SUMMARY ECONOMIC AND SOCIAL INDICATORS FOR QUEENSLAND'S COMMERCIAL FISHERIES, 2017/18 AND 2018/19

A report to Fisheries Queensland

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Prepared by

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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

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

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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.

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

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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

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EXECUTIVE SUMMARY

The principal aim of this study is to present a set of economic performance indicators for each of Queensland's commercial fisheries 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. Reports have been produced for each of 14 commercial fisheries; this report summarises the indicators across all fisheries and presents the statewide aggregates. A summary of key economic indicators is presented in Table ES-1.

Table ES-1   Summary of key economic indicators for Queensland's commercial fisheries, 2017/18 and 2018/19

Indicator	2017/18	2018/19
Catch	16,929t	14,885t
Catch ('000s)	2,143 ('000s)	2,238 ('000s)
Gross value of production (beach price)	$261.1m	$239.6m
Export value	$31.4m	$33.5m
Active businesses	1,145 businesses	1,096 businesses
Management cost/gross value of production	8.1%	9.3%
Return on total capital	5.4%	2.8%
Active endorsement value per active business	$194,259	$262,750
Gross state product (direct + flow-on)	$453.3m	$413.1m
Employment (direct + flow-on)	4,229 fte jobs	3,988 fte jobs
Net Economic Return	-$24.4m	-$38.2m
Net Economic Return/gross value of production	-9.3%	-15.9%

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. A total of 196 responses were received that were used for economic indicators. This represents 18 per cent of active businesses in 2018/19 and between 12 per cent and 29 per cent in each region with active businesses and 14 per cent and 44 per cent of each fishery. A total of 251

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 Queensland's commercial fisheries decreased from 16,929t in 2017/18 to 14,885t in 2018/19, a decline of 12 per cent. Consequently, Queensland commercial fisheries' GVP declined between 2017/18 ($261.1m) and 2018/19 ($239.6m).

The value of international exports by commercial fishing businesses accounted for approximately 12 per cent ($31.4m) of GVP in 2017/18 and 14 per cent ($33.5m) in 2018/19. It is important to note that market destinations for catch were sourced from survey data and may not include the final destination of the catch.

Management Costs

Estimated total Fisheries Queensland management costs for Queensland's commercial fisheries were $21.3m in 2017/18 and $22.3m in 2018/19. This represented 8 per cent of GVP in 2017/18 and 9 per cent in 2018/19.

Business Financial Indicators

In 2018/19, the average business's activity in Queensland's commercial fisheries generated a positive gross operating surplus (almost $56,000), boat business profit ($8,300) and profit at full equity ($17,000), leading to a return on investment of 2.8 per cent including endorsement value (5.4 per cent in 2017/18). This means 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 2017/18, return on investment including endorsement value varied across fishing regions from 18.0 per cent in Cape York Peninsula to -0.6 percent in South East. Return on investment was positive in all regions other than South East in 2017/18.

In 2018/19, return on investment including endorsement value decreased in every region and ranged from 11.6 per cent in Cape Yorke Peninsula to -2.7 per cent in South East. Return on investment was positive in all regions other than South East and Dry Tropics in 2018/19.

The average financial position in most regions is similar to the state on the whole. On average, businesses have a positive gross operating surplus and most regions also have positive profit at full equity as gross income is sufficient to cover cash costs, the imputed cost of labour and depreciation. The regions with negative return on investment have positive gross operating surplus, meaning the average business earns sufficient cash income to cover its cash costs, but not to cover the imputed cost of unpaid labour and depreciation.

Economic Contribution

In 2018/19, Queensland's contributed an estimated $413.1m in gross state product (GSP) and 3,988 full-time equivalent jobs to the Queensland economy. This contribution included $166.4m in GSP (1,801 fte jobs) from fishing activity, $5.4m in GSP (63 fte jobs) from capital expenditure by fishing businesses, $24.3m in GSP (270 fte jobs) from associated processing and $216.9m (1,855 fte jobs) from flow-on effects in other sectors of the Queensland economy (primarily personal and other services, retail trade and professional, scientific and technical services).

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 7 to 15 per cent was used for opportunity cost of capital.

Net economic return was estimated to be in the range of -$12.7m to -$43.8m in 2017/18 and -$27.1m to -$56.6m in 2018/19. There is a wide range of levels of return across the fisheries ranging (in 2017/18) from $3.4m in the Mud Crab East Coast to -24.4m in the East Coast Trawl Fishery.

Social Indicators

Social indicators and demographic information were collected for Queensland's commercial fisheries.

Respondents to the business survey were mostly over 50 years of age, business owners and living in Queensland. The median time involved in commercial fishing was 30 years and median time as a licence owner 20 years. Most have a highest level of education of year 11 or below. On average, respondents earn approximately 80 per cent of their personal income from commercial fishing with the other main industries of employment being construction, agriculture and forestry, mining, transport, public administration and safety, retail and manufacturing.

Almost all respondents indicated that commercial fishing is financially risky and most feel insecure in their job and unable to cope with changing regulations. Around half of respondents feel they understand fishery management arrangements but most feel strongly 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 satisfied with the lifestyle of being a commercial fisher and would not quickly change jobs. They also indicated that they are generally satisfied with life as a whole. Fishers indicated that they have a range of ties to their community but just under half feel that their community treats them fairly and respects their occupation. Most fishers identified that fishing is stressful and physically difficult and around half identified a negative mental health impact from fishing. Just over half of fishers are dissatisfied with the predictability of their income. 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 and social 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 industry.

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1. INTRODUCTION

The principal aim of this report is to present a set of economic indicators for Queensland's commercial fisheries 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. Background

Queensland's commercial fisheries target a diverse range of species with a diverse range of methods and business structures. Fisheries can be defined in various ways but are usually based on a combination of target species, fishing method and fishing region.

For the purpose of developing economic and social indicators for fisheries regulated by Fisheries Queensland, commercial fishing activity has been aggregated into the 14 commercial fisheries identified in the 'Fishery name' column of Table 1-1. The Charter Fishery was also included in the development of economic and social indicators but is considered separate to the commercial fisheries for the purpose at hand so does not appear further in this summary report. A separate report was produced for each of the 14 fisheries and are identified in Table 1-1. The individual reports present more detailed economic and social information for the 2017/18 and 2018/19 financial years than is provided in this summary report.

Table 1-1   Fisheries included in the development of economic and social indicators

Sector	Fishery name	Report reference	Components of fishery
Commercial Fisheries	Blue Swimmer Crab	BDO EconSearch 2020a	Blue Swimmer Crab
	Coral Harvest and Marine Aquarium Fishery	BDO EconSearch 2020b	Coral Harvest
			Marine Aquarium Fish
	Coral Reef Fin Fish	BDO EconSearch 2020c	Coral Reef Fin Fish
			Deepwater Fin Fish Fishery
	East Coast Inshore Fin Fish	BDO EconSearch 2020d	East Coast Inshore Fin Fish
	East Coast Spanish Mackerel	BDO EconSearch 2020e	East Coast Spanish Mackerel
	East Coast Trawl	BDO EconSearch 2020f	East Coast Otter Trawl
			River & Inshore Beam Trawl
	Gulf of Carpentaria Inshore Fishery	BDO EconSearch 2020g	Gulf of Carpentaria Inshore
			Gulf of Carpentaria Line
	Moreton Bay Commercial Other	BDO EconSearch 2020h	Moreton Bay Commercial Other
	Moreton Bay Commercial Trawl	BDO EconSearch 2020i	Moreton Bay Commercial Trawl
	Mud Crab East Coast	BDO EconSearch 2020j	Mud Crab East Coast
	Mud Crab Gulf of Carpentaria	BDO EconSearch 2020k	Mud Crab Gulf of Carpentaria
	Other Harvest Fishery	BDO EconSearch 2020l	Beachworm
			Bloodworm
			Crayfish and Rocklobster
			Eel (adult)
			Eel (juvenile)
			Pearl
			Sea Cucumber
			Trochus (east coast)
			Yabby
	Rocky Reef Fin Fish	BDO EconSearch 2020m	Rocky Reef Fin Fish
	Spanner Crab	BDO EconSearch 2020n	Spanner Crab
Charter Fishery	Charter Fishery	BDO EconSearch 2020o	Charter Fishery

Two fisheries specific to Moreton Bay[3] are included which require further explanation. The Moreton Bay Commercial Trawl Fishery includes all otter trawl activity in Moreton Bay (i.e. M1 and M2 symbols) and the Moreton Bay Commercial Other includes all commercial fishing activity in the Moreton Bay Marine Park, excluding otter trawl (charter fishing is also excluded). This means that activity in these two fisheries is the sum of proportions of activity in other commercial fisheries active in this area. For this reason, the sum of activity (i.e. catch or effort) across all commercial fisheries identified in Table 1-1 is greater than the Statewide totals, for which the double-counting has been removed.

Two key distributions relevant to the structures of businesses in the commercial fisheries are specialisation/diversification (see Section 1) and total effort (i.e. scale of business operations). Figure 1-1 presents, for each commercial fishery, the distribution of revenue share earned in each fishery by active businesses in that fishery. The more businesses that appear on the right-hand side of the distribution, the more specialised businesses in that fishery are. The charts are ordered with the most specialised fisheries (by median revenue share) towards the top and the least specialised towards the bottom.

The most specialised fisheries are:

- Coral Harvest and Marine Aquarium Fishery
- East Coast Trawl Fishery
- Gulf of Carpentaria Inshore Fishery.

The least specialised fisheries are:

- Rocky Reef Fin Fish Fishery
- East Coast Spanish Mackerel Fishery
- Blue Swimmer Crab Fishery.

Figure 1-2 presents, for each commercial fishery, the distribution of total days fished in each fishery by active businesses in that fishery. The Statewide fishery is also included in this chart to show the average distribution. The more spread the distribution, the more diverse the active businesses in that fishery are in terms of days fished. The charts are ordered (by median total days fished) with the most active fisheries towards the top and the least active towards the bottom.

The most active fisheries are:

- East Coast Trawl
- Mud Crab Gulf of Carpentaria
- Mud Crab East Coast.

The least active fisheries are:

- Moreton Bay Commercial Other Fishery
- East Coast Spanish Mackerel Fishery
- Rocky Reef Fin Fish Fishery.

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[3]   The spatial definition used is described in the relevant fishery reports (BDO EconSearch 2020h, BDO EconSearch 2020i).

