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Final Report for Australian fisheries and aquaculture statistics 2017

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Executive Summary

Outcomes achieved to date:

- A reliable time series of economic data about Australia's fishing and aquaculture industries provided to ensure well informed investment, management and policy decisions by governments, the fishing industry and the public in general.
- Accurate information provided to stakeholders on the value associated with the commercial fisheries and aquaculture sectors.
- 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.

Since 1991 ABARES has annually published detailed production and trade data in *Australian Fisheries Statistics* (now *Australian fisheries and aquaculture statistics*) to meet the needs of the fishing and aquaculture industries, fisheries managers, policy makers and researchers. The research undertaken in this project (2018/134) 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 2006-07 to 2016-17. The report also contained industry structure profiles of Commonwealth, state and Northern Territory fisheries.

An important aspect of this project is the requirement to undertake continuous improvement for each subsequent published edition. Improvements should build on each other and are aimed at enhancing the coverage of fisheries so that all commercial fishing activities are 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. This is achieved by publishing the most up to date data available for production statistics and a set of trade data for the same production year. For the most recent year data has been made more accessible through the ABARES website where the contents of the report are organised on the website along subject lines. This allows users of the data to find information under specific topics more efficiently. The data page on the site provides an area dedicated to the data tables, which are also available for long time series in excel format. The main landing page for the Australian fisheries and aquaculture statistics landing page can be found at <http://www.agriculture.gov.au/abares/research-topics/fisheries/fisheries-and-aquaculture-statistics>.

Moreover the 2016-17 edition has been streamlined by removing detail from the textual part of the publication, where the information is already captured in the statistical tables of the publication, thus reducing the repetition of information produced in the publication.

Introduction

Background

The absence of reported national fisheries information led to the then ABARE (Australian Bureau of Agricultural and Resource Economics), with support from the newly formed Fisheries Research and Development Corporation, researching and publishing the first *Australian Fisheries Statistics* in 1991. The report's title was changed to *Australian Fisheries and Aquaculture Statistics* for the 2014 publication to reflect the growing importance of aquaculture to the gross of Australian fisheries production. The current project (2018/134) was undertaken primarily to maintain the collection of commercial fishing industry production for the 2017 financial year, including value of production and trade data.

Australian Fisheries and Aquaculture Statistics continues to be the only collated and published source of information on commercial industry catches and values and farm gate production of aquaculture enterprises. It is used for a wide range of purposes, including determination of Australian Government financial contributions to fisheries research funding, determination of industry levies, and for addressing a wide range of information needs of both government and industry. Increasingly, data visualisation tools are being developed that aid users to interrogate and understand the data. The FRDC maintains a data visualisation tool on its web site for the Australian fisheries statistics data set, which is updated with each publication (see <https://www.frdc.com.au/en/Services/Seafood-Trade-and-Market-Access/Gross-Value-Production-Report>). Future editions of the publication are likely to make increasing use of these tools to change the way that stakeholders interact with data presented in the publication.

Need

Australian Fisheries and aquaculture statistics

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

First: The existence of these data in a readily accessible form provides the basis for a range of activities. The Australian Government, through ABARES, 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 in relation to 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) forum and the World Trade Organisation (WTO).

Second: The GVP for specific fisheries is used to determine the Australian Government and industry financial contribution to the Fisheries Research and Development Corporation (FRDC). It is important that 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.

Third: The data are extensively used by the fishing industry and by providers of services to the fishing industry in making investment decisions and in long term planning of marketing strategies. ABARES frequently receives requests from the public and industry stakeholders for assistance with accessing information contained in the publication. Requests range from being fairly specific, for example production of a particular species in a particular state, to

generic, for example focused on the relative size of the wild catch sector to aquaculture and how this has changed over time.

Labour force profiling information

Knowledge of available datasets that reveal the structure of the labour force in Australia's fisheries and aquaculture industry is required to assist in workforce planning. Reporting on these datasets and issues in a single publication provides better access to this information for industry stakeholders.

Monitoring methodologies to determine jurisdictional GVP

Through this project monitoring of approaches used by jurisdictions to estimate their GVP was undertaken. Maintaining consistent approaches to determining GVP across jurisdictions is important for a number of reasons, including: making valid comparisons of GVP across jurisdictions; ensuring a fair allocation of FRDC research funding leverage across species groups and jurisdictions; providing accurate data to international organisations, for example the FAO and the OECD. This work remains an ongoing priority for the project.

