ECONOMIC AND SOCIAL INDICATORS FOR NEW SOUTH WALES COMMERCIAL FISHERIES IN 2020/21

A Report for the New South Wales Department of Primary Industries

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Prepared by

BDO EconSearch

Level 7, BDO Centre,
420 King William Street
Adelaide SA 5000
Tel: +61 (8) 7324 6190
https://www.bdo.com.au/en-au/econsearch

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ABBREVIATIONS

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
AMR	Action Market Research
CGE	computable general equilibrium
CPI	Consumer Price Index
DPI	Department of Primary Industries
fte	full time equivalent
FY	financial year
GOS	Gross Operating Surplus
GRP	gross regional product
GSP	gross state product
GVP	gross value of production
MEY	Maximum Economic Yield
NSW	New South Wales
R&M	repairs and maintenance
SMU	spatial management units
SUTS	Sea Urchin and Turban Shell
TAC	Total Allowable Catch
TACC	total allowable commercial catch
TAE	Total Allowable Effort

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GLOSSARY

Active Business: refers to a fisher operating a fishing business which fished at least one day during the relevant period.

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 *Gross Operating Surplus* 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 Gross Operating Surplus, 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 *Gross 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: 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. Approximated by licence fees in this report.

Days Fished: refers to the number of days fished by a fishing business throughout the relevant period.

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].

Employment: is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number (total jobs) or full-time equivalent (fte) jobs. One fte is considered to be 37.5 hours for 42 week per year.

Equity: Commercial fishing businesses in New South Wales utilise valuable fishery shares, vessels or vehicles and other working capital. They may hold cash and may also hold debt to finance the business and other liabilities. The total assets held by a business less its total liabilities is the business' equity, which can be expressed in dollar terms or as a percentage of total asset value.

Fishing Business: for the purpose of this report is an economic entity rather than a legal entity and is defined by Fishing Business ID or Authorised Fisher ID.

Gross Operating Surplus (GOS): is defined as *Gross 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 *Total Boat Cash Costs (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

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

firm is making a cash profit. GOS does not include a value for owner/operator wages, unpaid family work, or depreciation.

Gross Regional Product (GRP) and Gross State Product (GSP): 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).

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 beach price.

Household Income (economic contribution): 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.

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 includes 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 Cash Income* in this report. 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 *leasing of building, equipment & quota transfer* 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 so equity is 100%. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

Rate of Return on Capital: is calculated as *Profit at Full Equity* divided by *Working Capital* multiplied by *100*. In this calculation, the value of leased equipment or transferred quota is capitalised and added to *Working Capital* to represent a 'full equity' scenario. 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.

Sample Size: unless otherwise specified, is the survey sample size from the 2019/20 base year survey and not the update survey conducted in 2020/21. This is because the 2019/20 survey provided most of the information for the 2020/21 indicators. The 2020/21 survey collected few data points to update the 2019/20 indicators.

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.

Gross Income: refers to the cash receipts received by an individual firm and is expressed in dollar terms. *Gross 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 Variable Cost: 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
- bait
- ice
- provisions
- crew payments
- unscheduled repairs & maintenance.

Working Capital: includes capital items that are required by the fishing business to earn the gross 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.

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

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EXECUTIVE SUMMARY

This report presents a set of economic and social performance indicators for each of the New South Wales commercial fisheries, continuing a time series of economic and social information to aid management. This report summarises the indicators across all fisheries and presents the statewide aggregates for the 2020/21 financial year. This forms the second consecutive financial year of annual indicators. Separate fishery-specific reports are also available.

Table ES-1 Summary of indicators for New South Wales commercial fisheries, 2019/20 and 2020/21

Indicator	2019/20	2020/21
Catch (t)	11,558t	10,543t
Catch ('000s)	2,170,000	1,624,000
Days Fished	57,440	53,410
Gross value of production (beach price)	$91.9m	$84.9m
Export value	$11.5m	$8.1m
Active businesses	787 businesses	754 businesses
Gross state product (direct + flow-on)	$172.5m	$164.7m
Employment (direct + flow-on)	1,626 fte jobs	1,661 fte jobs
Net Economic Return	-$7.8m	-$16.8m

Source: BDO EconSearch analysis

Overview of Approach

Businesses that operate in a commercial fishery in New South Wales 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 fishery monitoring and administrative data
2. Survey fishing businesses
3. Model structure and activity of surveyed businesses
4. Impute non-surveyed businesses at the business level
5. Attribute operating costs, employment and capital value to the relevant fisheries
6. Calculate indicators for each fishery.

The 2020/21 economic indicators were derived using a range of primary and secondary data and survey-based 2019/20 indicators. Non-survey data were obtained from New South Wales Department of Primary Industries for the 2020/21 financial year to adjust the 2019/20 indicators to reflect fishery performance in 2020/21.

Across all fisheries in the 2019/20 survey, a total of 253 survey responses were received, representing 219 or just over one in every four active commercial fishing business. The sample represented between 29 per cent and 37 per cent of active businesses in each region and between 30 per cent and 40 per cent of active businesses in each fishery. The confidentiality of responses was made clear to respondents including that no individual response would be identifiable in reporting or provided to New South Wales Department of Primary Industries and that any statistic published would be based on at least five responses.

The 2020/21 survey targeted a smaller sample and only businesses and data items that were key to the indicator update method. Across all fisheries, a total of 180 survey responses were received, representing 162 or almost one in every five active commercial fishing business in 2020/21. The sample represented between 18 per cent (Clarence) and 32 per cent (Upper South Coast) of active businesses in each region and between 22 per cent (Ocean Trawl) and 39 per cent (Abalone) of active businesses in each fishery.

Catch, Price, Value and Exports

The total catch in New South Wales commercial fisheries was 10,543t and 1,624,000 individuals in 2020/21. Gross value of production for this catch was $84.9m at beach price, a decrease from $91.9m in 2019/20. The value of international exports by commercial fishing businesses accounted for approximately 10 per cent ($8.1m) of GVP in 2020/21 at beach price, a decrease from 13 per cent in 2019/20.

Business Financial Indicators

A broad range of business profitability was observed within and between fisheries in 2020/21. Average rate of return on total working capital varied between 8.6 per cent (Ocean Hauling) and -10.5 per cent (Sea Urchin & Turban Shell).

The average level of equity that fishers have in their businesses varied across fisheries from 88 per cent (Lobster and Ocean Hauling) to 98 per cent (Sea Urchin & Turban Shell).

