



Final report for *Australian fisheries statistics* 2008

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1 Non-technical summary

Outcomes achieved to date:

- Reliable and timely economic data provided to ensure well-informed investment, management and policy decisions by the Commonwealth, the fishing industry and the public in general.
 - Accurate information provided to stakeholders on the value associated with the fisheries sector.
 - Accurate and cost-effective estimation of the gross value of fisheries production provided to assist current research funding arrangements.
 - Baseline information provided that is fundamental to establishing the importance of individual fisheries and trends within fisheries.
 - Accurate information provided to stakeholders on exports and imports of fisheries products.
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Since 1991 ABARE has annually published detailed production and trade data in *Australian fisheries statistics* to meet the needs of the fishing industry, fisheries managers, policy-makers and researchers. The research undertaken in this project (2008/233) produced data on the volume and value of production from Commonwealth, state and Northern Territory fisheries, and the volume and value of Australian fisheries trade, by destination, source and product, covering the years 2005-06 to 2007-08. The report also contained industry structure profiles of Commonwealth, state and Northern Territory fisheries.

An important aspect of this project was the requirement to implement a process of continuous improvement over the life of the project. These improvements were aimed at enhancing the coverage of fisheries so all commercial fishing activities were included, incorporating industry employment data where available, maintaining the relevance of the data presented in both the production and trade tables, and refining fishery divisions and important species categories. Processes were also implemented to ensure the valuation of commercial fishing was undertaken in a consistent framework.

2 Australian fisheries statistics

Background

The absence of reported national fisheries information led to ABARE researching and publishing the first *Australian fisheries statistics* in 1991. The current project (2008/233) was undertaken to maintain the collection of commercial fishing industry production, value of production and trade data. *Australian fisheries statistics* continues to be the only collated and published source of information on commercial industry catches. It is used for a wide range of purposes, including determination of Australian Government financial contributions to fisheries research funding, the determination of industry levies and for addressing a wide range of information needs of both government and industry.

As estimates of the gross value of production (GVP) reported in *Australian fisheries statistics* form the basis for research levies for each fishery, it is important the collection and compilation of these statistics is undertaken independently of those involved in the management and marketing processes to ensure the neutrality and integrity of the estimates. ABARE provides this independence.

Need

The development of statistics on Australian fisheries production and value is required to meet a wide range of demands.

The existence of these data in a readily accessible form provides the basis for a range of activities, including the setting of research and management priorities by fisheries managers, industry and funding agencies. The Australian Government, through ABARE, contributes to a number of international databases, including those managed by the Food and Agriculture Organisation (FAO) of the United Nations and the Organisation for Economic Cooperation and Development (OECD). Information at the international level can be important for negotiations on transboundary stocks and in analysing trade opportunities and threats. It is also essential for participating in forums such as the Asia Pacific Economic Cooperation (APEC) and the World Trade Organisation (WTO).

The GVP for specific fisheries is used to determine the Australian Government's and industry financial contributions to the Fisheries Research and Development Corporation (FRDC). It is important GVP estimates are carried out independently of those involved in the management and marketing processes to ensure the neutrality and integrity of both the estimates and the process.

The data are extensively used by the fishing industry and by service providers to the fishing industry in making investment decisions and in long-term planning of marketing strategies.

Objectives

- 1 To maintain and improve the database of production, GVP and trade statistics for the Australian fishing industry, including aquaculture.
- 2 To present these data in an accessible form.

Methods

The key element of *Australian fisheries statistics* is the development of GVP estimates for the Commonwealth, state and Northern Territory fisheries. National GVP is the total value of Australian wildcatch and aquaculture production and its calculation is based on prices received by fishers and producers according to the wharf or farm-gate price. The wharf price is the price received for fish at its first landing point, excluding payments for freight, marketing and processing.

The Australian Fisheries Management Authority (AFMA) provides ABARE with Commonwealth production data, which ABARE uses to estimate the value of Commonwealth fisheries production. State and territory fisheries agencies provide ABARE with both production and GVP estimates for their respective fisheries. Responsibility for the accuracy and consistency of data lies with the respective fisheries agencies and the Fisheries Statistics Working Group (FSWG), a sub-committee of the Australian Fisheries Management Forum (AFMF). The FSWG addresses problems with methods of data collection (generally logbooks), consistency of data processing protocols, standardisation of species names and issues such as the effect of the overlapping fisheries management jurisdictions on catch data. Estimates that appear significantly different from expected values are queried.

