# ECONOMIC AND SOCIAL INDICATORS FOR THE QUEENSLAND CORAL REEF FIN FISH FISHERY, 2017/18 AND 2018/19

A report to Fisheries Queensland

27 November 2020

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# GLOSSARY

**Beach Price:** refers to the unimproved price received by commercial fishers when landing their catch at the beach, wharf or port (also referred to as wharf price and comparable to farm gate price), and is generally expressed in terms of $/kg or $/unit. Processing margins are not included in the beach price as processing operations are assumed to occur further along the value chain. The use of beach prices also removes the effect of transfer pricing by the firm if it is vertically integrated into the value chain.

**Boat Business Profit:** is defined as *GOS* less *Depreciation* less *Owner-operator and Unpaid Family Labour*. Boat Business Profit represents a more complete picture of the actual financial status of an individual firm, compared with GOS, which represents the cash in-cash out situation only.

**Boat Cash Income:** is defined as Gross Operating Surplus less imputed wages for owner- operator and unpaid family labour.

**Boat Gross Margin:** is defined as *Total Boat Income* less *Total Boat Variable Costs*. This is a basic measure of profit which assumes that capital has no alternative use and that as fishing activity (days fished) varies there is no change in capital or fixed costs.

**Cost of Management Services:** in a commercial fishery management services will generally include biological monitoring and reporting; policy, regulation and legislation development; compliance and enforcement services; licensing services; and research.

**Days Fished:** refers to the number of days fished at the 'boat mark' level, or at a business level where there is no boat mark. For example, a business with two boat marks that fished on 200 days each through the year has 400 days fished.

**Depreciation:** Depreciation refers to the annual reduction in the value of working capital due to general wear and tear or the reduction in value of an item over time. Note this is a measure of economic depreciation not accounting depreciation[1].

**Gross Operating Surplus (GOS):** is defined as *Total Boat Income* less *Total Boat Cash Costs* and is expressed in current dollar terms. GOS may be used interchangeably with the term Gross Boat Profit. A GOS value of zero represents a breakeven position for the business, where TBCC equals Total Boat Cash Receipts (TBCR). If GOS is a negative value the firm is operating at a cash loss and if positive the firm is making a cash profit. GOS does not include a value for owner/operator wages, unpaid family work, or depreciation.

**Gross Value of Production (GVP):** refers to the value of the total annual catch for individual fisheries, fishing sectors or the fishing industry as a whole, and is measured in dollar terms. GVP, generally reported on an annual basis, is the quantity of catch for the year multiplied by the average monthly landed beach prices.

**Owner-operator and Unpaid Family Labour:** in many fishing businesses there is a component of labour that does not draw a direct wage or salary from the business. This will generally include owner/operator labour and often also include some unpaid family labour. The value of this labour needs to be accounted for which involves imputing a labour cost based on the amount of time and equivalent wages rate. In the above calculations this labour cost can be included simply as another cost so that Gross Operating Surplus takes account of this cost. Alternatively, it can be deducted from GOS to give a separate indicator called Boat

[1] Accounting depreciation allocates the cost of an asset over its useful life.

Cash Income. Owner-operator and unpaid family labour is separated into variable labour (fishing and repairs and maintenance) and overhead labour (management and administration).

**Profit at Full Equity:** is calculated as *Boat Business Profit* plus *rent, interest and lease* payments less *depreciation associated with leased capital*. Profit at Full Equity represents the profitability of an individual fishing business, assuming the business has full equity in the operation, i.e. there is no outstanding debt associated with the investment in working capital. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

**Rate of Return to Capital:** is calculated as *Profit at Full Equity* divided by *Working Capital* multiplied by *100*. This measure is expressed in percentage terms and is calculated for an individual fishing business. It refers to the economic return to the total investment in capital items, and is a useful relative measure of the performance of individual firms. Rate of return to capital is useful to compare the performance of various fishing businesses, and to compare the performance of other types of operators, and with other industries.

**Total Boat Cash Costs (TBCC):** defined as *Total Boat Variable Costs* plus *Total Boat Fixed Costs*

**Total Boat Fixed Costs:** are costs that remain fixed regardless of the level of catch or the amount of time spent fishing. As such these costs, measured in current dollar terms, are likely to remain relatively constant from one year to the next. Examples of fixed cost include:

- insurance
- administrative and industry fees
- office & business administration (communication, stationery, accountancy fees)
- interest on loan repayments and overdraft
- leasing.

**Total Boat Income (TBI):** refers to the cash receipts received by an individual firm and is expressed in dollar terms. Total boat income is calculated as catch (kg) multiplied by 'beach price' ($/kg). Total boat income is the contribution of an individual fishing business to the GVP of a fishing sector or fishery.

**Total Boat Variable Costs:** are costs which are dependent upon the level of catch or, more commonly, the amount of time spent fishing. As catch or fishing time increases, variable costs also increase. Variable costs are measured in current dollar terms and include the following individual cost items:

- fuel, oil and grease for the boat (net of diesel fuel rebate)
- bait
- ice
- provisions
- crew payments
- fishing equipment, purchase and repairs (nets, lines, etc.)
- repairs & maintenance: ongoing (slipping, painting, overhaul motor).

**Working Capital:** includes capital items that are required by the fishing business to earn the boat income[2]. It includes boat hull, engine, electronics and other permanent fixtures and tender boats. Other capital items such as motor vehicles, sheds, cold-rooms, and jetty/moorings are included to the extent that they are used in the fishing business. The value of capital utilised by the business (including fishing endorsement) is included in total working capital whether the business owns or leases it.

[2] Working capital should not be confused with financial capital which is money provided by lenders for a price (interest)).

# ABBREVIATIONS

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| CPI | Consumer Price Index |
| fte | full time equivalent |
| GRP | gross regional product |
| GSP | gross state product |
| GVP | gross value of production |
| R&M | repairs and maintenance |
| RBA | Reserve Bank of Australia |

# ACKNOWLEDGEMENTS

In the preparation of economic indicators for the Coral Reef Fin Fish Fishery, 2017/18 and 2018/19, BDO EconSearch has relied heavily on the voluntary cooperation of fishing operators in providing data for the surveys and are particularly grateful for the time and cooperation generously provided by fishing businesses in responding to the rather lengthy questionnaire. BDO EconSearch is also indebted to various individuals and institutions for providing the necessary information to supplement the survey data. Industry representatives and Fisheries Queensland officers provided assistance, were supportive of the data collection and offered valuable advice.

# DOCUMENT HISTORY AND STATUS

| Doc Version | Doc Status | Issued To | Qty elec | Qty hard | Date | Reviewed | Approved |
|---|---|---|---|---|---|---|---|
| 1 | Draft | James Webley<br>Tobias Probst | 1 Word<br>1 PDF | - | 10/06/2020 | JBM | JBM |
| 2 | Final | James Webley<br>Tobias Probst | 1 Word<br>1 PDF | - | 29/06/2020 | JBM | JBM |
| 3 | Final | James Webley<br>Tobias Probst | 1 Word<br>1 PDF | - | 27/11/2020 | JBM | JBM |

| | |
|---|---|
| Printed: | 18/12/2020 12:04:00 PM |
| Last Saved: | 18/12/2020 12:04:00 PM |
| File Name: | I:\CLIENTS\QDAF\ES1915_Qld Fisheries Economic Indicators\Reports\Final Reports\Updated Finals\Economic_and_Social_Indicators_1718_1819_CRFF_Final_201127.docx |
| Project Manager: | Anders Magnusson |
| Principal Author/s: | Anders Magnusson, Jasmine Douglas and Julian Morison |
| Name of Client: | Department of Agriculture and Fisheries (Queensland) |
| Name of Project: | Economic and Social Indicators for the Queensland Coral Reef Fin Fish Fishery, 2017/18 and 2018/19 |
| Document Version: | 3 |
| Job Number: | 1915 |

# EXECUTIVE SUMMARY

The principal aim of this study is to present a set of economic performance indicators for the Coral Reef Fin Fish Fishery as well as to develop a method to create a consistent time series of economic information to aid management in future years. Data on some social indicators were also collected and are presented. For the purpose of this report, the Coral Reef Fin Fish Fishery includes all activity on an RQ symbol regulated by Fisheries Queensland. This symbol permits fishers to use line methods to take coral reef fin fish species. Total allowable commercial catch is managed through individual tradable quotas for Coral Trout, Red Throat Emperor and Other Species. A summary of key economic indicators is presented in Table ES-1.

Table ES-1 Summary of key economic indicators, 2017/18 and 2018/19

| Indicator | 2017/18 | 2018/19 |
|---|---|---|
| Catch | 1,452t | 1,290t |
| Gross value of production (beach price) | $33.4m | $30.4m |
| Export value | $8.0m | $7.1m |
| Active businesses | 254 businesses | 241 businesses |
| Management cost/gross value of production | 4.9% | 5.3% |
| Return on total capital | 3.9% | 0.6% |
| Active endorsement value per active business | $113,550 | $251,515 |
| Gross state product (direct + flow-on) | $52.4m | $47.8m |
| Employment (direct + flow-on) | 556 fte jobs | 540 fte jobs |
| Net Economic Return | -$2.5m | -$4.2m |
| Net Economic Return/gross value of production | -7.4% | -13.9% |

## Overview of Approach

Businesses that operate in a commercial fishery in Queensland tend to operate in multiple fisheries. For this reason, a business level modelling approach was used rather than an aggregate or fishery level approach. This involved the following steps:

1. Collect administrative business level data
2. Collect fishery level data
3. Survey fishing businesses
4. Impute non-surveyed businesses at the business level for 2018/19
5. Attribute operating costs and capital value to the relevant fisheries
6. Calculate indicators for each fishery
7. Backcast to 2017/18 at a business level and re-calculate indicators.

Across all fisheries, a total of 268 usable survey responses were received from fishing businesses between September and December in 2019. In the Coral Reef Fin Fish Fishery, a total of 45 responses were received that were used for economic indicators. This represents 19 per cent of active businesses in 2018/19 and at least 12 per cent in each region with active businesses. A total of 55 responses were received that were used to calculate social indicators. The confidentiality of responses was made clear to respondents including that no individual response would be identifiable in reporting or provided to Fisheries Queensland and that any statistic published would be based on at least five responses.

### Catch, Gross Value of Production and Exports

The total catch in the Coral Reef Fin Fish Fishery decreased from 1,452t in 2017/18 to 1,290t in 2018/19, a decline of 11 per cent. Consequently, Coral Reef Fin Fish Fishery GVP declined between 2017/18 ($33.4m) and 2018/19 ($30.4m). The value of international exports by commercial fishing businesses accounted for almost a quarter of GVP (at beach price) in both years ($8.0m in 2017/18 and $7.1m in 2018/19).

### Prices and First Market Destinations

The most important species for the Coral Reef Fin Fish Fishery in 2017/18 and 2018/19, in terms of contribution to GVP, was coral trout. This species contributed over three quarters of total GVP in 2017/18 and 2018/19. The next most important species was red throat emperor, which contributed 6 per cent of GVP in 2017/18 and 2018/19. Average beach price across all species for the Coral Reef Fin Fish Fishery was estimated to be $23.04/kg in 2017/18 and $23.54/kg in 2018/19.

International exports were an important market for coral trout in 2018/19 (29 per cent exported) but were only of marginal importance to the rest of the fishery. Interstate exports were an important market for red throat emperor (28 per cent exported) and coral trout (13 per cent exported). These figures summarise the average proportion exported directly by fishing businesses. Exports from wholesalers and processors are not included so this value likely underestimates the actual amount exported.

It is important to note that the market destinations for catch relates to the transaction between the commercial fishing business and its immediate customer, which in many cases can be a wholesaler or processor. These data were sourced from survey data. Sales destinations of subsequent transactions are not considered in this report. A proportion of the catch sold locally by the commercial fishing business may be exported by businesses further down the supply chain. These reports do not try to estimate the total export value of Queensland seafood because they focus on the economics of Queensland's commercial fishing businesses and not the supply chain of Queensland seafood.

### Management Costs

Estimated total Fisheries Queensland management costs for the Coral Reef Fin Fish Fishery were $1.6m in both 2017/18 and 2018/19. This represented 4.9 per cent of GVP in 2017/18 and 5.3 per cent in 2018/19.

### Business Financial Indicators

In 2018/19, the average business's activity in the Coral Reef Fin Fish Fishery generated a positive gross operating surplus (almost $9,600) and profit at full equity ($2,400), leading to a return on investment of 0.6 per cent including endorsement value (3.9 per cent in 2017/18). This means that the average business earned enough income to cover its cash costs, the imputed cost of unpaid labour used to operate the business and the cost of capital depreciation in both 2017/18 and 2018/19.

Return on investment including endorsement value varied across fishing region from -6.7 per cent in South East to 8.0 per cent in Cape York Peninsula. Only Cape York Peninsula, Mackay, Isaac and Whitsunday and Dry Tropics had positive return on investment (8.0 per cent, 4.2 per cent and 1.2 per cent respectively) and were characterised by larger and more active operations (more capital, days fished, revenue and costs) in Cape York Peninsula and Mackay, Isaac and Whitsunday and smaller and less active operations in Dry Tropics relative to the other regions.

### Economic Contribution

In 2018/19, the Coral Reef Fin Fish Fishery contributed an estimated $47.8m in gross state product (GSP) and 540 full-time equivalent jobs to the Queensland economy. This contribution included $19.6m in GSP (297 fte jobs) from fishing activity, $0.5m in GSP (6 fte jobs) from capital expenditure by fishing businesses, $0.7m in GSP (8 fte jobs) from associated processing and $26.9m (229 fte jobs) from flow-on effects in other sectors of the Queensland economy (primarily personal and other services and retail trade).

### Net Economic Return

Net economic return is defined as the long-run profit from a fishery after all costs have been met.

Determining the opportunity cost of capital involves an assessment of the degree of financial risk involved in the activity. Commercial fishing operations in Australia are not risk free. Returns can be impacted both positively and negatively by factors such as natural events, changes in market conditions, disease, and management regulations. For this analysis a range of opportunity cost rates from 7 to 15 per cent has been used.

Net economic return was estimated to be in the range of -$1.3m to -$4.4m in 2017/18 and -$3.2m to -$6.0m in 2018/19.

### Social Indicators

Social indicators and demographic information were collected for the Coral Reef Fin Fish Fishery. Respondents to the business survey were mostly over 50 years of age, business owners and living in Queensland. Few respondents identified as indigenous. The median time involved in commercial fishing was 22 years and median time as a licence owner 17 years. The highest level of education most frequently selected was year 10 or below, though many had also completed year 12 or trade certificate or apprenticeship. On average, respondents earn just over half of their personal income from commercial fishing with the other main industries of employment being construction, mining and agriculture or forestry.

Overall the responses from the social questions suggest that fishers generally enjoy fishing and derive significant wellbeing and life satisfaction from their occupation. However, they also feel insecure about their incomes and ability to continue their current lifestyle as a result of regulatory uncertainty.

Almost all respondents indicated that commercial fishing is financially risky and that they feel insecure in their job and unable to cope with changing regulations. Around half of respondents feel they understand fishery management arrangements but almost all feel that management is making it more difficult to run their business and that it is has become more difficult to ‘have a say’ in management.

Overall, fishers indicated that they are strongly satisfied with the lifestyle of being a commercial fisher. However, around a quarter of respondents indicated that they were unsatisfied with the income generated from fishing and most indicated that they were dissatisfied with the predictability of their incomes and with fishing regulations. They also indicated that they are generally satisfied with life as a whole and would not quickly change jobs. Fishers also identified that fishing is stressful and physically difficult. Fishers indicated that they have strong ties to their community but only around half feel that their community treats them fairly and respects their occupation. Respondents indicated that they had high levels of satisfaction with their personal wellbeing in all aspects, except for their future security. Most fishers would not encourage young people to choose a fishing career and do not feel positive about the future of fishing in their region.

### Future Opportunities

There is value in collecting this economic information annually. Access to current information about the economic state of an industry provides management and industry the information to respond to changing economic situations. This is especially important during times when industries experience significant change and the economic impacts of those changes need to be understood. Annual collection of economic information is current practice in the Queensland aquaculture industry producing the aquaculture production summary series which commenced in 2005. Regular economic reporting is also current practice in some other states and territories around Australia. For example, annual economic indicators have been reported for commercial fisheries in South Australia for more than 20 years (BDO EconSearch 2019a). This provides a valuable and current time series of economic information that the fisheries can draw upon, either from the point of view of fisheries management or from industry.

# 1. INTRODUCTION

The principal aim of this report is to present a set of economic indicators for the Coral Reef Fin Fish Fishery as well as to develop a method to create a consistent time series of economic information to aid management in future years. Data on social indicators and demographic information were also collected.

The Queensland Sustainable Fisheries Strategy 2017-2027 (SFS) sets out a comprehensive reform plan for the next 10 years. Within the SFS there are a number of actions which will improve the management of Queensland fisheries. With respect to actions relating to fisheries monitoring, the SFS requires Fisheries Queensland to deliver a practical and cost-effective system to collect data on economic indicators from Queensland's professional fishers (i.e. commercial fishers and charter operators) and directly related stakeholders (e.g. fish processors, wholesalers, community groups). These economic indicators will be used by Fisheries Queensland to better understand the economics of each fishery and of the different types of fishers (e.g. level of activity, region of activity, mode of fishing) within each fishery.

Through the SFS, harvest strategies are being developed for the major fisheries. Within these harvest strategies, these economic and social indicators will be used to inform management decisions and to monitor progress towards desired targets. It is important that the indicators meet this requirement and provide appropriate baseline data.

The Queensland (QLD) fishing industry is diverse. Like many other industries, there are specialists that have a specific focus and more flexible businesses that change between activities depending on markets and circumstances. Some fishing businesses target only one species with one type of equipment, while others target a narrow range of different species according to season or price (e.g. trawlers choosing to target either prawns or scallops). Then there are businesses with a wider range of target species, such as those trawling for prawns, but sometimes line fishing for mackerel or snapper, using quite different equipment for each.

Considering the diverse nature of QLD fisheries, management decision making involves a complex mix of biological, economic and social considerations. There is a need to identify and explore cost-effective and efficient ways to incorporate economic and social information in harvest strategies and decision-making processes.

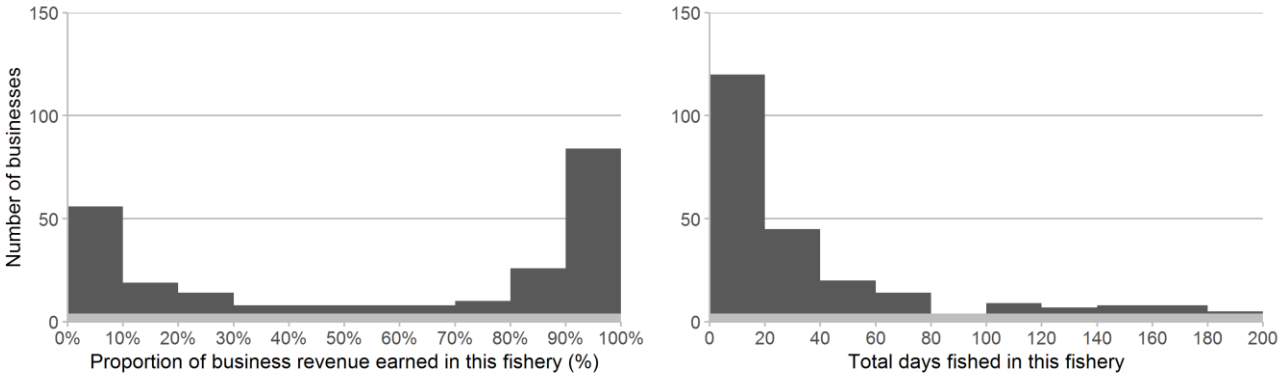
## 1.1. Fishery Background

For the purpose of this report, the Coral Reef Fin Fish Fishery includes all activity on an RQ symbol regulated by Fisheries Queensland. The Coral Reef Fin Fish Fishery operates predominantly in the Great Barrier Reef Marine Park, with operators generally using smaller tender boats independently from a mother vessel. The RQ symbol, which must be held in conjunction with an L1, L2, or L3 symbol, permits fishers to use line methods to take coral reef fin fish species. Total allowable commercial catch is managed through individual tradable quotas for Coral Trout (CT), Red Throat Emperor (RTE) and other species (OS).

The total number of licences with access to the Coral Reef Fin Fish Fishery is 346, but not all are active in a given year. Targeted species include coral trout, red throat emperor and other coral reef fin fish species (including cods, emperors and tropical snappers).

The Coral Reef Fin Fish Fishery includes a mix of specialised and non-specialised businesses. The specialisation distribution is split with one group that is specialised and another that earns most of their revenue in other fisheries, this is shown in Figure 1-1. The figure also shows that most businesses fish less than 50 days in this fishery while some fish up to around 200 days.

Figure 1-1 Revenue share of businesses[a] in the Coral Reef Fin Fish Fishery




[a] Each visible bar in the above graphs represents at least 5 businesses for confidentiality reasons. The light grey band along the horizontal axis covers the area between 0 and 4 businesses to ensure confidentiality. The limits of the horizontal axis are set to show visible columns which means there may be businesses with greater days fished than the maximum axis values.

Source: 2019 Survey and Fisheries Queensland

## 1.2. Report Structure

Provided in Section 2 of this report is the method of analysis and a description of the survey of fishing businesses.