Economic Contribution

In 2020/21, New South Wales commercial fisheries contributed an estimated $164.7m in gross state product (down from $172.5m in 2019/20) and 1,661 full-time equivalent jobs (up from 1,626 in 2019/20) to the New South Wales economy. This contribution included $46.9m (729 fte jobs) directly from fishing activity, $1.9m (22 fte jobs) from capital expenditure by fishing businesses, $14.8m (96 fte jobs) from associated processing and $101.1m (815 fte jobs) from flow-on effects in other sectors of the New South Wales economy.

Net Economic Return

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

Determining the opportunity cost of capital (a cost component of net economic return) 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 -$11.6m to -$25.3m in 2020/21 for the state as a whole, a decrease from between -$2.6m and -$16.4m in 2019/20. There was a wide range of levels of net economic return across the fisheries ranging from $1.6m in the Ocean Hauling fishery to -$9.5m in the Ocean Trawl fishery.

Social Indicators

There was near unanimous agreement that most commercial fishers comply with fishing rules and regulations though some surveyed fishers in the Ocean Trap & Line and Estuary General fisheries disagreed. Since

2019/20, all fisheries have seen an increase in perceived compliance with the exception of the Lobster fishery which has decreased marginally.

When asked whether DPI Fisheries does a good job of managing commercial fishing, there were mixed feelings between fishers. Fisheries with more than half of fishers agreeing are Lobster and Sea Urchin and Turban Shell, both with an increase since 2019/20 (1 point and 0.5 points respectively). Since 2019/20, there have been mixed changes to average perceptions varying between an improvement of 1.0 point (for the Lobster fishery) to a decline of 0.5 points (for the Ocean Hauling fishery).

In all but three fisheries (Estuary Prawn Trawl, Abalone and Sea Urchin and Turban Shell) the majority of fishers were satisfied with their fishing activities over the last 12 months. Though since 2019/20, only Lobster saw an increase in satisfaction levels (0.3 points). When considering their lives as a whole, around three quarters of commercial fishers are more satisfied than not, with the exception of Sea Urchin and Turban Shell fishers. However, since 2019/20 there have been small decreases in average reported life satisfaction, from these high levels, amongst fishers in most commercial fisheries. Over half of commercial fishers are satisfied with their future security, except for in the Sea Urchin and Turban Shell fishery with mixed changes in the average perception since 2019/20.

1. INTRODUCTION

Commercial fishing in New South Wales is a diverse and valuable industry that draws on a natural resource to generate livelihoods, food and purpose for those involved directly and indirectly. The New South Wales Department of Primary Industries (DPI) is seeking to understand these economic and social values of the industry and to establish a monitoring program to track how they change over time. This report sets out the approach used to achieve this and reports the second consecutive year of results.

BDO EconSearch was contracted by DPI to develop a program to monitor economic and social indicators for New South Wales commercial fisheries. The program is producing an annual time series of economic and social indicators for nine fisheries and for the state of New South Wales. A separate report is being produced for each fishery for each financial year, with the intended audience being fishery managers, researchers, industry associations and fishing businesses.

1.1. Objectives

The aim of this study is to develop and deliver a program to monitor economic and social indicators for New South Wales commercial fisheries.

The objectives of the monitoring program are to:

- Inform discussions and decisions about fisheries management with evidence
- Demonstrate the economic contribution of commercial fisheries to New South Wales and its regions
- Provide data for developing harvest strategies
- Provide data to target Maximum Economic Yield (MEY).

1.2. Scope

The scope of work is outlined in this section in terms of activity, fisheries, regions, time period, deliverables and review process.

1.2.1. Time periods

Indicators will be produced annually for each financial year of the program, beginning with 2019/20 (1 July 2019 to 30 June 2020). Indicators will be produced in a three-year survey cycle with the first year being based on a comprehensive business survey and administrative data while the following two years will be based on administrative data and a limited update survey to address priority data items and track some high frequency social indicators.

This report presents indicators for the 2020/21 financial year, the second consecutive year of indicators produced by this program.

1.2.2. Activity

The activity in scope for this analysis includes all activities associated with commercial fisheries managed by DPI. This includes fishing activity up to the point where catch is landed (e.g. hauling, trawling, trapping and hand lining) and all associated business operation and administration activity, including fisheries management. Along with this direct commercial fishing activity, the economic contribution indicators

quantify the effects that New South Wales commercial fishing activity has on the broader economy through processing activities, capital expenditures of fishing businesses and flow-on effects in all other sectors.

1.2.3. Business units

In New South Wales commercial fisheries, a fishing business can be owned without owning shares or an endorsement in a fishery. These businesses will have some form of arrangement to fish on other individuals' endorsements. This monitoring program defines a fishing business as the economic entity (rather than legal entity) that undertakes fishing activity. For example, if a survey respondent described their operations as an authorised fisher in two fishing businesses that they do not own, then that activity was considered to be part of the survey respondent's business, rather than that of the business owners' the survey respondent was authorised to fish on. For businesses that did not respond to the survey, fishing businesses were imputed using linked fisher-business logbook records. This means that the count of fishing businesses and active fishing businesses presented in this monitoring program may differ from other published counts.

1.2.4. Fisheries and reports

The fisheries in scope for the monitoring program are listed below along with the reference to the relevant economic and social indicator results report.

Share Management Fisheries:

- Abalone (BDO EconSearch 2023a)
- Lobster (BDO EconSearch 2023b)
- Estuary General (BDO EconSearch 2023c)
- Estuary Prawn Trawl (BDO EconSearch 2023d)
- Ocean Hauling (BDO EconSearch 2023e)
- Ocean Trap & Line (BDO EconSearch 2023f)
- Ocean Trawl (BDO EconSearch 2023g)

Restricted Fisheries:

- Sea Urchin & Turban Shell (BDO EconSearch 2023h)
- Southern Fish Trawl (excluded from reporting due to low survey response)
- Inland (excluded from reporting due to low survey response)

Each New South Wales fishing business includes shares or restricted fishery endorsements. Shares authorise access to a share management fishery in various ways. In some cases, shares may be used for more than one of the following purposes.

Eligibility to an endorsement

An endorsement authorises the holder to take certain species of fish in certain areas using specific methods. To be eligible for an endorsement in a share management fishery, a minimum number of shares of a corresponding type must be held.