All production volumes are recorded in landed whole weight. No account is taken of discarded species.

In general, commercial aquaculture production estimates are provided by state and territory fisheries agencies. Systems similar to those for wild capture data are used.

Value of product

The prices used in GVP calculations are based on the estimated wharf or farm-gate price received by fishers and aquaculture producers. Values are derived from a range of sources, including fishers and producers, processors, wholesale marketers and seafood buyers. As most fish are not sold at the point of landing or the aquaculture farm-gate, any marketing and transport costs reflected in the market price need to be deducted to derive a first point of sale price. For some states, the values are collected by the fisheries agency, while for others they depend on information provided by a sample of buyers. The sources and contacts for this process are continuously updated and, where relevant, expanded.

Intermediate product

It often occurs that live product from one fishery or aquaculture operation is transferred for use in another fishery or aquaculture operation. For example, wildcatch southern bluefin tuna are taken in the Commonwealth fishery and transferred to aquaculture cages off Port Lincoln, South Australia. Where this occurs, an issue arises as to whether the intermediate product should be included in the GVP estimate.

The criterion used in *Australian fisheries statistics* is whether live product is transferred to another management jurisdiction. If product is transferred to another jurisdiction, it is included in the GVP estimates for the jurisdiction in which it was originally produced (in the case of the example above, the Commonwealth southern bluefin tuna fishery). Such product is then treated as any other input by the secondary producers and no correction is made to the value of production from the second jurisdiction (for example, the tuna farming operation). However, when calculating the total value across both jurisdictions, the value of the intermediate product must be deducted to avoid double counting.

The value of live product transferred between operators in the same fishery is generally not recorded. The exception is fish fry, oyster spat and post larval prawns grown in hatcheries for ongrowing. If this product is grown on or transferred to another aquaculture operation in the same state, the value of the hatchery production is not included in GVP estimates. It is only when the product is sold interstate or is used for restocking that the value of hatchery product is included.

Trade data

Details on fisheries trade sourced from the Australian Bureau of Statistics (ABS) are based on the harmonised system of tariff codes. ABARE collates the data into categories based on products, destinations and originating jurisdictions. The categories in the trade tables are reviewed each year to ensure they remain relevant.

Results

See *Australian fisheries statistics 2008* for results of this project. A new database was created in 2000, which allows more efficient retrieval of information on a species basis. At this stage, 10 years of data (1998-99 to 2007-08) have been entered into the database and will be available on the ABARE website once finalised (www.abare.gov.au).

Benefits

The benefits of this project are widespread and have a substantial public good component. While in general the benefits are non-market in nature, there are significant components of realisable benefits, including the project's usefulness as an input to decision-making for fisheries management and investment, research funding allocation and similar issues.

The publication of *Australian fisheries statistics* also provides benefits to the fishing industry. These benefits include providing freely available consolidated information on their industry, in both volume and value terms, for use in investment decisions and long-term planning and marketing strategies. The provision of trade data can also assist in this regard by identifying emerging markets.

Since 2002 each version of *Australian fisheries statistics* has been made available for free download from the ABARE website. Since 2007, the production and trade tables have been made available on ABARE's website in spreadsheet format to allow users easier access to the data. ABARE will shortly make available 10 year production and trade tables on its website.

Issues and further development

The objective of *Australian fisheries statistics* is to maintain a database which enables the production of a low cost publication covering fisheries production and trade. While ABARE collates and publishes the data, it is a collaborative effort involving a number of different organisations at the Commonwealth, state, territory and individual company level.

In recent years, several states have been unable to provide ABARE with final production and GVP estimates by late November for the report to be published in the first quarter of the following year. ABARE keeps regular contact with the state and territory data providers to identify the impediments in providing the necessary data to ABARE in late November. Various reasons were identified, including reporting compliance from operators/producers and difficulty in obtaining prices, particularly in the aquaculture sector.

To address this issue, the Australian Fisheries Management Forum (AFMF) has endorsed the Fisheries Statistics Working Group's (FSWG) recommendation that a 30 November deadline be enforced on state and territory data providers, even where it involves estimation based on incomplete statistics. In cases where this deadline is not met, ABARE then reserves the right to apply pro rata methods to estimate final statistics or carry over statistics from the previous year.

Improvements to the *Australian fisheries statistics* publication are implemented each year, in both the production and trade tables. These include continued updating of Commonwealth, state and Northern Territory fisheries production, species produced (both wildcatch and aquaculture), adoption of standard fish names and species groupings. Trade tables continue to be updated with relevant species and countries. In addition, more detailed information on employment in the fishing industry will be reported, as will information on recreational fishing, where available.