Recreational fishing survey monitoring

Recreational fishing surveys capturing expenditure and participation trends are periodically undertaken by jurisdictions and at the national level. This project continues to monitor these surveys as they occur and summarises key results in the statistical publication. As such the project provides a summary for stakeholders monitoring developments in this sector. The commencement of the next national survey of recreational fishers will provide additional information for this report. The summary is fairly high level, with the intention being to provide readers with a link to the survey publications.

Objectives

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

Method

A key element of *Australian Fisheries and Aquaculture Statistics* is the development of GVP estimates for the Commonwealth, state and Northern Territory fisheries. National GVP is the total landed/farm gate value of Australian wildcatch/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 farm gate price is relevant to aquaculture farmers and is the price received for product at the point of exit from the farm.

The Australian Fisheries Management Authority (AFMA) provides ABARES with Commonwealth production data, which ABARES uses to estimate the value of Commonwealth fisheries production. This is done by surveying industry stakeholders for representative price points for the species they catch. The resulting weighted average price for each species is multiplied by AFMA catch to determine GVP for Commonwealth fisheries. State and territory fisheries agencies provide ABARES with both production and GVP estimates. Responsibility for the accuracy and consistency of data lies with the respective fisheries agencies and the Fisheries Statistical and Information Working Group (FSIWG), a subcommittee of the Australian Fisheries Management Forum (AFMF). The FSIWG aims to address problems with methods of data collection (generally logbooks), consistency of data processing protocols, standardisation of species names and issues such as the impact 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. These estimates are derived by the States and Territories by multiplying farm gate production by the price received at the farm gate for each species and each jurisdiction.

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. Ideally values are derived from a range of sources, including fishers and producers, processors, wholesale marketers and seafood buyers. As most fish is not sold at the point of landing or the aquaculture farm gate, any marketing and transport costs that are 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

Live product from one fishery or aquaculture operation is sometimes 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 and Aquaculture Statistics* is whether live product is transferred to another management jurisdiction. If a 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 products 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 on-growing. 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. ABARES 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.

Publications

See *Australian Fisheries and Aquaculture Statistics 2017*. Through this project ABARES has enhanced dissemination of the statistics through including historical excel data products for a greater number of production series. This expands on the historical expansion of the time series data on fisheries production and trade made in the previous edition. These data products are made available through ABARES web site (<http://www.agriculture.gov.au/abares/publications>) at the time of publication.

This year's data will also be made available through FRDC's web based interactive tool, hosted at <http://www.frdc.com.au/en/Services/Australian-Seafood-Trade-and-Market-Access/Gross-Value-Production-Report>. This tool allows users of the ABARES fisheries and aquaculture statistics database to inter-actively interrogate the data to suit their specific needs. The tool uses a dashboard approach and enhances user interaction experience with the data. Additionally, ABARES has improved the presentation of fishery statistics on the ABARES web page "<http://www.agriculture.gov.au/abares/research-topics/fisheries/fisheries-and-aquaculture-statistics>".

Enhancement to publication

1. Provision of a expanded number of time series' historical production data product with each publication.
2. Presentation of data in a reduced format that limits duplication of data and aids readability. The main areas highlighted are Key trends, Production, Trade, Employment, Recreational and Charter Fishing, Customary Fishing, Profiles of Australian Fisheries and Data.

Discussion

Benefits

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

The publication of *Australian Fisheries and Aquaculture Statistics* also provides benefits to the fishing industry. These benefits include the provision of 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 for seafood, for example new export markets for Australian seafood. The overall size of seafood export trends to key markets can also be assessed.

Since 2002 each version of *Australian Fisheries Statistics* has been made available for free download from the ABARES website (www.ABARES.gov.au). Since 2007, the production and trade tables have been made available on ABARES's website in Excel format to allow users easier access to the data. ABARES also makes available 10 year production and trade tables on its website.

Issues and further development

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

Improvements to the *Australian Fisheries and Aquaculture Statistics* publication are implemented each year, in both the production and trade tables. These include continued updating of Commonwealth, state and Northern Territory fisheries, 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, information on employment in the fishing industry is reported, as well as some limited high level information on recreational fishing, where available. There is limited information available on the economic value of recreational fishing, which limits the content that can be added to the publication for recreational fishing at this stage.