Indicators are presented in Sections 3 and 4 for the 2017/18 and 2018/19 financial years and include:

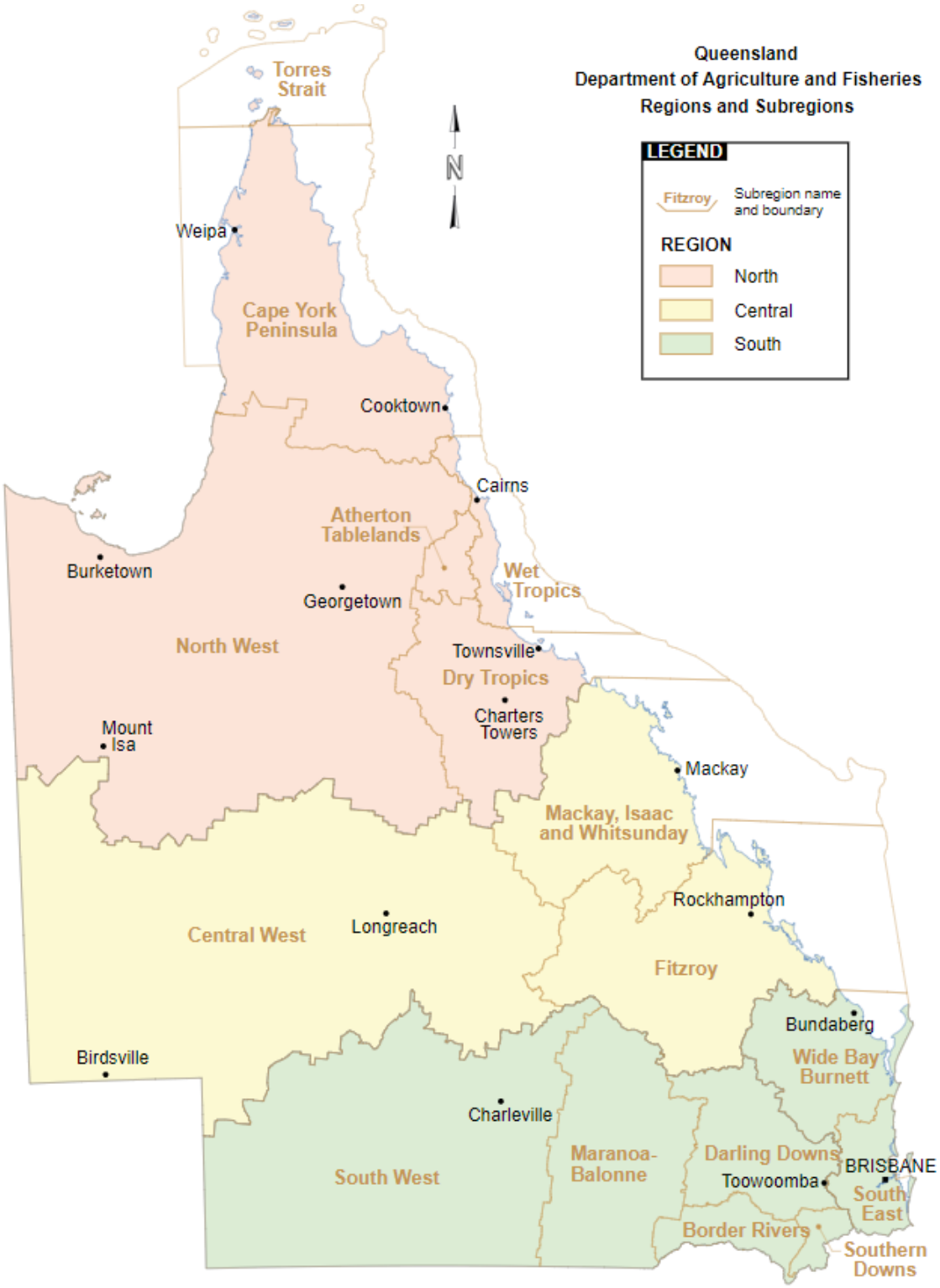
- fishery gross value of production (at beach price)
- species prices (beach price)
- the cost of management of the fishery
- business financial indicators (income, costs, profit and return on investment)
- fishery net economic return
- economic contribution of the fishery and associated processing (value and employment)
- social indicators
- demographic indicators.

Economic contribution results and business financial indicators are presented for Queensland as a whole and on a regional basis in accordance with the Department of Agriculture and Fisheries Subregion definitions (Figure 1-1). Only coastal regions are reported:

- North West
- Cape York Peninsula (includes Torres Strait)
- Wet Tropics
- Dry Tropics
- Mackay, Isaac and Whitsunday
- Fitzroy
- Wide Bay Burnett
- South East.

For purposes of comparison, summary economic indicators for all Queensland commercial fisheries are presented as appendices to this report.

Figure 1-2 Department of Agriculture and Fisheries Subregions used for reporting




Source: Business Queensland (2019)

# 2. METHOD OF ANALYSIS

## 2.1. Overview of Approach

Businesses that operate in a commercial fishery in Queensland tend to operate in multiple fisheries. This makes calculating indicators for any single fishery difficult as fishery activity is comprised of a combination of business types (full and part-time, single and multiple fishery operators). Since this research aims to develop indicators for all commercial fisheries in Queensland, a business level modelling approach was used rather than an aggregate or fishery level approach.

In a business level approach, the overall activity of each business is attributed to each fishery at the business level then total activity for each fishery is estimated by aggregating the business activities attributable to each fishery.

This involved the following steps:

1. **Collect administrative business level data:** logbook catch and effort, fishery access and quota, location of landings, fees. All were collected for 2017/18 and 2018/19. Catch data were sourced from fishing logbooks or quota reporting systems depending on which was considered most reliable by Fisheries Queensland for each species.
2. **Collect fishery level data:** cost of management for 2017/18 and 2018/19.
3. **Survey fishing businesses:** species prices and markets, operating costs, processing activity, employment (including unpaid), endorsement values/leasing costs, capital value and depreciation, social and demographic information. Data collection focused on the 2018/19 year to reduce survey burden on businesses. Data were collected respecting the confidentiality of fishing businesses and were used by BDO to produce the economic and social indicator reports. The data were not distributed outside of BDO and have not been provided to Fisheries Queensland.
4. **Impute non-surveyed businesses at the business level for 2018/19:** by taking the average of the five most similar surveyed businesses (to estimate business structure based on similar scale and efficiency businesses) then adjusting variable costs and employment using revenue and effort (to account for the individual level of catch and effort of the imputed business). Businesses were considered similar if they caught a similar quantity, in a similar number of days, in the same fisheries.
5. **Attribute operating costs and capital value to the relevant fisheries:** directly where possible (such as quota and effort units) and in proportion to revenue earned in each fishery otherwise. This implies a similar rate of return in each fishery that a business accesses under the assumption that businesses maximise return across multiple fisheries by adjusting their effort between them over time. It also implies that capital (such as a boat) can generally be used to access multiple fisheries.
6. **Calculate indicators for each fishery:**
    a. Business financial indicators are disaggregated by region (with business activity attributed across regions based on the proportion of revenue landed in each), return on investment, days fished, and proportion of total business revenue earned in the fishery in question.
    b. Fishery economic indicators are reported at the fishery level.

c. Economic contribution indicators are reported for Queensland and for each of the coastal Subregions (Figure 1-2) with all business activity attributed across regions in proportion to the value of catch landed in each.

d. Social indicators are reported unweighted and at the fishery level for all businesses that accessed the fishery in 2017/18 and/or 2018/19.

7. **Backcast to 2017/18 at a business level and re-calculate indicators:** using administrative information on individual businesses and cost indices, then repeating steps 5 and 6 above. This was necessary as the survey focused on the 2018/19 year to reduce respondent burden.

## 2.2. Survey of Fishing Businesses

A survey of fishing businesses was carried out between September and December in 2019 and concluded before the COVID-19 pandemic and associated government responses impacted fishing businesses. Non-survey data used in the analysis was also from periods unaffected by COVID-19, the 2017/18 and 2018/19 financial years.

The survey involved collecting data from fishing businesses on species prices and markets, operating costs, processing activity, employment (including unpaid), endorsement values/leasing costs, capital value and depreciation, social and demographic information and focused on the 2018/19 year. The survey was implemented using a questionnaire that was developed in collaboration with Fisheries Queensland and with industry representatives. Businesses were asked to only include the amounts that were attributable to their Queensland fishing business. If exact figures were not available (e.g. from a tax return), then they were asked to provide careful estimates.

Businesses were invited to participate through multiple email and phone call invitations as well as through the endorsement of various industry groups. They were invited to respond through an online form, over the phone or through in-person interviews. Most responses were provided over the phone.

The confidentiality of responses was made clear to respondents including that no individual response would be identifiable in reporting or provided to Fisheries Queensland and that any statistic published would be based on at least five responses. This 'five boat rule' is commonly used to maintain confidentiality when reporting commercial fishing statistics, including by Fisheries Queensland. The matching approach used to impute non-responding business activity means that any statistic based on five or more businesses contains information from at least five surveyed businesses even if less than five surveyed businesses are included in the statistic.

Across all fisheries, a total of 268 usable[3] responses were received, including 196 for economic indicators and 251 that could be used for calculating social indicators. Other respondents provided useful basic information such as prices and markets for species. The responses that could be used for calculating economic indicators represented almost one in five active businesses in 2018/19. Overall responses are summarised by fishery and region in Appendix 3.

In the Coral Reef Fin Fish Fishery, a total of 45 responses were received that could be used for economic indicators. This represents 19 per cent of active businesses in 2018/19 and at least 12 per cent in each

[3] All questions in the questionnaire were optional and some participants chose not to respond to some sections. Responses could only be used to estimate indicators if they were complete for the relevant section. For example, a response that included capital values but not operating costs could not be used to estimate economic indicators. However, if it included species prices and responses to demographic and social questions it could still be used to estimate species prices and social indicators.

fishing region with active businesses (Table 2-1). A total of 55 responses were received that could be used to calculate social indicators. While this sample was sufficient to prepare the economic and social indicators, a larger sample would be required to further disaggregate results with confidence.

Data were collected from businesses with a combination of effort level, boat size and share of business activity in this fishery. The tables presented in Section 3.4 provide sample and population sizes to show how well the sample represents the population across various dimensions.

Table 2-1 Survery sample in the Coral Reef Fin Fish Fishery

| Region | Active businesses (no.) | | Proportion of active businesses in sample |
|---|---|---|---|
| | Population | Sample | |
| Cape York Peninsula | 34 | 4 | 12% |
| Wet Tropics | 90 | 11 | 12% |
| Dry Tropics | 23 | 5 | 22% |
| Mackay, Isaac and Whitsunday | 64 | 14 | 22% |
| Fitzroy | 57 | 10 | 18% |
| Wide Bay Burnett | 54 | 13 | 24% |
| South East | 32 | 9 | 28% |
| **Queensland** | **241** | **45** | **19%** |

[a] The sum of active businesses across the fishing regions does not equal the number of active businesses for Queensland because some businesses operate in more than one fishing region and have been counted against each.

Source: BDO EconSearch analysis

### Future Opportunities

The survey of fishing businesses completed in 2019 was part of a one-off project to develop economic and social indicators but there is value in collecting this economic information annually. It will improve the ability of management and industry to respond to changing economic situations. This is especially important during times when industries undergo significant change and the economic impacts of those changes need to be understood. Annual collection of economic information is current practice in the Queensland aquaculture industry producing the aquaculture production summary series which commenced in 2005. Regular economic reporting is also current practice in some other states and territories around Australia. For example, annual economic indicators have been reported for commercial fisheries in South Australia for more than 20 years (BDO EconSearch 2019a). This provides an important time series of economic information that the fisheries can draw upon, either from the point of view of fisheries management or from industry.

## 2.3. Backcasting to 2017/18

The modelling procedure described in Section 2.1 was undertaken for activity in the 2018/19 financial year as this was the year focused on in the survey. Business level backcasting was used to estimate the activity of each business in 2017/18 before repeating steps 5 and 6 in Section 2.1 to calculate indicators for the 2017/18 financial year.

Backcasting involved adjusting the operating costs and employment for each business based on the difference in fishing effort and revenue between the years. Businesses that were active in 2017/18 but not 2018/19 were imputed as described in step 4 above. Further, prices of inputs were adjusted in line with changes in relevant cost indices (Table 2-2). Finally, fishing fees were calculated for 2017/18 using business level administrative data and quota leasing costs were calculated using business level quota management data and average costs from survey responses.

Table 2-2 Cost adjustments for business level backcasting to 2017/18

| Adjustment | 2017/18 value | 2018/19 value | Adjustment amount | Cost items adjusted |
|---|---|---|---|---|
| National minimum wage | $18.93/hr | $19.49/hr | -2.9% | Unpaid labour |
| Wage Price Index for ordinary time hourly rates of pay excluding bonuses in public and private sectors | 128.0 | 130.9 | -2.2% | Paid labour |
| Automotive fuel component of CPI calculation for Brisbane | 95.0 | 99.6 | -4.6% | Fuel and lubricants |
| RBA Indicator Lending Rate: variable weighted-average rate on credit outstanding for businesses | 5.69% | 5.60% | 1.6% | Interest and borrowing costs |
| Consumer Price Index for all groups in Brisbane | 112.3 | 114.1 | -1.6% | All other business operating costs |

Source: BDO EconSearch analysis

# 3. ECONOMIC INDICATORS FOR THE QUEENSLAND CORAL REEF FIN FISH FISHERY

## 3.1. Catch, Gross Value of Production and Exports

The total catch, shown in Table 3-1, in the Coral Reef Fin Fish Fishery decreased from 1,452t in 2017/18 to 1,290t in 2018/19, a decline of 11 per cent. Consequently, Coral Reef Fin Fish Fishery GVP declined between 2017/18 ($33.4m) and 2018/19 ($30.4m). The value of international exports by commercial fishing businesses accounted for almost a quarter of GVP (at beach price) in both years ($8.0m in 2017/18 and $7.1m in 2018/19) (Table 3-1).

It is important to note that the market destinations for catch relates to the transaction between the commercial fishing business and its immediate customer, which in many cases can be a wholesaler or processor. These data were sourced from survey data. Sales destinations of subsequent transactions are not considered in this report. A proportion of the catch sold locally by the commercial fishing business may be exported by businesses further down the supply chain. These reports do not try to estimate the total export value of Queensland seafood because they focus on the economics of Queensland's commercial fishing businesses and not the supply chain of Queensland seafood.

Table 3-1 Catch, GVP and export value of the Coral Reef Fin Fish Fishery, 2017/18 and 2018/19

| | 2017/18 | 2018/19 | Change |
|---|---|---|---|
| Catch (t) | 1,452 | 1,290 | -11% |
| GVP ($m) | 33.4 | 30.4 | -9% |
| Export Value ($m) | 8.0 | 7.1 | -11% |

Source: Fisheries Queensland and 2019 survey

## 3.2. Prices and First Market Destinations

The most important species for the Coral Reef Fin Fish Fishery in 2017/18 and 2018/19, in terms of contribution to GVP, was coral trout. This species contributed over three quarters of total GVP in 2017/18 and 2018/19. The next most important species was red throat emperor, which contributed 6 per cent of GVP in 2017/18 and 2018/19 (Table 3-2 and Table 3-3).

The average price across all Coral Reef Fin Fish Fishery species was estimated to be $23.04/kg in 2017/18, with prices ranging from a low of $8.84/kg for saddletail snapper to a high of $29.71/kg for coral trout (Table 3-2). In 2018/19, the average price across all species was $23.54 ranging from a low of $8.73/kg for saddletail snapper to a high of $30.02/kg for coral trout (Table 3-3).

In the business survey, fishing businesses provided one average price for each species across the whole two-year period. Species prices were estimated as an average price weighted by catch of the surveyed fishers in each year. This means the difference in price between years (Table 3-2 and Table 3-3) is due to differing catch of surveyed fishers and not due to the same fishers describing a change in price between years.

International exports were an important market for coral trout in 2018/19 (29 per cent exported) but were only of marginal importance to the rest of the fishery. Interstate exports were an important market for red throat emperor (28 per cent exported) and coral trout (13 per cent exported). These figures summarise the average proportion exported directly by fishing businesses. Exports from wholesalers and processors are not included so this value likely underestimates the actual amount exported (Table 3-2 and Table 3-3).

Table 3-2 GVP, average beach prices and market destinations for Coral Reef Fin Fish Fishery key species, 2017/18

| Species[a] | Quantity (kg) | Price ($/kg) | GVP ($m) | Market Destination | | |
|---|---|---|---|---|---|---|
| | | | | Queensland (%) | Interstate (%) | International (%) |
| Coral trout | 889,297 | 29.71 | 26.4 | 58% | 13% | 29% |
| Emperor - red throat | 149,535 | 12.62 | 1.9 | 72% | 28% | 0% |
| Snapper - saddletail | 98,684 | 8.84 | 0.9 | 100% | 0% | 0% |
| Emperor - red | 40,896 | 10.69 | 0.4 | 100% | 0% | 0% |
| *Other* | *273,299* | 13.99 | *3.8* | *82%* | *9%* | *9%* |
| **Fishery total** | **1,451,712** | **23.04** | **33.4** | **63%** | **13%** | **24%** |

[a] Only species with prices and/or market information provided by 5 or more survey respondents are listed in the table. Other key species caught in the Coral Reef Fin Fish Fishery but not listed above include Spanish flag stripey, gold banded jobfish, spangled emperor, rosy jobfish, bar cod, unspecified cod, unspecified hussar, green jobfish, unspecified emperor and unspecified tusk fish.

Source: Fisheries Queensland and 2019 survey

Table 3-3 GVP, average beach prices and market destinations for Coral Reef Fin Fish Fishery key species, 2018/19

| Species[a] | Quantity (kg) | Price ($/kg) | GVP ($m) | Market Destination | | |
|---|---|---|---|---|---|---|
| | | | | Queensland (%) | Interstate (%) | International (%) |
| Coral trout | 806,992 | 30.02 | 24.2 | 56% | 15% | 28% |
| Emperor - red throat | 125,927 | 13.63 | 1.7 | 69% | 31% | 0% |
| Snapper - saddletail | 69,718 | 8.73 | 0.6 | 100% | 0% | 0% |
| Emperor - red | 34,951 | 10.69 | 0.4 | 100% | 0% | 0% |
| *Other* | *252,080* | 13.64 | *3.4* | *80%* | *10%* | *10%* |
| **Fishery total** | **1,289,667** | **23.54** | **30.4** | **61%** | **15%** | **23%** |

[a] Only species with prices and/or market information provided by 5 or more survey respondents are listed in the table. Other key species caught in the Coral Reef Fin Fish Fishery but not listed above include Spanish flag stripey, gold banded jobfish, spangled emperor, rosy jobfish, green jobfish, bar cod, unspecified hussar, flame tail snapper, painted sweetlip and venus tusk fish.

Source: Fisheries Queensland and 2019 survey

## 3.3. Cost of Management

The costs incurred by Fisheries Queensland in managing Queensland's fisheries is not equal to the administration fees or licence fees charged by Fisheries Queensland to the fishing businesses. This section discusses the costs incurred by Fisheries Queensland and not the administration and licence fees charged by Fisheries Queensland to commercial fishing businesses.

While the total cost of managing Queensland's commercial fisheries is known, the precise cost of managing each individual fishery is difficult to determine. This comes about because the nature of managing fisheries requires considerable overlap in monitoring, assessment, management and compliance across fisheries. For example, to achieve efficiency benefits, the outputs of fishery monitoring activities have inputs into the management of several different fisheries. Therefore, allocating the costs of managing fisheries requires a subjective assessment based on the benefits derived by the individual fisheries from those activities. The costs of managing the commercial sector for each fishery were provided to BDO EconSearch by Fisheries Queensland. Costs were allocated to the fisheries based on the cost being incurred to enable the management of the fishery and then proportionally attributed to the respective sectors based on the benefits of management to the fishery. This was done for the purpose of developing economic indicators and should not be relied upon for any other purpose.

Estimated total management costs, as detailed in Table 3-4, for the Coral Reef Fin Fish Fishery were $1.6m in 2017/18 and 2018/19. These costs were incurred while delivering the following services:

- annual reports fishery status
- policy and management services
- regulatory/legislation and licensing services
- compliance services
- directorate services
- extension services
- fishery monitoring and research services.

As a proportion of GVP total management costs were 4.9 per cent in 2017/18 and 5.3 per cent in 2018/19 (Table 3-4).

Table 3-4 Costs of management in the Coral Reef Fin Fish Fishery, 2017/18 and 2018/19

| | 2017/18 | 2018/19 | Change |
|---|---|---|---|
| Management costs ($m) | 1.6 | 1.6 | -1% |
| GVP ($m) | 33.4 | 30.4 | -9% |
| Management costs/GVP (%) | 4.9% | 5.3% | 9% |

Source: Fisheries Queensland and 2019 survey

## 3.4. Business Financial Indicators

The major measures of the financial performance of active businesses in the Coral Reef Fin Fish Fishery for the period 2017/18 and 2018/19 are presented in Section 3.4.1. The estimates include businesses that participated in the survey and non-responding businesses modelled at the business level as described in Section 2.1. Average financial performance masks significant variation across types of businesses and their activities. To describe this variation, the same indicators are presented in Section 3.4.2 with businesses disaggregated by number of days fished in this fishery, return on investment quartile, share of revenue earned in the fishery, whole business boat value and fishing region.

### 3.4.1. Fishery average in 2017/18 and 2018/19

Business financial indicators are presented in Table 3-5 for average business and total activity in the Coral Reef Fin Fish Fishery in 2017/18 and 2018/19. This section summarises the key points from the table.

#### Income

The average gross income for business activity in the Coral Reef Fin Fish Fishery was estimated to be $132,000 in 2017/18 and $126,000 in 2018/19 (a 4 per cent decrease). Total catch fell by more than gross income over the same period as businesses caught relatively higher value species in 2018/19 (see Section 3.2).

#### Costs

Total costs are separated into variable costs and fixed costs, the sum of the two is total boat cash costs. In 2018/19, variable costs represented a greater proportion (65 per cent) of total boat cash costs than did fixed costs (35 per cent). Average total boat cash costs increased by 2 per cent between 2017/18 and 2018/19 due to small increases in both fixed and variable costs.

In 2018/19, for the fishery as a whole, around 42 per cent of the total boat cash costs were attributable to labour costs (both paid and imputed), the biggest cost item. Imputed unpaid labour ($11,000) was divided into variable (fishing and repairs and maintenance) ($7,600) and fixed (management and administration) ($3,600) components based on survey data. Other significant cash costs were fuel (14 per cent of total cash costs) and repairs and maintenance (12 per cent).

Variable costs correlate strongly with fishing effort so the average cost of a day of effort can be calculated by dividing average variable cost by average number of days fished. In 2018/19, a day of fishing cost approximately $1,900 in variable costs in 2017/18 and $2,000 in 2018/19, an increase of 2 per cent.

#### Cash Income and Profit

**Boat gross margin** is calculated as gross income less total variable costs and is a basic measure of profit. This assumes that capital has no alternative use and that, as fishing activity varies, there is no change in capital or fixed costs. Boat gross margin was $50,000 in 2017/18 and $43,000 in 2018/19, a 15 per cent decrease due to a decrease in gross income and slight increase in variable costs.

**Gross operating surplus** is calculated at gross income less total boat cash costs (excluding imputed wages for operator and family members as a cost item). This measure of profit gives an indication of the capacity of the operator to remain in the fishery in the short term as unpaid labour does not affect business cash flow in the short term. Gross operating surplus was $18,000 in 2017/18 and $10,000 in 2018/19, a decrease of approximately 46 per cent. This was due to a decrease in revenue and an increase in costs.

**Boat cash income** is calculated as gross income less total boat cash costs (including imputed wages). Boat cash income was $6,200 in 2017/18 and -$1,600 in 2018/19. Negative boat cash income in 2018/19 suggests that the average fishing business earned enough cash income to cover its cash costs, but not to cover the imputed cost of unpaid labour used to operate the business.