Some issues which could motivate future development are listed below:

- While the general principle is that the value of production should be based on the ex-vessel or ex-farm-gate price, there can be difficulties in obtaining such information. Where prices are not obtained directly from fishers or farmers, the large number of marketing channels used in the fisheries sector can make it difficult to obtain a representative value. The

distribution of products can also change significantly over time, so regular monitoring of key markets is necessary.

- The size and quality of fisheries products at capture can affect the price fishers receive. However, these attributes are usually neither collected nor reported by fisheries agencies. For example, prawns sold at markets will often be priced according to size and quality but catch data typically only reveals tonnages. The problem is even more pronounced for aquarium species where price can be affected by appearance, condition and breeding status. Some industry respondents find it more difficult to have a representative average price for a species than a price for various grades. Hence the provision of production data by grade or size may improve the accuracy of GVP estimates for some products.
- A requirement for statistics reporting is that there has to be a minimum number of operators within a category before an estimate can be published. This can be a problem for reporting aggregate production estimates for fisheries or aquaculture sectors where there are only a small number of operators.
- Another issue is the reporting period chosen, for example, financial or calendar year. While a financial year reporting period is used in the publication, there has been criticism that this does not concur with fishing seasons.
- The harmonised system and the statistical identification framework currently implemented in Australia prevent identification of trade in most individual species. For example, shark fin exports are not identified separately by the ABS. In addition, the ABS periodically reviews the statistical codes with a view to amalgamating codes or adding new ones.
- Information on industry structure is difficult to present as management approaches vary widely across jurisdictions. In some jurisdictions, structure is based on the number of individual fishers, in others it is based on the number of boats. Many operators are also licensed for multiple fisheries, so there are major problems in establishing the overlaps in boat numbers and employment numbers.

Planned outcomes

Planned outcomes of the project include:

- the Commonwealth, fishing industry and the public in general use the data for input into investment, management and policy decisions
- stakeholders obtain accurate information on the values associated with the fisheries sector
- research funding arrangements obtain accurate and cost-effective estimation of the GVP of Australian fisheries
- the importance of individual fisheries and trends within fisheries are established from the data.

Conclusion

The project achieved the aforementioned planned outcomes and objectives with the release of *Australian fisheries statistics 2008*.

3 Information sources used in *Australian fisheries statistics* 2008

Information sources

Australian Bureau of Statistics

Australian Fisheries Management Authority

Department of Fisheries Western Australia

Marine and Freshwater Resources Institute

Melbourne Wholesale Fish Market

New South Wales Fish Marketing Authority

New South Wales Department of Primary Industries - Fisheries

Northern Territory Department of Primary Industry, Fisheries and Mines

Primary Industries Resources South Australia

Queensland Department of Primary Industries and Fisheries

South Australian Research and Development Institute

Sydney Fish Market

Tasmanian Department of Primary Industries and Water – Fisheries

appendix **A** Intellectual property

Not applicable

appendix **B** Staff involved in the project

Thuy Pham

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Ongoing response to recommendations from the Review of Australian Fisheries Economic Statistics