For example, to be eligible for a meshing endorsement in region 4 of the Estuary General fishery, 125 Estuary General – meshing shares - Region 4 must be held.

Shares used in this way are sometimes referred to as ‘access shares’.

Catch and effort quota

Some shares provide an ongoing right to a share of a Total Allowable Catch (TAC) or Total Allowable Effort (TAE), which is allocated to shareholders as quota at the beginning of each fishing period proportional to the number of corresponding shares held.

For example, holders of Estuary General – pipi quota shares are issued pipi quota at the beginning of each fishing period in kilograms (a share of the TAC).

Shares used in this way are generally referred to as ‘quota shares’.

Endorsements and catch or effort quota

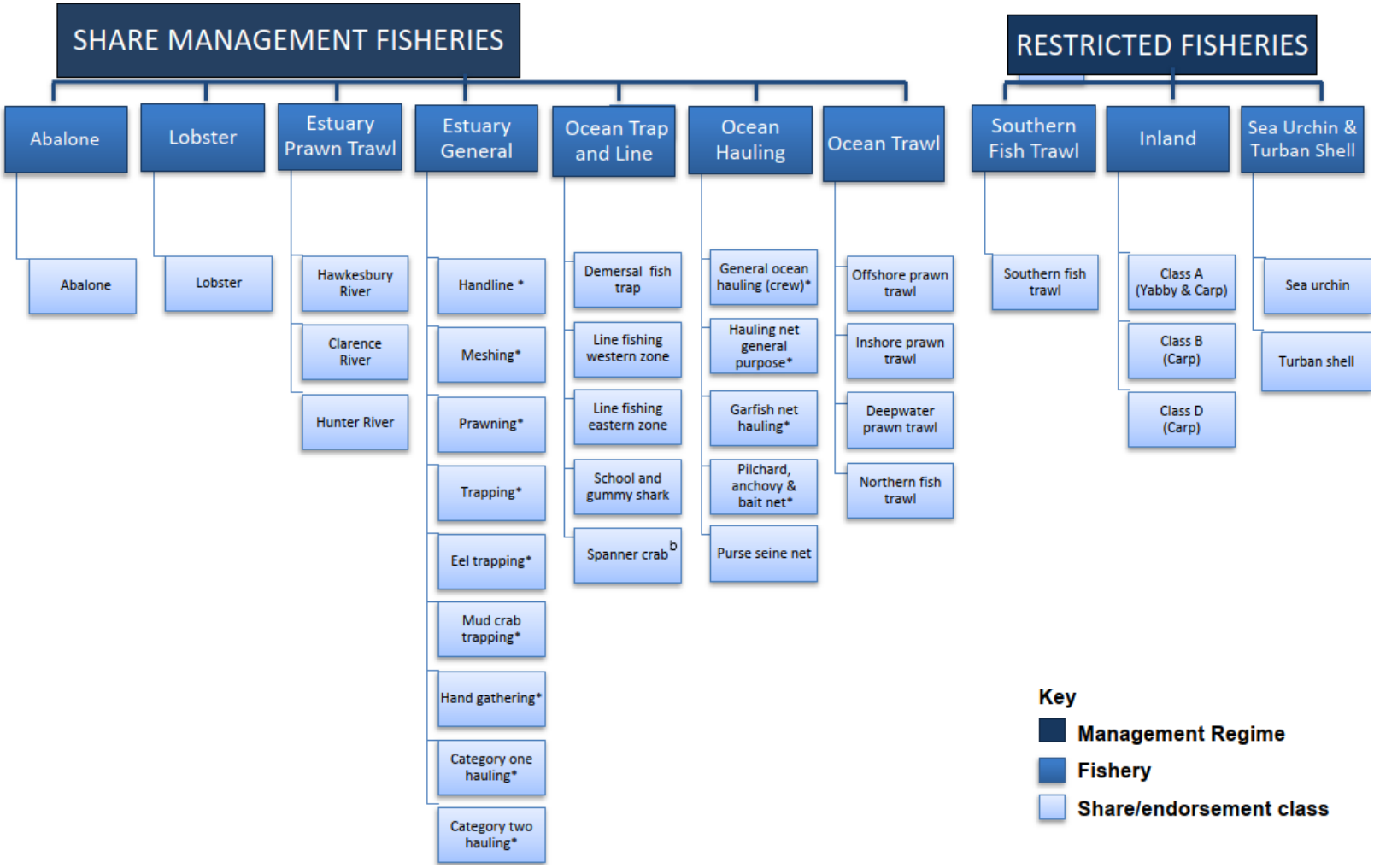
Some shares provide for eligibility for an endorsement and an ongoing right to receive a share of the TAC or TAE for each fishing period. For example, Lobster shares (TAC) and Estuary General – category one hauling shares (TAE).

Endorsements and other forms of access

Some shares provide for eligibility for an endorsement and determine other factors such as how much gear or how many crew a shareholder may use. For example, a mud crab trapper who holds 135 Estuary General – Mud Crab Trapping – Region 2 shares may use 11 mud crab traps in region 2 of the Estuary General fishery.

Most fisheries have multiple types of shares (and corresponding endorsements) within the fishery allowing shareholders to diversify with in the fishery. This structure is illustrated in Figure 1-1.

Figure 1-1 Share/Endorsement Classes in New South Wales Commercial fisheries



* Share/endorsement classes are region specific

[b] Separate Spanner Crab access shares exist for the northern and southern zone

Source: New South Wales DPI (2019)

1.2.5. Regions

While all indicators are reported at the state level, some indicators can also be appropriately reported on a sub-state regional basis, particularly business financial indicators, as these can provide cost inputs into regionalised harvest strategies. These indicators are reported on a regional basis for the fisheries that have a regional dimension to their management and sufficient regional activity to publish confidential results.

Estuary General

The Estuary General and Ocean Haul fisheries have seven regions based on their share classes as pictured in Figure 1-2:

- Region 1: Upper North Coast
- Region 2: Clarence
- Region 3: North Coast
- Region 4: Central
- Region 5: Metropolitan
- Region 6: Upper South Coast
- Region 7: Lower South Coast.

The Estuary General fishery is reported on the seven Estuary General and Ocean Hauling regions in the regional business financial indicators.

Estuary Prawn Trawl

The Estuary Prawn Trawl fishery is fished exclusively in three rivers which are used when reporting on the regional business financial indicators:

- Clarence River
- Hunter River
- Hawkesbury River.