**Boat business profit** is calculated as gross income less total boat cash costs (including imputed wages) and less depreciation. This represents a more complete picture of the actual financial status of an individual firm and their capacity to remain in the fishery in the long term as a positive boat business profit is required to pay imputed wages and replace capital at the rate it depreciates. This is the most comprehensive measure of profit for understand the financial performance of businesses that access the fishery by leasing endorsements, rather than owning them. Boat business profit was -$3,200 in 2017/18 and -$11,000 in 20218/19, meaning that insufficient cash income was earned by the average business to cover the imputed cost of labour and depreciation of capital.

**Profit at full equity** is a measure of the profitability of an individual fishing business, assuming the business has full equity in their operation (i.e. it excludes interest and borrowing costs as well as endorsement leasing costs). It is a useful absolute measure of the economic performance of fishing firms. Profit at full equity was $10,000 in 2017/18 and $2,400 in 2018/19.

### Return to Capital

There are a number of interpretations of return to capital. For the purpose of this analysis it is appropriate to consider the capital employed by an average fishing business in the fishery, that is working capital for this fishery. Capital includes boats, endorsements (used for fishing rather than investing/leasing out), fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. It does not include capital associated with non-fishing activities undertaken by the fishing business.

The average rate of return was 6.9 per cent in 2017/18 or 3.9 per cent if endorsement value is included in the value of capital. This decreased to 1.6 per cent (0.6 per cent including endorsement values) in 2018/19.

### Entitlement and Lease Values

The average total value of fishing endorsements (i.e. symbols L1, L2, L3, RQ as well as tender endorsements and quota units CT, RTE and OS) used for fishing by active businesses in 2018/19 was $114,000 in 2017/18 and $252,000 in 2018/19. While the unit value was assumed the be the same in each year, the average number of units utilised and volume of leasing changed between years so the total values are different. On average, active businesses spent $12,000 on leasing in 2017/18 and $11,000 in 2018/19. L1, L2 and L3 symbols may also be used to access different fisheries, so for each business, the value of these symbols has been attributed to each of these fisheries in proportion to the revenue earned in each.

Survey respondents suggested that the average value of a quota unit was $27.40 for coral trout, $19.56 for red throat emperor and $22.40 for other species and the average leasing cost per unit was $3.45 for coral trout, $0.31 for red throat emperor and $0.85 for other species across the 2017/18 to 2018/19 period. Coral reef fin fish fishery quota attached to an RQ symbol may be fished by holders of an L1, L2 or L3 symbol. Estimated market values of these symbols from the survey were $12,310 for L1 (plus $739 per tender boat), $14,389 for L2 (plus $1,393 per tender boat) and $6,418 for L3 (plus $1,393 per tender boat). Leasing costs for these symbols could not be estimated due to the low leasing volume for surveyed businesses.

The market values reported by businesses in the survey contain considerable uncertainty as no administrative data exists on the value of sales or leasing to corroborate survey responses and the sample size of values collected in the survey was small. Further data collection is recommended to understand the

actual value of these endorsements, such as further fishery-specific survey work or establishing an administrative requirement to provide the value and volume of temporary and permanent transfers. Estimates of total value of working capital and return on investment will be improved with this additional data.

### Summary

In 2018/19, the average business's activity in the Coral Reef Fin Fish Fishery generated a positive gross operating surplus (almost $9,600) and profit at full equity ($2,400), leading to a return on investment of 0.6 per cent including endorsement value (3.9 per cent in 2017/18). This means that the average business earned enough income to cover its cash costs, the imputed cost of unpaid labour used to operate the business and the cost of capital depreciation in both 2017/18 and 2018/19.

## Table 3-5 Financial performance in the Coral Reef Fin Fish Fishery, 2017/18 and 2018/19

| | | 2017/18 | | | 2018/19 | | |
|---|---|---|---|---|---|---|---|
| | | Average per Business | Total for the Whole Fishery | Share of TBCC[a] | Average per Business | Total for the Whole Fishery | Share of TBCC[a] |
| | Days Fished | 43 | 10,804 | | 43 | 10,280 | |
| | Catch (kg) | 5,715 | 1,451,712 | | 5,351 | 1,289,667 | |
| | Employment (fte) | 1.2 | 300 | | 1.2 | 297 | |
| | Employment (total) | 2.2 | 551 | | 2.2 | 538 | |
| | Prop. of Revenue Earned in this Fishery | 59% | 59% | | 56% | 56% | |
| | Active Businesses (no.) | 254 | 254 | | 241 | 241 | |
| | Sample Size (n) | 37 | 37 | | 45 | 45 | |
| (1) | **Gross Income** | **$131,660** | **$33,441,731** | | **$125,979** | **$30,361,014** | |
| | Variable Costs | | | | | | |
| | Fuel | $16,462 | $4,181,430 | 13% | $17,913 | $4,316,995 | 14% |
| | Ice & Bait | $7,519 | $1,909,727 | 6% | $8,109 | $1,954,226 | 6% |
| | Provisions | $4,974 | $1,263,383 | 4% | $5,297 | $1,276,477 | 4% |
| | Labour - paid | $43,231 | $10,980,669 | 34% | $42,848 | $10,326,446 | 34% |
| (2) | Labour - unpaid | $7,931 | $2,014,502 | 6% | $7,616 | $1,835,366 | 6% |
| | Other | $1,427 | $362,415 | 1% | $1,462 | $352,330 | 1% |
| (3) | **Total Variable Costs** | **$81,544** | **$20,712,127** | **65%** | **$83,244** | **$20,061,841** | **65%** |
| | Fixed costs | | | | | | |
| | Licence Fee | $1,504 | $381,950 | 1% | $1,625 | $391,606 | 1% |
| | Repairs & Maintenance | $14,008 | $3,558,157 | 11% | $14,714 | $3,545,974 | 12% |
| | Insurance | $4,744 | $1,205,066 | 4% | $4,904 | $1,181,799 | 4% |
| (4) | Interest | $1,398 | $355,004 | 1% | $1,393 | $335,775 | 1% |
| (5) | Labour - unpaid | $3,794 | $963,673 | 3% | $3,622 | $872,922 | 3% |
| (6) | Leasing fees | $12,179 | $3,093,542 | 10% | $11,499 | $2,771,355 | 9% |
| | Legal & Accounting | $912 | $231,620 | 1% | $925 | $222,902 | 1% |
| | Telephone etc. | $516 | $131,141 | 0% | $524 | $126,216 | 0% |
| | Slipping & Mooring | $2,768 | $702,970 | 2% | $2,977 | $717,397 | 2% |
| | Travel | $736 | $187,012 | 1% | $782 | $188,485 | 1% |
| | Office & Admin | $1,397 | $354,802 | 1% | $1,417 | $341,469 | 1% |
| (7) | **Total Fixed Costs** | **$43,956** | **$11,164,938** | **35%** | **$44,381** | **$10,695,900** | **35%** |
| (8) | **Total Boat Cash Costs (3+7)** | **$125,500** | **$31,877,064** | **100%** | **$127,625** | **$30,757,741** | **100%** |
| | **Boat Gross Margin (1-3)** | **$50,117** | **$12,729,604** | | **$42,735** | **$10,299,173** | |
| (9) | **Total Unpaid Labour (2+5)** | **$11,725** | **$2,978,175** | | **$11,238** | **$2,708,288** | |
| | **Gross Operating Surplus (1-8+9)** | **$17,885** | **$4,542,841** | | **$9,592** | **$2,311,561** | |
| (10) | **Boat Cash Income (1-8)** | **$6,160** | **$1,564,666** | | **-$1,646** | **-$396,727** | |
| (11) | **Depreciation** | **$9,365** | **$2,378,691** | | **$8,894** | **$2,143,505** | |
| (12) | **Boat Business Profit (10-11)** | **-$3,205** | **-$814,025** | | **-$10,540** | **-$2,540,232** | |
| (13) | **Profit at Full Equity (12+4+6[b])** | **$10,417** | **$2,645,882** | | **$2,398** | **$577,874** | |
| | **Working Capital** | | | | | | |
| (14) | Fishing Gear & Equip | $151,454 | $38,469,350 | | $147,934 | $35,652,158 | |
| | Licence & Quota Value | $118,338 | $30,057,767 | | $256,211 | $61,746,870 | |
| (15) | **Total Working Capital** | **$269,792** | **$68,527,118** | | **$404,145** | **$97,399,028** | |
| | **Rate of Return on Fishing Gear & Equip (13/14*100)** | **6.9%** | **6.9%** | | **1.6%** | **1.6%** | |
| | **Rate of Return on Total Working Capital (13/15*100)** | **3.9%** | **3.9%** | | **0.6%** | **0.6%** | |

[a] Total boat cash costs.

[b] Part of leasing and rent is assumed to cover depreciation of buildings and equipment so is excluded from profit at full equity.

Source: 2019 survey

### 3.4.2. Disaggregation of business financial indicators for 2018/19

The tables in this section present financial indicators for the fishery with the population of active businesses disaggregated across various dimensions: days fished, return on investment, share of business revenue earned in fishery, whole business boat capital value and region. Grouping businesses in different ways and comparing the financial indicators between groups provides insight into the relationships between business characteristics and financial performance.

#### Days Fished Quartiles

Business financial indicators are presented in Table 3-6 for the population of active businesses split into quarters of approximately equal size based on total number of days fished in this fishery in 2018/19. This provides insight into how costs and revenue differ between the most and least active businesses and shows whether economies of scale exist in the fishery.

The businesses that are most active in the fishery tend to be the most profitable. While the top three quartiles have a positive gross margin, only the most active quartile (average of 119 days fished) has a positive return on investment (4.9 per cent including endorsement value). The businesses in the most active quartile are also the specialised with 90% per cent of their gross income earned in this fishery (Table 3-6).

#### Return on Investment Quartiles

Business financial indicators are presented in Table 3-7 for the population of active businesses split into quarters of approximately equal size based on return on investment in 2018/19. This provides insight into the differences between the most and least profitable businesses such as cost relative to income, itemised cost amounts, capital utilised, scale of operation etc.

The top two quartiles have a positive gross operating surplus on average but only the top quartile has a positive return on investment (12.4 per cent including endorsement value). The top two quartiles have comparable total effort, but the top quartile has a much higher catch rate, leading to higher profitability, despite also having higher total variable costs.

#### Share of Business Revenue Earned in Fishery

Business financial indicators are presented in Table 3-8 for the population of active businesses split into two groups (specialised and non-specialised) based on the proportion of business income earned in this fishery in 2018/19.

The most specialised businesses are more profitable on average (return on investment of 0.8 per cent including endorsement value) than businesses that also access other fisheries (-0.5 per cent). Return on investment is similar between the specialised and non-specialised groups of businesses suggesting that specialisation is not a key driver of profitability in this fishery.

#### Whole Business Boat Capital Value

Business financial indicators are presented in Table 3-9 for the population of active businesses in this fishery split into quarters of approximately equal size based on the value of boat capital owned by the business and active in Queensland's commercial fisheries in 2018/19, regardless of which fisheries it was used in. This provides insight into how financial performance varies with boat size.

In 2018/19, return on investment including endorsement value was above the fishery average for the quartile with the most boat capital (return on investment of 3.5 per cent). These businesses also fished more days on average (95 days) and were the most specialised (85 per cent of income earned in this fishery).

### Fishing Regions

Business financial indicators are presented in Table 3-10 by fishing region. Each business was divided into its activity in each region, then the sum of activity in each region was calculated across all businesses with the total presented in the table. This is different to the disaggregations discussed above which group together whole business activity in the fishery. Presenting results this way means that return on investment shows the return to fishing activity in each region.

Return on investment including endorsement value varied across fishing region from -6.7 per cent in South East to 8.0 per cent in Cape York Peninsula. Only Cape York Peninsula, Mackay, Isaac and Whitsunday and Dry Tropics had positive return on investment (8.0 per cent, 4.2 per cent and 1.2 per cent respectively) and were characterised by larger and more active operations (more capital, days fished, revenue and costs) in Cape York Peninsula and Mackay, Isaac and Whitsunday and smaller and less active operations in Dry Tropics relative to the other regions.

Table 3-6 Financial performance in the Coral Reef Fin Fish Fishery, by number of days fished, 2018/19

| | | Average per Business | | | | |
|---|---|---|---|---|---|---|
| | | 1 Quartile | 2 Quartile | 3 Quartile | 4 Quartile | All Businesses |
| | Days Fished | 2 | 12 | 34 | 119 | 43 |
| | Catch (kg) | 94 | 717 | 2,942 | 17,166 | 5,351 |
| | Employment (fte) | 0.1 | 0.2 | 0.6 | 3.9 | 1.2 |
| | Employment (total) | 0.3 | 0.8 | 1.8 | 5.9 | 2.2 |
| | Prop. of Revenue Earned in this Fishery | 26% | 46% | 60% | 90% | 56% |
| | Active Businesses (no.) | 55 | 65 | 59 | 62 | 241 |
| | Sample Size (n) | 12 | 14 | 8 | 11 | 45 |
| (1) | **Gross Income** | **$1,339** | **$10,583** | **$45,449** | **$434,161** | **$125,979** |
| | Variable Costs | | | | | |
| | Fuel | $389 | $2,970 | $9,466 | $57,162 | $17,913 |
| | Ice & Bait | $79 | $683 | $2,129 | $28,708 | $8,109 |
| | Provisions | $49 | $301 | $1,038 | $19,241 | $5,297 |
| | Labour - paid | $173 | $1,733 | $10,541 | $154,554 | $42,848 |
| (2) | Labour - unpaid | $943 | $3,791 | $9,131 | $16,103 | $7,616 |
| | Other | $35 | $99 | $664 | $4,917 | $1,462 |
| (3) | **Total Variable Costs** | **$1,668** | **$9,577** | **$32,969** | **$280,684** | **$83,244** |
| | Fixed costs | | | | | |
| | Licence Fee | $1,859 | $739 | $860 | $3,074 | $1,625 |
| | Repairs & Maintenance | $1,574 | $2,423 | $4,163 | $49,296 | $14,714 |
| | Insurance | $949 | $1,487 | $2,699 | $14,092 | $4,904 |
| (4) | Interest | $3 | $61 | $610 | $4,769 | $1,393 |
| (5) | Labour - unpaid | $1,552 | $2,165 | $3,059 | $7,522 | $3,622 |
| (6) | Leasing fees | $242 | $1,121 | $4,815 | $38,727 | $11,499 |
| | Legal & Accounting | $222 | $302 | $467 | $2,638 | $925 |
| | Telephone etc. | $102 | $205 | $307 | $1,439 | $524 |
| | Slipping & Mooring | $380 | $231 | $904 | $10,132 | $2,977 |
| | Travel | $59 | $55 | $54 | $2,878 | $782 |
| | Office & Admin | $302 | $541 | $824 | $3,889 | $1,417 |
| (7) | **Total Fixed Costs** | **$7,243** | **$9,328** | **$18,762** | **$138,456** | **$44,381** |
| (8) | **Total Boat Cash Costs (3+7)** | **$8,912** | **$18,904** | **$51,731** | **$419,140** | **$127,625** |
| | **Boat Gross Margin (1-3)** | **-$329** | **$1,007** | **$12,479** | **$153,477** | **$42,735** |
| (9) | **Total Unpaid Labour (2+5)** | **$2,494** | **$5,956** | **$12,190** | **$23,625** | **$11,238** |
| | **Gross Operating Surplus (1-8+9)** | **-$5,078** | **-$2,365** | **$5,907** | **$38,646** | **$9,592** |
| (10) | **Boat Cash Income (1-8)** | **-$7,572** | **-$8,321** | **-$6,283** | **$15,021** | **-$1,646** |
| (11) | **Depreciation** | **$6,132** | **$5,923** | **$8,060** | **$15,254** | **$8,894** |
| (12) | **Boat Business Profit (10-11)** | **-$13,704** | **-$14,243** | **-$14,343** | **-$233** | **-$10,540** |
| (13) | **Profit at Full Equity (12+4+6)** | **-$13,458** | **-$13,042** | **-$8,833** | **$43,338** | **$2,398** |
| | **Working Capital** | | | | | |
| (14) | Fishing Gear & Equip | $83,840 | $96,510 | $138,310 | $267,863 | $147,934 |
| | Licence Value | $161,188 | $73,019 | $140,139 | $624,765 | $256,211 |
| (15) | **Total Working Capital** | **$245,028** | **$169,529** | **$278,449** | **$892,629** | **$404,145** |
| | **Rate of Return on Fishing Gear & Equip (13/14*100)** | **-16.1%** | **-13.5%** | **-6.4%** | **16.2%** | **1.6%** |
| | **Rate of Return on Total Boat Capital (13/15*100)** | **-5.5%** | **-7.7%** | **-3.2%** | **4.9%** | **0.6%** |

[a] Part of leasing and rent is assumed to cover depreciation of buildings and equipment so is excluded from profit at full equity.

Source: 2019 survey

Table 3-7 Financial performance in the Coral Reef Fin Fish Fishery, by return on investment quartile, 2018/19

| | | Average per Business | | | | |
|---|---|---|---|---|---|---|
| | | 1 Quartile | 2 Quartile | 3 Quartile | 4 Quartile | All Businesses |
| | Days Fished | 24 | 28 | 56 | 62 | 43 |
| | Catch (kg) | 1,946 | 2,075 | 6,446 | 10,847 | 5,351 |
| | Employment (fte) | 0.8 | 0.7 | 1.6 | 1.8 | 1.2 |
| | Employment (total) | 1.8 | 1.6 | 2.6 | 2.9 | 2.2 |
| | Prop. of Revenue Earned in this Fishery | 59% | 61% | 62% | 42% | 56% |
| | Active Businesses (no.) | 60 | 60 | 60 | 61 | 241 |
| | Sample Size (n) | 14 | 3 | 13 | 15 | 45 |
| (1) | **Gross Income** | **$37,174** | **$43,049** | **$152,226** | **$269,084** | **$125,979** |
| | Variable Costs | | | | | |
| | Fuel | $11,042 | $10,079 | $21,745 | $28,608 | $17,913 |
| | Ice & Bait | $4,950 | $3,539 | $9,905 | $13,945 | $8,109 |
| | Provisions | $3,569 | $1,802 | $6,287 | $9,458 | $5,297 |
| | Labour - paid | $15,427 | $12,874 | $52,347 | $89,960 | $42,848 |
| (2) | Labour - unpaid | $7,243 | $6,300 | $8,905 | $8,008 | $7,616 |
| | Other | $610 | $839 | $1,947 | $2,436 | $1,462 |
| (3) | **Total Variable Costs** | **$42,840** | **$35,432** | **$101,136** | **$152,416** | **$83,244** |
| | Fixed costs | | | | | |
| | Licence Fee | $846 | $1,263 | $3,170 | $1,228 | $1,625 |
| | Repairs & Maintenance | $8,159 | $8,438 | $22,605 | $19,572 | $14,714 |
| | Insurance | $3,673 | $3,528 | $6,012 | $6,377 | $4,904 |
| (4) | Interest | $898 | $766 | $2,330 | $1,575 | $1,393 |
| (5) | Labour - unpaid | $3,649 | $3,243 | $4,331 | $3,271 | $3,622 |
| (6) | Leasing fees | $3,747 | $4,846 | $12,025 | $25,152 | $11,499 |
| | Legal & Accounting | $472 | $698 | $1,239 | $1,284 | $925 |
| | Telephone etc. | $409 | $362 | $652 | $670 | $524 |
| | Slipping & Mooring | $2,082 | $1,213 | $3,522 | $5,055 | $2,977 |
| | Travel | $355 | $361 | $1,261 | $1,145 | $782 |
| | Office & Admin | $956 | $1,103 | $1,618 | $1,981 | $1,417 |
| (7) | **Total Fixed Costs** | **$25,246** | **$25,822** | **$58,765** | **$67,311** | **$44,381** |
| (8) | **Total Boat Cash Costs (3+7)** | **$68,086** | **$61,254** | **$159,901** | **$219,726** | **$127,625** |
| | **Boat Gross Margin (1-3)** | **-$5,666** | **$7,616** | **$51,090** | **$116,669** | **$42,735** |
| (9) | **Total Unpaid Labour (2+5)** | **$10,892** | **$9,543** | **$13,236** | **$11,279** | **$11,238** |
| | **Gross Operating Surplus (1-8+9)** | **-$20,020** | **-$8,663** | **$5,561** | **$60,638** | **$9,592** |
| (10) | **Boat Cash Income (1-8)** | **-$30,912** | **-$18,206** | **-$7,675** | **$49,358** | **-$1,646** |
| (11) | **Depreciation** | **$7,613** | **$10,910** | **$9,339** | **$7,735** | **$8,894** |
| (12) | **Boat Business Profit (10-11)** | **-$38,525** | **-$29,115** | **-$17,014** | **$41,623** | **-$10,540** |
| (13) | **Profit at Full Equity (12+4+6)** | **-$33,834** | **-$23,463** | **-$2,595** | **$68,384** | **$2,398** |
| | **Working Capital** | | | | | |
| (14) | Fishing Gear & Equip | $111,396 | $173,914 | $173,038 | $133,626 | $147,934 |
| | Licence Value | $94,129 | $148,783 | $344,374 | $416,033 | $256,211 |
| (15) | **Total Working Capital** | **$205,526** | **$322,697** | **$517,412** | **$549,660** | **$404,145** |
| | **Rate of Return on Fishing Gear & Equip (13/14*100)** | **-30.4%** | **-13.5%** | **-1.5%** | **51.2%** | **1.6%** |
| | **Rate of Return on Total Boat Capital (13/15*100)** | **-16.5%** | **-7.3%** | **-0.5%** | **12.4%** | **0.6%** |

[a] Part of leasing and rent is assumed to cover depreciation of buildings and equipment so is excluded from profit at full equity.

