to estimate a value from other studies, if suitable ones are available.

The acquisition of information is a costly exercise and the cost of this information should be weighed against its benefit, that is, the value of a better decision, or alternatively the cost of an incorrect decision. The reliability of information improves with the rigour applied in (hence cost of) its collection. The same is true of non-market valuation where more reliable estimates can be achieved with the more expensive survey techniques (such as travel cost and contingent valuation methods) and with the degree of rigour with which the techniques are applied.

In addition to the question of cost, the choice of technique to employ to estimate a dollar value of recreational fishing is influenced by the nature of the resource, its use and the magnitude of change being envisaged. For instance, as the travel cost method is based on surveying current recreational anglers this technique is limited to allocation decisions involving fish which are currently subject to recreational fishing. In such a case, to acquire information on the potential value of recreational fishing, a hypothetical method such as contingent valuation may be preferable.

The travel cost and contingent valuation methods have been most commonly used to estimate the value of recreational fishing. However, there are several difficulties involved with applying the techniques successfully and the reliability of estimates has been questioned. While the travel cost method has the advantage of being based on associated market values, the application of the technique hinges on critical assumptions. The degree of rigour with which the contingent valuation method is applied can strongly influence the estimated value with several potential sources of bias needing careful treatment. This technique is most suited to well defined situations where the respondents already have some knowledge of the good to be valued.

Several innovative techniques which use a combination of travel cost and contingent valuation methods have been recently developed. The hypothetical travel cost technique may give an indication of value under several different management strategies which is not feasible with other techniques. Choice modelling is a relatively new development in non-market valuation and has the potential to overcome some of the biases evident in past contingent valuation studies. However, as this technique is relatively new it has been used in few applications.

While non-market valuation techniques cannot be relied on to yield an accurate dollar estimate of the value of recreational fishing they can give an indication of the likely order of magnitude. This information can aid decisions about the allocation of the fish stock between commercial and recreational uses.

Trade Statistics: A users view

This morning I want to cover the need for adequate data sets in relation to imports for quarantine controls, to determine socio economic impacts, contingency planning and for risk assessment and I will briefly touch on export data used for trade negotiations.

Why do we need import data? If we take as an example the pilchard mortality in 1995 which covered pilchards in most of Australia. When this was brought to the attention of the Department there was a suggestion that this was caused by some exotic virus which was brought in on imported pilchards which were being fed to farmed tuna in Port Lincoln.

From a quarantine perspective the need was to address issues such as how many pilchards are coming in, where are they coming from and who is getting them. To get the data you need to identify:

- the type of product
- which country it comes from (not where was it exported from as they can be entirely different)
- what quantity
- what form – is it frozen, cooked
- who are the users
- and, in this case, what was it being used for—very difficult to obtain.

Imports are classified according to the Harmonised System tariff codes. When we look at pilchards we found that pilchards could be imported as fresh or chilled fish, could come in as fish fillets or fish meat, sardines frozen or sardines chilled. It could come in under product not fit for human consumption and potentially as fish food—as this was what it was being used for. You can see that there is a range of places where AQIS has to start looking and it doesn't have much time to do that.

The way that the system works is that there are 700 000 import entries per month in millions of containers. AQIS or Customs do not have the resources to open every container. Customs has a computer system which flags items and notifies AQIS that these are the codes you are interested in. AQIS looks at these codes and says we will look at that one and that one. If you have a quarantine problem you really need to be able to target your resources and timeliness is of the essence. You can't wait 21 days because the product may have already been consumed.

A Task Force was set up to examine imports of fish and looked at the data on what was coming in. One of the things they determined was that there is a number of products already coming into the country which are potentially high risk. One was prawn feed. Prawns are used to make feed for prawns so if you want to transmit a disease this is a good way to do it. Prawn feed can come in under multiple categories under the tariff codes; it can come in under animal feeds which are basically vegetable based but can have up to 40 % prawn or fish meal. But if you enter it as prawn meal but if you enter it as this you can guarantee that it will be flagged. It can come in as a crustacean or as prawns or as fishmeal. The classifications are just too coarse to be able to adequately identify products you need to identify for quarantine purposes.

Import data is also required for risk assessment. We need to know where the product is coming from, what the type of product is—cooked product has different risks to non cooked product, country of origin because this has different risks attached, and form. Risk assessments need to be done urgently. It is possible to do a survey but generally you don't have the time to do this.

You also need to have socio-economic information for quarantine policy. The task force found that you have only limited data on the level of industry dependency on imports, the value of the fishing industry to regional communities, the value of downstream industries. What price do you put on the nets that aquaculture industries use to put around cages? What demographic information such as the number of people in a small town are likely to be affected by a decision. An example would be the rock lobster industry.

Data must be available to determine the impacts on an industry of changes in quarantine policy. The better the data the better the decision.

On the export side, export data is reasonably good basis for trade negotiation. AQIS has good data but it disappears. Every legally exported fish goes on an export permit which identifies most of the items you need, such as the company, the port it is discharged from , its final destination the condition of the product and the method of transportation.

Several years ago QANTAS wanted to update their facilities and wanted to know the tonnage of live fish leaving from Sydney airport. They couldn't get that information from other sources and so we extracted that information from this data. Export data is generally good but the transfer of data can be improved.

The task force made several recommendations in relation to data. These include to undertake feasibility studies for obtaining accurate and timely data and to import data sets to fine tune the Harmonised System classifications so that we can in fact identify the products traded for quarantine purposes.

SESSION 4

During this session Workshop participants were divided into eight small groups. Each group was provided with a worksheet outlining key areas of concern in relation to fisheries economic statistics (as seen by the organisers) to which they were to add or subtract issues and assign priorities to those issues.

Priorities were awarded by each group to each of the key areas of concern on a ranking between 1 (high) and 5 (low). A table summarising the discussion group findings is included.