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Figure 1-1   Revenue share distribution of businesses[a] in each commercial fishery (sorted by median)
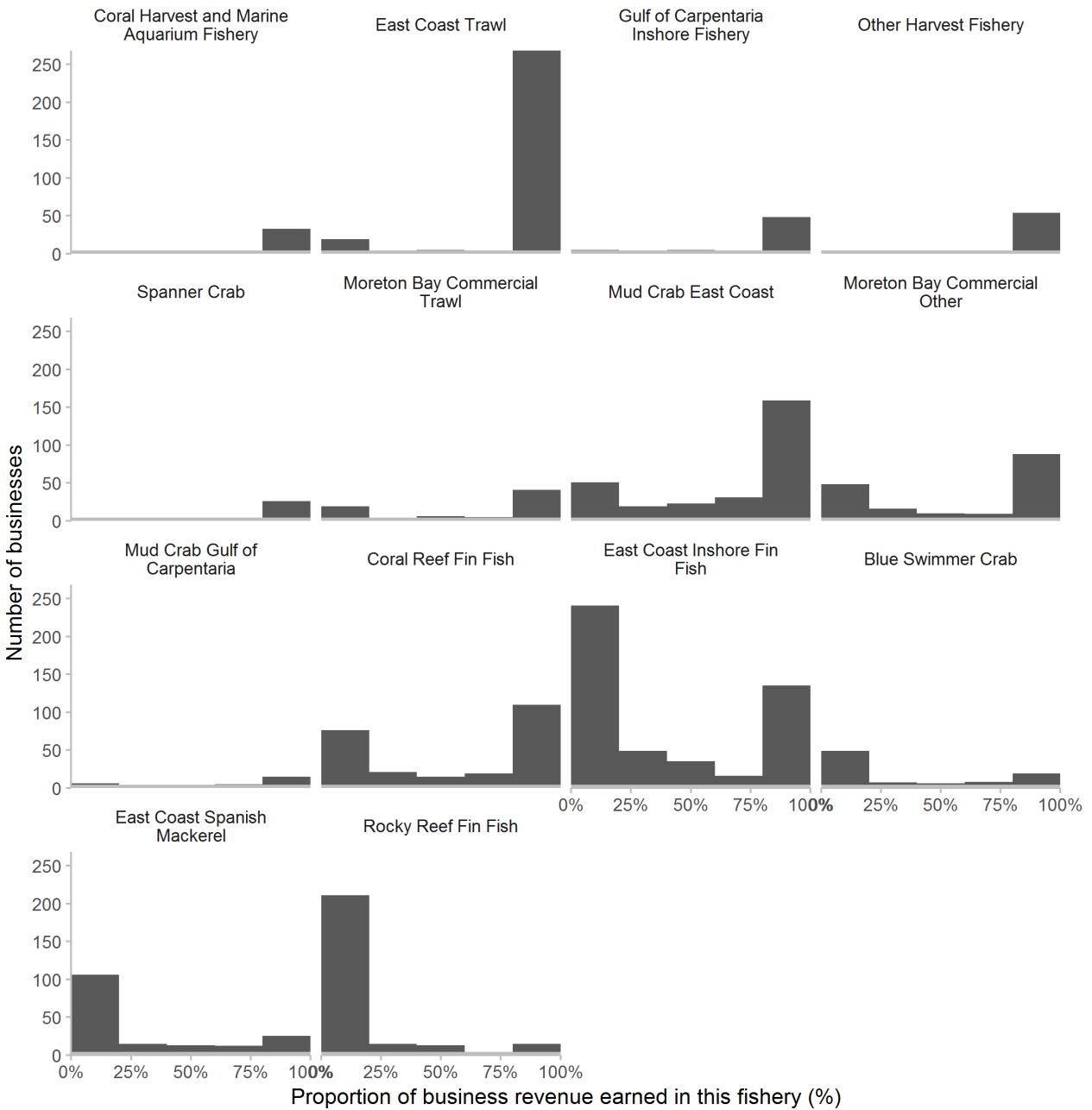
a   Each visible bar in the above graphs represents at least 5 businesses for confidentiality reasons. The light grey band along the horizontal axis covers the area between 0 and 4 businesses to ensure confidentiality. The limits of the horizontal axis are set to show visible columns which means there may be businesses with greater days fished than the maximum axis values.

Source: 2019 Survey and Fisheries Queensland

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Figure 1-2   Days fished distribution for each commercial fishery (sorted by median)
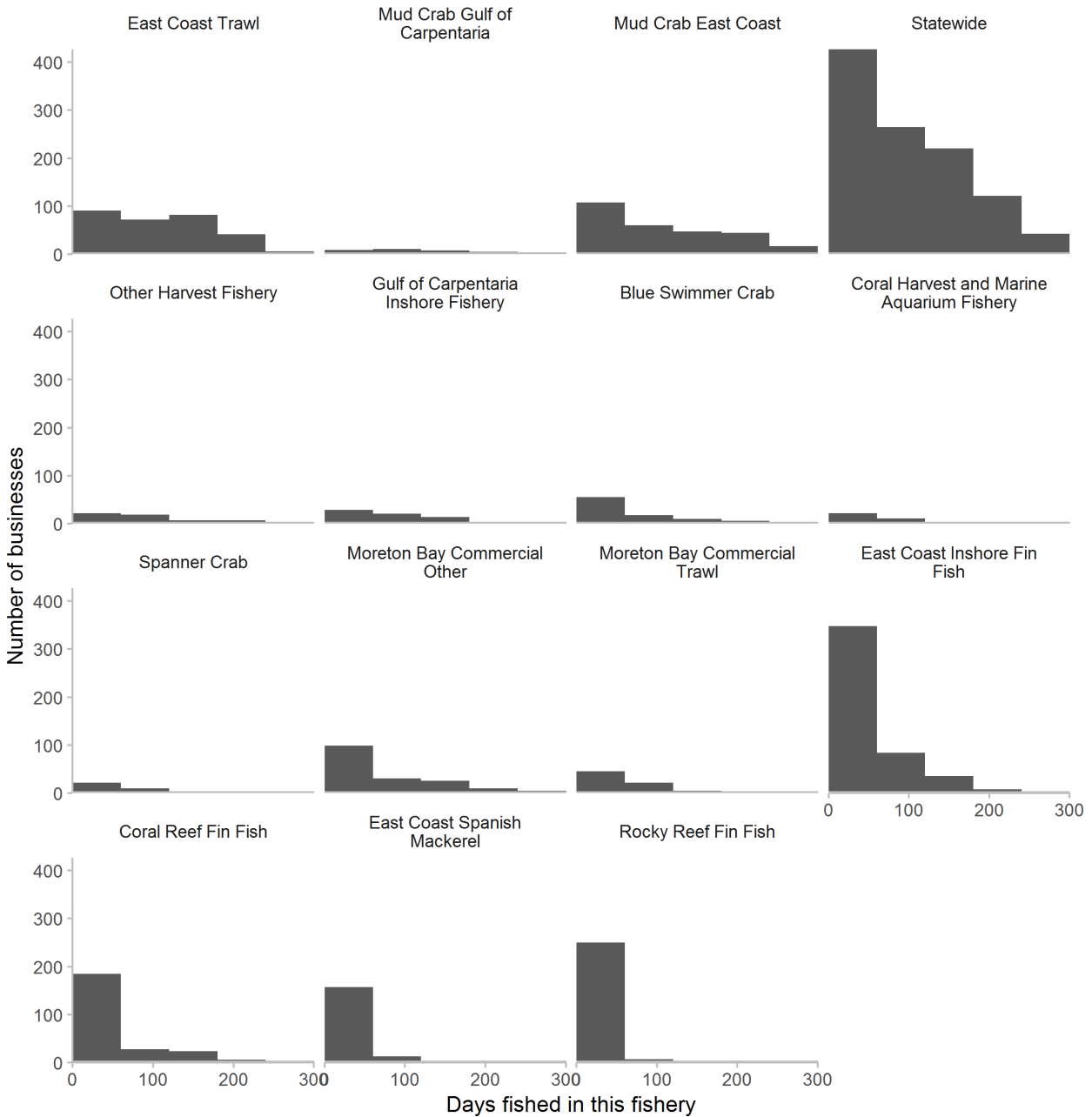
a   Each visible bar in the above graphs represents at least 5 businesses for confidentiality reasons. The light grey band along the horizontal axis covers the area between 0 and 4 businesses to ensure confidentiality. The limits of the horizontal axis are set to show visible columns which means there may be businesses with greater days fished than the maximum axis values.

Source: Fisheries Queensland

1.2. Report Structure

Provided in Section 2 of this report are 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:

- gross value of production (at beach price)
- the cost of management
- business financial indicators (income, costs, profit and return on investment)
- net economic return
- economic contribution of the fishing 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.

Source: Business Queensland (2019)