Source: 2019 survey

Table 3-8 Financial performance in the Coral Reef Fin Fish Fishery, by share of revenue earned in the fishery, 2018/19

| | | Average per Business | | |
|---|---|---|---|---|
| | | Low Revenue Share | High Revenue Share | All Businesses |
| | Days Fished | 15 | 70 | 43 |
| | Catch (kg) | 1,127 | 9,541 | 5,351 |
| | Employment (fte) | 0.2 | 2.3 | 1.2 |
| | Employment (total) | 0.4 | 4.0 | 2.2 |
| | Prop. of Revenue Earned in this Fishery | 19% | 93% | 56% |
| | Active Businesses (no.) | 120 | 121 | 241 |
| | Sample Size (n) | 28 | 17 | 45 |
| (1) | **Gross Income** | **$16,186** | **$234,865** | **$125,979** |
| | Variable Costs | | | |
| | Fuel | $3,017 | $32,686 | $17,913 |
| | Ice & Bait | $766 | $15,391 | $8,109 |
| | Provisions | $423 | $10,130 | $5,297 |
| | Labour - paid | $2,433 | $82,930 | $42,848 |
| (2) | Labour - unpaid | $3,428 | $11,769 | $7,616 |
| | Other | $120 | $2,793 | $1,462 |
| (3) | **Total Variable Costs** | **$10,187** | **$155,698** | **$83,244** |
| | Fixed costs | | | |
| | Licence Fee | $420 | $2,820 | $1,625 |
| | Repairs & Maintenance | $1,140 | $28,175 | $14,714 |
| | Insurance | $611 | $9,161 | $4,904 |
| (4) | Interest | $118 | $2,658 | $1,393 |
| (5) | Labour - unpaid | $1,010 | $6,212 | $3,622 |
| (6) | Leasing fees | $1,582 | $21,334 | $11,499 |
| | Legal & Accounting | $175 | $1,668 | $925 |
| | Telephone etc. | $118 | $926 | $524 |
| | Slipping & Mooring | $406 | $5,526 | $2,977 |
| | Travel | $15 | $1,543 | $782 |
| | Office & Admin | $329 | $2,496 | $1,417 |
| (7) | **Total Fixed Costs** | **$5,925** | **$82,520** | **$44,381** |
| (8) | **Total Boat Cash Costs (3+7)** | **$16,111** | **$238,218** | **$127,625** |
| | **Boat Gross Margin (1-3)** | **$6,000** | **$79,167** | **$42,735** |
| (9) | **Total Unpaid Labour (2+5)** | **$4,438** | **$17,981** | **$11,238** |
| | **Gross Operating Surplus (1-8+9)** | **$4,513** | **$14,628** | **$9,592** |
| (10) | **Boat Cash Income (1-8)** | **$75** | **-$3,353** | **-$1,646** |
| (11) | **Depreciation** | **$2,374** | **$15,361** | **$8,894** |
| (12) | **Boat Business Profit (10-11)** | **-$2,299** | **-$18,714** | **-$10,540** |
| (13) | **Profit at Full Equity (12+4+6)** | **-$545** | **$5,316** | **$2,398** |
| | **Working Capital** | | | |
| (14) | Fishing Gear & Equip | $39,087 | $255,882 | $147,934 |
| | Licence Value | $72,438 | $429,112 | $256,211 |
| (15) | **Total Working Capital** | **$111,525** | **$684,995** | **$404,145** |
| | **Rate of Return on Fishing Gear & Equip (13/14*100)** | **-1.4%** | **2.1%** | **1.6%** |
| | **Rate of Return on Total Boat Capital (13/15*100)** | **-0.5%** | **0.8%** | **0.6%** |

[a] Part of leasing and rent is assumed to cover depreciation of buildings and equipment so is excluded from profit at full equity.

Source: 2019 survey

Table 3-9 Financial performance in the Coral Reef Fin Fish Fishery, by boat capital quartile, 2018/19

| | | Average per Business | | | | |
|---|---|---|---|---|---|---|
| | | 1 Quartile | 2 Quartile | 3 Quartile | 4 Quartile | All Businesses |
| | Whole business boat value ($) | 40,925 | 79,318 | 117,888 | 311,616 | 138,159 |
| | Days Fished | 18 | 25 | 31 | 95 | 43 |
| | Catch (kg) | 1,598 | 1,875 | 2,497 | 15,271 | 5,351 |
| | Employment (fte) | 0.3 | 0.4 | 0.7 | 3.4 | 1.2 |
| | Employment (total) | 0.6 | 1.1 | 1.9 | 5.3 | 2.2 |
| | Prop. of Revenue Earned in this Fishery | 24% | 51% | 64% | 85% | 56% |
| | Active Businesses (no.) | 60 | 60 | 60 | 61 | 241 |
| | Sample Size (n) | 19 | 6 | 8 | 12 | 45 |
| (1) | **Gross Income** | **$29,808** | **$27,309** | **$47,231** | **$395,084** | **$125,979** |
| | Variable Costs | | | | | |
| | Fuel | $5,628 | $5,402 | $10,318 | $49,772 | $17,913 |
| | Ice & Bait | $3,057 | $1,502 | $2,867 | $24,731 | $8,109 |
| | Provisions | $2,702 | $1,039 | $1,367 | $15,902 | $5,297 |
| | Labour - paid | $10,938 | $5,707 | $12,720 | $140,402 | $42,848 |
| (2) | Labour - unpaid | $3,524 | $6,441 | $8,800 | $11,630 | $7,616 |
| | Other | $581 | $602 | $1,037 | $3,592 | $1,462 |
| (3) | **Total Variable Costs** | **$26,430** | **$20,695** | **$37,110** | **$246,029** | **$83,244** |
| | Fixed costs | | | | | |
| | Licence Fee | $565 | $687 | $1,012 | $4,193 | $1,625 |
| | Repairs & Maintenance | $1,419 | $2,629 | $4,353 | $49,867 | $14,714 |
| | Insurance | $1,311 | $1,499 | $2,748 | $13,906 | $4,904 |
| (4) | Interest | $395 | $541 | $662 | $3,933 | $1,393 |
| (5) | Labour - unpaid | $1,675 | $2,977 | $3,328 | $6,462 | $3,622 |
| (6) | Leasing fees | $1,449 | $2,992 | $5,144 | $36,004 | $11,499 |
| | Legal & Accounting | $167 | $376 | $462 | $2,666 | $925 |
| | Telephone etc. | $188 | $279 | $319 | $1,295 | $524 |
| | Slipping & Mooring | $1,240 | $210 | $392 | $9,948 | $2,977 |
| | Travel | $17 | $28 | $71 | $2,976 | $782 |
| | Office & Admin | $422 | $582 | $972 | $3,654 | $1,417 |
| (7) | **Total Fixed Costs** | **$8,849** | **$12,800** | **$19,465** | **$134,903** | **$44,381** |
| (8) | **Total Boat Cash Costs (3+7)** | **$35,279** | **$33,494** | **$56,575** | **$380,931** | **$127,625** |
| | **Boat Gross Margin (1-3)** | **$3,378** | **$6,615** | **$10,121** | **$149,055** | **$42,735** |
| (9) | **Total Unpaid Labour (2+5)** | **$5,198** | **$9,418** | **$12,128** | **$18,092** | **$11,238** |
| | **Gross Operating Surplus (1-8+9)** | **-$273** | **$3,233** | **$2,784** | **$32,244** | **$9,592** |
| (10) | **Boat Cash Income (1-8)** | **-$5,471** | **-$6,185** | **-$9,344** | **$14,153** | **-$1,646** |
| (11) | **Depreciation** | **$2,308** | **$5,821** | **$8,338** | **$18,943** | **$8,894** |
| (12) | **Boat Business Profit (10-11)** | **-$7,779** | **-$12,006** | **-$17,682** | **-$4,790** | **-$10,540** |
| (13) | **Profit at Full Equity (12+4+6)** | **-$5,895** | **-$8,444** | **-$11,805** | **$35,188** | **$2,398** |
| | **Working Capital** | | | | | |
| (14) | Fishing Gear & Equip | $25,164 | $98,737 | $143,396 | $321,546 | $147,934 |
| | Licence Value | $81,121 | $110,622 | $133,438 | $673,842 | $256,211 |
| (15) | **Total Working Capital** | **$106,285** | **$209,359** | **$276,835** | **$995,387** | **$404,145** |
| | **Rate of Return on Fishing Gear & Equip (13/14*100)** | **-23.4%** | **-8.6%** | **-8.2%** | **10.9%** | **1.6%** |
| | **Rate of Return on Total Boat Capital (13/15*100)** | **-5.5%** | **-4.0%** | **-4.3%** | **3.5%** | **0.6%** |

[a] Part of leasing and rent is assumed to cover depreciation of buildings and equipment so is excluded from profit at full equity.

Source: 2019 survey

Table 3-10 Total financial performance in the Coral Reef Fin Fish Fishery, by fishing region, 2018/19

| | Total for the Whole Fishery | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | North West | Cape York Peninsula | Wet Tropics | Dry Tropics | Mackay, Isaac and Whitsunday | Fitzroy | Wide Bay Burnett | South East | Queensland |
| Days Fished | - | 2,215 | 2,830 | 428 | 2,375 | 1,749 | 507 | 176 | 10,280 |
| Catch (kg) | - | 361,535 | 215,893 | 55,855 | 389,669 | 228,565 | 29,077 | 9,074 | 1,289,667 |
| Catch (no.) | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Employment (fte) | - | 73 | 75 | 14 | 80 | 47 | 6 | 3 | 297 |
| Employment (total) | - | 119 | 157 | 26 | 127 | 83 | 19 | 8 | 538 |
| Active Businesses (no.) | - | 34 | 90 | 23 | 64 | 57 | 54 | 32 | 241 |
| Sample Size (n) | - | 4 | 11 | 5 | 14 | 10 | 13 | 9 | 45 |
| Gross Income | - | $8,813,959 | $5,151,253 | $1,419,382 | $9,636,278 | $4,692,700 | $495,445 | $151,998 | $30,361,014 |
| Total Variable Costs | - | $5,488,435 | $3,881,946 | $943,381 | $6,033,205 | $3,282,852 | $306,624 | $125,397 | $20,061,841 |
| Total Fixed Costs | - | $2,547,413 | $2,592,550 | $472,139 | $3,040,378 | $1,749,983 | $213,266 | $80,171 | $10,695,900 |
| Total Boat Cash Costs | - | $8,035,848 | $6,474,496 | $1,415,520 | $9,073,582 | $5,032,835 | $519,891 | $205,568 | $30,757,741 |
| Boat Gross Margin | - | $3,325,524 | $1,269,307 | $476,001 | $3,603,073 | $1,409,848 | $188,820 | $26,600 | $10,299,173 |
| Total Unpaid Labour | - | $529,045 | $872,451 | $134,235 | $454,283 | $441,967 | $174,657 | $101,650 | $2,708,288 |
| Gross Operating Surplus | - | $1,307,157 | -$450,791 | $138,097 | $1,016,978 | $101,831 | $150,211 | $48,079 | $2,311,561 |
| Boat Cash Income | - | $778,111 | -$1,323,243 | $3,861 | $562,695 | -$340,136 | -$24,446 | -$53,570 | -$396,727 |
| Depreciation | - | $293,947 | $740,524 | $79,585 | $446,935 | $372,774 | $161,508 | $48,232 | $2,143,505 |
| Boat Business Profit | - | $484,164 | -$2,063,766 | -$75,723 | $115,760 | -$712,910 | -$185,954 | -$101,802 | -$2,540,232 |
| Profit at Full Equity | - | $1,354,654 | -$1,433,741 | $50,333 | $1,063,562 | -$208,298 | -$154,368 | -$94,268 | $577,874 |
| Working Capital | | | | | | | | | |
| Fishing Gear & Equip | - | $5,111,834 | $11,948,001 | $1,356,485 | $7,619,677 | $6,343,903 | $2,510,190 | $762,068 | $35,652,158 |
| Licence Value | - | $11,827,752 | $16,200,261 | $2,856,863 | $17,997,116 | $9,135,338 | $1,951,372 | $646,491 | $60,615,194 |
| Total Working Capital | - | $16,939,586 | $28,148,262 | $4,213,348 | $25,616,794 | $15,479,241 | $4,461,562 | $1,408,559 | $96,267,352 |
| **Rate of Return on Fishing Gear & Equip** | **-** | **26.5%** | **-12.0%** | **3.7%** | **14.0%** | **-3.3%** | **-6.1%** | **-12.4%** | **1.6%** |
| **Rate of Return on Total Boat Capital** | **-** | **8.0%** | **-5.1%** | **1.2%** | **4.2%** | **-1.3%** | **-3.5%** | **-6.7%** | **0.6%** |

Source: 2019 survey

## 3.5. State and Regional Economic Contribution

Estimates of the economic contribution of the Coral Reef Fin Fish Fishery to the Queensland and regional economies in 2017/18 and 2018/19 are outlined in this section.

Contribution analysis is a descriptive analysis that traces the gross economic activity of the fishery as dollars of expenditure cycle through the regional and state economies. The analysis has utilised the detailed industry specific data reported above in combination with other regional/state data that highlight the current linkages that exist within the economy to estimate indicators such as gross regional product and employment. The analysis has been undertaken within a modelling framework known as input-output analysis, with the purpose being to determine how much direct and indirect economic activity is associated with the fishery. This is because the contribution of the fishery extends beyond the initial round of output, income and employment generated by the fishery. These indirect or flow-on effects are part of the contribution of fishing related businesses to the economy and must be added to the direct effects in order to get a full appreciation of the economic contribution of the fishery. This method was recommended by the National Fisheries and Aquaculture Industry Contributions Study (FRDC project 2017-210) (BDO EconSearch 2019b) though the estimates in the FRDC report are inaccurate as no primary survey data were used in the analysis.

The terms 'contribution', and 'impact' are often used interchangeably, particularly in the context of regional economic analysis where decision makers wish to use the results from such analyses to inform policy decisions, to facilitate industry development or support a particular business strategy. However, they distinctly different types of analysis. At the most basic level, a contribution analysis can be thought of as a 'footprint' or 'snapshot' analysis of economic activity, whereas an impact analysis can be thought of as an analysis of a change in economic activity. An economic impact analysis is an appropriate approach where an industry is generating new revenues that would otherwise not occur, keeping revenues in the region that would otherwise be lost, or being subject to changes that result in existing revenues being lost. Economic impact analysis will generally require more data than a contribution analysis and may require more sophisticated models, such as an extended input-output model or a properly specified computable general equilibrium (CGE) model, or means to estimate people's likely behaviour in response to the change (Watson et al. 2014).

### 3.5.1. Measuring direct and flow-on effects

The following stages in the marketing chain have been included in the quantifiable economic contribution:

- the landed beach value of production
- net value of local processing.

Each of these activities generates flow-on effects to other sectors through purchases of inputs and the employment of labour. As noted above, these flow-on effects have been estimated using input-output analysis.

Local processing includes the first value-adding step after product is landed by fishing businesses, this may be carried out by the same fishing business that landed the product or another business. Processing activities include cleaning, fileting, cooking, smoking, freezing, packaging for retail or export, etc.

In order to compile a representative cost structure for the fishing sector, costs per boat were derived from survey data provided by operators in the fishery (for detail see Section 2). On an item-by-item basis, the

expenditures were allocated between those occurring in the fishing region, those occurring in Queensland and those goods and services imported from outside the state.

Estimates of the net value of local (i.e. regional and state) processing activity and capital expenditure per fishing business were derived from the survey of fishing businesses and regional economic models.

Economic contributions have been specified in terms of the following economic indicators:

- value of output
- employment
- household income
- contribution to gross state or regional product.

**Value of output** is a measure of the gross revenue of goods and services produced by commercial organisations plus gross expenditure by government agencies. This indicator needs to be used with care as it includes elements of double counting.

**Employment** is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalent jobs.

**Household income** is a component of Gross State Product (GSP) and Gross Regional Product (GRP) and is a measure of wages and salaries, drawings by owner operators and other payments to labour including overtime payments and income tax, but excluding payroll tax.

**Contribution to GSP or GRP** is a measure of the net contribution of an activity to the state/regional economy. Contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. It can also be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land). Using GSP or GRP as a measure of economic contribution avoids the problem of double counting that may arise from using value of output for this purpose.

### 3.5.2. Economic contribution to Queensland

Estimates of the economic contribution to Queensland generated in 2017/18 and 2018/19 by the Coral Reef Fin Fish Fishery are outlined in Table 3-11 and Table 3-12, respectively. This section summarises the key points from these tables.

Direct contribution measures fishing and downstream activities (i.e. processing and capital expenditure). The flow-on contribution measures the economic effects in other sectors of the economy (retail and wholesale trade, manufacturing, etc.) generated by fishing and processing activities, that is, the multiplier effects. Flow-on effects are disaggregated by industry with the top 10 industries shown separately in each on the table. Capital expenditures are assumed to be the same as depreciation which may or may not be the case in a given year but is a reasonable assumption in the long-run. Economic contribution of capital expenditure should, therefore, be interpreted as a long-run average.

#### Value of Output

The value of output at beach price (also known as fishery GVP) generated directly in the Coral Reef Fin Fish Fishery was $33.4m in 2017/18 and $30.4m in 2018/19 while output generated by associated downstream activities (processing and capital expenditure) summed to $4.7m in 2017/18 and $4.1m in 2018/19.

Flow-on effects to other sectors of the state economy added another $52.6m in 2017/18 and $50.8m in 2018/19. The sectors most affected were personal and other services, retail trade and insurance and other

financial services. The total output contribution to Queensland (direct plus flow-on) was estimated to be $90.7m in 2017/18 and $85.3m in 2018/19.

### Employment

The Coral Reef Fin Fish Fishery was responsible for the direct employment of an estimated 300 full-time equivalent (fte) jobs in 2017/18 and 297 fte jobs in 2018/19 while downstream activities supported employment of around additional 16 fte jobs in 2017/18 and 14 fte jobs in 2018/19. Flow-on business activity was estimated to support a further 240 fte jobs in 2017/18 and 229 fte jobs in 2018/19 state-wide. These jobs were concentrated in the personal and other services, retail trade and administrative support services sectors. The total employment contribution to Queensland was estimated to be 556 fte jobs in 2017/18 and 540 fte jobs in 2018/19.

### Household Income

Personal income of $14.0m was earned in 2017/18 in the Coral Reef Fin Fish Fishery (wages of employees and estimated drawings by owner/operators) and $13.0m was earned in 2018/19. A further $0.8m of income was earned in 2017/18 and $0.7m in 2018/19 in downstream activities. An additional $15.8m in 2017/18 and $15.3m in 2018/19 was earned by wage earners in other businesses in Queensland from the flow-on effects of fishing and associated downstream activities. The total household income contribution in Queensland was $30.6m in 2017/18 and $29.0m in 2018/19.

### Contribution to GSP and GRP

As noted above, contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. Total Coral Reef Fin Fish Fishery related contribution to GSP in Queensland was $52.4m in 2017/18 and $47.8m in 2018/19, with $23.1m in 2017/18 and $19.6m in 2018/19 generated by fishing directly, $1.4m in 2017/18 and $1.2m in 2018/19 generated by downstream activities and $27.9m in 2017/18 and $26.9m in 2018/19 supported in other sectors of the state economy.

Table 3-11 Economic contribution of the Coral Reef Fin Fish Fishery to Queensland, 2017/18

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 33.4 | 23.1 | 14.0 | 300 | 551 |
| Processing | 3.3 | 0.8 | 0.3 | 9 | 8 |
| CAPEX | 1.4 | 0.6 | 0.4 | 7 | 7 |
| Total Direct | 38.1 | 24.5 | 14.7 | 316 | 567 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 4.6 | 2.6 | 2.4 | 38 | 39 |
| Retail Trade | 3.6 | 2.2 | 1.6 | 34 | 39 |
| Admin Support Serv | 1.7 | 1.1 | 1.1 | 18 | 19 |
| Prof Scientific Tech Serv | 2.9 | 1.6 | 1.5 | 17 | 16 |
| Health & Community Serv | 1.9 | 1.3 | 1.2 | 16 | 18 |
| Food & Beverage Services | 1.6 | 0.9 | 0.7 | 16 | 21 |
| Education & Training | 1.6 | 1.1 | 1.0 | 15 | 15 |
| Wholesale Trade | 2.2 | 1.3 | 1.0 | 12 | 11 |
| Insurance & Other Fin Serv | 3.2 | 1.5 | 0.9 | 11 | 11 |
| Road Transport | 1.8 | 0.8 | 0.6 | 7 | 5 |
| Other Sectors | 27.4 | 13.6 | 3.8 | 56 | 53 |
| Total Flow-on | 52.6 | 27.9 | 15.8 | 240 | 246 |
| **Total** | **90.7** | **52.4** | **30.6** | **556** | **813** |
| *Total/Direct* | *2.4* | *2.1* | *2.1* | *1.8* | *1.4* |

Source: BDO EconSearch analysis

Table 3-12 Economic contribution of the Coral Reef Fin Fish Fishery to Queensland, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 30.4 | 19.6 | 13.0 | 297 | 538 |
| Processing | 2.9 | 0.7 | 0.3 | 8 | 7 |
| CAPEX | 1.2 | 0.5 | 0.4 | 6 | 7 |
| Total Direct | 34.5 | 20.9 | 13.7 | 311 | 552 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 4.5 | 2.6 | 2.3 | 37 | 38 |
| Retail Trade | 3.5 | 2.1 | 1.5 | 32 | 37 |
| Admin Support Serv | 1.7 | 1.1 | 1.1 | 18 | 18 |
| Prof Scientific Tech Serv | 2.8 | 1.5 | 1.5 | 16 | 15 |
| Health & Community Serv | 1.8 | 1.2 | 1.2 | 15 | 17 |
| Food & Beverage Services | 1.6 | 0.8 | 0.6 | 15 | 20 |
| Education & Training | 1.5 | 1.0 | 0.9 | 14 | 14 |
| Wholesale Trade | 2.2 | 1.2 | 0.9 | 12 | 10 |
| Insurance & Other Fin Serv | 3.1 | 1.4 | 0.9 | 11 | 10 |
| Road Transport | 1.7 | 0.7 | 0.6 | 6 | 5 |
| Other Sectors | 26.5 | 13.1 | 3.7 | 54 | 50 |
| Total Flow-on | 50.8 | 26.9 | 15.3 | 229 | 235 |
| **Total** | **85.3** | **47.8** | **29.0** | **540** | **787** |
| *Total/Direct* | *2.5* | *2.3* | *2.1* | *1.7* | *1.4* |

Source: BDO EconSearch analysis

### 3.5.3. Regional economic contributions

Direct economic contribution of fishing activity by fishing region is detailed in Table 3-13 (2017/18) and Table 3-14 (2018/19). This includes fishing activity only and excludes downstream and flow-on activity. The regions appear in the table in order of the magnitude of economic contribution to fte employment.

On the following pages (Table 3-15 to Table 3-20), estimates of the economic contribution of the Coral Reef Fin Fish Fishery to each fishing region with 5 or greater active businesses and a significant economic contribution are presented in detail for the 2018/19 year. Estimates presented in the tables can be interpreted in the same way as those presented at the state level (see Section 3.5.2).