Additional Group discussions / comments

Group 1

- One area which has not yet been mentioned but which rated as a high priority was the need to examine a case study and look at the cost of poor data in terms of the decision making to industry and managers.
- Better processes are needed to highlight what is available. Much of the information discussed is available if you go and look for it.

Group 2

- The key element was the wide range of uses for the economic data. What happens to product once it is landed. We need to be able to track product through post harvest. We don't believe that multipliers are the way to go but the group thought it essential to be able to follow product through.
- Much of the data already exists but is lost for the decisions being made because it is difficult to find. One central contact should know what is available.

Group 3

- A one stop shop is a good idea for the basic data that everyone wants to access. But for specific problems it may be a mistake.
- The principal question in relation to data availability is whether we have sufficient information to understand the behaviour of fishers as opposed to the fish.

Group 4

Group 5

- This group thought the greatest priority was the production of GVP and the actions required to get that right.
- Better resourcing of the Fish statistics working group was one means of addressing the first issue.
- Following on that was the need to get an economic and social overview of the industry in Australia.

Group 6

- Need more focus on the ends (where we need to get) rather than the means.
- What does the market want

Group 7

Group 8

- A comprehensive group of issues. Critical to identify the clients, their data requirements and the format that they want. We have to accept that there are a range of clients with different data requirements. People fall back into their little box of identifying the data that they want. There is a whole raft of data users including managers, politicians, industry, bankers etc. The focus on GVP and catch and effort has been high but doesn't satisfy the need of the majority of these groups.

Australian Fisheries Economic Statistics Workshop
Problems in Fisheries Statistics

Subject	What is the problem	What priority? Session 4 Group								Prospective solutions	Who's responsible	
		1	2	3	4	5	6	7	8			
Production statistics 6: 1	Non target species not included 3 & 7: by catch 7: non-commercial catch 8: 1 - Retained 8: 2 - Discarded	1	1	2	3	1	2		1	2: Onboard monitoring 2: Targetted bycatch Surveys 2: Voluntary log books 3: Observers / special studies 5: Ret. Tasmania 7: Observers eg. turtles 8: Retained - detail 8: Discarded - general	1: Management Agency / Research Groups 2: State & Commonwealth G'ovt, Industry 4: Agency 5: Fishery / Agency 6: Jurisdictions, Industry 7: Varied 8: Management Agency	
	Logbook data accuracy 2: ? validated or verified accuracy important ongoing process part of regular collection 3: 1 8: education & training to improve accuracy and more feedback to fishers	2	3	1	1	1	1	2	4	Evaluate alternative collection methods 3: Validation - processor returns 7: Validation 8: ?	1: Management Agency 4: National / Industry 6: FSWG & Jurisdiction 7: All	
				1	1	1	1	1	2	Standard collection procedures / best practice 3: Cross validation / fishery 8: where possible	4: Agency 6: National *** 7: FSWG 8: Industry	
					1	1	1		5	3	Standard market names 2: Cross reference 3: More detail 4: Retail compliance	4: National / Industry, Agency 6: National 7: FSWG
											<i>Solutions suggested by groups</i> 1: Location information - fishing & landing 2: Paper trail	
	Data overlaps Commonwealth / State 2: gaps / overlaps	2	2	3	1	1	4	2	3	2: Paper trail 7: Joint collection of data 8: Cooperation	1: FSWG 4: National 7: By tender? 8: Commonwealth & State	
	Not disaggregated - by fishery, by port, by region ... 6: species	3	4	1	2	5	1		3	Collect from fishers, receivers, producers: rolling sample 2: Already exists in many cases 7: Better data reporting 8: Already collected -> required in some cases	1: Management / FSWG 4: Agency 6: Jurisdiction 7: FSWG	
	No recreational data	1	2	1	1	3	2	2	1	2: Survey - see over page 3: Options being considered (Fishcare) 4: National Framework 4: Catch data 7: Fishcare initiative 8: Focus on more rec. data with priority in areas of resource sharing	1: FSWG / States 4: National agency 5: Fishery Agencies 7: FSWG, Fishcare	
<i>Problem suggested by groups</i> 4: Non-human consumption 4: No inland fisheries included in data / ABARE stats												

Australian Fisheries Economic Statistics Workshop
Problems in Fisheries Statistics

Subject	What is the problem	What priority? Session 4 Group								Prospective solutions	Who's responsible
		1	2	3	4	5	6	7	8		
GVP 2: paper trail 6: 1 8: [Flow on effects]	Prices not representative 2: need range of prices high, low, medium 2: product form 3: 1 4: Supply / demand 5: 1	1	1	1	1	1	1	2	3	Establish prices paid methodology 2: Under way 8: Yes	4: National 5: Stats Working Group / ABARE 6: National / Jurisdiction, FSWG 7: ABARE 8: Analyst of data
		1	1	1	1	3	1	2	1	Improve market price availability 3: For major species 8: Yes	4: National 5: Stats Working Group / ABARE
		1	1	1	1	1		1	5	Standard agreed valuation methodology	4: National 5: Stats Working Group / ABARE 6: National / Jurisdiction FSWG 7: ABARE
	Prices not available / accurate	1	1	1	1	3	1	1	3	Monitor domestic and / or export markets 3: Regular basis 8: Provision of better information	4: National / ABS 6: Monitor domestic - Jurisdiction 6: Export markets - National 7: ABARE ASIC & states 8: Data analyst
	No value added industries 2: Market in 5: By Product 7: measured	1	1	2	3	1	3	2	3	1: Comment: Important to account back to real Beach Price (avoid double dipping) 3: Document value adding 3: Disaggregate industry data 3: Processor returns 7: More regular, more disaggregation 8: R&D bodies to look at	4: National 7: ABS
	Regional benefits	2	1	1	3	5	1	2	3	3: Reporting / enhancing data 7: More regular, more disaggregation	4: Agency 7: ABS & States, Industry?
<i>Problem suggested by groups</i> 5: Recreational not ind					5						
Aquaculture 6: 1	Lack of robust data	2	1	1	1	5	1	?	3	Benchmarking study	4: Agency 6: National
		1		1	1	1		2	done	Data collection methodology established 8: Yes	4: Agency 5 & 7: FSWG 6: National / Jurisdiction, FSWG 8: Agency
	Not covered comprehensively	1		1	2	1	1	2	done	Collect by rolling sample 1: Including aquarium / hatcheries. 1: Define "fish", merging industries 2: Industry cooperation 2: Coordinate communication between government departments 3: Production returns / annually	4: Agency 6: Jurisdiction 7: States