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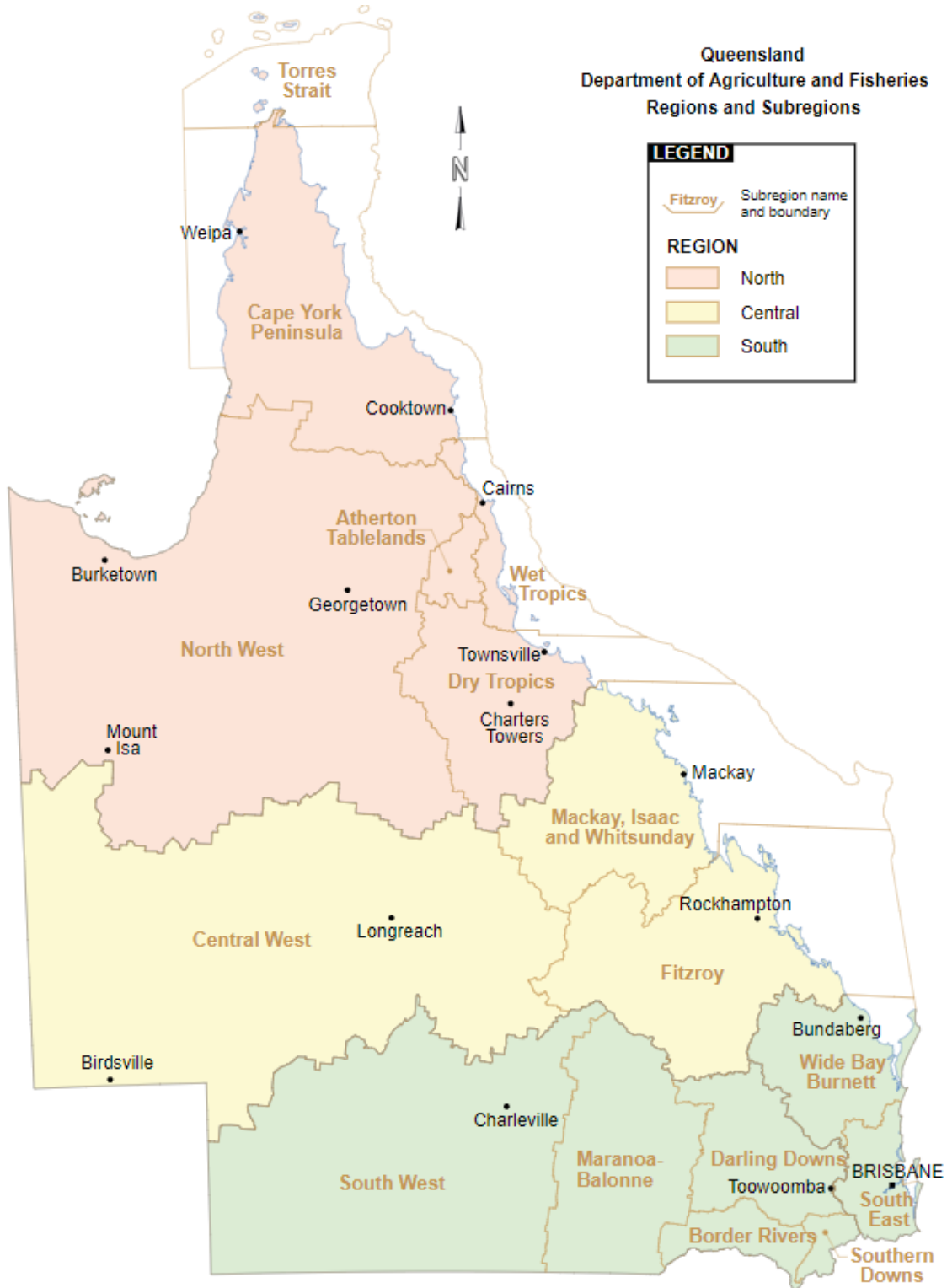
2. METHOD OF ANALYSIS

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 1-3) 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 were 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, and 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 include only 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.

The 2018/19 sample size from the survey is summarised in the tables below by region (Table 2-1) and by fishery (Table 2-2). Representativeness of active businesses in 2017/18 is summarised in Appendix 1. Across all fisheries, a total of 268 usable[4] 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.

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[4] 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.

Focusing on the responses used to calculate economic indicators, the sample represented between 12 per cent (Wet Tropics) and 29 per cent (North West) of active businesses in each region and between 14 per cent (Other Harvest Fishery) and 44 per cent (Coral Harvest and Marine Aquarium Fishery) of active businesses in each fishery.

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 3.3 provide sample and population sizes to show how well the sample represents the population across various dimensions.

Table 2-1   Survery sample in Queensland's commercial fisheries, by region, 2018/19

Fishing 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 [a]	**1,096**	**196**	**18%**

[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

Table 2-2   Survery sample in Queensland's commercial fisheries, by fishery, 2018/19

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	231	44	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: 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 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 2-3). 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 2-3   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

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Prepared by BDO EconSearch

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3. ECONOMIC INDICATORS FOR QUEENSLAND'S COMMERCIAL FISHERIES

3.1. Catch, Gross Value of Production and Exports

The total catch, shown in Table 3-1 and Table 3-2, in Queensland's commercial fisheries decreased from 16,929t in 2017/18 to 14,885t in 2018/19, a decline of 12 per cent. Consequently, Queensland commercial fisheries' GVP declined between 2017/18 ($261.1m) and 2018/19 ($239.6m). The value of international exports by commercial fishing businesses accounted for approximately 12 per cent ($31.4m) of GVP in 2017/18 and 14 per cent ($33.5m) in 2018/19.

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 Queensland commercial fisheries' gross value of production, catch and export value, 2017/18

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: Fisheries Queensland and 2019 survey

Table 3-2 Queensland commercial fisheries' gross value of production, catch and export value, 2018/19

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: Fisheries Queensland and 2019 survey

Summary Economic and Social Indicators for Queensland's Commercial Fisheries, 2017/18 and 2018/19
Prepared by BDO EconSearch

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3.2. 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 3-3 and Table 3-4, for Queensland's commercial fisheries were $21.3m in 2017/18 and $22.3m in 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 8 per cent in 2017/18 increasing to 9 per cent in 2018/19 as a result of the increase in management costs and a decline in GVP (Table 3-3 and Table 3-4).

Table 3-3   Costs of management in Queensland's 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: Fisheries Queensland and 2019 survey

Table 3-4   Cost of management in Queensland's 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: Fisheries Queensland and 2019 survey

Summary Economic and Social Indicators for Queensland's Commercial Fisheries, 2017/18 and 2018/19
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3.3. Business Financial Indicators

The major measures of the financial performance of active businesses in Queensland's commercial fisheries for the period 2017/18 and 2018/19 are presented in Section 3.3.1. 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 individual fishery reports (BDO EconSearch 2020a-n) 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. Section 3.3.2 presents the same indicators for all commercial fishing activity combined, disaggregated by fishing region.

3.3.1. Average in 2017/18 and 2018/19

Business financial indicators are presented in Table 3-5 and Table 3-6 for average business in 2017/18 and in Table 3-7 and Table 3-8 for 2018/19. This section summarises the financial performance of all commercial fishing activity combined. Interpretation of the financial performance of individual fisheries is provided in the respective fishery reports (BDO EconSearch 2020a-n).

Income

The average gross income for business activity in Queensland's commercial fisheries was estimated to be $228,000 in 2017/18 and $219,000 in 2018/19 (a 4 per cent decrease).

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 (64 per cent) of total boat cash costs than did fixed costs (36 per cent). Average total boat cash costs increased by 1 per cent between 2017/18 and 2018/19, a result of a less than 1 per cent increase in variable costs and a 3 per cent increase in fixed costs.

In 2018/19, for the state as a whole, around 39 per cent of the total boat cash costs were attributable to labour costs (both paid and imputed), the biggest cost item. Imputed unpaid labour ($29,000) was divided into variable (fishing and repairs and maintenance) ($20,000) and fixed (management and administration) ($9,400) components based on survey data. Other significant cash costs were fuel (22 per cent of total cash costs) and repairs and maintenance (14 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 $1,100 in variable costs in 2017/18 and $1,200 in 2018/19, an increase of 5 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 $107,000 in 2017/18 and $96,000 in 2018/19, a 9 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 almost $69,000 in 2017/18 and $56,000 in 2018/19, a

decrease of approximately 19 per cent. This was due to a decrease in revenue and an increase in fixed and variable costs.

Boat cash income is calculated as gross income less total boat cash costs (including imputed wages). Boat cash income was almost $39,000 in 2017/18 and $27,000 in 2018/19. Positive boat cash income indicates that the average fishing business earned enough cash income to cover its cash costs and 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 understanding the financial performance of businesses that access the fishery by leasing endorsements, rather than owning them. Boat business profit was $20,000 in 2017/18 and $8,300 in 2018/19, meaning that sufficient cash income was earned by the average business to cover all cash costs, 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 $29,000 in 2017/18 and $17,000 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 8.5 per cent in 2017/18 or 5.4 per cent if endorsement value is included in the value of capital. This decreased to 4.9 per cent in 2018/19 or 2.8 per cent including endorsement value.

Entitlement and Lease Values

The average total value of fishing endorsements (i.e. symbols, tenders, quota and effort units) used for fishing by active businesses was $194,000 in 2017/18 and $263,000 in 2018/19. While the unit value was assumed to be the same in each year, the average number of units owned changed between years, so the total values are different. On average, active businesses spent $7,700 on leasing in 2017/18 and $6,700 in 2018/19.

Summary

In 2018/19, the average business's activity in Queensland's commercial fisheries generated a positive gross operating surplus (almost $56,000), boat business profit ($8,300) and profit at full equity ($17,000), leading to a return on investment of 2.8 per cent including endorsement value (5.4 per cent in 2017/18). This means 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.

Table 3-5 Financial performance in Queensland's 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 (kg)	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: 2019 survey

Table 3-6   Financial performance in Queensland's 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 (kg)	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 Capital							
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: 2019 survey

Summary Economic and Social Indicators for Queensland's Commercial Fisheries, 2017/18 and 2018/19
Prepared by BDO EconSearch

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Table 3-7   Financial performance in Queensland's 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 (kg)	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								
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: 2019 survey

Table 3-8　　　　Financial performance in Queensland's 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 (kg)	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							
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: 2019 survey

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3.3.2. Regional total in 2017/18 and 2018/19

The tables in this section present financial indicators for the population of active businesses disaggregated by activity in each region.

Business financial indicators are presented in Table 3-9 (2017/18) and Table 3-10 (2018/19) 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 millions of dollars) in the table. Presenting results this way means that return on investment shows the return to fishing activity in each region.

In 2017/18, return on investment including endorsement value varied across fishing regions from 18.0 per cent in Cape York Peninsula to -0.6 percent in South East. Return on investment was positive in all regions other than South East in 2017/18 (Table 3-9).

In 2018/19, return on investment including endorsement value decreased in every region and ranged from 11.6 per cent in Cape Yorke Peninsula to -2.7 per cent in South East. Return on investment was positive in all regions other than South East and Dry Tropics in 2018/19 (Table 3-10).

The average financial position in most regions is similar to the state on the whole. On average, businesses have a positive gross operating surplus and most regions also have positive profit at full equity as gross income is sufficient to cover cash costs, the imputed cost of labour and depreciation. The regions with negative return on investment have positive gross operating surplus, meaning the average business earns sufficient cash income to cover its cash costs, but not to cover the imputed cost of unpaid labour and depreciation.