Table 3-13 Direct economic contribution of fishing activity in the Coral Reef Fin Fish Fishery to regions, 2017/18

| Region | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Queensland | 33.4 | 23.1 | 14.0 | 300 | 551 |
| Wet Tropics | 8.3 | 5.7 | 3.5 | 85 | 170 |
| Mackay, Isaac and Whitsunday | 7.9 | 5.2 | 3.2 | 65 | 102 |
| Fitzroy | 6.3 | 4.2 | 2.7 | 54 | 94 |
| Cape York Peninsula | 7.0 | 4.9 | 2.9 | 53 | 83 |
| Dry Tropics | 2.4 | 1.7 | 0.9 | 21 | 39 |
| Wide Bay Burnett | 1.2 | 1.0 | 0.6 | 19 | 55 |
| South East | 0.2 | 0.2 | 0.1 | 3 | 8 |
| North West | - | - | - | - | - |

Source: BDO EconSearch analysis

Table 3-14 Direct economic contribution of fishing activity in the Coral Reef Fin Fish Fishery to regions, 2018/19

| Region | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Queensland | 30.4 | 19.6 | 13.0 | 297 | 538 |
| Wet Tropics | 7.3 | 3.8 | 3.4 | 101 | 204 |
| Cape York Peninsula | 7.5 | 5.4 | 3.0 | 58 | 91 |
| Mackay, Isaac and Whitsunday | 7.2 | 4.8 | 2.9 | 57 | 86 |
| Fitzroy | 5.9 | 3.7 | 2.6 | 55 | 94 |
| Dry Tropics | 1.3 | 0.9 | 0.6 | 12 | 22 |
| Wide Bay Burnett | 1.0 | 0.9 | 0.4 | 11 | 33 |
| South East | 0.2 | 0.2 | 0.1 | 3 | 8 |
| North West | - | - | - | - | - |

Source: BDO EconSearch analysis

Table 3-15 Economic contribution of the Coral Reef Fin Fish Fishery to Cape York Peninsula, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 7.5 | 5.4 | 3.0 | 58 | 91 |
| Processing | 0.5 | 0.1 | 0.0 | 1 | 1 |
| CAPEX | 0.1 | 0.0 | 0.0 | 0 | 0 |
| Total Direct | 8.0 | 5.5 | 3.1 | 60 | 93 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 0.7 | 0.7 | 0.6 | 8 | 8 |
| Retail Trade | 0.3 | 0.2 | 0.1 | 3 | 4 |
| Fishing, Hunting & Trapping | 0.2 | 0.1 | 0.1 | 2 | 2 |
| Health & Community Serv | 0.2 | 0.1 | 0.1 | 2 | 2 |
| Education & Training | 0.1 | 0.1 | 0.1 | 1 | 1 |
| Admin Support Serv | 0.1 | 0.1 | 0.1 | 1 | 1 |
| Prof Scientific Tech Serv | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Food & Beverage Services | 0.1 | 0.0 | 0.0 | 1 | 1 |
| Wholesale Trade | 0.1 | 0.1 | 0.0 | 0 | 0 |
| Rental Hiring Real Estate | 0.2 | 0.1 | 0.0 | 0 | 0 |
| Other Sectors | 1.9 | 1.1 | 0.2 | 2 | 2 |
| Total Flow-on | 4.1 | 2.5 | 1.4 | 21 | 22 |
| **Total** | **12.1** | **8.1** | **4.5** | **81** | **115** |
| *Total/Direct* | *1.5* | *1.5* | *1.4* | *1.4* | *1.2* |

Source: BDO EconSearch Analysis

Table 3-16 Economic contribution of the Coral Reef Fin Fish Fishery to Wet Tropics, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 7.3 | 3.8 | 3.4 | 101 | 204 |
| Processing | 0.4 | 0.1 | 0.0 | 1 | 1 |
| CAPEX | 0.3 | 0.2 | 0.1 | 2 | 2 |
| Total Direct | 8.0 | 4.1 | 3.5 | 103 | 207 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 1.3 | 0.8 | 0.7 | 11 | 12 |
| Retail Trade | 0.8 | 0.5 | 0.4 | 7 | 9 |
| Admin Support Serv | 0.3 | 0.2 | 0.2 | 4 | 4 |
| Food & Beverage Services | 0.4 | 0.2 | 0.1 | 4 | 5 |
| Health & Community Serv | 0.4 | 0.3 | 0.3 | 3 | 4 |
| Prof Scientific Tech Serv | 0.4 | 0.2 | 0.2 | 2 | 2 |
| Education & Training | 0.2 | 0.2 | 0.1 | 2 | 2 |
| Wholesale Trade | 0.4 | 0.2 | 0.2 | 2 | 2 |
| Road Transport | 0.4 | 0.2 | 0.1 | 1 | 1 |
| Rental Hiring Real Estate | 0.4 | 0.2 | 0.1 | 1 | 1 |
| Other Sectors | 4.6 | 2.5 | 0.7 | 10 | 9 |
| Total Flow-on | 9.7 | 5.3 | 3.1 | 49 | 50 |
| **Total** | **17.7** | **9.4** | **6.6** | **152** | **257** |
| *Total/Direct* | *2.2* | *2.3* | *1.9* | *1.5* | *1.2* |

Source: BDO EconSearch Analysis

Table 3-17 Economic contribution of the Coral Reef Fin Fish Fishery to Dry Tropics, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 1.3 | 0.9 | 0.6 | 12 | 22 |
| Processing | 0.1 | 0.0 | 0.0 | 0 | 0 |
| CAPEX | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Total Direct | 1.4 | 0.9 | 0.6 | 12 | 22 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Retail Trade | 0.1 | 0.1 | 0.1 | 1 | 1 |
| Food & Beverage Services | 0.1 | 0.0 | 0.0 | 1 | 1 |
| Health & Community Serv | 0.1 | 0.0 | 0.0 | 1 | 1 |
| Education & Training | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Admin Support Serv | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Prof Scientific Tech Serv | 0.1 | 0.0 | 0.0 | 0 | 0 |
| Wholesale Trade | 0.1 | 0.0 | 0.0 | 0 | 0 |
| Road Transport | 0.1 | 0.0 | 0.0 | 0 | 0 |
| Public Order & Safety | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Other Sectors | 0.8 | 0.4 | 0.1 | 1 | 1 |
| Total Flow-on | 1.5 | 0.8 | 0.4 | 7 | 7 |
| **Total** | **2.9** | **1.7** | **1.0** | **19** | **29** |
| *Total/Direct* | *2.0* | *1.9* | *1.8* | *1.5* | *1.3* |

Source: BDO EconSearch Analysis

Table 3-18 Economic contribution of the Coral Reef Fin Fish Fishery to Mackay, Isaac and Whitsunday, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 7.2 | 4.8 | 2.9 | 57 | 86 |
| Processing | 0.3 | 0.1 | 0.0 | 1 | 1 |
| CAPEX | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Total Direct | 7.7 | 4.9 | 3.0 | 58 | 88 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 0.8 | 0.4 | 0.4 | 6 | 5 |
| Retail Trade | 0.5 | 0.3 | 0.2 | 5 | 6 |
| Admin Support Serv | 0.2 | 0.1 | 0.1 | 2 | 2 |
| Food & Beverage Services | 0.2 | 0.1 | 0.1 | 2 | 3 |
| Wholesale Trade | 0.3 | 0.2 | 0.1 | 2 | 1 |
| Prof Scientific Tech Serv | 0.3 | 0.2 | 0.2 | 2 | 2 |
| Road Transport | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Health & Community Serv | 0.1 | 0.1 | 0.1 | 1 | 1 |
| Fishing, Hunting & Trapping | 0.2 | 0.1 | 0.0 | 1 | 1 |
| Rental Hiring Real Estate | 0.2 | 0.1 | 0.0 | 1 | 1 |
| Other Sectors | 2.9 | 1.5 | 0.4 | 6 | 5 |
| Total Flow-on | 6.1 | 3.2 | 1.7 | 26 | 26 |
| **Total** | **13.8** | **8.2** | **4.7** | **84** | **114** |
| *Total/Direct* | *1.8* | *1.6* | *1.6* | *1.5* | *1.3* |

Source: BDO EconSearch Analysis

Table 3-19 Economic contribution of the Coral Reef Fin Fish Fishery to Fitzroy, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 5.9 | 3.7 | 2.6 | 55 | 94 |
| Processing | 1.1 | 0.3 | 0.1 | 3 | 3 |
| CAPEX | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Total Direct | 7.2 | 4.0 | 2.8 | 59 | 98 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 0.8 | 0.4 | 0.4 | 6 | 6 |
| Retail Trade | 0.6 | 0.3 | 0.2 | 5 | 6 |
| Food & Beverage Services | 0.2 | 0.1 | 0.1 | 3 | 2 |
| Fishing, Hunting & Trapping | 0.2 | 0.1 | 0.1 | 2 | 3 |
| Admin Support Serv | 0.3 | 0.2 | 0.2 | 2 | 2 |
| Wholesale Trade | 0.2 | 0.1 | 0.1 | 2 | 2 |
| Prof Scientific Tech Serv | 0.3 | 0.2 | 0.1 | 1 | 1 |
| Road Transport | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Health & Community Serv | 0.1 | 0.1 | 0.1 | 1 | 1 |
| Education & Training | 0.3 | 0.1 | 0.1 | 1 | 1 |
| Other Sectors | 4.0 | 1.9 | 0.4 | 6 | 6 |
| Total Flow-on | 7.1 | 3.7 | 1.9 | 30 | 31 |
| **Total** | **14.2** | **7.7** | **4.7** | **90** | **129** |
| *Total/Direct* | *2.0* | *1.9* | *1.7* | *1.5* | *1.3* |

Source: BDO EconSearch Analysis

Table 3-20 Economic contribution of the Coral Reef Fin Fish Fishery to Wide Bay Burnett, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 1.0 | 0.9 | 0.4 | 11 | 33 |
| Processing | 0.4 | 0.1 | 0.0 | 1 | 1 |
| CAPEX | 0.2 | 0.1 | 0.1 | 1 | 1 |
| Total Direct | 1.5 | 1.0 | 0.5 | 12 | 34 |
| **Flow-on effects** | | | | | |
| Retail Trade | 0.1 | 0.1 | 0.0 | 1 | 1 |
| Personal & Other Serv | 0.1 | 0.1 | 0.1 | 1 | 1 |
| Health & Community Serv | 0.1 | 0.0 | 0.0 | 0 | 1 |
| Food & Beverage Services | 0.0 | 0.0 | 0.0 | 0 | 1 |
| Prof Scientific Tech Serv | 0.1 | 0.0 | 0.0 | 0 | 0 |
| Admin Support Serv | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Wholesale Trade | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Education & Training | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Road Transport | 0.1 | 0.0 | 0.0 | 0 | 0 |
| Beef Cattle | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Other Sectors | 0.7 | 0.3 | 0.1 | 1 | 1 |
| Total Flow-on | 1.2 | 0.7 | 0.4 | 6 | 6 |
| **Total** | **2.7** | **1.7** | **0.8** | **18** | **40** |
| *Total/Direct* | *1.8* | *1.6* | *1.8* | *1.5* | *1.2* |

Source: BDO EconSearch Analysis

## 3.6. Net Economic Return

Net economic return[4] is the long-run profit from a fishery after all costs have been met, including fuel, crew costs, repairs, the opportunity cost of family and owner labour, fishery management costs, depreciation and the opportunity cost of capital (excluding endorsement) (Bath et al. 2018).

These unit costs or long-term costs all need to be covered if the fishing business is to remain viable in the fishery. The opportunity cost of capital is equivalent to what the fisher's investment could have earned in the next most similar alternative use considering risk and skills required. What remains after the value of these inputs (labour, capital, materials and services) has been netted out is the return to the value of the natural resource itself.

Commercial fishing operations in Australia are not risk free (see Figure 4-9). Returns can be impacted both positively and negatively by factors such as natural events, changes in market conditions, disease, and management regulations. Determining the opportunity cost of capital involves an assessment of the degree of financial risk involved in the activity. For a risk-free operation, an appropriate opportunity cost of capital might be the long-term real rate of return on government bonds. The greater the risks involved, the greater is the necessary return on capital to justify the investment in that particular activity.

For this analysis an opportunity cost of capital of 10 per cent has been used (Table 3-21) with sensitivity analysis at 7 and 15 per cent (Table 3-22). The lower-bound is consistent with ABARES Australian fisheries economic indicator reporting for commonwealth managed fisheries (Bath et al. 2018). Commonwealth managed fisheries are generally larger and characterised by larger businesses with less overall variation than state managed inshore fisheries. This is why the 7 per cent used by ABARES is used as a lower-bound in this analysis. The upper-bound of 15 per cent represents a reasonable estimate for what an investor might expect when buying into a commercial fishery in Queensland, given the variability and risk involved in this type of fishing business. Assuming an opportunity cost of capital of 10 per cent, net economic return generated in the Coral Reef Fin Fish Fishery was estimated to be -$2.5m in 2017/18 and -$4.2m in 2018/19 (Table 3-21). The sensitivity analysis shows that, with the varying assumptions about opportunity cost of capital, net economic return was likely in the range of -$1.3m to -$4.4m in 2017/18 and -$3.2m to -$6.0m in 2018/19 (Table 3-22).

Table 3-21 Net Economic Return in the Coral Reef Fin Fish Fishery, 2017/18 and 2018/19, using a 10% p.a. opportunity cost of capital.

| | 2017/18 | 2018/19 | Change |
|---|---|---|---|
| GVP ($m) | 33.4 | 30.4 | -9% |
| Less Labour Cost ($m) | 14.0 | 13.0 | -7% |
| Less Materials & Services ($m) | 14.1 | 14.2 | 1% |
| Less Depreciation ($m) | 2.4 | 2.1 | -10% |
| Less Opportunity Cost of Capital (10%) ($m) | 3.8 | 3.6 | -7% |
| Less Management Cost ($m) | 1.6 | 1.6 | -1% |
| **Net Economic Return ($m)** | **-2.5** | **-4.2** | **-71%** |

Source: BDO EconSearch analysis

[4] Also commonly referred to as economic rent.

Table 3-22 Sensitivity analysis of opportunity cost of capital on Net Economic Return in the Coral Reef Fin Fish Fishery, 2017/18 and 2018/19

| | 2017/18 | | | 2018/19 | | |
|---|---|---|---|---|---|---|
| Opportunity Cost of Capital (%) | 7% | **10%** | 15% | 7% | **10%** | 15% |
| Less Opportunity Cost of Capital ($m) | *2.7* | **3.8** | *5.8* | *2.5* | **3.6** | *5.3* |
| Net Economic Return ($m) | -1.3 | **-2.5** | -4.4 | -3.2 | **-4.2** | -6.0 |

Source: BDO EconSearch analysis

With a sustained negative net economic return, the market value of licences can be expected to decrease over time, however, there is anecdotal evidence from the survey that the market value of licences have not decreased over time while net economic return under the above assumptions has remained significantly negative. Further, the existence of lease payments to access the fishery suggests that the short term economic return may be positive, although it is possible that these leases only occur in the more profitable areas of the diverse fishery. This suggests that either the profits of the industry are underestimated, or the opportunity cost of capital and labour may be lower than the value assumed in the sensitivity analysis. If either of these are the case then the estimated net economic return would be higher. Building a time series of economic indicators and increasing participation in the data collection phase, would provide evidence to adjust these assumptions for this fishery away from the broadly standard values used for commercial fishing.

# 4. SOCIAL AND DEMOGRAPHIC INDICATORS

Fisheries Queensland compiled a list of social and demographic indicators to be included in the survey of fishing businesses and presented in this report. BDO EconSearch collected the data and the results for the social indicators are presented below.

Respondents to the business survey were mostly over 50 years of age, business owners and living in Queensland (Figure 4-1 & Figure 4-2). Few respondents identified as indigenous (Figure 4-2). The median time involved in commercial fishing was 22 years and median time as a licence owner 17 years. The highest level of education most frequently selected was year 10 or below, though many had also completed year 12 or trade certificate or apprenticeship (Figure 4-4). On average, respondents earn just over half of their personal income from commercial fishing with the other main industries of employment being construction, mining and agriculture or forestry (Figure 4-5 & Figure 4-6).

Overall the responses from the social questions suggest that fishers generally enjoy fishing and derive significant wellbeing and life satisfaction from their occupation. However, they also feel insecure about their incomes and ability to continue their current lifestyle as a result of regulatory uncertainty.

Almost all respondents indicated that commercial fishing is financially risky and that they feel insecure in their job and unable to cope with changing regulations (Figure 4-9). Around half of respondents feel they understand fishery management arrangements but almost all feel that management is making it more difficult to run their business and that it is has become more difficult to 'have a say' in management (Figure 4-10).

Overall, fishers indicated that they are strongly satisfied with the lifestyle of being a commercial fisher. However, around a quarter of respondents indicated that they were unsatisfied with the income generated from fishing and most indicated that they were dissatisfied with the predictability of their incomes and with fishing regulations (Figure 4-11). They also indicated that they are generally satisfied with life as a whole and would not quickly change jobs (Figure 4-12). Fishers also identified that fishing is stressful and physically difficult (Figure 4-13). Fishers indicated that they have strong ties to their community but only around half feel that their community treats them fairly and respects their occupation (Figure 4-14). Respondents indicated that they had high levels of satisfaction with their personal wellbeing in all aspects, except for their future security (Figure 4-15). Most fishers would not encourage young people to choose a fishing career and do not feel positive about the future of fishing in their region (Figure 4-16).

## 4.1. Demographic Indicators

Figure 4-1 Age

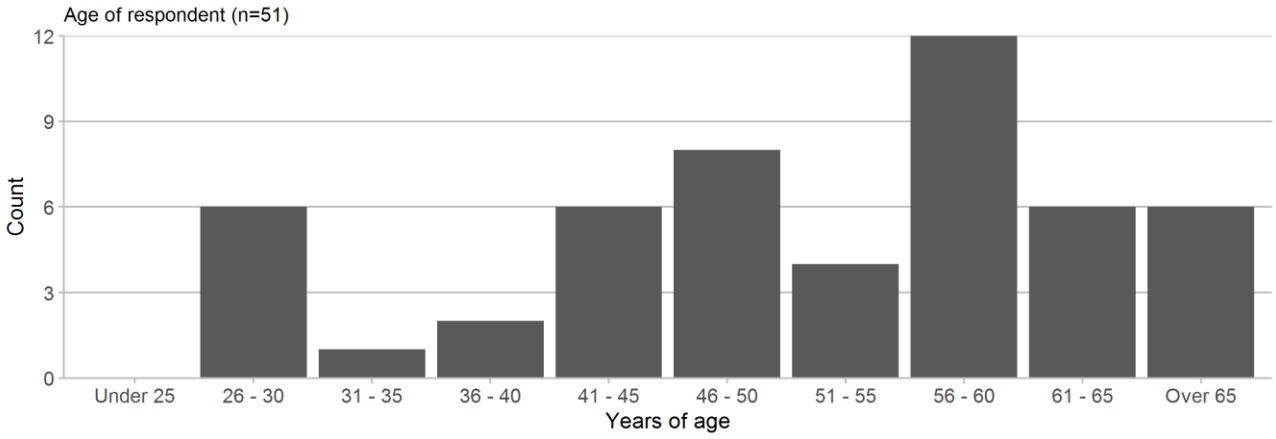



Figure 4-2 Business role, place of residence and Indigenous status

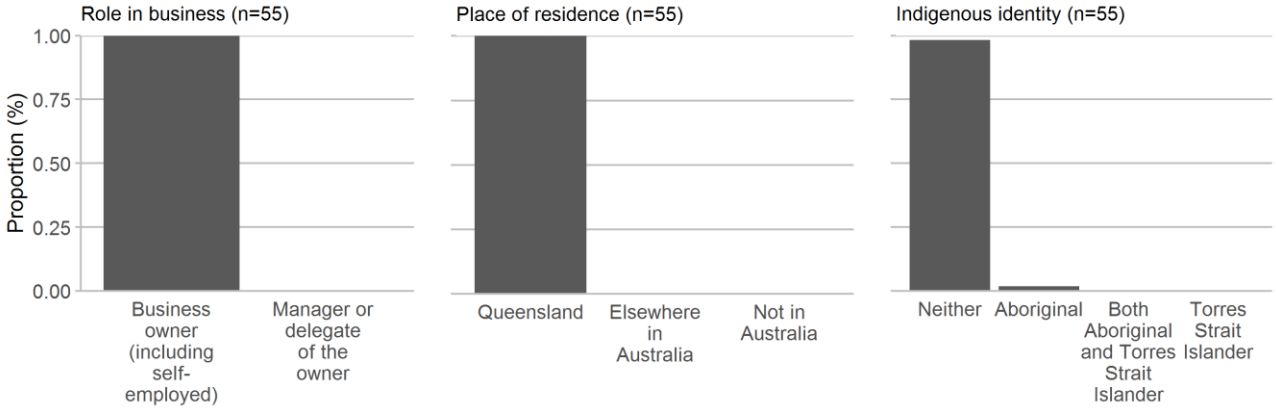



Figure 4-3 Years as licence owner, in commercial fishing and lived in local community