Australian Fisheries Economic Statistics Workshop
Problems in Fisheries Statistics

Subject	What is the problem	What priority? Session 4 Group								Prospective solutions	Who's responsible	
		1	2	3	4	5	6	7	8			
Trade statistics 6: 2	Trade not uniquely identified 4: Intra state trade	2	1	3	2	1	1	?	2	Review collection framework 2: Being addressed in Nairn review Customs, AQIS, DPIE, Industry 3: Key fisheries, Aqua / wild 8: Yes, already available from AQIS	4: ABS / AQIS, National 5: ABS 6: Jurisdiction 7: Customs / ABS	
	<i>Problem suggested by groups</i> 7: Market names							?		7: Add marketing names to CSIRO species database		
Industry 6: 3	Structure	1	3	1	3	5	2	1	2	Industry structure census 1: Cost / Returns information 2: Surveys 8: Yes (every 5 years)	4: Industry / Agency 5: Needs basis 6: Structure 7: ABARE, States 8: ABS funded by government	
	Employment details by sector 1: Needs to be disaggregated, regionalised. 1: Aquaculture Processors Catch 5: By product	1	3	3	3	5	3	1	2	2: ABS 3: disaggregation 8: determine in census to be separate in census	4: Industry / Agency 5: Needs basis 7: ABARE, States	
	<i>Problem suggested by groups</i> 3: Cost / Earnings economic performance, value of licences etc. quota			1						3: For major fisheries on a regular cycle		
Information dissemination 2: Terrible 6: 2	Timely data availability 3: 2	2	3	2		5	5	1	1	Agreed milestones 3: Better to data 8: Yes. Cooperation / Incentive	6: Data supplier / Customs 7: FSWG	
		2	3	2	1			?		Compensation of collection agencies 1: Uniformity / compatability of systems 3: User pays	4: Agency 6: Government / Industry	
	No explanation of developments 3: and explanation 4: Timing problems	1	3	2	3			4	?	2	Review as per New Zealand publication 3: Status reports	4: Agency 6: ABARE / ASIC 7: ABARE
	Insufficient detail available	2	3	2	2			1	5	2	Central database of complete catch stats 1: Costs / earnings / employment 3: Agency for state details 4: Fish Atlas update 6: Begs the question 7: This solution applies to One stop shop	4: National 6: ?
	One stop shop 1: Promotion of info. available 2: of finding where data is 'Blue Pages'	1	1	3	1	5	4	1	1		2: Internet 3: For national data 5: Develop register of dataholders 7: WWW 8: Coordination / Internet	4: ABARE 5: FSWG 7: ABARE, ABS

Australian Fisheries Economic Statistics Workshop
Problems in Fisheries Statistics

Subject	What is the problem	What priority? Session 4 Group								Prospective solutions	Who's responsible
		1	2	3	4	5	6	7	8		
Processors 6: 4	Not covered comprehensively 6: something my *** be done - what is there now?	1	2	1	2	3		4	3	Collect by rolling sample 1: Synthesise with catch data 3: Statutory returns 5: Docketing system 8: Yes	4: Agency 5: Compliances / *** 6: Jurisdiction
								2		<i>Solution suggested by groups</i> 7: Mandatory collection	7: States
Flow-on effects 6: 4	In addition to cost & earnings data, collection data on where imports (fuel, etc.) purchased & where product processed then derive multipliers	1	4	1/2	3	2	4	1	2	Augment cost & earnings rolling surveys - calculate multipliers every five years 1: Treated separately to other catch, effort economic data 3: Regional 8: Yes, census	1: Industry Associations 4: Agency 5: Industry bodies / Needs basis 6: ? *** 7: State treasury
Recreational Fishing 6: 1	Need an 'apples to apples' approach	1	1	1	1	5	1	2	2	Agree on methodologies and do regular surveys 1: (Methodology) 8: Too hard basket, Not	1: University / States 4: National / Agency 6: agree on methodologies - FSWG 6: do regular surveys - Jurisdiction 7: Fishcare initiative
Regular (quarterly) production of stats relevant to everyone 6: 5	Not Done 2: on demand, part of process 3: presentation of above data 4: Case by case 6: *** request trade stats monthly	5	4		3	5	5	2	3	Stats can be obtained from rolling surveys 3: Annual production of quarterly information 3: Raw data for specific requirements from all of the above 5: Avail now 7: Six monthly 8: If others addressed only requires analysis, and dissemination or quarterly basis	4: National 5: User pays 6: Jurisdiction 7: AFMA, States, ABARE
Comprehensive annual report (a la NZ) 1: Promotional 6: 1	Not done 2: Important 4: Need recreational, other non-commercial stats 5: AFS & Fisheries status reports largely ***	1	1	1	3	3	1	3	1	Can be written from all the above: 2: Requires industry participation & ownership 4: Amending relevant management plans to cater for data & information requirements by public / *** management committees 8: With interpretation and analysis	1: Industry - National 4: Agency 5: ASIC 6: Industry
<i>Subject suggested by groups</i> 6: Fishing Effort 6: 1								1			6: Jurisdiction

Comments

- 1: The group saw a high priority to undertake a study to examine the cost to the industry of non-accurate data.
This exercise was seen as beneficial to encourage industry / manager support for the upgrading of our data bases including economic data
- 2: Finishing loops -> information back to fishermen.
Allocating priorities in terms of additional work required
- 4: Breakdown of final use of fish products & destination - industrial; pet foods; human consumption
- 5: Focus effort on FSWG - support resources. Consider commercial information collection - as for eg. Automotive - subscribe; user pay.
- 6: Subjects were rated according to importance of function. Question: is this for National?