Table 3-9   Total financial performance in Queensland's commercial fisheries, by fishing region, 2017/18

	Whole Fishery								
	North West	Cape York Peninsula	Wet Tropics	Dry Tropics	Mackay, Isaac and Whitsunday	Fitzroy	Wide Bay Burnett	South East	Queensland
Days Fished	5,040	12,634	13,826	7,329	11,708	22,458	18,753	32,950	124,700
Catch (t)	577	3,092	1,573	877	1,392	2,181	2,576	4,660	16,929
Catch ('000)	0	15	224	4	89	162	584	1,064	2,143
Employment (fte)	72	267	256	100	177	306	249	458	1,885
Employment (total)	148	519	469	161	336	504	478	945	3,560
Active Businesses (no.)	62	165	260	149	228	285	339	424	1,145
Sample Size (n)	14	25	33	24	46	54	59	62	177
Gross Income ($m)	8.1	50.3	30.9	14.1	25.9	44.2	32.6	54.9	261.1
Total Variable Costs ($m)	3.9	22.7	17.0	7.5	13.3	24.0	18.1	32.5	139.0
Total Fixed Costs ($m)	1.7	11.2	10.0	4.4	7.3	13.6	10.8	18.3	77.3
Total Boat Cash Costs ($m)	5.7	33.9	27.0	11.9	20.7	37.6	28.9	50.8	216.4
Boat Gross Margin ($m)	4.1	27.6	13.8	6.7	12.6	20.2	14.5	22.4	122.0
Total Unpaid Labour ($m)	1.6	3.4	4.7	1.9	2.9	5.3	5.1	9.8	34.6
Gross Operating Surplus ($m)	4.0	19.8	8.5	4.2	8.2	11.9	8.8	13.9	79.3
Boat Cash Income ($m)	2.4	16.4	3.8	2.3	5.3	6.6	3.7	4.1	44.7
Depreciation ($m)	0.6	2.2	3.0	1.1	2.1	2.9	3.4	6.8	22.1
Boat Business Profit ($m)	1.8	14.2	0.8	1.1	3.2	3.7	0.3	-2.7	22.6
Profit at Full Equity ($m)	2.0	16.2	2.2	1.6	4.4	5.2	2.5	-0.9	33.1
Working Capital									
Fishing Gear & Equip ($m)	11.6	47.1	49.7	20.4	34.0	60.7	56.7	107.8	388.1
Licence Value ($m)	4.5	42.8	26.8	8.8	22.2	34.9	38.3	38.7	222.4
Total Working Capital ($m)	16.2	89.9	76.5	29.2	56.1	95.6	95.0	146.6	610.5
Rate of Return on Fishing Gear & Equip	**17.0%**	**34.3%**	**4.3%**	**7.6%**	**13.1%**	**8.6%**	**4.4%**	**-0.9%**	**8.5%**
Rate of Return on Total Boat Capital	**12.2%**	**18.0%**	**2.8%**	**5.3%**	**7.9%**	**5.5%**	**2.6%**	**-0.6%**	**5.4%**

Source: 2019 survey

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Table 3-10   Total financial performance in Queensland's commercial fisheries, by fishing region, 2018/19

	Whole Fishery								
	North West	Cape York Peninsula	Wet Tropics	Dry Tropics	Mackay, Isaac and Whitsunday	Fitzroy	Wide Bay Burnett	South East	Queensland
Days Fished	4,054	11,337	13,358	7,263	12,239	20,498	16,112	29,393	114,256
Catch (t)	517	2,773	1,310	815	1,392	1,970	2,105	4,000	14,885
Catch ('000)	0	18	316	3	101	192	567	1,040	2,238
Employment (fte)	57	253	249	102	185	307	232	416	1,801
Employment (total)	116	498	448	160	363	483	446	822	3,336
Active Businesses (no.)	52	153	254	154	235	287	325	386	1,096
Sample Size (n)	15	29	31	30	54	55	59	66	196
Gross Income ($m)	7.1	45.5	29.5	12.5	26.5	42.4	28.7	47.4	239.6
Total Variable Costs ($m)	3.3	21.3	16.7	7.4	14.4	24.3	16.6	29.8	133.9
Total Fixed Costs ($m)	1.7	10.9	9.9	4.7	7.8	14.5	9.6	16.9	76.0
Total Boat Cash Costs ($m)	5.0	32.3	26.6	12.1	22.2	38.8	26.1	46.7	209.8
Boat Gross Margin ($m)	3.8	24.2	12.8	5.1	12.1	18.1	12.1	17.6	105.8
Total Unpaid Labour ($m)	1.2	2.9	4.6	1.9	2.8	5.0	4.6	8.6	31.7
Gross Operating Surplus ($m)	3.3	16.2	7.5	2.4	7.1	8.6	7.1	9.3	61.4
Boat Cash Income ($m)	2.1	13.2	2.9	0.5	4.3	3.6	2.5	0.7	29.8
Depreciation ($m)	0.5	1.9	3.1	1.2	2.0	2.9	3.3	5.8	20.7
Boat Business Profit ($m)	1.6	11.3	-0.2	-0.7	2.3	0.7	-0.7	-5.2	9.1
Profit at Full Equity ($m)	1.8	13.0	0.9	-0.3	3.8	2.0	0.6	-3.8	18.2
Working Capital									
Fishing Gear & Equip ($m)	10.8	43.0	50.5	21.3	33.2	62.6	53.9	93.8	369.0
Licence Value ($m)	4.8	69.3	37.3	11.3	42.5	40.7	52.4	48.6	288.0
Total Working Capital ($m)	15.6	112.3	87.8	32.6	75.7	103.4	106.3	142.3	657.0
Rate of Return on Fishing Gear & Equip	16.7%	30.3%	1.8%	-1.2%	11.4%	3.2%	1.2%	-4.0%	4.9%
Rate of Return on Total Boat Capital	11.5%	11.6%	1.0%	-0.8%	5.0%	2.0%	0.6%	-2.7%	2.8%

Source: 2019 survey

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3.4. State and Regional Economic Contribution

Estimates of the economic contribution of Queensland's commercial fisheries 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).

3.4.1. 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, filleting, cooking, smoking, freezing, and packaging for retail or export.

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.

3.4.2. Economic contribution to Queensland

Estimates of the economic contribution to Queensland generated in 2017/18 and 2018/19 by Queensland's commercial fisheries 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 Queensland's commercial fisheries was $261.1m in 2017/18 and $239.6m in 2018/19 while output generated by associated downstream activities (processing and capital expenditure) summed to $134.9m in 2017/18 and $115.6m in 2018/19.

Flow-on effects to other sectors of the state economy added another $427.2m in 2017/18 and $407.3m in 2018/19. The sectors most affected were personal and other services, retail trade and professional,

scientific and technical services. The total output contribution to Queensland (direct plus flow-on) was estimated to be $823.1m in 2017/18 and $762.5m in 2018/19.

Employment

Queensland's commercial fisheries were responsible for the direct employment of an estimated 1,885 full-time equivalent (fte) jobs in 2017/18 and 1,801 fte jobs in 2018/19 while downstream activities supported employment of around additional 386 fte jobs in 2017/18 and 333 fte jobs in 2018/19. Flow-on business activity was estimated to support a further 1,959 fte jobs in 2017/18 and 1,855 fte jobs in 2018/19 state-wide. These jobs were concentrated in the personal and other services, retail trade and administration support services sectors. The total employment contribution to Queensland was estimated to be 4,229 fte jobs in 2017/18 and 3,988 fte jobs in 2018/19.

Household Income

Personal income of $86.8m was earned in 2017/18 in Queensland's commercial fisheries (wages of employees and estimated drawings by owner/operators) and $81.1m was earned in 2018/19. A further $16.7m of income was earned in 2017/18 and $14.5m in 2018/19 in downstream activities. An additional $130.9m in 2017/18 and $125.2m 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 $234.3m in 2017/18 and $220.8m 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 Queensland's commercial fisheries related contribution to GSP in Queensland was $453.3m in 2017/18 and $413.1m in 2018/19, with $191.3m in 2017/18 and $166.4m in 2018/19 generated by fishing directly, $34.5m in 2017/18 and $29.8m in 2018/19 generated by downstream activities and $227.4m in 2017/18 and $216.9m in 2018/19 supported in other sectors of the state economy.

Table 3-11   Economic contribution of Queensland's 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

Table 3-12   Economic contribution of Queensland's 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

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3.4.3. 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. Direct economic contribution to Queensland attributable to each fishery is presented in Table 3-15 (2017/18) and Table 3-16 (2018/19).

On the following pages (Table 3-17 to Table 3-24), estimates of the economic contribution of Queensland's commercial fisheries to each fishing region 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 3.4.2).

Table 3-13   Direct economic contribution of fishing activity in Queensland's commercial fisheries to 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

Table 3-14   Direct economic contribution of fishing activity in Queensland's commercial fisheries to 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

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Table 3-15 Direct economic contributions of fishing activity in Queensland's 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

Table 3-16 Direct economic contributions of fishing activity in Queensland's 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

Table 3-17   Economic contribution of Queensland's commercial fisheries to North West, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	6.9	5.6	1.8	55	110
Processing	4.6	1.1	0.4	10	9
CAPEX	0.2	0.1	0.1	1	1
Total Direct	11.6	6.7	2.3	66	121
Flow-on effects					
Personal & Other Serv	0.6	0.4	0.3	5	5
Retail Trade	0.3	0.2	0.1	3	4
Admin Support Serv	0.2	0.1	0.1	2	2
Food & Beverage Services	0.1	0.1	0.0	1	1
Wholesale Trade	0.2	0.1	0.1	1	1
Road Transport	0.2	0.1	0.1	1	1
Beef Cattle	0.2	0.1	0.0	1	0
Health & Community Serv	0.1	0.0	0.0	1	1
Education & Training	0.1	0.0	0.0	1	1
Prof Scientific Tech Serv	0.1	0.1	0.1	1	1
Other Sectors	1.9	1.1	0.2	-2	-2
Total Flow-on	3.9	2.3	1.1	13	14
Total	**15.6**	**9.0**	**3.3**	**79**	**134**
Total/Direct	*1.3*	*1.3*	*1.5*	*1.2*	*1.1*

Source: BDO EconSearch Analysis

Table 3-18   Economic contribution of Queensland's commercial fisheries to Cape York Peninsula, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	38.9	28.3	11.0	212	415
Processing	14.2	3.3	1.4	37	35
CAPEX	0.5	0.2	0.2	3	3
Total Direct	53.5	31.9	12.7	252	454
Flow-on effects					
Personal & Other Serv	3.9	3.5	3.0	42	41
Retail Trade	1.7	1.0	0.7	15	18
Health & Community Serv	0.9	0.6	0.5	7	8
Education & Training	0.5	0.3	0.3	5	5
Admin Support Serv	0.6	0.4	0.3	5	5
Prof Scientific Tech Serv	0.9	0.5	0.4	4	4
Fishing, Hunting & Trapping	0.3	0.2	0.1	3	3
Food & Beverage Services	0.3	0.1	0.1	3	4
Wholesale Trade	0.5	0.3	0.2	2	2
Public Admin & Regltry Serv	0.3	0.2	0.1	2	2
Other Sectors	8.8	5.0	0.9	13	12
Total Flow-on	18.6	12.0	6.7	101	103
Total	**72.1**	**44.0**	**19.3**	**353**	**557**
Total/Direct	*1.3*	*1.4*	*1.5*	*1.4*	*1.2*