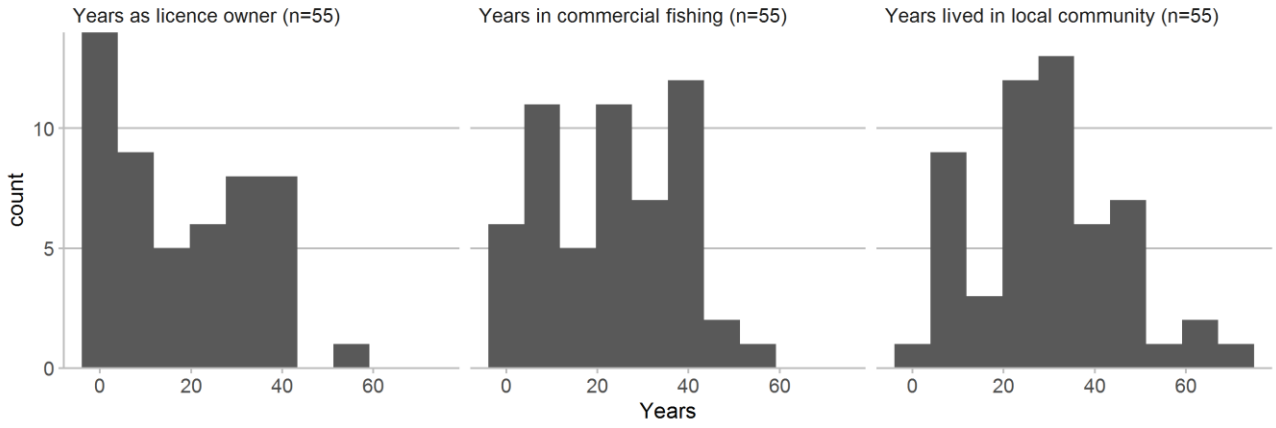


Figure 4-4 Highest education attained

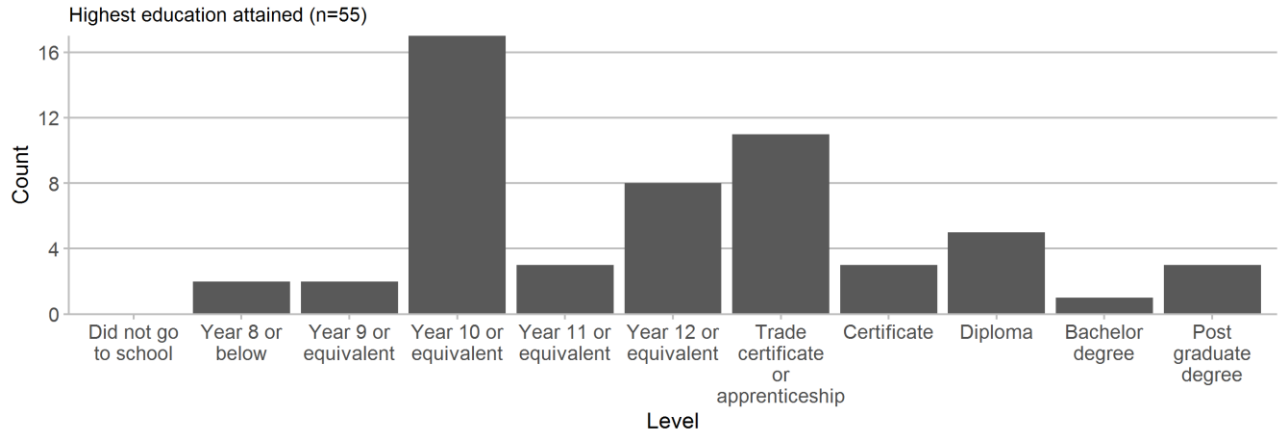



Figure 4-5 Primary income from commercial fishing

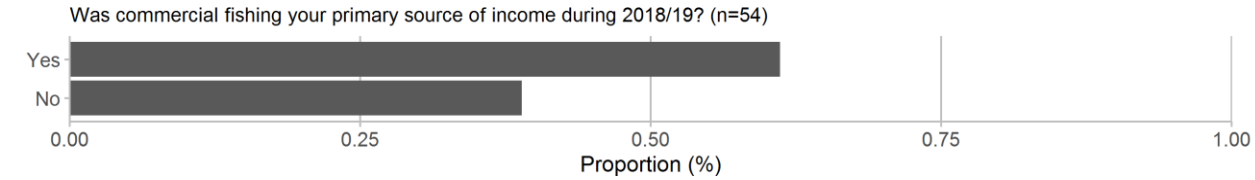
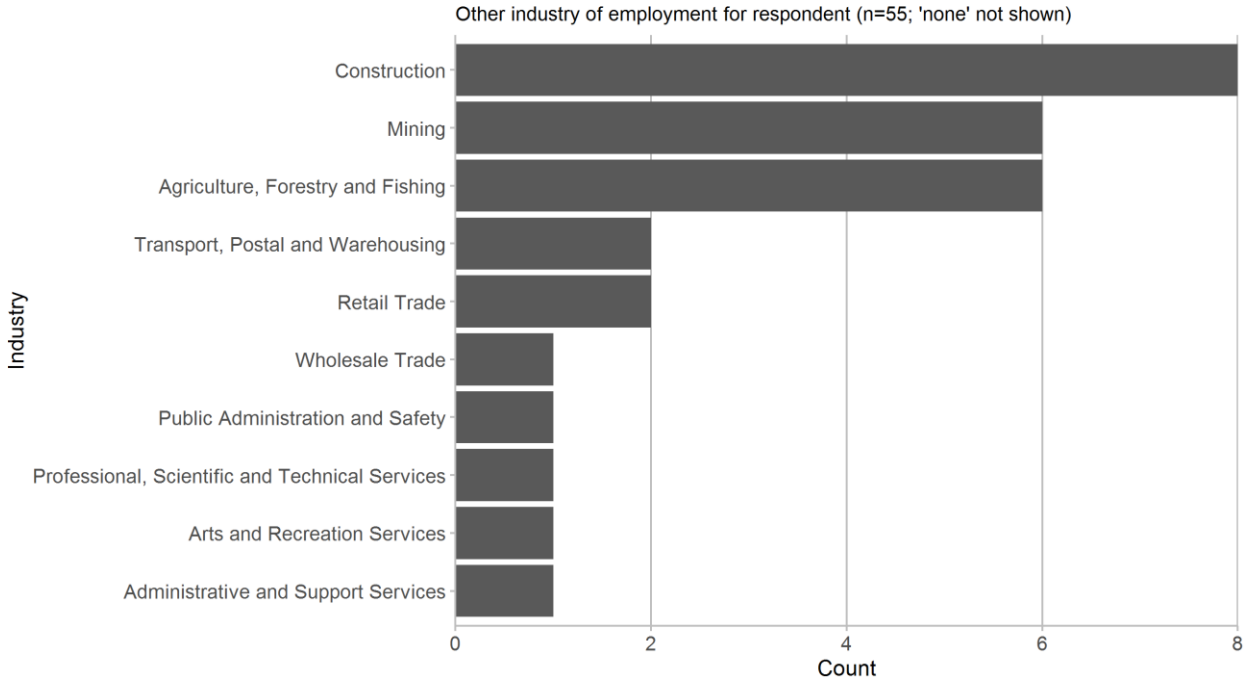
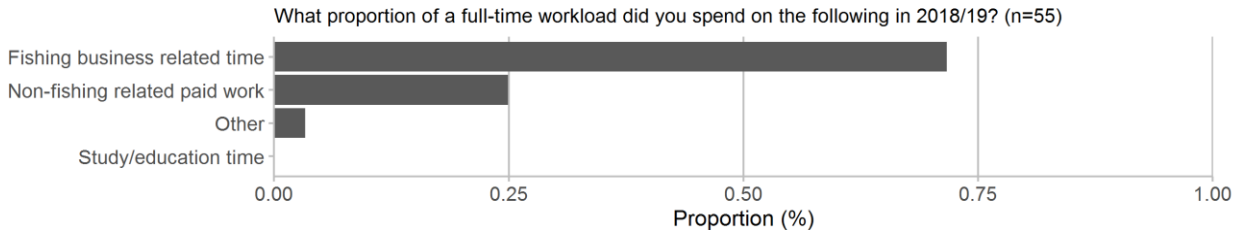


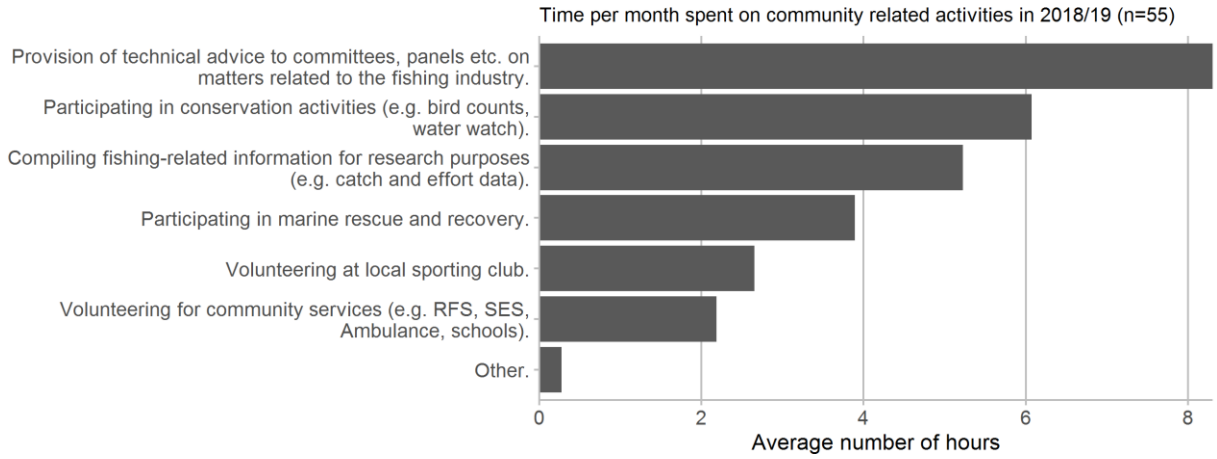

Figure 4-6 Other industry of employment (other than fishing)



## Figure 4-7 Split of workload




## Figure 4-8 Community involvement



## 4.2. Fisheries Management

A set of questions about fisheries management and its effect on the fisher's business were asked in the survey. The answers are presented in the charts below with questions/statements appearing in order of the strength of the average response.

Figure 4-9 Perceptions of fishery management (a)

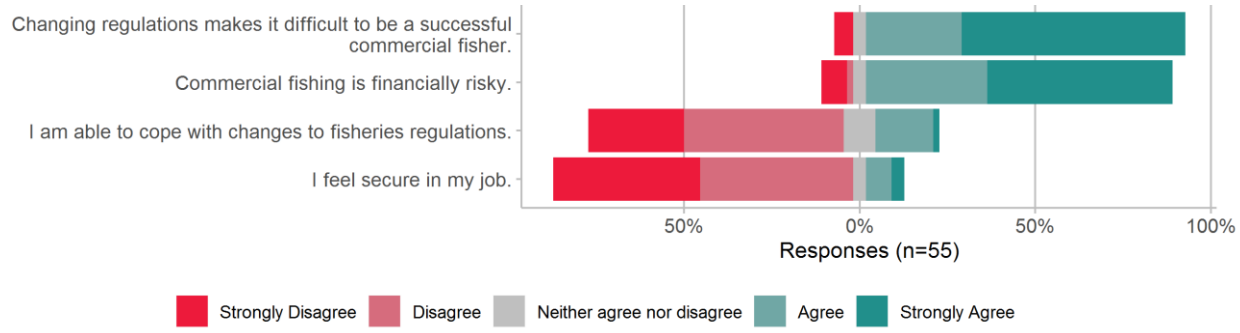
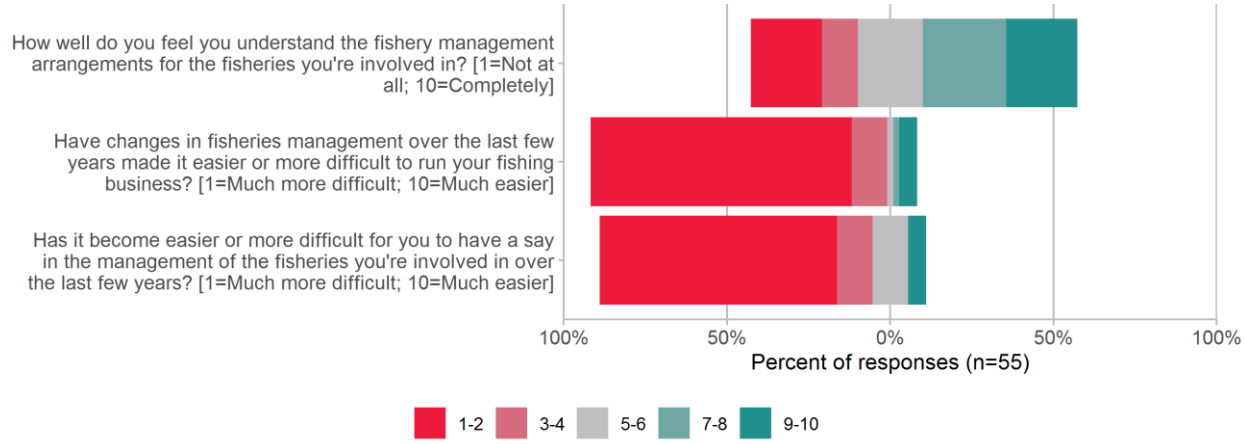



Figure 4-10 Perceptions of fishery management (b)



## 4.3. Fisher Wellbeing

While commercial fishers aim to receive a monetary benefit from engaging in commercial fishing activities, many also value the lifestyle and other benefits that come with the job. The survey asked fishers about their satisfaction with the lifestyle of being a commercial fisher and its benefits and costs, their connection to the community as a commercial fisher, their personal wellbeing and stewardship. Statements/questions are presented in the charts in this section in order of the strength of the response.

Figure 4-11 Satisfaction with lifestyle

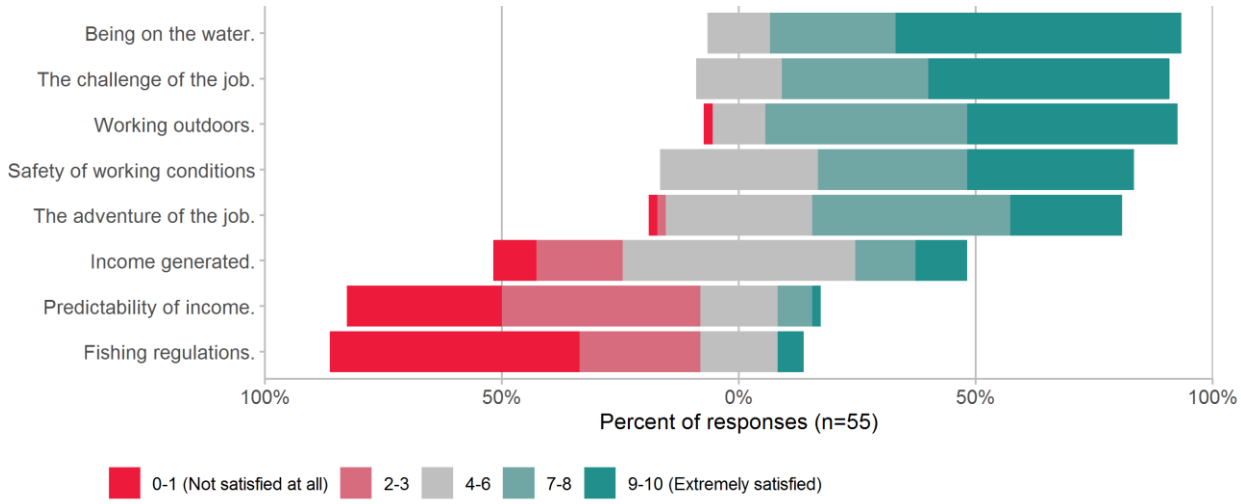
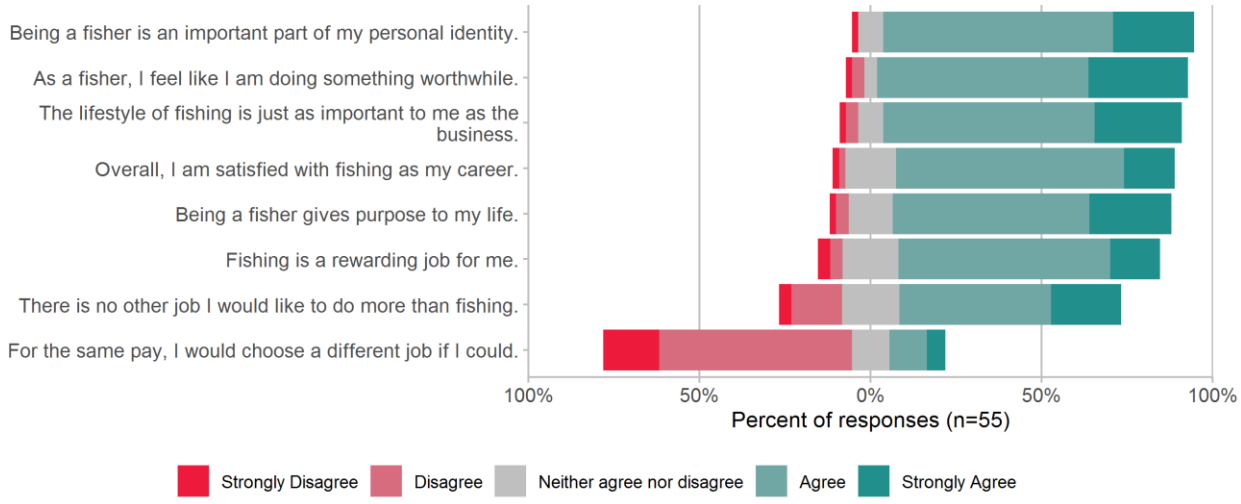
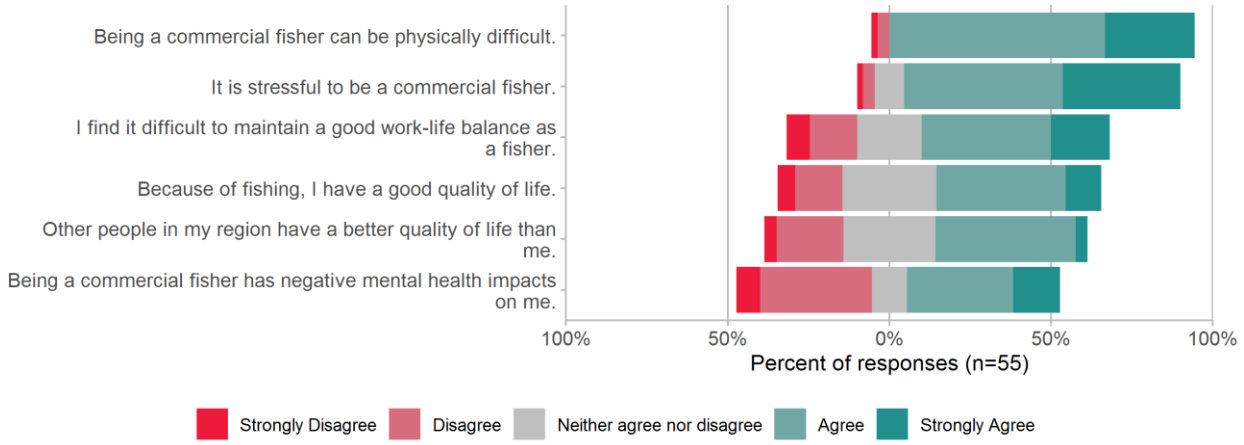


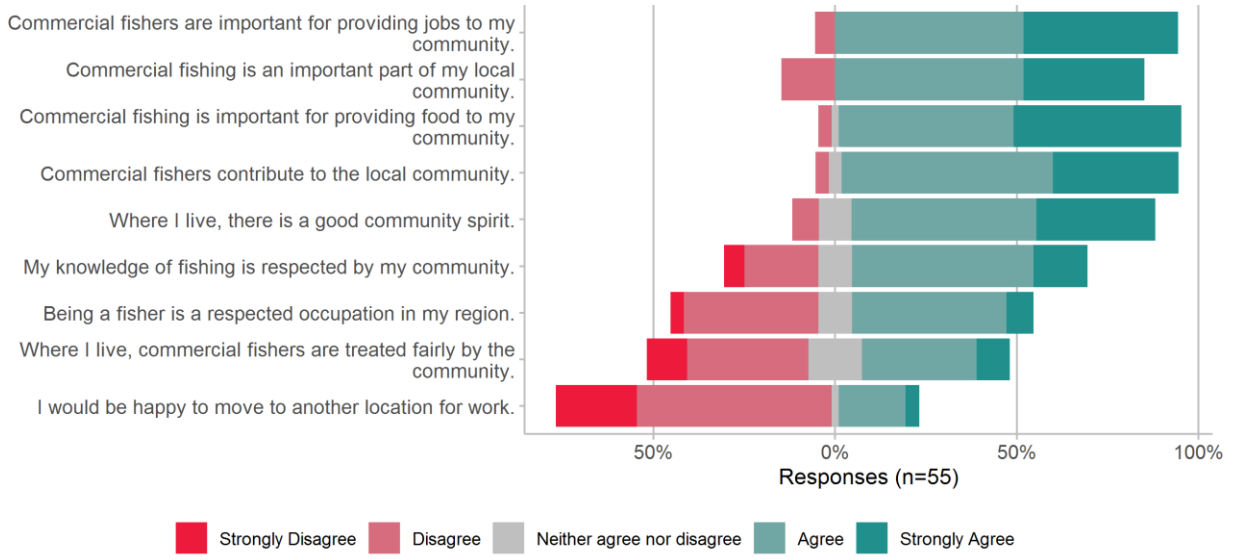

Figure 4-12 Wellbeing benefits of commercial fishing



## Figure 4-13 Wellbeing costs of commercial fishing




## Figure 4-14 Connection to community




## Figure 4-15 Personal wellbeing

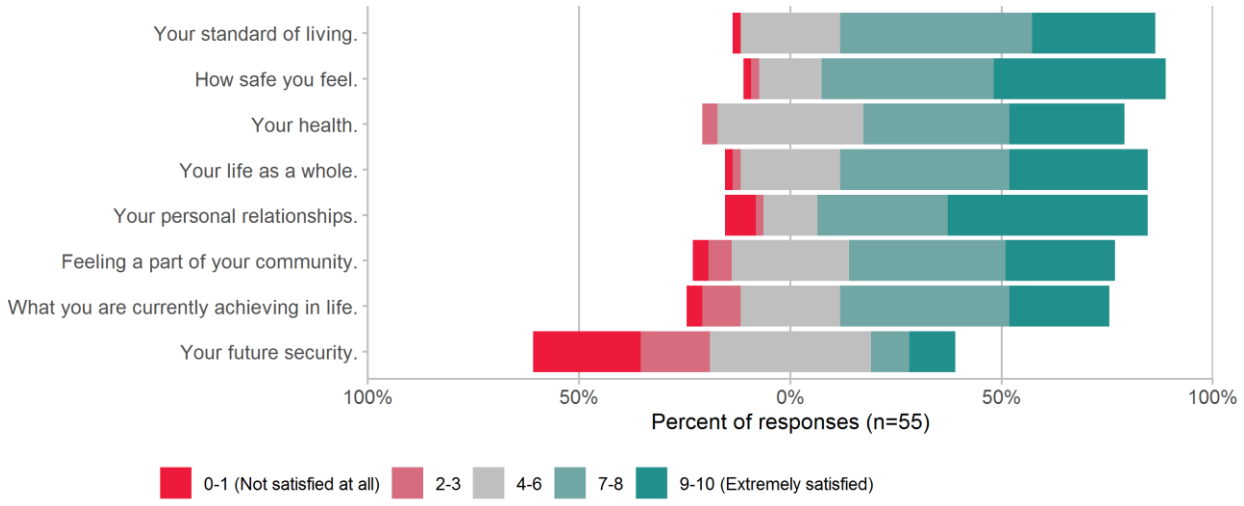
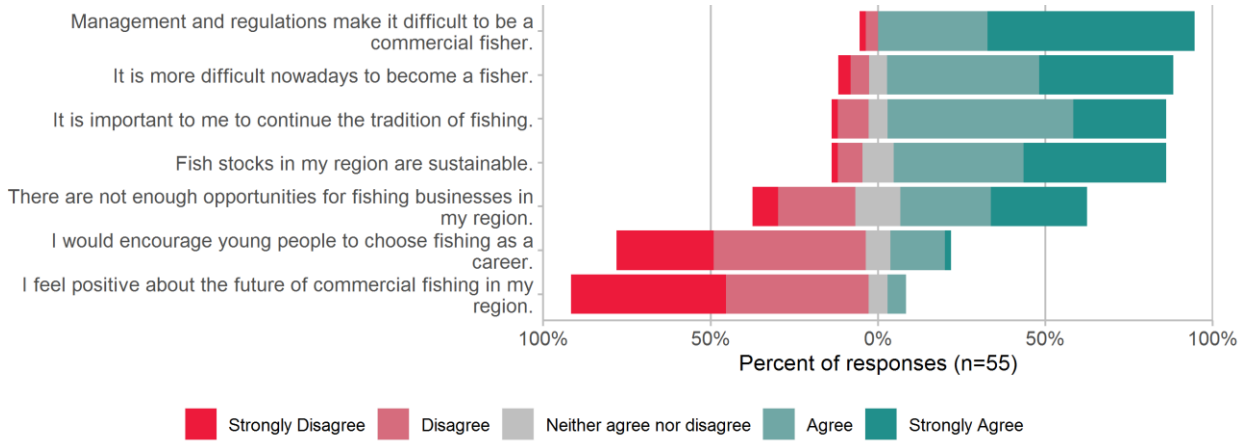


Figure 4-16 Stewardship



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Watson, P., Wilson, J., Thilany, D. and Winter, S. 2014, *"Determining economic contributions and impacts; what is the difference and why do we care?"*, Journal of Regional Analysis and Policy, 37:2, 1-15.