General findings	Recommendations for actions	Comment
<p><i>Australian fisheries statistics</i> is widely used and valued.</p>	<p>The <i>Australian fisheries statistics</i> publication meets the needs of a range of users and should be continued with only minor changes. A summary 'industry profile'.</p>	<p>Agree with first statement.</p>
<p>Electronic and hard copy. Around 2000 copies are distributed annually.</p>	<p>There is still a preference for hard copies of <i>Australian fisheries statistics</i>. The current arrangements, whereby FRDC publishes the hard copy while ABARE provides the electronic copy, appear to satisfy users.</p>	<p>Around 200 hard copies were distributed by ABARE in 2008.</p>
<p>Currently there are few web links between state fisheries and <i>Australian fisheries statistics</i> websites.</p>	<p>Links between <i>Australian fisheries statistics</i> and state fisheries websites should be strengthened. Data in <i>Australian fisheries statistics</i> and state publications should be consistent, requiring agreed decision rules in relation to the number of revisions.</p>	<p>Links to state websites have been incorporated in recent editions of <i>Australian fisheries statistics</i>.</p>
<p>As a general rule, revisions are only made by ABARE for the years that are published in the current edition of <i>Australian fisheries statistics</i>.</p>	<p>ABARE proposes a note be included in future publications stating that the most up-to-date information is used at the time of publication but that updates may subsequently be available on state websites (as listed) until they can be incorporated into the following year's publication.</p>	<p>As a general rule, revisions are only made by ABARE for the years that are published in the current edition of <i>Australian fisheries statistics</i>.</p>
<p>Insufficient detail is given in <i>Australian fisheries statistics</i> for some purposes.</p>	<p>More detailed production and value statistics should be available in an extended electronic database format to ensure transparency of the valuation process. If additional regional detail is required this should be kept in the database in preference to increasing the size of the publication.</p>	<p>ABARE proposes that a note be included in future publications stating that a wider data set is available on request (at some cost and subject to confidentiality restrictions) and can be obtained by contacting the coordinator of <i>Australian fisheries statistics</i>.</p>
<p>Data in <i>Australian fisheries statistics</i> is difficult to access in current formats.</p>	<p>The data should be made available in an accessible format, such as Excel, to allow users to easily incorporate data in their applications.</p>	<p>Production and trade tables are now published in Excel format on the ABARE website. Ten year production and trade tables in Excel format are also under development and will be released on the ABARE website once finalised.</p>
<p>While difficult to independently verify, some values used appear to understate true returns.</p>	<p>More resources may need to be put into identifying fish values, through the use of a wider list of collaborators and through closer monitoring of overseas prices. Development and distribution of trade data to the post harvest sector would assist in confirming values used and improve the availability of information.</p>	<p>ABARE does not have any evidence that suggests values are consistently underestimated in <i>Australian fisheries statistics</i>.</p>
<p>ABARE continues to pursue improvements in the price data used for Commonwealth GVP calculations. However, there are trade-offs between improving the accuracy of prices and the costs required to do so.</p>	<p>ABARE continues to pursue improvements in the price data used for Commonwealth GVP calculations. However, there are trade-offs between improving the accuracy of prices and the costs required to do so.</p>	<p>ABARE continues to pursue improvements in the price data used for Commonwealth GVP calculations. However, there are trade-offs between improving the accuracy of prices and the costs required to do so.</p>

General findings	Recommendations for actions	Comment
<p>There is an under-emphasis on identifying factors influencing changes in fishing costs.</p>	<p>More use should be made of the results of ABARE fisheries surveys in relation to industry cost changes in <i>Australian fisheries statistics</i>, such as changes in prices paid/prices received.</p>	<p>In recent years, ABARE has widened its list of price contacts by liaising closely with AFMA, operators and industry representatives. Through the Fisheries Survey Program, ABARE has recently secured regular price reports from several operators in the major Commonwealth fisheries.</p>
<p>There is a need for more economic information on the post harvest sectors of each state.</p>	<p>Decisions in relation to the catching sector have downstream effects on the post-harvest sector. A concerted effort is required to develop economic information on this sector in each state and provide updates.</p>	<p>The aim of <i>Australian fisheries statistics</i> is to provide a publication that brings together Australian fisheries production and trade statistics in one report. While a fuel price series could be included in the publication, it is easily obtainable from other ABARE publications such as <i>Australian commodity statistics</i>.</p> <p>As the factors influencing costs are often highly fishery specific, the discussion is addressed in other publications such as ABARE's <i>Fishery economic status report</i>, which brings together information from <i>Australian fisheries statistics</i>, the <i>Fisheries survey report</i> and other ABARE research reports to assess the overall economic performance of fisheries.</p>
<p>There are important weaknesses in using the GVP estimates published in <i>Australian fisheries statistics</i> as the basis for setting research funding.</p>	<p>The use of a lagged average of three years of GVP estimates with no adjustments for changes in purchasing power reduces the level of research funding below the prescribed levels. Adjustment for information would address this problem. The narrow window available to prepare GVP estimates results in the use of conservative preliminary estimates which reduce funding levels. Changes in the timetable and administrative arrangements may reduce this problem. Improvements in the availability of price information would make estimation more robust.</p>	<p>ABARE agrees that more information could be collected but additional funding would be required.</p> <p>Research and development levies are calculated according to legislation. This issue could be raised as a policy question with the Department of Agriculture, Fisheries and Forestry.</p> <p>ABARE does not have any evidence to suggest the preliminary estimates are conservative. As discussed above, ABARE recognises there is a scope for continual improvements when obtaining price information.</p>