Source: BDO EconSearch Analysis

Table 3-19   Economic contribution of Queensland's commercial fisheries to Wet Tropics, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	32.2	22.1	10.6	267	479
Processing	3.6	0.9	0.3	8	7
CAPEX	1.2	0.6	0.4	8	8
Total Direct	37.0	23.5	11.4	282	494
Flow-on effects					
Personal & Other Serv	4.5	2.7	2.4	38	39
Retail Trade	3.0	1.8	1.3	28	32
Admin Support Serv	1.4	0.9	0.9	16	15
Food & Beverage Services	1.2	0.6	0.5	12	15
Health & Community Serv	1.4	0.9	0.9	12	13
Prof Scientific Tech Serv	1.8	1.0	1.0	11	11
Wholesale Trade	1.6	0.9	0.7	8	7
Education & Training	0.8	0.5	0.5	8	8
Road Transport	1.3	0.6	0.4	5	4
Construction Services	1.0	0.3	0.3	4	3
Other Sectors	15.2	8.3	2.2	32	31
Total Flow-on	33.2	18.6	11.1	172	179
Total	**70.2**	**42.1**	**22.4**	**455**	**673**
Total/Direct	*1.9*	*1.8*	*2.0*	*1.6*	*1.4*

Source: BDO EconSearch Analysis

Table 3-20   Economic contribution of Queensland's commercial fisheries to Dry Tropics, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	11.4	7.7	4.2	91	143
Processing	2.0	0.5	0.2	4	4
CAPEX	0.6	0.3	0.2	3	3
Total Direct	14.0	8.4	4.6	99	150
Flow-on effects					
Personal & Other Serv	1.9	1.1	1.0	15	15
Retail Trade	1.1	0.6	0.5	10	11
Health & Community Serv	0.5	0.4	0.3	4	5
Food & Beverage Services	0.5	0.2	0.2	4	6
Prof Scientific Tech Serv	0.7	0.4	0.4	4	3
Education & Training	0.4	0.3	0.2	3	3
Admin Support Serv	0.2	0.2	0.2	2	3
Wholesale Trade	0.5	0.3	0.2	2	2
Public Order & Safety	0.2	0.1	0.1	2	2
Road Transport	0.5	0.2	0.2	2	1
Other Sectors	6.0	3.2	0.8	12	11
Total Flow-on	12.4	6.9	3.9	60	62
Total	**26.4**	**15.3**	**8.5**	**159**	**213**
Total/Direct	*1.9*	*1.8*	*1.9*	*1.6*	*1.4*

Source: BDO EconSearch Analysis

Table 3-21   Economic contribution of Queensland's commercial fisheries to Mackay, Isaac and Whitsunday, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	22.1	15.3	6.9	151	295
Processing	2.8	0.6	0.3	7	7
CAPEX	0.9	0.4	0.3	5	5
Total Direct	25.8	16.4	7.5	163	307
Flow-on effects					
Personal & Other Serv	2.5	1.3	1.1	17	16
Retail Trade	1.6	1.0	0.7	15	17
Admin Support Serv	0.8	0.5	0.5	8	8
Food & Beverage Services	0.6	0.3	0.2	5	7
Prof Scientific Tech Serv	1.0	0.5	0.5	5	5
Wholesale Trade	1.1	0.6	0.4	5	5
Road Transport	0.8	0.3	0.2	3	2
Health & Community Serv	0.2	0.2	0.1	2	2
Construction Services	0.5	0.2	0.2	2	2
Education & Training	0.2	0.1	0.1	2	2
Other Sectors	8.6	4.5	1.1	17	15
Total Flow-on	17.8	9.5	5.2	80	81
Total	**43.6**	**25.9**	**12.7**	**243**	**388**
Total/Direct	*1.7*	*1.6*	*1.7*	*1.5*	*1.3*

Source: BDO EconSearch Analysis

Table 3-22   Economic contribution of Queensland's commercial fisheries to Fitzroy, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	40.2	25.5	13.6	285	447
Processing	9.7	2.3	1.0	25	24
CAPEX	1.5	0.7	0.5	8	8
Total Direct	51.4	28.4	15.0	318	478
Flow-on effects					
Personal & Other Serv	7.4	4.0	3.5	53	54
Retail Trade	3.6	2.2	1.5	32	37
Food & Beverage Services	1.3	0.7	0.5	12	16
Admin Support Serv	1.2	0.7	0.7	12	12
Prof Scientific Tech Serv	2.0	1.1	1.0	11	10
Wholesale Trade	1.8	1.0	0.7	9	8
Health & Community Serv	0.9	0.6	0.6	8	9
Education & Training	0.8	0.6	0.5	8	8
Road Transport	1.7	0.7	0.6	6	5
Fishing, Hunting & Trapping	0.4	0.2	0.2	6	5
Other Sectors	24.2	11.9	2.7	38	34
Total Flow-on	45.2	23.7	12.6	194	197
Total	**96.6**	**52.1**	**27.6**	**512**	**676**
Total/Direct	*1.9*	*1.8*	*1.8*	*1.6*	*1.4*

Source: BDO EconSearch Analysis

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Table 3-23 Economic contribution of Queensland's commercial fisheries to Wide Bay Burnett, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	26.1	19.3	9.7	208	397
Processing	8.6	2.0	0.7	19	18
CAPEX	1.6	0.7	0.5	9	9
Total Direct	36.3	22.0	11.0	235	424
Flow-on effects					
Personal & Other Serv	3.5	1.9	1.8	29	30
Retail Trade	2.5	1.5	1.1	24	27
Health & Community Serv	1.2	0.9	0.8	10	12
Food & Beverage Services	0.9	0.5	0.4	9	12
Prof Scientific Tech Serv	1.4	0.7	0.7	8	8
Admin Support Serv	0.6	0.4	0.4	7	7
Education & Training	0.6	0.4	0.4	6	6
Wholesale Trade	1.1	0.6	0.5	6	5
Road Transport	1.3	0.6	0.5	5	4
Beef Cattle	0.7	0.3	0.1	3	2
Other Sectors	13.9	7.4	2.0	29	26
Total Flow-on	27.8	15.2	8.6	136	140
Total	**64.1**	**37.2**	**19.6**	**371**	**563**
Total/Direct	*1.8*	*1.7*	*1.8*	*1.6*	*1.3*

Source: BDO EconSearch Analysis

Table 3-24 Economic contribution of Queensland's commercial fisheries to South East, 2018/19

Sector	Output ($m)	GSP ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct effects					
Fishing	61.9	42.7	23.2	533	1,049
Processing	58.0	13.6	6.2	158	149
CAPEX	4.4	2.0	1.4	23	23
Total Direct	124.3	58.3	30.8	713	1,221
Flow-on effects					
Personal & Other Serv	10.5	6.0	5.4	86	90
Retail Trade	8.8	5.3	3.9	81	94
Prof Scientific Tech Serv	9.2	5.0	4.9	52	49
Admin Support Serv	5.0	3.3	3.2	52	53
Wholesale Trade	6.9	3.9	3.1	38	33
Health & Community Serv	3.8	2.6	2.5	33	37
Education & Training	3.5	2.4	2.2	32	33
Food & Beverage Services	3.2	1.7	1.3	31	41
Insurance & Other Fin Serv	8.5	3.9	2.4	30	28
Road Transport	5.3	2.3	1.8	19	16
Other Sectors	58.1	29.5	8.7	116	110
Total Flow-on	122.8	66.0	39.2	570	584
Total	**247.1**	**124.3**	**70.1**	**1,283**	**1,805**
Total/Direct	*2.0*	*2.1*	*2.3*	*1.8*	*1.5*

Source: BDO EconSearch Analysis

3.5. Net Economic Return

Net economic return[5] 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 3-25) with sensitivity analysis at 7 and 15 per cent (Table 3-26). 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 Queensland's commercial fisheries was estimated to be -$24.4m in 2017/18 and -$38.2m in 2018/19 (Table 3-25). The sensitivity analysis shows that, with the varying assumptions about opportunity cost of capital, net economic return was likely in the range of -$12.7m to -$43.8m in 2017/18 and -$27.1m to -$56.6m in 2018/19 (Table 3-26).

Table 3-25   Net Economic Return in Queensland's commercial fisheries, 2017/18 and 2018/19, using a 10% p.a. opportunity cost of capital.

	2017/18	2018/19	Change
GVP ($m)	261.1	239.6	-8%
Less Labour Cost ($m)	86.8	81.1	-7%
Less Materials & Services ($m)	116.5	116.8	0%
Less Depreciation ($m)	22.1	20.7	-7%
Less Opportunity Cost of Capital (10%) ($m)	38.8	36.9	-5%
Less Management Cost ($m)	21.3	22.3	5%
Net Economic Return ($m)	**-24.4**	**-38.2**	**-57%**

Source: BDO EconSearch analysis

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5   Also commonly referred to as economic rent.

Table 3-26   Sensitivity analysis of opportunity cost of capital on Net Economic Return in Queensland's commercial fisheries, 2017/18 and 2018/19

	2017/18			2018/19		
Opportunity Cost of Capital (%)	7%	10%	15%	7%	10%	15%
Less Opportunity Cost of Capital ($m)	27.2	38.8	58.2	25.8	36.9	55.4
Net Economic Return ($m)	-12.7	-24.4	-43.8	-27.1	-38.2	-56.6

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 fisheries 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 fisheries. 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 away from the broadly standard values used for commercial fishing.

Net economic return generated in each of Queensland's commercial fisheries is presented in Table 3-27 (2017/18) and Table 3-28 (2018/19). There is a wide range of levels of return across the fisheries ranging (in 2017/18) from $3.4m in the Mud Crab East Coast to -24.4m in the East Coast Trawl Fishery.

Table 3-27   Net economic return in Queensland's 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

Table 3-28   Net economic return in Queensland's 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

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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. The median time involved in commercial fishing was 30 years and median time as a licence owner 20 years. Most have a highest level of education of year 11 or below. On average, respondents earn approximately 80 per cent of their personal income from commercial fishing with the other main industries of employment being construction, agriculture and forestry, mining, transport, public administration and safety, retail and manufacturing.