## Disclaimer

The assignment is a consulting engagement as outlined in the 'Framework for Assurance Engagements', issued by the Auditing and Assurances Standards Board, Section 17. Consulting engagements employ an assurance practitioner's technical skills, education, observations, experiences and knowledge of the consulting process. The consulting process is an analytical process that typically involves some combination of activities relating to: objective-setting, fact-finding, definition of problems or opportunities, evaluation of alternatives, development of recommendations including actions, communication of results, and sometimes implementation and follow-up.

The nature and scope of work has been determined by agreement between BDO and the Client. This consulting engagement does not meet the definition of an assurance engagement as defined in the 'Framework for Assurance Engagements', issued by the Auditing and Assurances Standards Board, Section 10.

Except as otherwise noted in this report, we have not performed any testing on the information provided to confirm its completeness and accuracy. Accordingly, we do not express such an audit opinion and readers of the report should draw their own conclusions from the results of the review, based on the scope, agreed-upon procedures carried out and findings.

# APPENDIX 1 Summary Economic Indicators for all Queensland Commercial Fisheries, 2017/18

## Appendix Table 1-1 Commercial fisheries gross value of production, catch and export value, Queensland, 2017/18 ($m)

| Fishery | Catch | | GVP ($m) | Export Value ($m) |
|---|---|---|---|---|
| | tonnes (t) | number ('000) | | |
| Blue Swimmer Crab | 309 | 0 | 3.7 | 0.0 |
| Coral Harvest and Marine Aquarium Fishery | 16 | 451 | 12.0 | 9.7 |
| Coral Reef Fin Fish | 1,452 | 0 | 33.4 | 8.0 |
| East Coast Inshore Fin Fish | 3,226 | 0 | 20.6 | 0.5 |
| East Coast Trawl | 6,969 | 0 | 109.8 | 1.0 |
| Gulf of Carpentaria Inshore Fishery | 2,037 | 0 | 22.6 | 0.0 |
| Moreton Bay Commercial Other | 1,386 | 494 | 12.2 | 0.3 |
| Moreton Bay Commercial Trawl | 698 | 0 | 7.7 | 0.0 |
| Mud Crab East Coast | 890 | 0 | 26.0 | 0.2 |
| Mud Crab Gulf of Carpentaria | 146 | 0 | 4.7 | 0.0 |
| Other Harvest Fishery | 439 | 1,692 | 13.6 | 11.8 |
| Rocky Reef Fin Fish | 127 | 0 | 1.4 | 0.0 |
| Spanner Crab | 1,005 | 0 | 9.3 | 0.3 |
| East Coast Spanish Mackerel | 315 | 0 | 3.9 | 0.0 |
| **Queensland** | **16,929** | **2,143** | **261.1** | **31.4** |

Source: BDO EconSearch analysis

## Appendix Table 1-2 Cost of management in Queensland commercial fisheries, 2017/18

| Fishery | GVP ($m) | Management cost ($m) | Proportion of GVP (%) |
|---|---|---|---|
| Blue Swimmer Crab | 3.7 | 1.4 | 38% |
| Coral Harvest and Marine Aquarium Fishery | 12.0 | 1.0 | 9% |
| Coral Reef Fin Fish | 33.4 | 1.6 | 5% |
| East Coast Inshore Fin Fish | 20.6 | 3.3 | 16% |
| East Coast Trawl | 109.8 | 1.8 | 2% |
| Gulf of Carpentaria Inshore Fishery | 22.6 | 1.3 | 6% |
| Moreton Bay Commercial Other | 12.2 | 1.1 | 9% |
| Moreton Bay Commercial Trawl | 7.7 | 1.2 | 16% |
| Mud Crab East Coast | 26.0 | 1.9 | 7% |
| Mud Crab Gulf of Carpentaria | 4.7 | 1.0 | 21% |
| Other Harvest Fishery | 13.6 | 2.3 | 17% |
| Rocky Reef Fin Fish | 1.4 | 1.0 | 67% |
| Spanner Crab | 9.3 | 1.3 | 14% |
| East Coast Spanish Mackerel | 3.9 | 1.1 | 28% |
| **Queensland** | **261.1** | **21.3** | **8%** |

Source: BDO EconSearch analysis

## Appendix Table 1-3 Net economic return in Queensland commercial fisheries, 2017/18 ($m)

| Fishery | Labour Cost ($m) | Materials & Services ($m) | Depreciation ($m) | Opp. Cost of Capital (10%) ($m) | Management Cost ($m) | GVP ($m) | Net Economic Return ($m) |
|---|---|---|---|---|---|---|---|
| Blue Swimmer Crab | 1.0 | 1.7 | 0.4 | 0.6 | 1.4 | 3.7 | **-1.4** |
| Coral Harvest and Marine Aquarium Fishery | 1.9 | 6.0 | 0.7 | 1.3 | 1.0 | 12.0 | **0.9** |
| Coral Reef Fin Fish | 14.0 | 14.1 | 2.4 | 3.8 | 1.6 | 33.4 | **-2.5** |
| East Coast Inshore Fin Fish | 5.3 | 6.6 | 1.8 | 2.5 | 3.3 | 20.6 | **1.1** |
| East Coast Trawl | 40.4 | 60.4 | 11.0 | 20.6 | 1.8 | 109.8 | **-24.4** |
| Gulf of Carpentaria Inshore Fishery | 6.3 | 8.4 | 1.2 | 2.9 | 1.3 | 22.6 | **2.5** |
| Moreton Bay Commercial Other | 4.1 | 5.3 | 1.4 | 2.1 | 1.1 | 12.2 | **-1.7** |
| Moreton Bay Commercial Trawl | 2.8 | 6.0 | 1.4 | 2.2 | 1.2 | 7.7 | **-6.0** |
| Mud Crab East Coast | 6.8 | 9.8 | 1.6 | 2.5 | 1.9 | 26.0 | **3.4** |
| Mud Crab Gulf of Carpentaria | 1.1 | 1.0 | 0.2 | 0.3 | 1.0 | 4.7 | **1.2** |
| Other Harvest Fishery | 4.1 | 3.8 | 1.1 | 1.7 | 2.3 | 13.6 | **0.7** |
| Rocky Reef Fin Fish | 0.9 | 0.8 | 0.4 | 0.7 | 1.0 | 1.4 | **-2.4** |
| Spanner Crab | 3.4 | 2.5 | 0.9 | 1.3 | 1.3 | 9.3 | **0.0** |
| East Coast Spanish Mackerel | 1.6 | 1.3 | 0.4 | 0.7 | 1.1 | 3.9 | **-1.2** |
| **Queensland** | **86.8** | **116.5** | **22.1** | **38.8** | **21.3** | **261.1** | **-24.4** |

Source: BDO EconSearch analysis

## Appendix Table 1-4 Economic contributions of Queensland commercial fisheries to Queensland, 2017/18

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 261.1 | 191.3 | 86.8 | 1,885 | 3,560 |
| Processing | 121.8 | 28.6 | 12.4 | 318 | 299 |
| CAPEX | 13.1 | 5.9 | 4.3 | 68 | 70 |
| Total Direct | 395.9 | 225.8 | 103.5 | 2,271 | 3,929 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 38.3 | 21.8 | 19.6 | 313 | 323 |
| Retail Trade | 29.4 | 17.7 | 12.8 | 272 | 317 |
| Admin Support Serv | 14.8 | 9.8 | 9.5 | 160 | 163 |
| Prof Scientific Tech Serv | 27.1 | 14.9 | 14.3 | 154 | 143 |
| Health & Community Serv | 14.4 | 9.9 | 9.5 | 126 | 140 |
| Food & Beverage Services | 12.4 | 6.6 | 4.9 | 122 | 160 |
| Education & Training | 12.1 | 8.3 | 7.5 | 113 | 118 |
| Wholesale Trade | 20.3 | 11.4 | 8.9 | 111 | 97 |
| Insurance & Other Fin Serv | 24.3 | 11.4 | 7.2 | 87 | 82 |
| Road Transport | 16.8 | 7.2 | 5.7 | 61 | 51 |
| Other Sectors | 217.3 | 108.5 | 30.9 | 440 | 411 |
| Total Flow-on | 427.2 | 227.4 | 130.9 | 1,959 | 2,004 |
| **Total** | **823.1** | **453.3** | **234.3** | **4,229** | **5,933** |
| *Total/Direct* | *2.0* | *2.0* | *2.3* | *1.9* | *1.5* |

Source: BDO EconSearch analysis

## Appendix Table 1-5 Direct economic contributions of Queensland commercial fisheries to the fishing regions, 2017/18

| | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Queensland | 261.1 | 191.3 | 86.8 | 1,885 | 3,560 |
| South East | 72.7 | 52.9 | 26.3 | 595 | 1,217 |
| Fitzroy | 38.8 | 26.7 | 12.8 | 264 | 430 |
| Wet Tropics | 31.7 | 22.8 | 10.9 | 258 | 468 |
| Wide Bay Burnett | 30.6 | 23.3 | 11.1 | 230 | 437 |
| Cape York Peninsula | 43.5 | 33.0 | 12.1 | 226 | 436 |
| Mackay, Isaac and Whitsunday | 22.5 | 16.1 | 6.8 | 151 | 283 |
| Dry Tropics | 13.6 | 9.9 | 4.5 | 94 | 150 |
| North West | 7.7 | 6.6 | 2.2 | 68 | 138 |

Source: BDO EconSearch analysis

## Appendix Table 1-6 Direct economic contributions of fishing activity in Queensland commercial fisheries by fishery, 2017/18

| Fishery | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Blue Swimmer Crab | 3.7 | 3.1 | 1.0 | 28 | 83 |
| Coral Harvest and Marine Aquarium Fishery | 12.0 | 7.0 | 1.9 | 48 | 104 |
| Coral Reef Fin Fish | 33.4 | 23.1 | 14.0 | 300 | 551 |
| East Coast Inshore Fin Fish | 20.6 | 18.3 | 5.3 | 126 | 333 |
| East Coast Trawl | 109.8 | 68.6 | 40.4 | 770 | 1,134 |
| Gulf of Carpentaria Inshore Fishery | 22.6 | 17.9 | 6.3 | 153 | 291 |
| Moreton Bay Commercial Other | 12.2 | 10.8 | 4.1 | 110 | 315 |
| Moreton Bay Commercial Trawl | 7.7 | 4.4 | 2.8 | 76 | 161 |
| Mud Crab East Coast | 26.0 | 23.4 | 6.8 | 183 | 359 |
| Mud Crab Gulf of Carpentaria | 4.7 | 4.4 | 1.1 | 20 | 82 |
| Other Harvest Fishery | 13.6 | 12.3 | 4.1 | 110 | 328 |
| Rocky Reef Fin Fish | 1.4 | 1.3 | 0.9 | 21 | 55 |
| Spanner Crab | 9.3 | 8.0 | 3.4 | 86 | 155 |
| East Coast Spanish Mackerel | 3.9 | 4.0 | 1.6 | 39 | 84 |
| **Queensland** | **261.1** | **191.3** | **86.8** | **1,885** | **3,560** |

Source: BDO EconSearch analysis

## Appendix Table 1-7 Total economic contributions of fishing activity in Queensland commercial fisheries by fishery, 2017/18

| Fishery | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Blue Swimmer Crab | 17.1 | 8.5 | 4.0 | 78 | 132 |
| Coral Harvest and Marine Aquarium Fishery | 27.4 | 15.3 | 7.1 | 126 | 183 |
| Coral Reef Fin Fish | 90.7 | 52.4 | 30.6 | 556 | 813 |
| East Coast Inshore Fin Fish | 68.2 | 38.7 | 16.6 | 312 | 519 |
| East Coast Trawl | 352.7 | 186.2 | 107.4 | 1,816 | 2,197 |
| Gulf of Carpentaria Inshore Fishery | 66.3 | 37.7 | 17.3 | 331 | 470 |
| Moreton Bay Commercial Other | 49.8 | 26.8 | 12.9 | 256 | 460 |
| Moreton Bay Commercial Trawl | 31.5 | 15.4 | 9.1 | 174 | 260 |
| Mud Crab East Coast | 79.8 | 47.0 | 19.6 | 393 | 570 |
| Mud Crab Gulf of Carpentaria | 14.8 | 8.5 | 3.2 | 57 | 119 |
| Other Harvest Fishery | 34.0 | 22.3 | 9.9 | 200 | 420 |
| Rocky Reef Fin Fish | 6.4 | 3.7 | 2.3 | 42 | 77 |
| Spanner Crab | 26.8 | 16.0 | 7.8 | 156 | 226 |
| East Coast Spanish Mackerel | 11.0 | 7.5 | 3.6 | 70 | 115 |
| **Queensland** | **823.1** | **453.3** | **234.3** | **4,229** | **5,933** |

Source: BDO EconSearch analysis

Appendix Table 1-8 Financial performance in Queensland commercial fisheries, 2017/18, average per business (a)

| | Blue Swimmer Crab | Coral Harvest and Marine Aquarium Fishery | Coral Reef Fin Fish | East Coast Inshore Fin Fish | East Coast Trawl | Gulf of Carpentaria Inshore Fishery | Moreton Bay Commercial Other | Moreton Bay Commercial Trawl |
|---|---|---|---|---|---|---|---|---|
| Days Fished | 64 | 41 | 43 | 44 | 115 | 98 | 73 | 53 |
| Catch (t) | 3,025 | 420 | 5,715 | 6,375 | 21,709 | 25,785 | 7,143 | 7,840 |
| Catch (no.) | 0 | 12,192 | 0 | 0 | 0 | 0 | 2,546 | 0 |
| Employment (fte) | 0.3 | 1.3 | 1.2 | 0.2 | 2.4 | 1.9 | 0.6 | 0.9 |
| Employment (total) | 0.8 | 2.8 | 2.2 | 0.7 | 3.5 | 3.7 | 1.6 | 1.8 |
| Prop. of Revenue Earned in this Fishery | 33% | 98% | 59% | 35% | 91% | 90% | 61% | 68% |
| Active Businesses (no.) | 102 | 37 | 254 | 506 | 321 | 79 | 194 | 89 |
| Sample Size (n) | 22 | 13 | 37 | 82 | 40 | 14 | 36 | 12 |
| Gross Income | $36,211 | $322,989 | $131,660 | $40,792 | $342,197 | $285,542 | $63,110 | $86,775 |
| Total Variable Costs | $20,050 | $165,832 | $81,544 | $16,673 | $200,925 | $135,762 | $35,038 | $62,377 |
| Total Fixed Costs | $8,345 | $59,399 | $43,956 | $8,885 | $120,133 | $56,446 | $16,748 | $40,386 |
| Total Boat Cash Costs | $28,395 | $225,231 | $125,500 | $25,558 | $321,058 | $192,208 | $51,786 | $102,763 |
| Boat Gross Margin | $16,161 | $157,157 | $50,117 | $24,119 | $141,273 | $149,781 | $28,073 | $24,398 |
| Total Unpaid Labour | $8,357 | $22,633 | $11,725 | $7,545 | $35,170 | $35,116 | $16,848 | $18,819 |
| Gross Operating Surplus | $16,173 | $120,391 | $17,885 | $22,779 | $56,309 | $128,450 | $28,172 | $2,831 |
| Boat Cash Income | $7,816 | $97,758 | $6,160 | $15,234 | $21,139 | $93,335 | $11,324 | -$15,988 |
| Depreciation | $3,758 | $19,333 | $9,365 | $3,479 | $34,408 | $15,529 | $7,146 | $16,278 |
| Boat Business Profit | $4,058 | $78,425 | -$3,205 | $11,756 | -$13,269 | $77,805 | $4,178 | -$32,267 |
| Profit at Full Equity | $5,196 | $86,727 | $10,417 | $13,103 | -$9,599 | $81,538 | $6,883 | -$29,594 |
| Working Capital | | | | | | | | |
| Fishing Gear & Equip | $58,369 | $359,843 | $151,454 | $49,523 | $641,072 | $365,352 | $108,219 | $244,965 |
| Licence Value | $23,518 | $517,351 | $113,550 | $43,825 | $131,592 | $322,634 | $71,096 | $38,300 |
| Total Working Capital | $81,886 | $877,194 | $265,004 | $93,347 | $772,664 | $687,986 | $179,315 | $283,265 |
| **Rate of Return on Fishing Gear & Equip** | **8.9%** | **24.1%** | **6.9%** | **26.5%** | **-1.5%** | **22.3%** | **6.4%** | **-12.1%** |
| **Rate of Return on Total Working Capital** | **6.3%** | **9.9%** | **3.9%** | **14.0%** | **-1.2%** | **11.9%** | **3.8%** | **-10.4%** |

Source: BDO EconSearch analysis

Appendix Table 1-9 Financial performance in Queensland commercial fisheries, 2017/18, average per business (b)

| | Mud Crab East Coast | Mud Crab Gulf of Carpentaria | Other Harvest Fishery | Rocky Reef Fin Fish | Spanner Crab | East Coast Spanish Mackerel | Queensland |
|---|---|---|---|---|---|---|---|
| Days Fished | 124 | 108 | 93 | 14 | 66 | 24 | 109 |
| Catch (t) | 3,180 | 4,158 | 7,199 | 462 | 22,331 | 1,757 | 14,785 |
| Catch (no.) | 0 | 0 | 27,733 | 0 | 0 | 0 | 1,871 |
| Employment (fte) | 0.7 | 0.6 | 1.8 | 0.1 | 1.9 | 0.2 | 1.6 |
| Employment (total) | 1.3 | 2.3 | 5.4 | 0.2 | 3.4 | 0.5 | 3.1 |
| Prop. of Revenue Earned in this Fishery | 66% | 47% | 95% | 13% | 86% | 28% | 100% |
| Active Businesses (no.) | 280 | 35 | 61 | 274 | 45 | 179 | 1,145 |
| Sample Size (n) | 50 | 5 | 9 | 44 | 9 | 31 | 177 |
| Gross Income | $92,798 | $134,181 | $222,773 | $5,224 | $207,669 | $21,677 | $227,996 |
| Total Variable Costs | $42,737 | $48,159 | $85,503 | $4,060 | $102,368 | $10,678 | $121,441 |
| Total Fixed Costs | $20,735 | $12,842 | $56,937 | $2,968 | $81,371 | $7,668 | $67,517 |
| Total Boat Cash Costs | $63,472 | $61,001 | $142,440 | $7,028 | $183,739 | $18,346 | $188,958 |
| Boat Gross Margin | $50,060 | $86,022 | $137,270 | $1,164 | $105,301 | $10,999 | $106,555 |
| Total Unpaid Labour | $21,662 | $16,547 | $39,272 | $2,441 | $22,561 | $7,337 | $30,207 |
| Gross Operating Surplus | $50,987 | $89,727 | $119,605 | $638 | $46,492 | $10,668 | $69,244 |
| Boat Cash Income | $29,325 | $73,180 | $80,333 | -$1,803 | $23,930 | $3,332 | $39,038 |
| Depreciation | $5,880 | $5,657 | $17,473 | $1,612 | $18,922 | $2,301 | $19,323 |
| Boat Business Profit | $23,445 | $67,523 | $62,860 | -$3,415 | $5,008 | $1,031 | $19,715 |
| Profit at Full Equity | $26,994 | $69,002 | $74,401 | -$2,963 | $56,617 | $2,410 | $28,868 |
| Working | | | | | | | |
| Fishing Gear & Equip | $88,099 | $82,205 | $274,560 | $24,573 | $287,473 | $37,176 | $338,916 |
| Licence Value | $51,127 | $40,096 | $435,408 | $4,676 | $733,471 | $31,137 | $194,259 |
| Total Working Capital | $139,226 | $122,301 | $709,968 | $29,249 | $1,020,944 | $68,312 | $533,175 |
| **Rate of Return on Fishing Gear & Equip** | **30.6%** | **83.9%** | **27.1%** | **-12.1%** | **19.7%** | **6.5%** | **8.5%** |
| **Rate of Return on Total Working Capital** | **19.4%** | **56.4%** | **10.5%** | **-10.1%** | **5.5%** | **3.5%** | **5.4%** |