Session 5 of the Workshop drew together the group discussions of Session 4. The ratings and comments provided by each group were displayed for discussion by the participants.

Production statistics

- Logbook data accuracy
Consensus was either 1 or 2.
Group 8 rated a 4: We preferred to focus on alternative collection methods. Had a problem of how much was actually a problem and how much a perception. In relation to econ statistics the main objective is to assess trends. Group preferred to focus on other issues.
- Lack of standard marketing names.
Group 7 rated a 5: There is consensus in relation to the use of CSIRO species codes agreed several years ago so believed the issue was covered
- Data overlaps Commonwealth/State
Group 6: Not an issue as a lot of the issues are either addressed or being addressed.
- Regional data
Group 5: We understand that the problem is the lack of processing on a regional base rather than the absence of data. So it is not a collection issue.

GVP

- Prices not representative
Group 5: Prices were regarded as reasonable but it was regarded as a question of whether it was worthwhile spending a large amount of money to achieve a marginal gain.
Group 6: Uncertain whether they were assessing whether it is a problem or a priority

Aquaculture

- Lack of robust data
Group 5: Getting the methodology and framework for collection in place was considered more important than the lack of data itself.
- Not covered comprehensively
Group 2: Thought it important but not necessarily a coordination problem as it is a communication problem.
Group 8: To my knowledge all aquaculture operations have a requirement to provide data and the availability of data is not a problem (in Qld).
It is in some states and in relation to Hatcheries and Aquariums. How for example do you value hatchery production which is released to the wild or sold to various operations in different forms. Tasmanian aquaculture is so vertically integrated that it is difficult to separate values.

Trade statistics

- Rated high or very high.
Group 7: Could not agree within group.

Industry

- Industry structure
Group 5: There was a fair understanding of industry structure and there were other higher priority issues.
Group 7: Structure can mean a range of things from broad sweeping detail , down to composition of fleet. There were certain structural details which are required.
ABS structural information in relation to the fishing industry is limited because of the sample size used.
- Employment detail may be inadequate because of seasonality. However, the labour force survey is done quarterly which may overcome the problems

Information dissemination

- Milestones
One of the main criticisms we get as an industry organisation is that the clients asking for the data. Some clients say that if its more than four months old its no help.
- Compensation
Group 5: User pays can be implemented but with finer level resolution is likely to add a large cost which may not necessarily be justified for the large range of users. Those users who wanted the finer resolution could go to the agency and pay for it.
- Insufficient detail available
Group 7: One stop shop a high priority.
Group 8: One agency may not be the best solution because of agency politics. Internet may be a solution.

Processor Information

- Group 7: A rolling sample may be the best way to go. Need to go back to methodologies to establish the best approach.

Flow on effects

- Multipliers are of questionable and not accepted. It is important to find the level of investment but multipliers are not the way to go.
- Multipliers are misused because they measure gross returns not net effects.
- Problem that in some sectors multipliers are being used while in others they are not. Not comparing like with like.
- While people misuse multipliers the political reality is that they are relevant to policy decisions because most of the decisions are short term.

Recreational data

- The commercial sector is paying for the collection and dissemination of recreational data.
- Need for standard methodology. There may be problems in developing an appropriate methodology because the recreational fishing objective is quite different to commercial operations.

Comprehensive annual reports

- Generally scored well but a report covering Australia would become large and unwieldy. The document would be useful but must have industry ownership. The NZ approach would be highly relevant at the state level because of the absence of information. Build on but not replace Australian Fishery statistic.
- A matter of what you want. Could have either a promotional document or a state of the industry report but probably not both.
- BRS status reports have value as such a document.
- All states are required to provide an ESD document. This could provide the basis for such a document.
- Commonality of data approaches by the collection agencies is an important issue which industry want addressed.

The major advantage of an overall document along the lines of the New Zealand report is that it allows the industry to take the initiative – this is the industry – it needs restructuring and presents a united face. There are so many vested interests in steering the industry in particular directions. Another way of doing this is through fisheries outlook reports which highlights those areas which need urgent attention. However, a number of people may feel threatened by this approach.

While such a document may be desirable, a key problem at the moment is that we do not have nationally consistent statistics. We can't compare the State of fisheries in NT with that of SA as we are comparing apples with oranges. A consistent approach may need to be adopted by the data gatherers. As a first step we may need to talk to the principal people who collect the data in each state and have an agreed position in relation to best practice. Any document we have then will reflect consistency and commonality in the statistics.

Management of the data is crucial. If we get back to the catch/effort information as an example. Fisheries managers are making all the decisions about collection and management of the data, processing etc and this has led to an enormous amount of mistrust in a lot of industry. Industry will not be committed to the provision of data unless they are also involved with the management of that data at a high level, being involved with what is collected, how collected, to whom is it made available, in what form.

Future Directions - Summary of discussion

Following the discussion of outcomes in session 4, the workshop participants were asked to consider future directions arising from those discussions, and what needs to be set in train to improve the collection of economic data and its dissemination.

The three key questions posed were:

- what needs to be done
- who is going to do it
- and when.