Almost all respondents indicated that commercial fishing is financially risky and most feel insecure in their job and unable to cope with changing regulations. Around half of respondents feel they understand fishery management arrangements but most feel strongly 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 satisfied with the lifestyle of being a commercial fisher and would not quickly change jobs. They also indicated that they are generally satisfied with life as a whole. Fishers indicated that they have a range of ties to their community but just under half feel that their community treats them fairly and respects their occupation. Most fishers identified that fishing is stressful and physically difficult and around half identified a negative mental health impact from fishing. Just over half of fishers are dissatisfied with the predictability of their income. 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.

4.1. Demographic Indicators

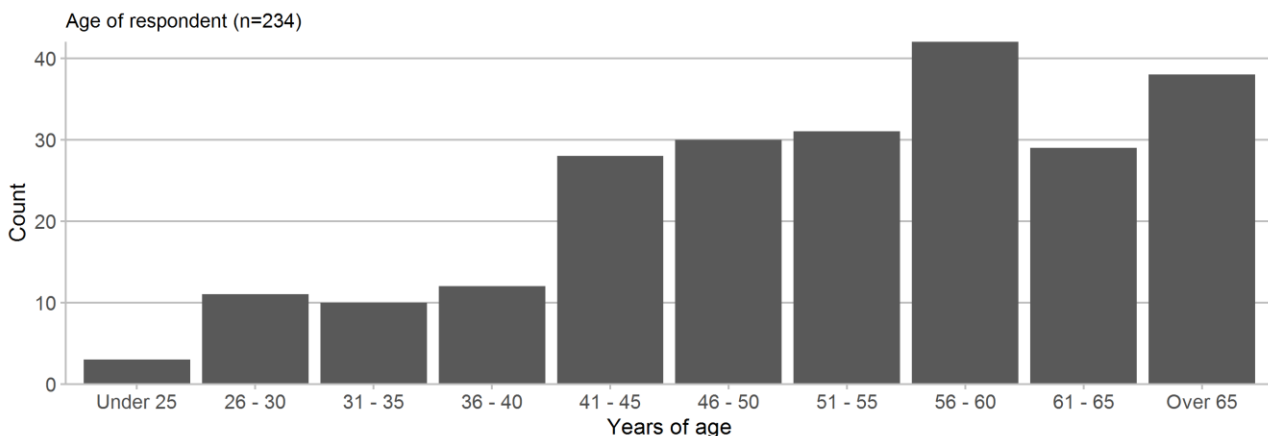Figure 4-1   Age

Age of respondent (n=234)

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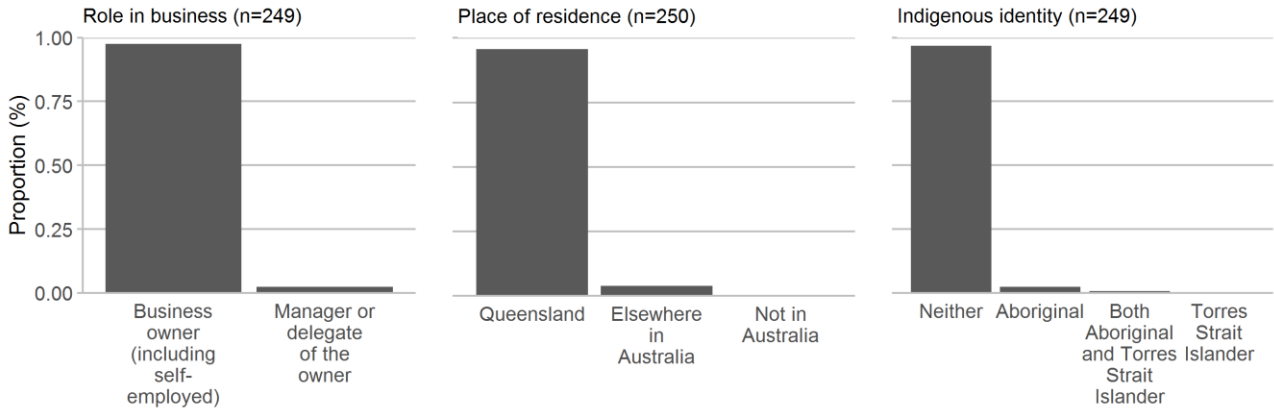

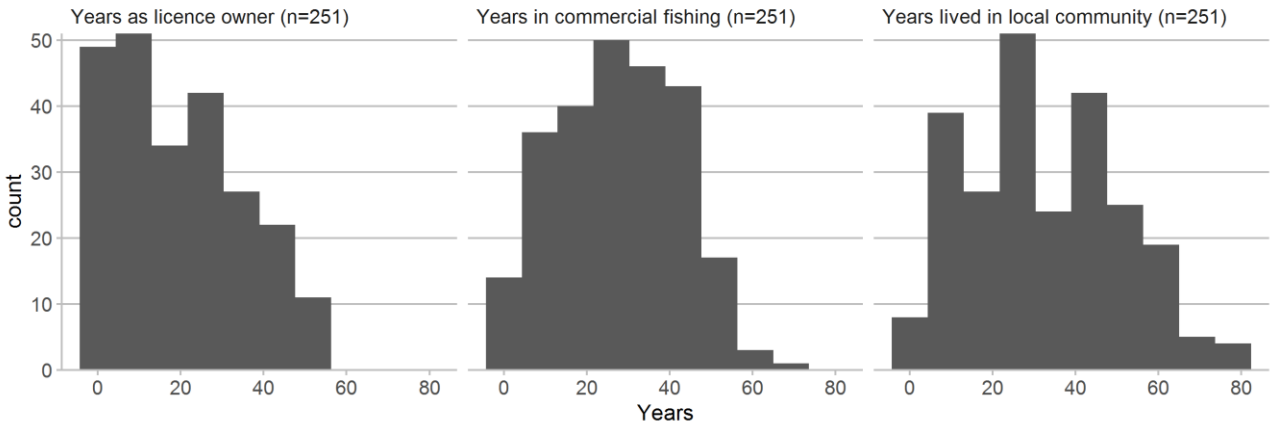Figure 4-3   Years as licence owner, in commercial fishing and lived in local community

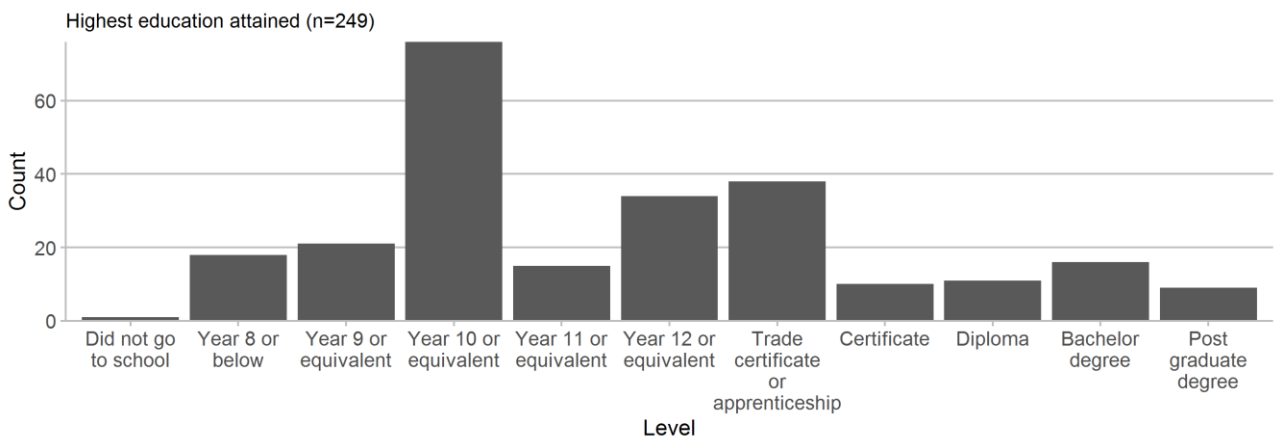Figure 4-4   Highest education attained

Figure 4-5　　Primary income from commercial fishing

Was commercial fishing your primary source of income during 2018/19? (n=248)
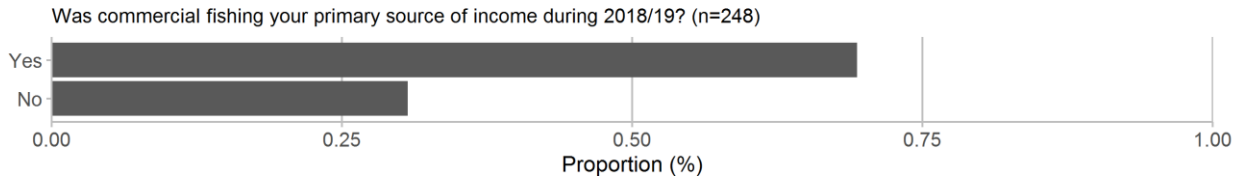
Figure 4-6　　Other industry of employment (other than fishing)

Other industry of employment for respondent (n=251; 'none' not shown)
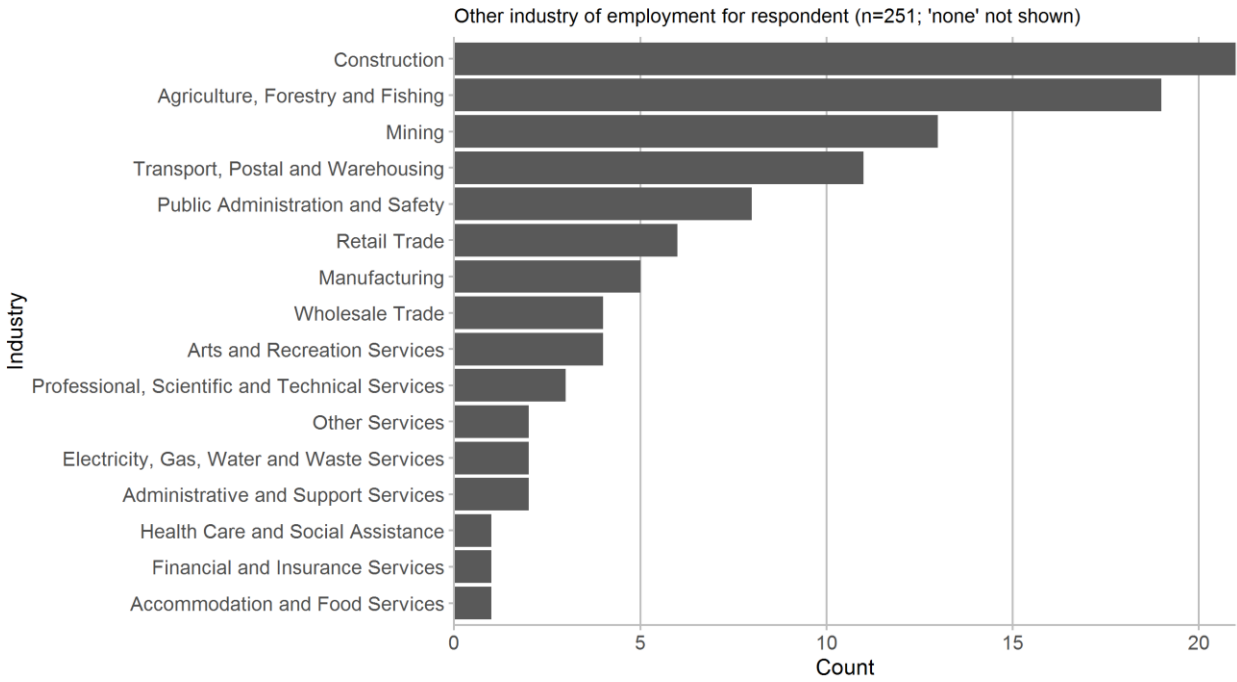
Figure 4-7　　Split of workload