Some issues that 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-farmgate 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. For this reason it is important that ABARES continues to foster harmonisation of beach price collection processes across jurisdictions so that comparable GVP estimates can be derived. To

date the harmonisation process is fostered through the FSIWG, where all jurisdictions are represented.

- The size and quality of fisheries products at capture can affect the price that 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 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. Collecting whole weight beach prices that reflect an accurate weighting of size, grade and regional attributes is part of the harmonisation efforts that is ongoing with the jurisdictions. However, some areas of price collection are likely to remain difficult, for example collection of accurate pricing data on the full range of marine aquarium fish caught annually in Australia is likely to remain prohibitively expensive for jurisdictions regardless of the level of harmonisation. 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 need to report in some cases on a basis that is not a financial year, for example fishing season or calendar year, requires that data bases be developed that report on a monthly rather than an annual basis. This requires significant investment by jurisdictions in data collection processes and consideration of the costs and benefits of such investment.
- The international harmonised system for the collection and reporting of trade data and the statistical identification framework currently implemented in Australia prevent identification of trade in most individual species. For example, achieving an accurate estimate of shark fin trade is difficult using ABS data because of the way that such data is reported. 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. Addressing some of these data gaps would require targeted research across some of these areas, for example fleet structure and characteristics, numbers of fishers endorsed to fish across multiple jurisdictions, supply chain analysis.
- The aggregated nature of some species groups in the publication, and the reporting at largely the group level rather than at a single species level, makes applying the Australian fish names standard challenging in some instances. Over time it is desirable to collect a more disaggregated data set to help in classifying species to the correct standard group name as required by the standard. This would also over time allow the possibility of integration of the data from this publication into the Status of Australian Fish Stocks Reports.
- The way people use and interact with data is changing. People’s preferences are changing toward readily available real time data sets that they can “custom query” and analyse. To meet this need will require the data from this report to be also

presented through a digital portal alongside the traditional online publication. To achieve this goal may require some reorganisation of the way in which the information is presented. Project outcomes

Project outcomes include:

- the Australian 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 project outputs and objectives with the release of *Australian Fisheries and Aquaculture Statistics 2017*

Implications

The outputs of this research project contribute to the long term statistical data for the Australian seafood industry. It is the only publication available that combines statistical data for the industry from all fishing and aquaculture jurisdictions. It provides a valuable indication of the size and depth of the industry and assists industry better plan for future development. ABARES takes a number of enquires throughout the year from people seeking statistical information about the seafood industry. These enquiries come from a range of stakeholders, across management, industry and consumers and the publication provides a cost effective way of assisting with these enquiries.

Recommendations

The *Australian Fisheries and Aquaculture Statistics* publication meets the needs of a number of users and should be continued with only minor modifications. To further develop the publication a number of inclusions can be considered:

1. A summary industry profile, showing key events along a timeline could be considered;
2. Expand the collection of state data to cover a broader range of species, with production and value reported, and make this data available in an electronic database. This database should be designed so that reports at the fishery level are possible. The publication would still report at a more aggregated level.
3. Continue to work through the Fishery Statistical and Information Working group to align methods of pricing species for the purpose of improving the accuracy of GVP estimates.
4. Provide information in the publication that covers the post harvest sector.
5. Consideration should be given for future editions to provide an analysis of supply chain issues in the industry and cost pressures along the chain.
6. Continue to improve presentation of the statistics, potentially including; a digital portal with an interactive 'dashboard' for analysis of the statistics; scope expansion of existing data products, for example improved coverage of recreational and customary fishing; other communication methods that may become available.

Extension and Adoption

The publications have been made available on ABARES web site (<http://www.agriculture.gov.au/abares>). The FRDC web (<http://frdc.com.au/>) site also includes links to the publication. ABARES also assists in enquires about the publication and frequently provides more detailed information from ABARES databases not available in the publication. ABARES also frequently discusses fisheries statistics collection processes with jurisdictional fisheries agencies, with the aim of encouraging improvement in collection processes.

Project coverage

Statistics from the publication are frequently used in media pertaining to the Australian seafood industry.

Project materials developed

Mobsby, D 2018, Australian fisheries and aquaculture statistics 2017, Fisheries Research and Development Corporation project 2018-134, ABARES, Canberra, December. CC BY 4.0.

Available at:

<http://www.agriculture.gov.au/abares/research-topics/fisheries/fisheries-and-aquaculture-statistics>