Ocean Trawl

The Ocean Trawl fishery for the purpose of this project has been separated into three regions comprised of ten of the Ocean Zones as pictured in Figure 1-2. The three regions are used when reporting on the regional business financial indicators and are as follows:

- Region 1 – Ocean Zones 1, 2 and 3
- Region 2 – Ocean Zones 4 and 5, and Ocean Zone 6 north of Barrenjoey Head
- Region 3 – Ocean Zone 6 south of Barrenjoey Head, and Ocean Zones 7, 8, 9 and 10

Ocean Trap and Line

The Ocean Trap and Line fishery is reported on the seven Estuary General and Ocean Hauling regions in the regional business financial indicators (Figure 1-2).

Ocean Hauling

The Ocean Hauling fishery is reported on an aggregation of the seven Estuary General and Ocean Hauling regions in the regional business financial indicators to preserve confidentiality in the less active regions (Figure 1-2).

- Upper North Coast & Clarence
- North Coast
- Central
- Metropolitan & Upper South Coast
- Lower South Coast

Abalone

The Abalone fishery has four spatial management units (SMU) used for TACC determination which are used when reporting on the regional business financial indicators:

- SMU 1
- SMU 2
- SMU 3
- SMU 4

Lobster

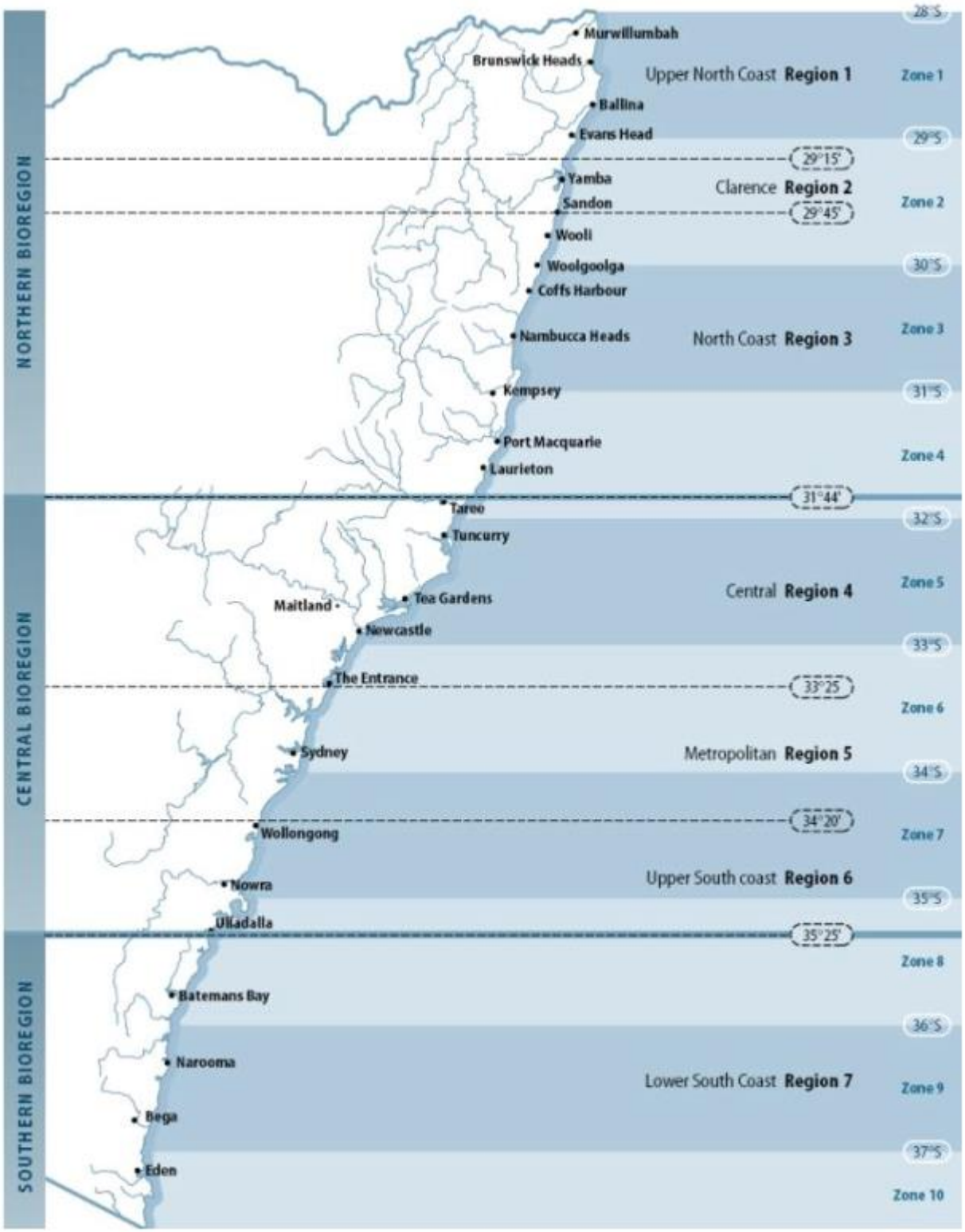
The Lobster fishery for the purpose of this project has been separated into four regions comprised of ten of the Ocean Zones as pictured in Figure 1-2. The four regions are used when reporting on the regional business financial indicators and are as follows:

- Region 1 – Ocean Zones 1, 2 and 3
- Region 2 – Ocean Zones 4 and 5
- Region 3 – Ocean Zones 6 and 7
- Region 4 – Ocean Zones 8, 9 and 10

Sea Urchin and Turban Shell

While the SUTS fishery uses regional catch limits, there are too few active businesses to report non-confidential data on a regional basis. Indicators for SUTS are, therefore, reported at the state level only. Fishery economic indicators, and social indicators are reported at the state level for all fisheries.

Figure 1-2 Regional Boundaries for the Estuary General and Ocean Haul Fisheries



Source: New South Wales DPI (2019)

2. METHODS AND DATA

Businesses that operate in a commercial fishery in New South Wales 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 produces indicators for most commercial fisheries in New South Wales, a business level modelling approach was used rather than an aggregate or fishery level approach.

2.1. Indicator Analysis

In a business level approach, the overall activity of each business is proportionally 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. The method of analysis is described below in stages.