What proportion of a full-time workload did you spend on the following in 2018/19? (n=251)

Figure 4-8   Community involvement

Time per month spent on community related activities in 2018/19 (n=251)

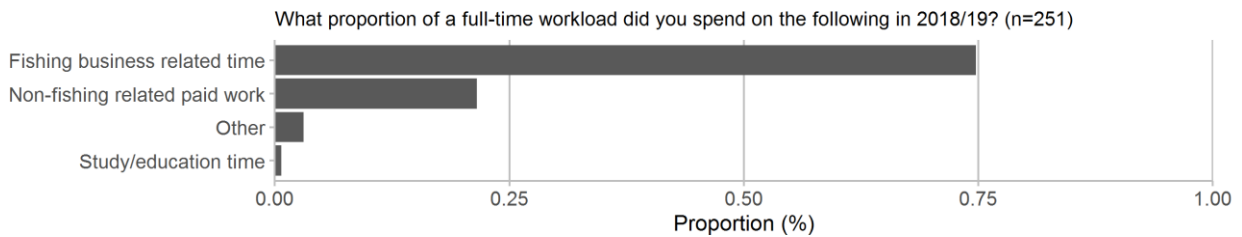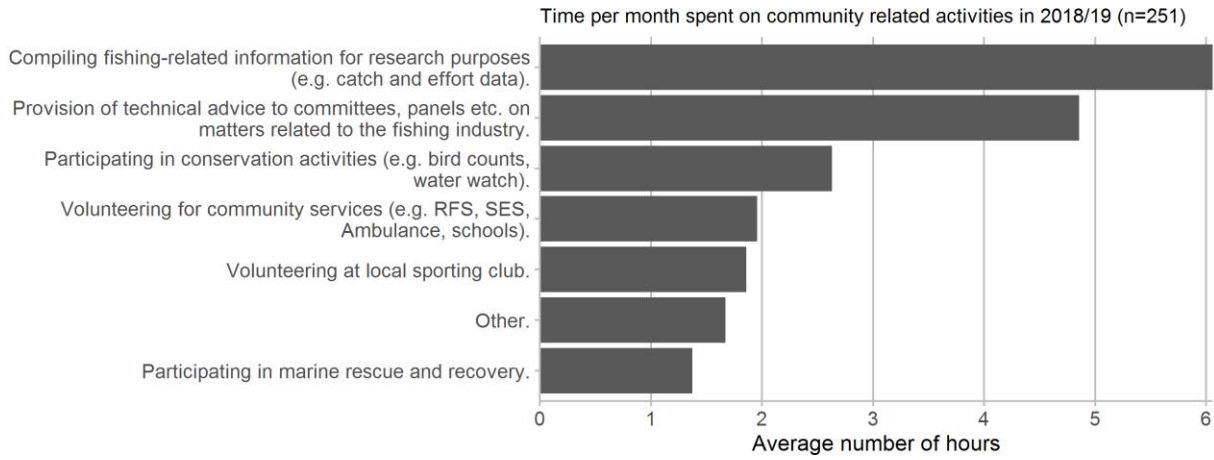## 4.2.   Fisheries Management

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)
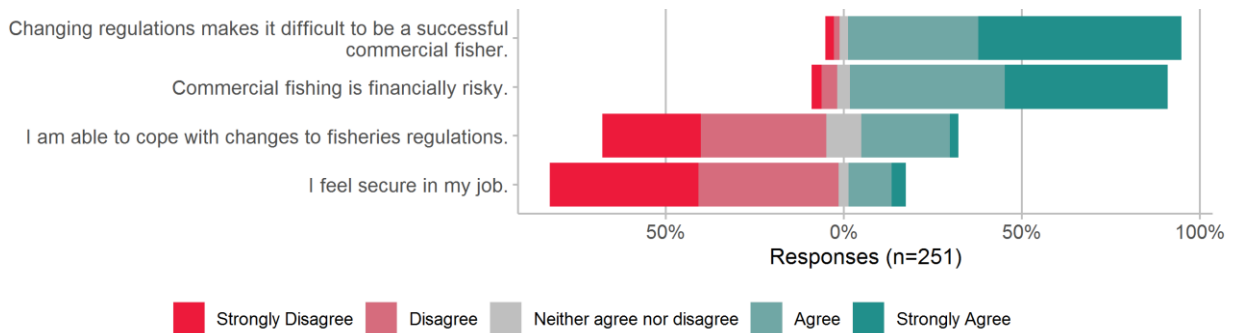
Figure 4-10   Perceptions of fishery management (b)
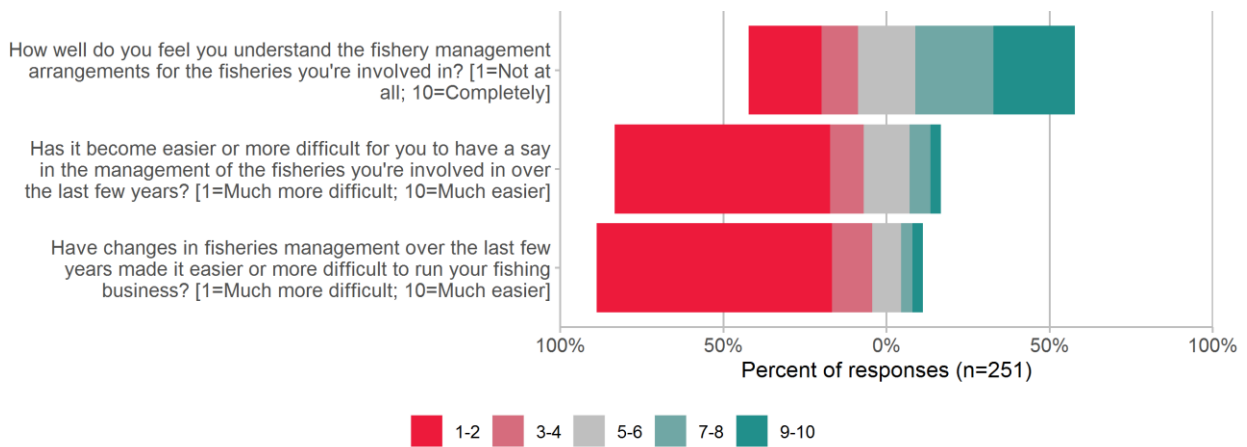
4.3. Fisher Wellbeing