It was agreed that a proper process, run by a body which is representative of all of the stakeholders was needed. The process will fall apart unless someone is actually carrying it. A steering committee was appointed as representative of all the stakeholders. It is appropriate that the body should consist of people who can actually deliver outcomes. The steering committee needs to answer to somebody and could answer to ASIC in the first instance.

The composition of the steering committee was determined by identifying the stakeholders. DPIE participation was needed, to ensure that the needs of the Minister are covered, ASIC to ensure that the fishing, processing and aquaculture industries are represented, Recfish to cover recreational aspects, ABARE and FSWG were appointed to link in with existing processes. The Banks should be there as key clients. The FRDC was appointed to provide both input and resourcing.

The job of the steering committee is to synthesise the current information and develop a description of a complete data set for fisheries would be, how it would be available in what format and then lay out an action plan to achieve it. However, it is up to the steering committee to define where they want to go and map out how they are going to get there. The time frame is important. The Steering Committee will need to set up some processes to collect the information required for the review.

The process has to be about coordinating all of the things which are happening now, identifying the gaps which need to be filled and making suggestions as to how they might be filled. If we are going to have a process which works then we have to have an organisation driving it who knows the data but is not directly involved with either industry or management.

It is up to the Steering Committee to decide on whether to address the issues in relation to recreational fishing, its terms of reference and where they are going. Considerable support for the inclusion of recreational fishing issues and it was noted that the FSWG has paid considerable attention to the methodologies required to address recreational fishing issues.

Unless we resolve and agree today to incorporate some improvement these changes in a document such as the ABARE Australian Fishery Statistics by this time next year then the workshop will be wasted. It will require a great effort in terms of data gathering to put together something along the lines of the NZ document but it could be done.

AUSTRALIAN FISHERIES ECONOMIC STATISTICS WORKSHOP
SESSION 5 - ACTION PLAN

WHAT?	WHO?	BY WHEN?
<p>Steering committee (ownership by industry) (independent chair)</p> <p>Issues: *scope *stakeholder</p>	<p>Tor Hundloe Chair, FSWG - C.O'Brien Industry (ASIC) - wild, rec, aquac, processing ABARE - P.Smith DPIE - T.Battaglone Finance industry (ABA) FRDC - P.Dundas-Smith</p> <p>Advisor: Jonathon Peacey, NZ</p>	<p>Meet before end feb '97</p>
<p>Terms of reference</p> <ul style="list-style-type: none"> - membership - reporting - information from workshop - milestones 	<p>Steering committee</p>	<p>Report to industry + list</p>
<p>Implementation strategy</p>	<p>Steering committee</p>	<p>30 august '97</p>

Fisheries Economic Statistics and Information Survey

The Fisheries Economic Statistics and Information Survey was run in conjunction with the Australian Fisheries Economic Statistics Workshop, held in Canberra at the Brassey Hotel on the 6th and 7th of February 1997.

The Survey questionnaire was sent out to all workshop invitees, and covered four areas:

- statistics currently used by the organisation;
- statistics required by the organisation, but currently unavailable;
- searching for Fisheries Economic Information and Statistics; and
- statistics provided by the organisation.

The survey results formed the basis of the paper presented by Catherine Cook-Wass during session 2 at the Workshop (which provided information for discussion sessions held during the second day of the Workshop), and that paper in turn forms the basis of this report.

The definitions used for the survey and hence for this report are included at the end of this report. For reference, a copy of the survey questionnaire is also included.

Statistics currently in use

Respondents were asked how often their organisations used each of the five types of statistics defined for the survey. On average, the organisations surveyed used Production statistics once a week, GVP and Trade statistics once a month, and Financial and Structure statistics once a quarter.

Respondents were asked to describe their main uses for each of the types of statistics, and at what classification level the statistics were used. In both cases, it was not possible to identify any clear pattern, apart from high levels of response in the 'Other' category, indicating a large range of uses, and consequently, a large range of required classification levels.

The distinctive characteristics of production statistics, as opposed to the other types of economic statistics is also reflected in the fine level of detail at which they are used, ie. at weekly and monthly levels, while the other types are predominantly used at a quarterly / annual level.

For each of the types of statistics, respondents were asked for their opinion of the statistics currently used by their organisation, in a number of categories:

Ease of Use:

Production and GVP statistics were rated at high to moderate ease of use, Structure and Trade statistics at moderate to low, while Financial statistics were ranked last, with a fairly even split between moderate and very low.

Quality:

Production and Trade statistics were rated at moderate in terms of quality; GVP and Structure statistics were ranked next at moderate to low. However, the opinion expressed of Financial statistics in terms of ease of use are echoed in respondents opinion of quality, as they were again ranked last.

Robustness:

Financial statistics were considered to have low robustness, while all other types received a moderate rating.

Level of Aggregation:

For all statistics types, respondents were fairly evenly split between leaving the aggregation level as is, and further disaggregation.

Timeliness:

The respondent patterns for timeliness were similar to those for levels of aggregation, in that respondents were fairly evenly split between 'too late', and 'just in time', implying on average a need to decrease the lead time between the end of the reporting period for the statistics and their delivery time to users.

Pricing:

On average, most statistics types were considered to represent good value for money, with Production and GVP statistics being considered something of a bargain to a significant number of respondents.

When asked how important the statistics currently being used were to the respondent's organisation, Production and GVP statistics were rated 'essential', while the others were rated as 'very important'.

Comments related to statistics currently in use generally fell into one of four categories:

- lack of detail or inappropriate aggregation levels;
- the disparity in quality between collections;
- fragmentation of data holdings and comparability (both between collections from different sources, and between collections from a single source for successive time periods);
- that statistics currently in use are being used as 'proxies' due to the unavailability of the statistics actually required by the organisation.

Statistics required but unavailable

Over three quarters of respondents indicated that there were statistics required by their organisation which are currently unavailable. It was not possible to derive profiles of the missing statistics from survey responses, as they covered every type of statistic, for a wide range of uses, and correspondingly, required the gamut of aggregation levels.