Stage 1: Collect fishery monitoring and administrative data (2019/20)

Data were requested from DPI monitoring and administrative systems to build a business level understanding of fishing activity in the commercial fisheries. This included 2019/20 financial year data on the following:

- business contact information
- business level catch and effort data from logbooks detailing species caught, form sold, quantities, dates and locations
- business level share and quota holding and trading data
- business level licence fees and management charges paid to DPI.

Stage 2: Survey fishing businesses (2019/20)

A survey of fishing businesses was undertaken (see Section 2.2 for detail) to collect various data items that are not held by DPI but are required to calculate economic and social indicators. This included:

- species prices, disposal locations and fishers' understanding of species ultimately processed or exported overseas further down the supply-chain
- operating costs
- own business seafood processing activity
- employment (including unpaid)
- share and quota values
- capital value and depreciation of boats, equipment and other physical capital
- demographic information
- perceptions of management, lifestyle and other social matters.

Data were collected respecting the confidentiality of fishing businesses and were used by BDO EconSearch to produce the economic and social indicator reports. The individual survey responses were not distributed outside of BDO EconSearch and may not be provided to DPI without prior permission from the businesses in question.

Stage 3: Model structure and activity of surveyed businesses (2019/20)

Fishery monitoring and administrative data and business survey data were combined to model the structure and activity of each individual fishing business that participated in the business survey. The model describes each business in terms of all data items identified above in stages 1 and 2, such that they can be combined to understand how costs, capital use and employment relate to fishing activity. For example, combining logbook catch data with species price data allows for an estimate of the value of catch taken by species by region.

The set of business level models was validated through a series of plausibility checks to ensure that each survey response was matched to the correct records in the monitoring and administrative data and that the survey response itself was internally coherent. For example, calculated revenue based on species prices and logbook catch were compared to total revenues stated in survey responses, and distributions of various financial indicators were examined to identify outliers to be investigated.

Stage 4: Impute non-surveyed businesses at the business level in the base year (2019/20)

The structure and activity of each non-surveyed businesses was imputed using the business level models (as described in Stage 3) of the most similar five surveyed businesses. This involved matching, imputation and adjustment.

1. **Matching:** involved calculating a similarity matrix describing the similarity of each non-surveyed business to each surveyed business. The matrix used dimensions of 'revenue by fishery' and 'days fished by fishery', which were normalised to give them equal weighting in the calculation of similarity. Similarity was calculated as the lowest sum of squared errors across both dimensions. In a practical sense, this assumes that businesses are similar if they catch a similar value of product in a similar mix of fisheries and all with similar efficiency (i.e. catch per unit effort).
2. **Imputation:** involved imputing the capital, employment and operating costs of the non-surveyed businesses as the average of the five most similar businesses, where the average was weighted by the relative similarity to each surveyed business. This assumes that similar businesses (as described above) use similar capital and have similar operating costs and employment.
3. **Adjustment:** involved making marginal adjustments to the variable operating costs and employment of imputed businesses based on the differences between the imputed business and the weighted average of its five most similar businesses in terms of revenue and days fished. For example, fuel and provisions were adjusted based on the relative difference in effort, and crew and skipper income was adjusted based on the relative difference in revenue.

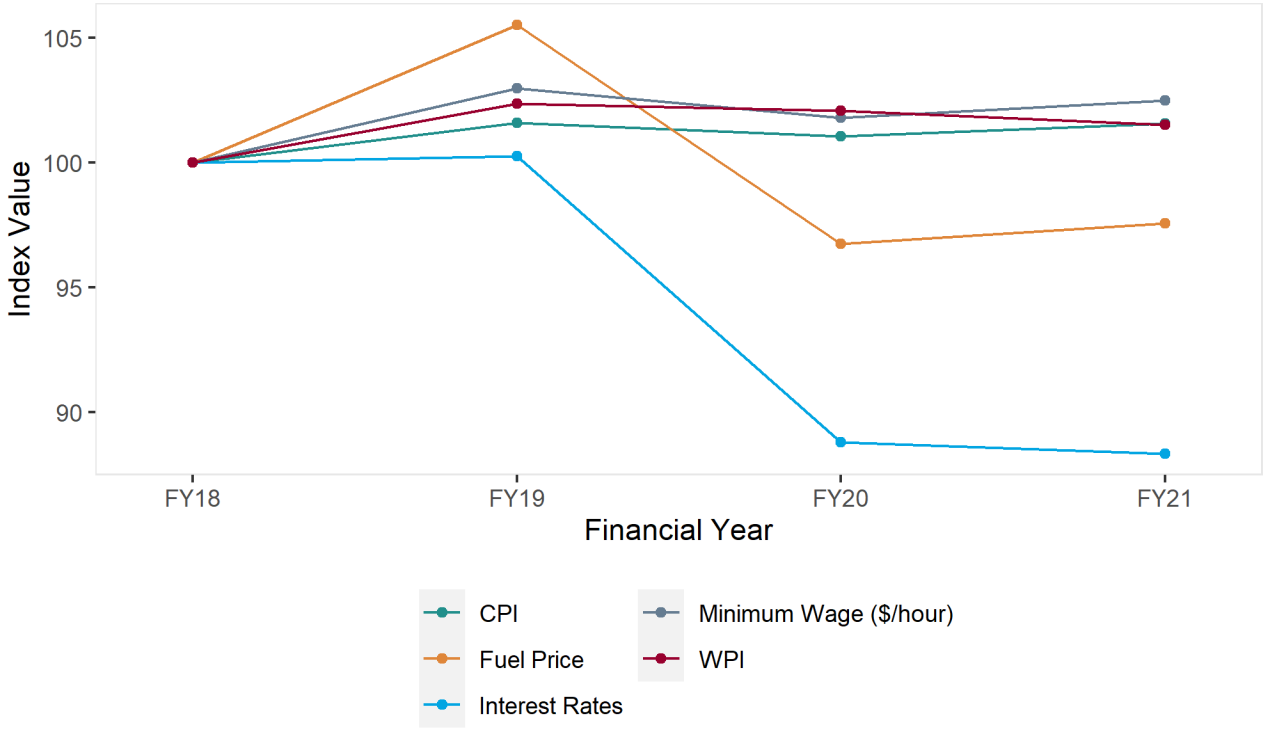
Stage 5: Update business level synthetic population to 2020/21

The 2020/21 economic indicators for the NSW commercial fisheries were calculated by updating the 2019/20 indicators using a range of primary and secondary data about 2020/21.