Source: BDO EconSearch analysis

# APPENDIX 2 Summary Economic Indicators for all Queensland Commercial Fisheries, 2018/19

## Appendix Table 2-1 Commercial fisheries gross value of production, catch and export value, Queensland, 2018/19 ($m)

| Fishery | Catch | | GVP ($m) | Export Value ($m) |
|---|---|---|---|---|
| | tonnes (t) | number ('000) | | |
| Blue Swimmer Crab | 186 | 0 | 2.2 | 0.0 |
| Coral Harvest and Marine Aquarium Fishery | 11 | 602 | 16.8 | 13.7 |
| Coral Reef Fin Fish | 1,290 | 0 | 30.4 | 7.1 |
| East Coast Inshore Fin Fish | 2,920 | 0 | 19.1 | 0.4 |
| East Coast Trawl | 6,122 | 0 | 99.3 | 1.0 |
| Gulf of Carpentaria Inshore Fishery | 1,776 | 0 | 19.5 | 0.0 |
| Moreton Bay Commercial Other | 1,102 | 481 | 9.7 | 0.2 |
| Moreton Bay Commercial Trawl | 513 | 0 | 5.8 | 0.0 |
| Mud Crab East Coast | 772 | 0 | 22.6 | 0.2 |
| Mud Crab Gulf of Carpentaria | 141 | 0 | 4.4 | 0.0 |
| Other Harvest Fishery | 428 | 1,635 | 12.9 | 10.9 |
| Rocky Reef Fin Fish | 109 | 0 | 1.1 | 0.0 |
| Spanner Crab | 846 | 0 | 8.0 | 0.3 |
| East Coast Spanish Mackerel | 285 | 0 | 3.4 | 0.0 |
| **Queensland** | **14,885** | **2,238** | **239.6** | **33.5** |

Source: BDO EconSearch analysis

## Appendix Table 2-2 Cost of management in Queensland commercial fisheries, 2018/19

| Fishery | GVP ($m) | Management cost ($m) | Proportion of GVP (%) |
|---|---|---|---|
| Blue Swimmer Crab | 2.2 | 1.4 | 63% |
| Coral Harvest and Marine Aquarium Fishery | 16.8 | 1.1 | 7% |
| Coral Reef Fin Fish | 30.4 | 1.6 | 5% |
| East Coast Inshore Fin Fish | 19.1 | 3.5 | 18% |
| East Coast Trawl | 99.3 | 1.9 | 2% |
| Gulf of Carpentaria Inshore Fishery | 19.5 | 1.4 | 7% |
| Moreton Bay Commercial Other | 9.7 | 1.1 | 11% |
| Moreton Bay Commercial Trawl | 5.8 | 1.3 | 23% |
| Mud Crab East Coast | 22.6 | 1.9 | 8% |
| Mud Crab Gulf of Carpentaria | 4.4 | 1.1 | 25% |
| Other Harvest Fishery | 12.9 | 2.6 | 20% |
| Rocky Reef Fin Fish | 1.1 | 0.9 | 84% |
| Spanner Crab | 8.0 | 1.4 | 18% |
| East Coast Spanish Mackerel | 3.4 | 1.1 | 32% |
| **Queensland** | **239.6** | **22.3** | **9%** |

Source: BDO EconSearch analysis

## Appendix Table 2-3 Net economic return in Queensland commercial fisheries, 2018/19 ($m)

| Fishery | Labour Cost ($m) | Materials & Services ($m) | Depreciation ($m) | Opp. Cost of Capital (10%) ($m) | Management Cost ($m) | GVP ($m) | Net Economic Return ($m) |
|---|---|---|---|---|---|---|---|
| Blue Swimmer Crab | 0.8 | 1.4 | 0.3 | 0.5 | 1.4 | 2.2 | **-2.2** |
| Coral Harvest and Marine Aquarium Fishery | 2.5 | 7.4 | 0.6 | 1.2 | 1.1 | 16.8 | **4.0** |
| Coral Reef Fin Fish | 13.0 | 14.2 | 2.1 | 3.6 | 1.6 | 30.4 | **-4.2** |
| East Coast Inshore Fin Fish | 5.5 | 6.7 | 1.9 | 2.7 | 3.5 | 19.1 | **-1.3** |
| East Coast Trawl | 37.9 | 60.8 | 10.4 | 19.8 | 1.9 | 99.3 | **-31.5** |
| Gulf of Carpentaria Inshore Fishery | 4.8 | 7.1 | 0.8 | 2.3 | 1.4 | 19.5 | **3.1** |
| Moreton Bay Commercial Other | 3.5 | 4.5 | 1.2 | 1.8 | 1.1 | 9.7 | **-2.4** |
| Moreton Bay Commercial Trawl | 2.0 | 5.1 | 1.0 | 1.5 | 1.3 | 5.8 | **-5.2** |
| Mud Crab East Coast | 6.4 | 10.0 | 1.7 | 2.5 | 1.9 | 22.6 | **0.1** |
| Mud Crab Gulf of Carpentaria | 1.1 | 1.3 | 0.2 | 0.4 | 1.1 | 4.4 | **0.3** |
| Other Harvest Fishery | 4.1 | 3.8 | 1.0 | 1.6 | 2.6 | 12.9 | **-0.3** |
| Rocky Reef Fin Fish | 0.7 | 0.7 | 0.4 | 0.7 | 0.9 | 1.1 | **-2.4** |
| Spanner Crab | 2.7 | 2.0 | 0.6 | 0.9 | 1.4 | 8.0 | **0.3** |
| East Coast Spanish Mackerel | 1.5 | 1.4 | 0.4 | 0.7 | 1.1 | 3.4 | **-1.6** |
| **Queensland** | **81.1** | **116.8** | **20.7** | **36.9** | **22.3** | **239.6** | **-38.2** |

Source: BDO EconSearch analysis

## Appendix Table 2-4 Economic contributions of Queensland commercial fisheries to Queensland, 2018/19

| Sector | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| **Direct effects** | | | | | |
| Fishing | 239.6 | 166.4 | 81.1 | 1,801 | 3,336 |
| Processing | 103.4 | 24.3 | 10.5 | 270 | 254 |
| CAPEX | 12.1 | 5.4 | 4.0 | 63 | 64 |
| Total Direct | 355.2 | 196.2 | 95.6 | 2,133 | 3,654 |
| **Flow-on effects** | | | | | |
| Personal & Other Serv | 37.7 | 21.5 | 19.3 | 305 | 315 |
| Retail Trade | 28.0 | 16.9 | 12.2 | 257 | 300 |
| Admin Support Serv | 14.6 | 9.5 | 9.2 | 152 | 154 |
| Prof Scientific Tech Serv | 25.7 | 14.1 | 13.6 | 146 | 136 |
| Health & Community Serv | 13.6 | 9.4 | 8.9 | 117 | 131 |
| Food & Beverage Services | 11.7 | 6.2 | 4.7 | 115 | 150 |
| Education & Training | 11.5 | 7.9 | 7.1 | 105 | 110 |
| Wholesale Trade | 19.1 | 10.7 | 8.3 | 103 | 90 |
| Insurance & Other Fin Serv | 23.3 | 10.9 | 6.9 | 83 | 78 |
| Road Transport | 15.7 | 6.7 | 5.3 | 56 | 47 |
| Other Sectors | 206.5 | 103.1 | 29.5 | 415 | 388 |
| Total Flow-on | 407.3 | 216.9 | 125.2 | 1,855 | 1,898 |
| **Total** | **762.5** | **413.1** | **220.8** | **3,988** | **5,552** |
| *Total/Direct* | *2.1* | *2.1* | *2.3* | *1.9* | *1.5* |

Source: BDO EconSearch analysis

## Appendix Table 2-5 Direct economic contributions of Queensland commercial fisheries to the fishing regions, 2018/19

| | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Queensland | 239.6 | 166.4 | 81.1 | 1,801 | 3,336 |
| South East | 61.9 | 42.7 | 23.2 | 533 | 1,049 |
| Fitzroy | 40.2 | 25.5 | 13.6 | 285 | 447 |
| Wet Tropics | 32.2 | 22.1 | 10.6 | 267 | 479 |
| Cape York Peninsula | 39.0 | 28.4 | 11.0 | 213 | 416 |
| Wide Bay Burnett | 26.0 | 19.2 | 9.7 | 207 | 396 |
| Mackay, Isaac and Whitsunday | 22.1 | 15.3 | 6.9 | 151 | 295 |
| Dry Tropics | 11.4 | 7.7 | 4.2 | 91 | 143 |
| North West | 6.9 | 5.6 | 1.8 | 55 | 110 |

Source: BDO EconSearch analysis

## Appendix Table 2-6 Direct economic contributions of fishing activity in Queensland commercial fisheries by fishery, 2018/19

| Fishery | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Blue Swimmer Crab | 2.2 | 1.7 | 0.8 | 24 | 70 |
| Coral Harvest and Marine Aquarium Fishery | 16.8 | 10.5 | 2.5 | 58 | 121 |
| Coral Reef Fin Fish | 30.4 | 19.6 | 13.0 | 297 | 538 |
| East Coast Inshore Fin Fish | 19.1 | 16.6 | 5.5 | 128 | 335 |
| East Coast Trawl | 99.3 | 57.1 | 37.9 | 745 | 1,048 |
| Gulf of Carpentaria Inshore Fishery | 19.5 | 15.0 | 4.8 | 120 | 209 |
| Moreton Bay Commercial Other | 9.7 | 8.3 | 3.5 | 95 | 277 |
| Moreton Bay Commercial Trawl | 5.8 | 2.8 | 2.0 | 57 | 109 |
| Mud Crab East Coast | 22.6 | 19.5 | 6.4 | 178 | 360 |
| Mud Crab Gulf of Carpentaria | 4.4 | 3.8 | 1.1 | 25 | 103 |
| Other Harvest Fishery | 12.9 | 11.5 | 4.1 | 105 | 316 |
| Rocky Reef Fin Fish | 1.1 | 1.0 | 0.7 | 18 | 48 |
| Spanner Crab | 8.0 | 6.8 | 2.7 | 68 | 111 |
| East Coast Spanish Mackerel | 3.4 | 3.3 | 1.5 | 36 | 76 |
| **Queensland** | **239.6** | **166.4** | **81.1** | **1,801** | **3,336** |

Source: BDO EconSearch analysis

## Appendix Table 2-7 Total economic contributions of fishing activity in Queensland commercial fisheries by fishery, 2018/19

| Fishery | Output ($m) | GSP ($m) | Household Income ($m) | Employment (fte) | Employment (total) |
|---|---|---|---|---|---|
| Blue Swimmer Crab | 11.4 | 5.6 | 2.9 | 58 | 104 |
| Coral Harvest and Marine Aquarium Fishery | 35.4 | 20.4 | 8.7 | 151 | 216 |
| Coral Reef Fin Fish | 85.3 | 47.8 | 29.0 | 540 | 787 |
| East Coast Inshore Fin Fish | 65.4 | 36.9 | 16.8 | 311 | 518 |
| East Coast Trawl | 329.8 | 169.5 | 102.1 | 1,734 | 2,055 |
| Gulf of Carpentaria Inshore Fishery | 56.0 | 31.4 | 14.0 | 267 | 357 |
| Moreton Bay Commercial Other | 40.7 | 21.7 | 10.9 | 215 | 397 |
| Moreton Bay Commercial Trawl | 24.1 | 11.4 | 6.9 | 132 | 186 |
| Mud Crab East Coast | 72.3 | 41.7 | 18.6 | 374 | 557 |
| Mud Crab Gulf of Carpentaria | 14.6 | 8.1 | 3.4 | 63 | 141 |
| Other Harvest Fishery | 32.9 | 21.4 | 9.9 | 194 | 407 |
| Rocky Reef Fin Fish | 5.3 | 3.0 | 1.9 | 36 | 66 |
| Spanner Crab | 21.9 | 13.2 | 6.2 | 123 | 167 |
| East Coast Spanish Mackerel | 10.4 | 6.7 | 3.4 | 66 | 107 |
| **Queensland** | **762.5** | **413.1** | **220.8** | **3,988** | **5,552** |

Source: BDO EconSearch analysis

Appendix Table 2-8 Financial performance in Queensland commercial fisheries, 2018/19, average per business (a)

| | Blue Swimmer Crab | Coral Harvest and Marine Aquarium Fishery | Coral Reef Fin Fish | East Coast Inshore Fin Fish | East Coast Trawl | Gulf of Carpentaria Inshore Fishery | Moreton Bay Commercial Other | Moreton Bay Commercial Trawl |
|---|---|---|---|---|---|---|---|---|
| Days Fished | 61 | 53 | 43 | 44 | 115 | 85 | 70 | 49 |
| Catch (t) | 2,089 | 320 | 5,351 | 6,135 | 20,614 | 27,318 | 6,444 | 7,121 |
| Catch (no.) | 0 | 17,718 | 0 | 0 | 0 | 0 | 2,815 | 0 |
| Employment (fte) | 0.3 | 1.7 | 1.2 | 0.3 | 2.5 | 1.8 | 0.6 | 0.8 |
| Employment (total) | 0.8 | 3.6 | 2.2 | 0.7 | 3.5 | 3.2 | 1.6 | 1.5 |
| Prop. of Revenue Earned in this Fishery | 35% | 99% | 56% | 39% | 92% | 82% | 61% | 66% |
| Active Businesses (no.) | 89 | 34 | 241 | 476 | 297 | 65 | 171 | 72 |
| Sample Size (n) | 21 | 15 | 45 | 90 | 42 | 13 | 32 | 13 |
| Gross Income | $25,093 | $494,383 | $125,979 | $40,074 | $334,320 | $299,912 | $56,452 | $80,419 |
| Total Variable Costs | $17,290 | $236,551 | $83,244 | $17,738 | $209,980 | $130,503 | $33,396 | $59,776 |
| Total Fixed Costs | $9,422 | $67,281 | $44,381 | $10,460 | $129,541 | $59,965 | $17,030 | $42,911 |
| Total Boat Cash Costs | $26,713 | $303,833 | $127,625 | $28,198 | $339,521 | $190,469 | $50,426 | $102,688 |
| Boat Gross Margin | $7,802 | $257,832 | $42,735 | $22,336 | $124,339 | $169,409 | $23,056 | $20,643 |
| Total Unpaid Labour | $8,131 | $22,074 | $11,238 | $8,241 | $35,521 | $29,126 | $16,422 | $17,386 |
| Gross Operating Surplus | $6,511 | $212,624 | $9,592 | $20,117 | $30,319 | $138,569 | $22,448 | -$4,882 |
| Boat Cash Income | -$1,620 | $190,550 | -$1,646 | $11,875 | -$5,201 | $109,443 | $6,026 | -$22,269 |
| Depreciation | $3,750 | $18,601 | $8,894 | $4,025 | $35,091 | $12,870 | $6,958 | $13,364 |
| Boat Business Profit | -$5,370 | $171,949 | -$10,540 | $7,850 | -$40,292 | $96,573 | -$931 | -$35,633 |
| Profit at Full Equity | -$4,001 | $184,062 | $2,398 | $9,396 | -$36,491 | $100,400 | $1,449 | -$32,686 |
| Working Capital | | | | | | | | |
| Fishing Gear & Equip | $59,420 | $363,776 | $147,934 | $56,774 | $667,499 | $348,726 | $103,576 | $214,992 |
| Licence Value | $27,623 | $610,294 | $251,515 | $48,839 | $158,370 | $377,594 | $75,162 | $37,157 |
| Total Working Capital | $87,043 | $974,070 | $399,450 | $105,612 | $825,868 | $726,320 | $178,738 | $252,149 |
| **Rate of Return on Fishing Gear & Equip** | **-6.7%** | **50.6%** | **1.6%** | **16.5%** | **-5.5%** | **28.8%** | **1.4%** | **-15.2%** |
| **Rate of Return on Total Working Capital** | **-4.6%** | **18.9%** | **0.6%** | **8.9%** | **-4.4%** | **13.8%** | **0.8%** | **-13.0%** |

Source: BDO EconSearch analysis

Appendix Table 2-9 Financial performance in Queensland commercial fisheries, 2018/19, average per business (b)

| | Mud Crab East Coast | Mud Crab Gulf of Carpentaria | Other Harvest Fishery | Rocky Reef Fin Fish | Spanner Crab | East Coast Spanish Mackerel | Queensland |
|---|---|---|---|---|---|---|---|
| Days Fished | 112 | 111 | 97 | 13 | 65 | 23 | 104 |
| Catch (t) | 2,727 | 4,136 | 7,651 | 421 | 23,492 | 1,664 | 13,581 |
| Catch (no.) | 0 | 0 | 29,200 | 0 | 0 | 0 | 2,042 |
| Employment (fte) | 0.6 | 0.7 | 1.9 | 0.1 | 1.9 | 0.2 | 1.6 |
| Employment (total) | 1.3 | 3.0 | 5.6 | 0.2 | 3.1 | 0.4 | 3.0 |
| Prop. of Revenue Earned in this Fishery | 69% | 63% | 98% | 13% | 84% | 28% | 100% |
| Active Businesses (no.) | 283 | 34 | 56 | 258 | 36 | 171 | 1,096 |
| Sample Size (n) | 58 | 7 | 8 | 48 | 8 | 31 | 196 |
| Gross Income | $79,811 | $128,133 | $230,356 | $4,314 | $220,937 | $20,143 | $218,631 |
| Total Variable Costs | $40,584 | $55,328 | $94,520 | $3,413 | $101,623 | $10,155 | $122,143 |
| Total Fixed Costs | $21,941 | $19,397 | $59,214 | $2,899 | $66,558 | $8,618 | $69,320 |
| Total Boat Cash Costs | $62,525 | $74,725 | $153,734 | $6,313 | $168,181 | $18,773 | $191,463 |
| Boat Gross Margin | $39,227 | $72,805 | $135,836 | $900 | $119,314 | $9,988 | $96,488 |
| Total Unpaid Labour | $20,601 | $17,674 | $40,875 | $2,142 | $19,901 | $6,626 | $28,896 |
| Gross Operating Surplus | $37,887 | $71,082 | $117,498 | $143 | $72,657 | $7,996 | $56,064 |
| Boat Cash Income | $17,286 | $53,408 | $76,622 | -$1,999 | $52,756 | $1,370 | $27,168 |
| Depreciation | $5,914 | $6,550 | $18,681 | $1,656 | $16,070 | $2,508 | $18,851 |
| Boat Business Profit | $11,372 | $46,858 | $57,942 | -$3,655 | $36,686 | -$1,138 | $8,316 |
| Profit at Full Equity | $15,072 | $49,252 | $67,288 | -$3,249 | $72,027 | $293 | $16,563 |
| Working Capital | | | | | | | |
| Fishing Gear & Equip | $88,760 | $103,288 | $293,936 | $25,478 | $254,108 | $40,633 | $336,686 |
| Licence Value | $44,841 | $42,119 | $724,287 | $6,181 | $1,282,023 | $40,315 | $262,750 |
| Total Working Capital | $133,601 | $145,407 | $1,018,223 | $31,659 | $1,536,131 | $80,948 | $599,436 |
| **Rate of Return on Fishing Gear & Equip** | **17.0%** | **47.7%** | **22.9%** | **-12.8%** | **28.3%** | **0.7%** | **4.9%** |
| **Rate of Return on Total Working Capital** | **11.3%** | **33.9%** | **6.6%** | **-10.3%** | **4.7%** | **0.4%** | **2.8%** |

Source: BDO EconSearch analysis

# APPENDIX 3 Summary of Survey Sample for all Fisheries, 2017/18 and 2018/19

## Appendix Table 3-1 Survey representativeness of active businesses in 2017/18, by fishery

| Fishery | Active businesses (no.) | | Proportion of active businesses in sample |
|---|---|---|---|
| | Population | Sample | |
| Blue Swimmer Crab | 102 | 22 | 22% |
| Coral Harvest and Marine Aquarium Fishery | 37 | 13 | 35% |
| Coral Reef Fin Fish | 254 | 37 | 15% |
| East Coast Inshore Fin Fish | 506 | 82 | 16% |
| East Coast Trawl | 321 | 40 | 12% |
| Gulf of Carpentaria Inshore Fishery | 79 | 14 | 18% |
| Moreton Bay Commercial Other | 194 | 36 | 19% |
| Moreton Bay Commercial Trawl | 89 | 12 | 13% |
| Mud Crab East Coast | 280 | 50 | 18% |
| Mud Crab Gulf of Carpentaria | 35 | 5 | 14% |
| Other Harvest Fishery | 61 | 9 | 15% |
| Rocky Reef Fin Fish | 274 | 44 | 16% |
| Spanner Crab | 45 | 9 | 20% |
| East Coast Spanish Mackerel | 179 | 31 | 17% |
| **Queensland** | **1,145** | **177** | **15%** |

Source: 2019 survey

## Appendix Table 3-2 Survey representativeness of active businesses in 2017/18, by fishing region

| Region | Active businesses (no.) | | Proportion of active businesses in sample |
|---|---|---|---|
| | Population | Sample | |
| Cape York Peninsula | 165 | 25 | 15% |
| Dry Tropics | 149 | 24 | 16% |
| Fitzroy | 285 | 54 | 19% |
| Mackay, Isaac and Whitsunday | 228 | 46 | 20% |
| North West | 62 | 14 | 23% |
| South East | 424 | 62 | 15% |
| Wet Tropics | 260 | 33 | 13% |
| Wide Bay Burnett | 339 | 59 | 17% |
| **Queensland** | **1,145** | **177** | **15%** |

Source: 2019 survey

## Appendix Table 3-3 Survey representativeness of active businesses in 2018/19, by fishery

| Fishery | Active businesses (no.) | | Proportion of active businesses in sample |
|---|---|---|---|
| | Population | Sample | |
| Blue Swimmer Crab | 89 | 21 | 24% |
| Coral Harvest and Marine Aquarium Fishery | 34 | 15 | 44% |
| Coral Reef Fin Fish | 241 | 45 | 19% |
| East Coast Inshore Fin Fish | 476 | 90 | 19% |
| East Coast Trawl | 297 | 42 | 14% |
| Gulf of Carpentaria Inshore Fishery | 65 | 13 | 20% |
| Moreton Bay Commercial Other | 171 | 32 | 19% |
| Moreton Bay Commercial Trawl | 72 | 13 | 18% |
| Mud Crab East Coast | 283 | 58 | 20% |
| Mud Crab Gulf of Carpentaria | 34 | 7 | 21% |
| Other Harvest Fishery | 56 | 8 | 14% |
| Rocky Reef Fin Fish | 258 | 48 | 19% |
| Spanner Crab | 36 | 8 | 22% |
| East Coast Spanish Mackerel | 171 | 31 | 18% |
| **Queensland** | **1,096** | **196** | **18%** |

Source: 2019 survey

## Appendix Table 3-4 Survey representativeness of active businesses in 2018/19, by fishing region

| Region | Active businesses (no.) | | Proportion of active businesses in sample |
|---|---|---|---|
| | Population | Sample | |
| Cape York Peninsula | 153 | 29 | 19% |
| Dry Tropics | 154 | 30 | 19% |
| Fitzroy | 287 | 55 | 19% |
| Mackay, Isaac and Whitsunday | 235 | 54 | 23% |
| North West | 52 | 15 | 29% |
| South East | 386 | 66 | 17% |
| Wet Tropics | 254 | 31 | 12% |
| Wide Bay Burnett | 325 | 59 | 18% |
| **Queensland** | **1,096** | **196** | **18%** |

Source: 2019 survey