However, while the characteristics of the missing statistics were difficult to pinpoint, it was possible to identify respondents expectations and/or preferences for potential providers of the statistics. In particular, ABARE, the ABS and State fisheries departments were the preferred collectors / providers across the range of statistics types, while AFMA was requested for Production statistics, and AQIS for Trade statistics.

While responses to the formal questions in this section yielded little usable data for analysis and decision making purposes, the comments made by respondents at the end of the section provided a wealth of information. The bulk of comments fell into three categories:

Data gaps

This category represents areas where information and statistics are simply not available. In an effort to make up for this lack of data, a number of proxies are commonly used, including:

- international statistics, particularly from the FAO or sourced via the Internet;
- the carry forward of previous years data; and
- the use of anecdotal evidence to provide qualitative information.

Level of detail

Aggregation levels are a major issue when it comes to fisheries statistics. While most respondents expressed a need for more detailed statistics, this raises the issue of tradeoff between detail and confidentiality. Given the size of some sectors of the industry, and hence the small number of boats, farms or fishers contributing to the statistics, publication of more detailed information may compromise the fishers' or enterprise owners' right to privacy.

Fragmentation

This category covers several distinct, yet related issues, including:

- the dispersion of data holdings, and the lack of a single source or reference point to permit potential users of information easy access to the statistics, or to simply raise awareness of the existence of the information;
- a perceived lack of coordination between different organisations statistics collection efforts;
- the difficulty associated with attempting to reconcile conflicting statistics from different sources;
- the consistency (or lack thereof) between collections from a single source.

In addition to these main categories, a number of other issues were raised by particular respondents. These issues include the lack of marketing and post-harvest data and information, and the problems caused by infrequent collection when trying to create a 'time series' for trend and other types of analysis.

Respondents were then asked whether, if all of their current requirements were met, they foresaw any substantial changes in their statistics requirements between now and the year 2000. Most respondents stated that they did not foresee any changes, but of those respondents who answered in the positive, most of the additional requirements were for either ever-increasing levels of detail, or for industry-wide information for political purposes and management at the industry level.

Searching for information and statistics

Approximately two thirds of respondents stated that they conduct searches for Fisheries information and/or statistics on a regular basis, on average, once a month. While statistics searches occur approximately twice as frequently for Production and GVP statistics as the other types, the information searches cover all of the defined types.

Overwhelmingly, ABARE is both the initial contact point, and the eventual source for the information sought, with State Fisheries departments and Industry sources ranked second and third respectively. The data quality and perceived level of service received for both information and statistics was rated as high to moderate.

In comments made in this section, there was a single underlying theme, namely the difficulty faced in trying to locate and interpret the required data. The desire to have a 'one stop shop' was expressed by many respondents, with the aims to be to provide:

- a quick method of discovering whether or not the required data exists;
- coordination of data efforts within the industry;
- a controlled and consistent approach to handling discrepancies between different collections;
- access to information on how to accurately and appropriately interpret any data found.

This could be achieved either through the appointment of an agency to act as a central contact, or through the creation and regular maintenance of a fisheries economic statistics / information publication.

Statistics provided by respondent organisations

Over half of the respondent organisations provide, produce or collect fisheries economic statistics. These statistics cover all defined types and uses, and are used by all of the groups identified in the questionnaire, including government, industry, academia and the community generally.

Three interesting conclusions can be made based on answers provided to questions in this section of the questionnaire:

- two thirds of collections currently used are likely to be reviewed or upgraded;
- three quarters of collections have a moderate to high potential to increase the level of detail (disaggregate) the statistics, subject to strong concerns by some respondents regarding confidentiality issues;
- overwhelmingly, funding was the main constraint faced by organisations in the provision of the data.

Organisations which predominantly produce statistics based on data collected from sources other than the organisation itself cited infrequent, inconsistent and poor quality data as significant impediments to the provision of their collection(s).

Comments

Most respondents took advantage of the general comments block provided at the end of the questionnaire to provide detailed insights into the topic of economic statistics.

Some of these areas have been discussed in earlier sections of this report. In particular, quality and timeliness were covered in the 'Statistics currently in use' section, and data gaps, disaggregation vs. privacy, fragmentation and (in)consistency; marketing and post-harvest information, irregular collection and trend analysis were discussed in the 'Statistics required but unavailable' section.

In addition to these areas, other major areas drawing comments from respondents were:

- the need for economic profiles for each fishery, with particular attention to 'social indicators' such as employment, and the need for these profiles to be compiled in a consistent and comparable manner;
- the need to move away from the use of anecdotal information to more statistically valid information to improve and perhaps justify decision making in a political context;
- the inconsistency of species classifications between collections, causing problems with ability to extract the required data;
- the lack of interpretation information provided with available statistics;
- the possible use (or increased use) of mandatory reporting tools such as log books and tax returns to increase the amount of statistical information available to the industry, without a corresponding increase in respondent burden.

However, perhaps the most telling comment received throughout the survey was that "we use what is available because that is all we can get", which appears to succinctly state the position of many respondents.

Summary

In pulling together all of the information provided by respondents for this analysis, it was possible to identify three concrete suggestions for improvements to fisheries economic statistics, which would address the main concerns expressed by the respondents. In particular, the suggestions are:

- The preparation of economic profiles for each fishery, particularly targeting structure information, such as employment and vessel numbers, but also including production and other types of statistics. The principal warning in relation to the implementation of this suggestion is that the profiles should be constructed with a consistent methodology, to allow fishery by fishery comparisons, and valid aggregation to the industry level.
- The development of a single, species classification, possibly one which allows discretion in aggregation levels without loss of consistency. However, the development of such a classification is not sufficient, it must win commitment to its adoption throughout the industry.
- The appointment of a single, central statistics contact and/or source. This source would provide a list of what is available, from whom, how often, and how to get it, and perhaps just as importantly, how to interpret it correctly. This could be accomplished either through an agency, or via a regularly updated comprehensive publication.