Fisheries monitoring and management data were obtained from NSW Department of Primary Industries for the 2020/21 financial year to adjust the 2019/20 indicators to reflect fishers' fishing and share trading activities in 2020/21. The imputation process involved calculating revenue using updated species prices for 2020/21, then adjusting operating costs and employment for each business based on the difference in fishing effort and revenue between 2019/20 and 2020/21. Businesses that were active in 2020/21 but not 2019/20 were not represented in the base year data so were imputed in the same way as a non-surveyed business were for the 2019/20 indicators (see BDO EconSearch 2023b). Further, input prices were adjusted in line

with changes in relevant cost indices. Figure 2-1 outlines the trend in each cost indices for the past three years. Finally, data on the 2020/21 financial year provided by NSW Department of Primary Industries were used to quantify fishing licence fees and management costs.

Figure 2-1 Input price indicator [a], 2017/18 to 2020/21 financial years



[a] CPI = Consumer Price Index, Index Numbers, all groups CPI, Sydney; Minimum Wage ($/hour) = Fair Work Ombudsman, National Minimal Wage; Fuel Price = Consumer Price Index, Index Numbers, Automotive fuel, Sydney; WPI = Quarterly Index ; Ordinary time hourly rates of pay excluding bonuses; New South Wales; Private and Public; All industries; Interest Rates = Lending rates; Small business; Variable; Overdraft.

Source: BDO EconSearch analysis

Stage 6: Attribute operating costs, employment and capital value to the relevant fisheries

Share and endorsement values were attributed directly to their relevant fisheries. Shares and endorsements were valued by taking the median of survey valuations of each share and endorsement. These values were applied to annualised shareholdings of each business.

Operating costs and employment were attributed across all fisheries accessed by each business based on the relative proportion of income earned in each. This assumes 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. Rates of return do vary between fisheries, but this assumption is considered reasonable for an individual business and is necessary to avoid collecting separate sets of financial and employment details for each individual fishery that each business accesses.

Stage 7: Calculate indicators for each fishery

Business activity was grouped based on the fishery attribution described in Stage 6 before calculating indicators for each fishery. The definitions of indicators are presented in the Glossary. For some indicators, business activity was further attributed to regions or other groupings prior to calculation:

- Business level financial indicators such as revenues, costs and profitability were reported by region, level of return on investment, level of activity (days fished), proportion of total business revenue earned in the fishery in question (i.e. level of fishery specialisation) and proportion of businesses' fishery revenue earned from a particular species (i.e. species specialisation).
- Net economic return was reported at the fishery level.
- Economic contribution indicators were reported for New South Wales and for each of the seven Estuary General and Ocean Haul regions (Table 3-8) with all business activity attributed across regions in proportion to the value of catch landed in each.

Social indicators were reported as unweighted averages at the fishery level for all businesses that accessed the relevant fishery in 2020/21.

2.2. Survey of Fishing Businesses, 2019/20

Stage 2 of the approach described above involved surveying fishing businesses. The survey was carried out between May and July in 2021. Survey data collection was undertaken both by BDO EconSearch and by sub-contracted interviewers Action Market Research (AMR).

Fieldwork took place with a staged approach, inviting and engaging with individual shareholders. Four weeks prior to commencing full data collection, BDO EconSearch and AMR worked closely to interview 10 businesses as a pilot to adjust the questionnaire and method to improve quality in the full data collection phase.

The shareholder survey included multiple methods of contact and participation, including paper, online and over the phone.

Following commencement of the main survey, telephone interviewing was the prioritised method, with calls made Monday to Friday between 9am and 8pm, and Saturdays between 9am and 5pm (local time). Respondents were given an opportunity to participate at a time that was convenient to them during the fieldwork period, and appointments were made and followed through by the interviewing team. Some respondents preferred to complete the survey online and were emailed a survey link to complete the survey. Reminders were made via email and phone to boost participation.

A quota sheet was maintained showing the number of completed interviews by each of the respondent types. The data were reviewed regularly during fieldwork for accuracy and completeness, and to ensure fishers were not exhausted from multiple contact attempts.

Businesses were asked to include only the amounts that were attributable to their New South Wales fishing business. If exact figures were not available (e.g. from a tax return), then they were asked to provide careful estimates.

The confidentiality of responses was made clear to respondents including that no individual response would be identifiable in reporting or provided to New South Wales DPI 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. The matching approach used to impute non-responding business activity means that any statistic that includes at least one unsurveyed business contains information from at least five surveyed businesses, even if less than five surveyed businesses are included in the group the statistic represents.

The sample size from the 2021 survey is summarised in the tables below by fishery (Table 2-1) and by region (Table 2-2). Across all fisheries, a total of 253 responses were received, representing 219 or just over one in every four active commercial fishing business in 2019/20. The sample represented between 29 per cent (Lower South Coast) and 37 per cent (Metropolitan) of active businesses in each region and between 30 per cent (Estuary General) and 40 per cent (Estuary Prawn Trawl) of active businesses in each fishery. The statewide proportion is lower than the individual fisheries and regions as many surveyed businesses fished in multiple regions and fisheries so are double counted in the region and fishery level summary. Data were collected from businesses with different levels of activity, specialisation and profitability. The financial indicators tables presented for each fishery in the fishery reports provide sample and population sizes in each column to show the representativeness of the sample across these various dimensions.

Table 2-1 Survey sample in New South Wales commercial fisheries, by fishery, 2019/20

Fishery	Active Businesses	Sample Size	%
Abalone	28	11	39.3%
Estuary General	378	112	29.6%
Estuary Prawn Trawl	76	30	39.5%
Lobster	67	24	35.8%
Ocean Hauling	69	22	31.9%
Ocean Trap & Line	211	72	34.1%
Ocean Trawl	96	29	30.2%
Sea Urchin & Turban Shell	18	7	38.9%
Statewide	**787**	**219**	**27.8%**

Source: BDO EconSearch analysis

Table 2-2 Survey sample in New South Wales commercial fisheries, by region, 2019/20

Economic Region	Active Businesses	Sample Size	%
Region 1: Upper North Coast	120	41	34.2%
Region 2: Clarence	143	43	30.1%
Region 3: North Coast	204	64	31.4%
Region 4: Central	265	80	30.2%
Region 5: Metropolitan	102	38	37.3%
Region 6: Upper South Coast	75	27	36.0%
Region 7: Lower South Coast	92	27	29.3%
New South Wales	**787**	**219**	**27.8%**

Source: BDO EconSearch analysis

Data cleaning of the survey data began with an initial read-through of the data in raw form. During this process, some minor adjustments were made such as separating multiple Fishing Business numbers entered in the same text box with a consistent approach as required for programmatic processing. Following the initial read-through, the process for cleaning the survey data was:

- Identify the Fishing Businesses included in the survey responses and link them with the administrative data, including with respect to nominated fisher and other temporary arrangement.
- Undertake plausibility checks of the survey data such as:
  - Capital depreciation is non-negative and reasonable
  - Employment at least covers days fished
  - Wages and unpaid labour time are consistent with stated employment
  - Outlier checks on estimates of market prices and share values.
- Impute some items such as value of unpaid labour using the national minimum wage
- Exclude responses that fail the reality checks.