General findings	Recommendations for actions	Comment
<p>The commercial fishing charter sector can be incorporated in fishing GVP estimates using current methodologies.</p>	<p>The charter boat industries are now licensed in most states and are required to provide logbook information. Valuation is difficult with a range of changing methods of valuation for statistical purposes. However, it should be possible to determine an agreed standardised method of valuation for statistical purposes.</p>	<p>Even where comprehensive and consistent catch data are available, incorporating this sector in <i>Australian fisheries statistics</i> is problematic as there are a range of methodological issues that need to be addressed when valuing the sector. The use of commercial prices is one option that could be explored further but this use needs to be considered in the context of how and where such valuations will be used. ABARE has attempted to value the charter sector of the eastern tuna and billfish fishery but found a considerable amount of data needed to be collected and the process was very costly.</p>
<p>The recreational and customary fishing sectors can potentially be incorporated in a GVP framework.</p>	<p>Valuing recreational catches at commercial values can provide a measure broadly comparable to commercial GVP. An index of recreational activity based on state monitoring of key fisheries could be a feasible means of updating catch data. Details on the level of catches will depend on updates of national recreational fishing survey data.</p>	<p>At this stage, incorporating the recreational sector in <i>Australian fisheries statistics</i> is not feasible as there are substantial data availability issues in terms of catch statistics, as well as a range of methodological issues that need to be addressed in terms of prices. The time and cost required to adopt even simple valuation techniques such as the application of commercial prices needs to be carefully considered as such an approach may not be useful in the broader sense – for example, assessing resource sharing arrangements between competing users.</p>

General findings	Recommendations for actions	Comment
<p>The mainstream aquarium fish industry is currently incorporated in GVP estimates.</p>	<p>A significant part of production is believed to be outside the recognised industry. A review of current policy in relation to the disease risk posed by the aquarium fish trade should provide independent validation of the size and value of the industry. Current value estimates are disputed by industry, mainly through misunderstandings of the concept of farm-gate prices.</p>	<p>To ensure values are calculated within a consistent framework, ABARE maintains that prices for wildcatch aquarium species caught in Commonwealth fisheries should be based on the price at the first point of landing; that is, the price paid to the diver.</p>
<p>Incorporating the post harvest sector of the seafood industry appears feasible.</p>	<p>Current ABS data collections covering these sectors are subject to wide confidence limits and do not provide the exact measure of GVP that would be comparable to other industry estimates. Using the ABS surveys would appear to be the most feasible means of collecting data on the sectors in the future.</p>	<p>ABARE does not have any immediate plans to incorporate the post harvest sector into <i>Australian fisheries statistics</i> as considerable additional resources would be required. ABARE suggests that the ABS be consulted on this issue.</p>
<p>Employment levels reported by the ABS Census appear to understate employment in the seafood industry.</p>	<p>The Census may be unsuited to recording fishing industry employment mainly because of the high seasonality of that employment. It is feasible to capture employment data through licensing and logbooks. This would require coordination between management authorities to develop national data to prevent overlaps. If understatement of employment is a major concern then a study of employment over 2006-07 would allow examinations of the problems involved and comparison with the 2006 Census. Industry organisations need to publicise the importance of ensuring the correct employment classifications are used in the 2006 Census, to ensure that the industry is accurately reflected in national data.</p>	<p>While the employment data collected in the Fisheries survey program enables estimates to be obtained for major Commonwealth fisheries, ABARE has had mixed success in obtaining employment estimates for state fisheries. ABARE suggests that the ABS be consulted on this issue.</p>
<p>National consumption study</p>	<p>That an initial investigation be undertaken of the cost of undertaking a National Seafood Consumption Study and the interest of a consortium of potential sponsors in jointly funding such a study</p>	<p>None.</p>

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Australian Fisheries Management Authority	Fisheries Research and Development Corporation
Australian Government Department of Climate Change	Fisheries Resources Research Fund
Australian Government Department of the Environment, Water , Heritage and the Arts	Forest and Wood Products Australia
Australian Government Department of Infrastructure, Transport, Regional Development and Local Government.	Grains Research and Development Corporation
Australian Government Department of Resources, Energy and Tourism	Grape and Wine Research and Development Corporation
CRC Plant Biosecurity	Horticulture Australia
CSIRO (Commonwealth Scientific and Industrial Research Organisation)	International Food Policy Research Institute
Dairy Australia	Land and Water Australia
Department of Primary Industries, Victoria	Meat and Livestock Australia
DN Harris and Associates	National Australia Bank
	OECD
	Rural Industries Research and Development Corporation
	The Treasury