Fisheries Economic Statistics and Information Survey Definitions

The Fisheries Economic Statistics and Information Survey was designed based on the following definitions:

Fisheries economic statistics:

Fisheries economic statistics refers to any statistical series prepared in relation to fisheries industries. These generally fall into one of the following categories: production, GVP, financial, structure and trade. Definitions for each of these categories appear below.

Fisheries economic information:

Fisheries economic information refers to information, (usually provided to complement statistics) which provides detail, analysis or interpretation in relation to the industry or market developments.

Production statistics:

Production statistics refers to summary information on catches or output from an industry or a sector of the industry. Production statistics are provided in annual reports published by most state and Commonwealth fisheries management organisations and in summary form in ABARE's *Australian Fisheries Statistics*.

GVP:

GVP (Gross Value of Production) refers to the total gross value of sales less an allowance for the costs of marketing (eg. marketing commissions and transport costs which would be incurred at the most proximate market). The objective of GVP estimates is to represent the ex vessel value of catches or the farm gate value of aquaculture. At present, the main sources of statistics and information on GVP are ABARE's *Australian Fisheries Statistics*, and some state fisheries annual reports.

Financial statistics:

Financial statistics refers to economic performance statistics on an industry, or sector of an industry, usually based on a survey of operators or similar methodology. Such statistics for Commonwealth fisheries are published in ABARE's *Fisheries Survey Reports*.

Structure statistics:

Industry structure statistics refers to data on the number of operators or boats in an industry or sector, and other characteristics of those operators in that industry, such as employment.

Trade statistics:

Trade statistics refers to data on the volume and value of exports and imports of fisheries products prepared by the Australian Bureau of Statistics in relation to Australian trade and by similar bodies overseas in relation to their markets. Australian trade statistics are also published in summary form in ABARE's *Australian Fisheries Statistics*.

Statistical collection:

A statistical collection is a series of values on a single subject (eg. export trade). A collection need not be regular or published, but must be generated using a consistent methodology.

A publication may contain several statistical collections, eg. ABARE's *Australian Fisheries Statistics* contains collections on GVP and production statistics.

The statistics contained within a series of annual reports may qualify as a statistical collection if they are collected in a consistent manner, and are comparable between years.

Enterprise:

An enterprise is the smallest component of an industry. In relation to the fishing industry, an enterprise may be a single vessel (or farm in the case of aquaculture) when referring to production statistics, or a company when referring to financial statistics.

Market information:

Market information refers to detail on prices and volume on a specific market, such as the market reports provided by the Sydney Fish Market

Fisheries Economic Statistics and Information Questionnaire

Information about the survey, its purpose and its relationship to the Australian Fisheries Economic Statistics Workshop are contained in the survey covering letter.

Definitions for some of the terms used in the questionnaire (which may be useful to you in completing the questionnaire) are also contained in the covering letter.

Instructions and hints on how to fill out the questionnaire appear in italics throughout the questionnaire.



Unless otherwise indicated, please mark one box per column, per question.

Please mark your choice of boxes with a cross.



If you need further information, or any assistance filling out this questionnaire, please do not hesitate to contact Catherine Cook-Wass on (06) 242 4330 or (0412) 25 25 99, or email cookwass@dynamite.com.au.

① Section 1: Statistics currently used by your organisation

Does your organisation currently use fisheries economic statistics?

- yes
 no → Please go to section 2 →

On average, how often does your organisation currently use the following types of statistics?

	Production	GVP	Financial	Structure	Trade
once a day (or more often)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
once a week / fortnight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
once a month / quarter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
once a year (or less often)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
intensive use for one or two short periods per year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
not at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For those types of statistics that your organisation currently uses, please answer the following questions:
 (ie. if you don't use a particular type of statistic, leave that column blank)

What are your organisation's main uses for the following types of statistics?

	Production	GVP	Financial	Structure	Trade
fisheries management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
business management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
finance / investment decision making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

At what level of grouping does your organisation currently use the following types of statistics?

	Production	GVP	Financial	Structure	Trade
enterprise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fishery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
region / state	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

At what level of detail does your organisation currently use the following types of statistics?

	Production	GVP	Financial	Structure	Trade
weekly (or more often)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
monthly / quarterly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
annually (or less often)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is your opinion of the statistics your organisation is currently using, in terms of:

	Production	GVP	Financial	Structure	Trade
- Ease of use					
very high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
moderate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Quality <i>(the accuracy of the statistics)</i>					
very high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
moderate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Robustness <i>(the variation in accuracy of the statistics)</i>					
high robustness <i>(low variation)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
moderate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
low robustness <i>(high variation)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Level of Aggregation					
should be more aggregated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ok as is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
should be less aggregated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Timeliness					
too late	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
just in time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
comfortable lead time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Pricing					
too expensive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
good value for money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a bargain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How important are the statistics currently in use to your organisation?

	Production	GVP	Financial	Structure	Trade
essential	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
very important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
not important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
used as a substitute for other statistics currently unavailable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have previously used, or considered using, a particular type of statistics, but currently don't, what was your organisation's main reason for ceasing to use / not using it?

	Production	GVP	Financial	Structure	Trade
ease of use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
robustness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
level of aggregation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
timeliness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pricing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
not appropriate for our organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other <i>(please specify _____)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you would like to make any comments related to statistics that your organisation is currently using, please comment here:

② Section 2: Statistics required by your organisation, but currently unavailable

Are there any fisheries economic statistics that your organisation requires that are not currently available?

- yes
 no → Please go to section 3 →

For those types of statistics that your organisation requires but are currently unavailable, please answer the following questions: (ie. if you don't need a particular type of statistic, leave that column blank)

What do you see as the potential uses for the required statistics?