2.3. Update Survey of Fishing Businesses, 2020/21

The purpose of the 2020/21 survey was to provide key business level data points to update the 2019/20 indicators (which were based on a more comprehensive survey) to the 2020/21 financial year without overburdening fishers with a lengthy survey. This survey collected brief information about species prices and markets, and few social indicators. In comparison, the comprehensive 2019/20 survey also collected detailed information on working capital, itemised expenditures, employment, debt and equity, and more social indicators. It targeted those fishers who agreed in the 2019/20 survey to also participate in the 2020/21 survey and was undertaken between July and August 2022. Due to the reduced number and complexity of the required data items, the target sample size in the update survey is smaller than that in the base year survey.

The sample size from the 2022 survey is summarised in the tables below by fishery (Table 2-3) and by region (Table 2-4). Across all fisheries, a total of 180 responses were received, representing 162 or almost one in every five active commercial fishing business in 2020/21. The sample represented between 18 per cent (Clarence) and 32 per cent (Upper South Coast) of active businesses in each region and between 22 per cent (Ocean Trawl) and 39 per cent (Abalone) of active businesses in each fishery. The statewide proportion is lower than the individual fisheries and regions as many surveyed businesses fished in multiple regions and fisheries so are double counted in the region and fishery level summary. Data were collected from businesses with different levels of activity, specialisation and profitability. The financial indicators tables presented for each fishery in the fishery reports provide sample and population sizes in each column to show the representativeness of the sample across these various dimensions.

Table 2-3 Survey sample in New South Wales commercial fisheries, by fishery, 2020/21

Fishery	Active Businesses	Sample Size	%
Abalone	23	9	39.1%
Estuary General	360	88	24.4%
Estuary Prawn Trawl	75	21	28.0%
Lobster	57	16	28.1%
Ocean Hauling	50	16	32.0%
Ocean Trap & Line	215	57	26.5%
Ocean Trawl	105	23	21.9%
Sea Urchin & Turban Shell	24	8	33.3%
Statewide	**754**	**162**	**21.5%**

Source: BDO EconSearch analysis

Table 2-4 Survey sample in New South Wales commercial fisheries, by region, 2020/21

Economic Region	Active Businesses	Sample Size	%
Region 1: Upper North Coast	122	33	27.0%
Region 2: Clarence	155	28	18.1%
Region 3: North Coast	175	44	25.1%
Region 4: Central	244	61	25.0%
Region 5: Metropolitan	97	24	24.7%
Region 6: Upper South Coast	72	23	31.9%
Region 7: Lower South Coast	84	19	22.6%
New South Wales	**754**	**162**	**21.5%**

Source: BDO EconSearch analysis

3. SUMMARY OF ECONOMIC INDICATORS

3.1. Catch, Price, Value and Exports

The total catch, shown in Table 3-1, in New South Wales commercial fisheries was 10,543t and 1,624,000 individuals in 2020/21. Gross value of production for this catch was $84.9m at beach price, a decrease from $91.9m in 2019/20. The value of international exports by commercial fishing businesses accounted for approximately 10 per cent ($8.1m) of GVP in 2020/21 at beach price, a decrease from 13 per cent in 2019/20.

Table 3-1 New South Wales commercial fisheries' gross value of production, catch and export value, by fishery, 2020/21

	Catch			
Fishery	tonnes (t)	number ('000)	GVP ($m)	Export Value ($m)
Abalone	94	0	2.3	2.1
Estuary General	2,761	1,624	22.8	0.7
Estuary Prawn Trawl	475	0	4.8	0.0
Lobster	184	0	10.2	0.8
Ocean Hauling	3,632	0	11.2	2.4
Ocean Trap & Line	1,087	0	10.3	0.0
Ocean Trawl	2,147	0	22.7	2.0
Sea Urchin & Turban Shell	162	0	0.6	0.0
Statewide	**10,543**	**1,624**	**84.9**	**8.1**

Source: New South Wales DPI and 2021 survey

Species specific information across all commercial fisheries is presented in Table 3-2. All species for which at least five fishing businesses provided information are included in the table. All other species are grouped into 'other species' at the bottom of the table. Species are ordered by GVP with the most valuable species at the top.

Change in catch and GVP for the two financial years to 2020/21 is illustrated using an index for each commercial fishery in Figure 3-1. The index is calculated such that the 2019/20 catch and GVP are equal to 100 and the values in subsequent years show the change relative to 2019/20. For example, an increase in the index value for GVP from 100 to 110 indicates that GVP increased by 10 per cent. This focuses attention on the direction and scale of relative change over time and allows the drivers of change in GVP to be understood. For example, GVP in the Ocean Trap and Line fishery moved closely in line with catch over the two years, implying that price has been relatively stable, and catch was behind the change in GVP. On the other hand, catch increased in the Abalone fishery while GVP decreased, meaning that a large price decrease occurred between the years. This chart only includes two observations so far but will produce useful trends as more annual data points are added over time.