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 4-13 — Diverging stacked bar chart. Items: "It is stressful to be a commercial fisher.", "Being a commercial fisher can be physically difficult.", "I find it difficult to maintain a good work-life balance as a fis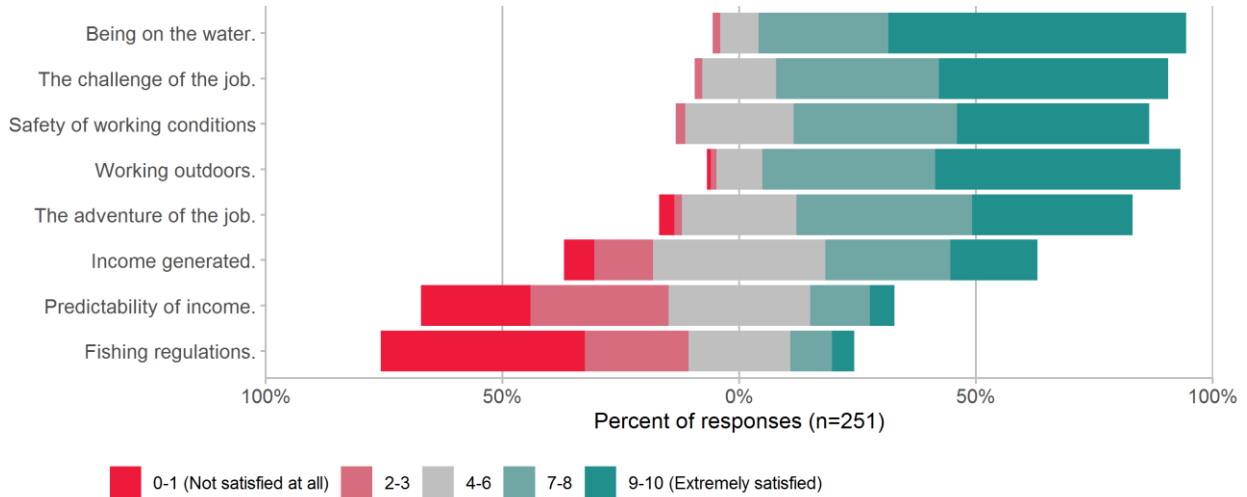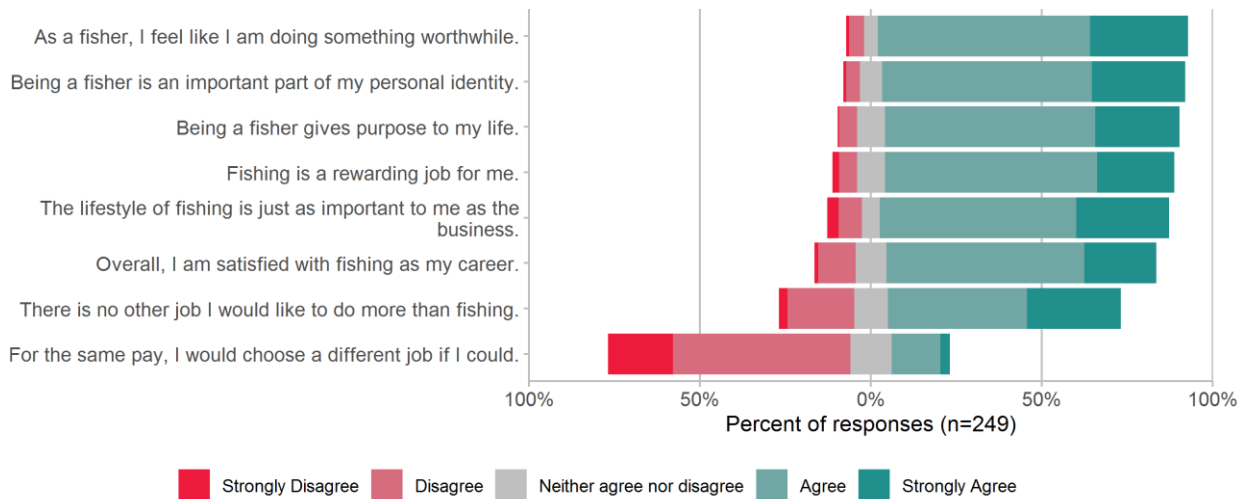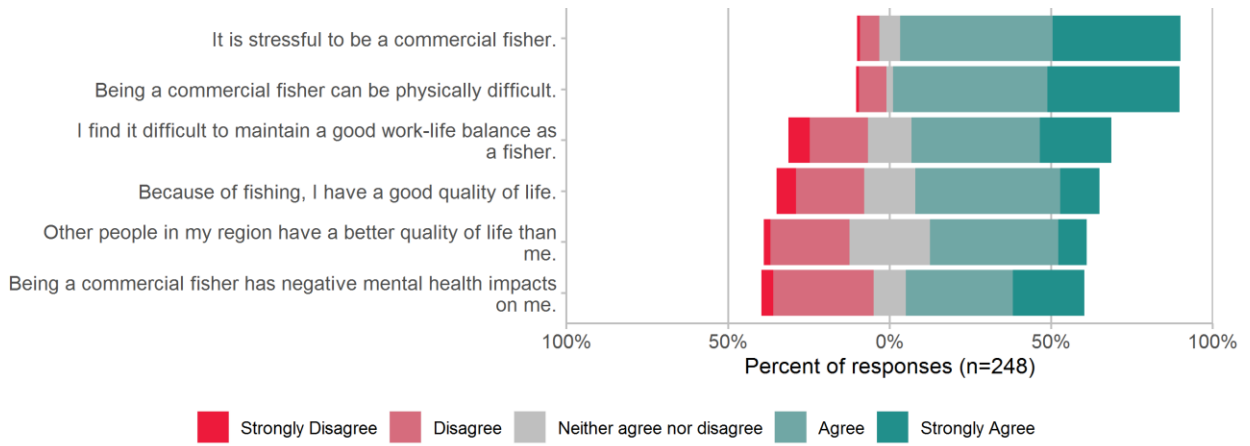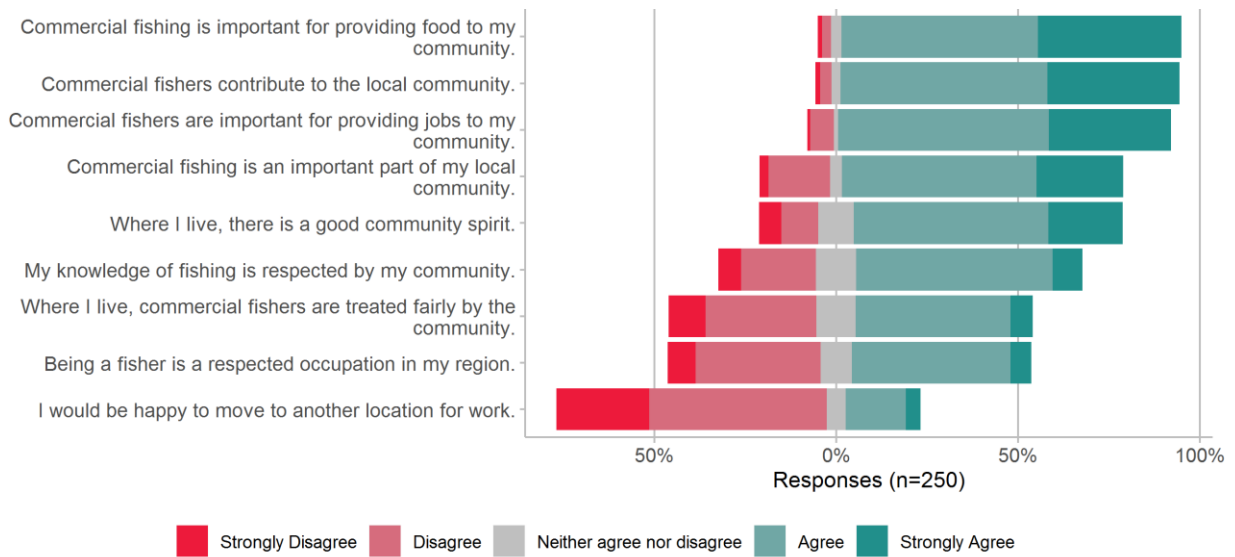her.", "Because of fishing, I have a good quality of life.", "Other people in my region have a better quality of life than me.", "Being a commercial fisher has negative mental health impacts on me." X-axis: Percent of responses (n=248). Legend: Strongly Disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree.

Figure 4-14 Connection to community

Figure 4-14 — Diverging stacked bar chart. Items: "Commercial fishing is important for providing food to my community.", "Commercial fishers contribute to the local community.", "Commercial fishers are important for providing jobs to my community.", "Commercial fishing is an important part of my local community.", "Where I live, there is a good community spirit.", "My knowledge of fishing is respected by my community.", "Where I live, commercial fishers are treated fairly by the community.", "Being a fisher is a respected occupation in my region.", "I would be happy to move to another location for work." X-axis: Responses (n=250). Legend: Strongly Disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree.

Figure 4-15 Personal wellbeing

Figure 4-15 — Diverging stacked bar chart. Items: "Your standard of living.", "How safe you feel.", "Your personal relationships.", "Your life as a whole.", "What you are currently achieving in life.", "Your health.", "Feeling a part of your community.", "Your future security." X-axis: Percent of responses (n=250). Legend: 0-1 (Not satisfied at all), 2-3, 4-6, 7-8, 9-10 (Extremely satisfied).

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Figure 4-16   Stewardship

Percent of responses (n=250)

Legend: Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly Agree
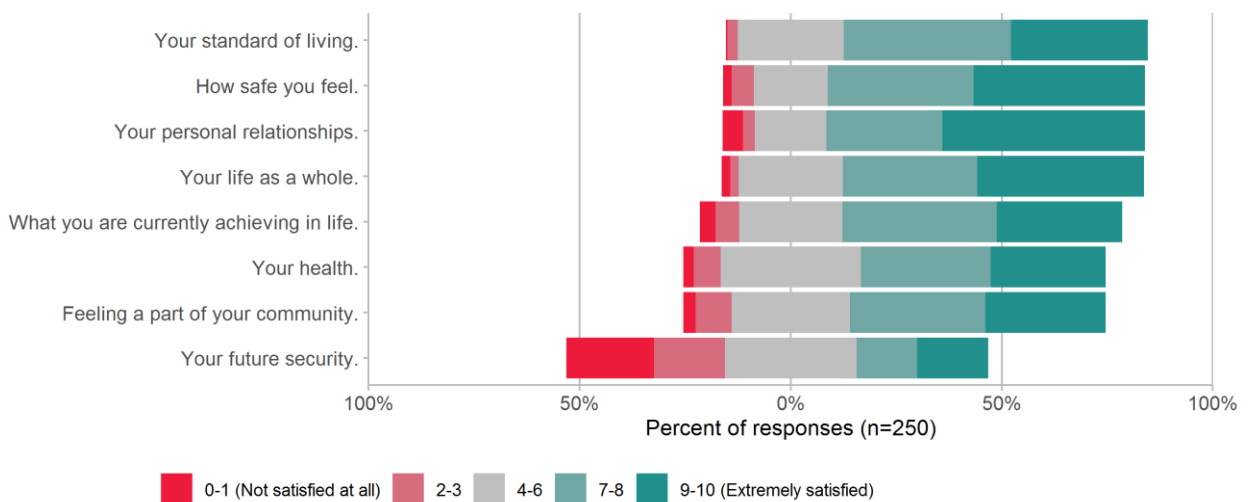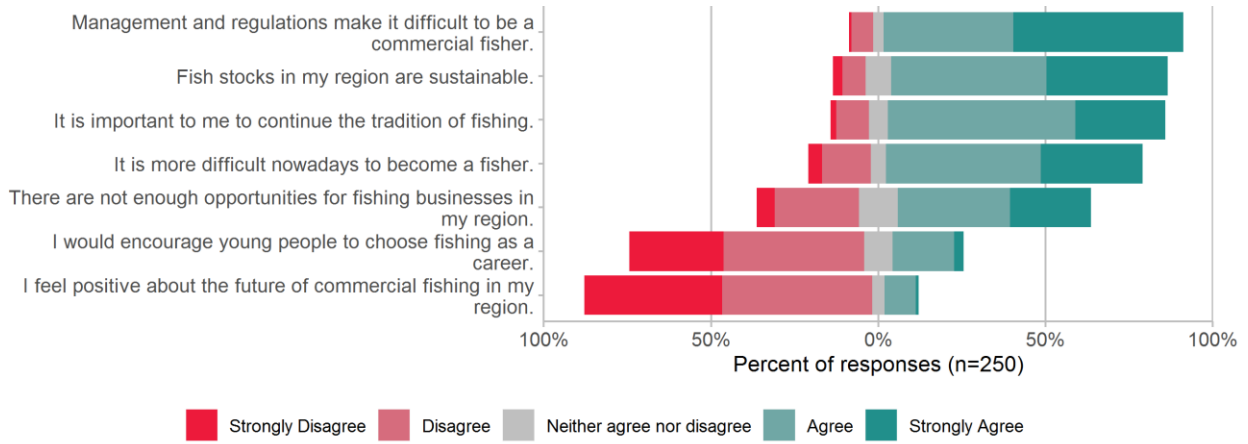
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Disclaimer

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.

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APPENDIX 1   Summary of Survey Sample for all Fisheries, 2017/18

Appendix Table 1-1   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	241	43	18%
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: BDO EconSearch Analysis

Appendix Table 1-2   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: BDO EconSearch Analysis

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