(tick as many boxes as required for each statistic type)

	Production	GVP	Financial	Structure	Trade
business management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fisheries management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
finance / investment decision making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Who would you see as potential providers of the proposed statistics?

	Production	GVP	Financial	Structure	Trade
ABARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ABS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AFMA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AQIS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DPIE (including Fisheries & Aquaculture Branch)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other commonwealth government (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
state fisheries department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other state government (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

At what level of grouping does your organisation require the statistics?

	Production	GVP	Financial	Structure	Trade
enterprise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fishery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
region / state	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

At what level of detail does your organisation require the statistics?

	Production	GVP	Financial	Structure	Trade
weekly (or more often)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
monthly / quarterly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
annually (or less often) / on request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If your organisation uses any substitutes for statistics that are currently unavailable, please indicate the source(s):

If you would like to make any comments related to statistics required but currently unavailable, please comment here:

If the requirements you have outlined above were all met, do you foresee any substantial changes in your statistics requirements between now and the year 2000? If so, please provide details here:

③ Section 3: Searching for Fisheries Economic Information and Statistics

The following questions make a distinction between fisheries economic **information** and fisheries economic **statistics**. For details, please refer to the definitions provided in the survey covering letter.

In the past year, has your organisation needed to seek specific fisheries economic information or statistics that were not otherwise available?

- yes
 no → Please go to section 4 →

On average, how often have you needed to undertake specific fisheries economic information / statistics searches?

	Information	Statistics
once a day (or more often)	<input type="checkbox"/>	<input type="checkbox"/>
once a week / fortnight	<input type="checkbox"/>	<input type="checkbox"/>
once a month / quarter	<input type="checkbox"/>	<input type="checkbox"/>
once a year (or less often)	<input type="checkbox"/>	<input type="checkbox"/>

What type of information / statistics were sought?

(tick as many boxes as required)

	Information	Statistics
Production	<input type="checkbox"/>	<input type="checkbox"/>
GVP	<input type="checkbox"/>	<input type="checkbox"/>
Financial	<input type="checkbox"/>	<input type="checkbox"/>
Structure	<input type="checkbox"/>	<input type="checkbox"/>
Trade	<input type="checkbox"/>	<input type="checkbox"/>

Which organisation was most often your first point of **contact**, and which organisation was most often your eventual **source**?

	Information		Statistics	
	contact	source	contact	source
ABARE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ABS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AFMA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AQIS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DPIE (including Fisheries & Aquaculture Branch)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other commonwealth government (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
state fisheries department	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other state government (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (please specify _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How would you rate the quality of the information / statistics received?

	Information	Statistics
very high	<input type="checkbox"/>	<input type="checkbox"/>
high	<input type="checkbox"/>	<input type="checkbox"/>
moderate	<input type="checkbox"/>	<input type="checkbox"/>
low	<input type="checkbox"/>	<input type="checkbox"/>
very low	<input type="checkbox"/>	<input type="checkbox"/>

How would you rate the level of service received? (ie. level of service from your eventual source, not your initial contact)

	Information	Statistics
very high	<input type="checkbox"/>	<input type="checkbox"/>
high	<input type="checkbox"/>	<input type="checkbox"/>
moderate	<input type="checkbox"/>	<input type="checkbox"/>
low	<input type="checkbox"/>	<input type="checkbox"/>
very low	<input type="checkbox"/>	<input type="checkbox"/>

If you would like to make any comments related to Information or Statistics searches, please comment here:

④ Section 4: Statistics provided by your organisation

Does your organisation provide, produce or collect fisheries economic statistics?

- yes
 no → Please go to General Comments →

Please use one column for each statistical collection. 'Statistical collection' is defined in the survey covering letter. If your organisation generates more than three collections, please answer for your organisation's three main collections.

Collection Name: _____

What type of economic statistics does your organisation currently provide, produce or collect?

- | | | | |
|------------|--------------------------|--------------------------|--------------------------|
| Production | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| GVP | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Financial | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Structure | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Trade | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

What are the main uses of your statistics? (that you are aware of)
(tick as many boxes as required per collection)

- | | | | |
|--------------------------------------|--------------------------|--------------------------|--------------------------|
| fisheries management | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| business management | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| policy | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| finance / investment decision making | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other (please specify _____) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Who are the main users of your statistics?

- | | | | |
|----------------------------------|--------------------------|--------------------------|--------------------------|
| government | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| industry | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| industry related (eg. suppliers) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| academic | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| community | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| your organisation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other (please specify _____) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

What is the expected status of your collection(s)?

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| likely to be upgraded | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| likely to be reviewed | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| likely to stay as is | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| likely to be downgraded | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| likely to be abolished | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| minimum necessary to comply with statutory obligations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

What is the potential to decrease the level of aggregation in your collection?
(ie. increase the level of detail, or decrease the level of grouping)

- | | | | |
|----------|--------------------------|--------------------------|--------------------------|
| high | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| moderate | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| low | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

What is the main constraint faced by your organisation in generating your collection?

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| availability of data | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| funding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other resources (please specify _____) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other (please specify _____) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

If you would like to make any comments related to statistics that your organisation generates, please comment here:

General comments

If you would like to make any other comments about fisheries economic statistics or information, please comment here:

End of Questionnaire



Thank you for the time you've taken to fill in this questionnaire.

In case we need more information about any of the answers you have provided, or comments you have made, we would appreciate it if you could provide the name and contact details of the person who completed this questionnaire:

Organisation: _____

Name: _____ Phone: _____

email (if available): _____ Fax: _____



Please return this questionnaire along with your Workshop registration in the envelope provided, to:

Cook Wass & Associates Pty Ltd

P.O. Box 459

Mitchell ACT 2911

before Wednesday, 8th January 1997.