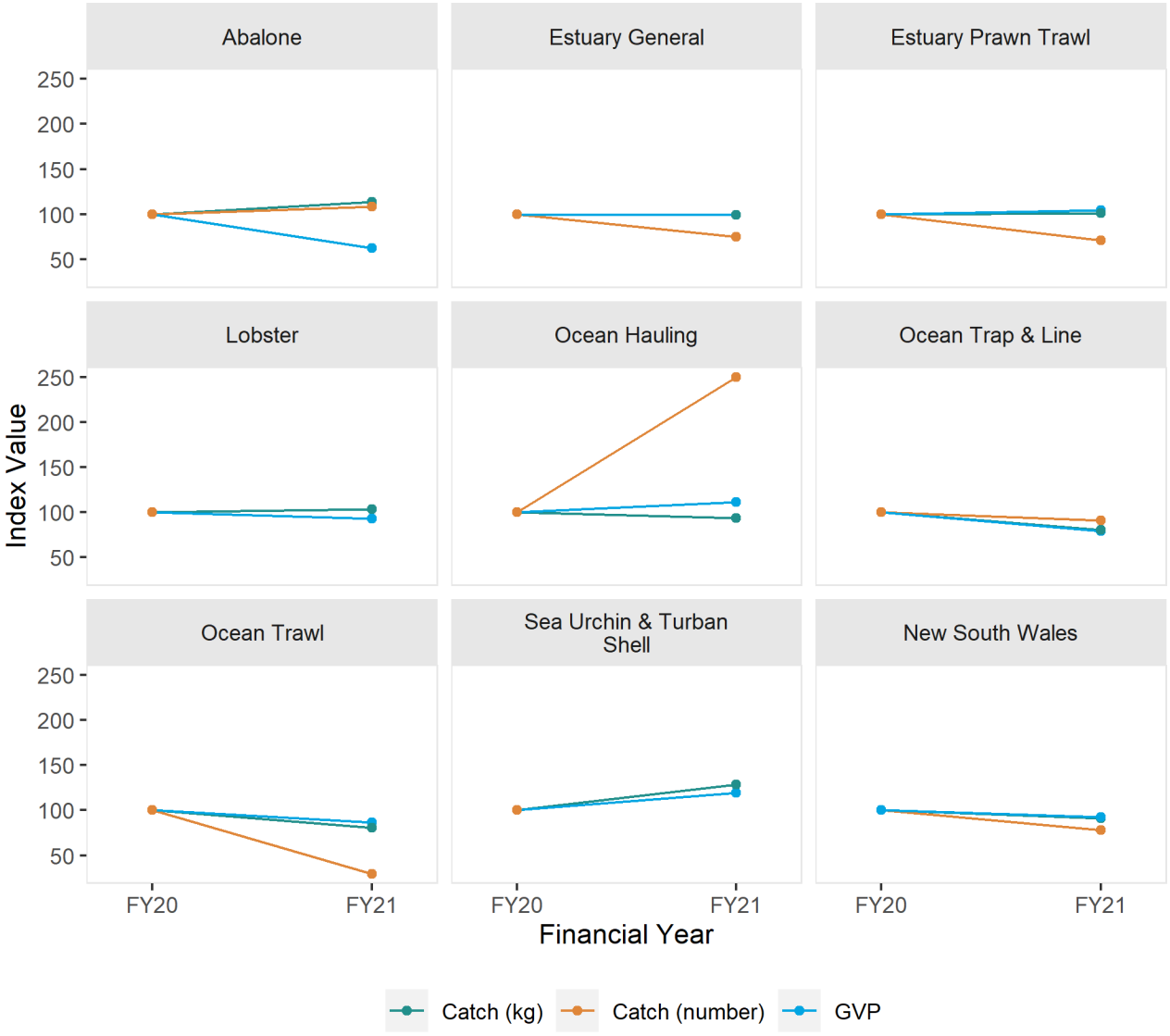
Table 3-2 New South Wales commercial fisheries' gross value of production, catch and export value, by species, 2020/21

Species	Catch	Price	Unit	GVP ($m)	Market Destination (%)			
					NSW	Interstate	Direct overseas	Total overseas[a]
King Prawn	534,962	$21.85	Kg	11.7	94.6%	5.4%	0.0%	0.0%
Eastern Rock Lobster	179,190	$56.78	Kg	10.2	95.9%	2.4%	1.7%	7.8%
School Prawn	1,022,939	$9.83	Kg	10.1	100.0%	0.0%	0.0%	0.0%
Sea Mullet	2,290,910	$2.73	Kg	6.3	70.5%	24.7%	4.8%	45.3%
Pipi	128,785	$24.26	Kg	3.1	100.0%	0.0%	0.0%	0.0%
Mud Crab	90,589	$27.22	Kg	2.5	88.9%	11.1%	0.0%	6.1%
Yellowfin Bream	191,796	$11.86	Kg	2.3	84.3%	15.7%	0.0%	0.0%
Blacklip Abalone	94,117	$23.95	Kg	2.3	14.4%	0.4%	85.2%	95.4%
Snapper	173,369	$12.09	Kg	2.1	98.3%	1.7%	0.0%	0.0%
Blue Mackerel	409,524	$5.08	Kg	2.1	72.0%	28.0%	0.0%	0.0%
Eastern School Whiting	515,856	$3.71	Kg	1.9	67.7%	0.0%	32.3%	32.8%
Spanner Crab	98,517	$17.93	Kg	1.8	91.6%	8.4%	0.0%	0.9%
Sand Whiting	83,298	$16.26	Kg	1.4	92.1%	7.9%	0.0%	0.0%
Blue Swimmer Crab	83,848	$15.16	Kg	1.3	100.0%	0.0%	0.0%	0.0%
Dusky Flathead	115,459	$10.90	Kg	1.3	91.7%	8.3%	0.0%	0.0%
Trawl Octopus (Hammer, North Coast)	111,040	$10.90	Kg	1.2	99.5%	0.5%	0.0%	0.0%
Ocean Jacket	229,229	$5.23	Kg	1.2	100.0%	0.0%	0.0%	0.0%
Balmain Bug	56,646	$19.90	Kg	1.1	95.7%	4.3%	0.0%	0.0%
Yellowtail Scad	332,787	$3.09	Kg	1.0	72.9%	27.1%	0.0%	0.0%
Australian Salmon	925,154	$0.97	Kg	0.9	10.1%	89.9%	0.0%	0.0%
Mulloway	82,025	$10.30	Kg	0.8	95.8%	4.2%	0.0%	0.0%
Yellowtail Kingfish	66,944	$11.37	Kg	0.8	84.5%	15.5%	0.0%	0.0%
Australian Bonito	77,560	$8.27	Kg	0.6	94.8%	5.2%	0.0%	0.0%
Southern Calamari	39,968	$15.11	Kg	0.6	99.5%	0.5%	0.0%	0.0%
Luderick	247,383	$2.06	Kg	0.5	78.2%	21.8%	0.0%	0.0%
Tailor	51,822	$9.45	Kg	0.5	83.7%	16.3%	0.0%	0.0%
Bluespotted Flathead	62,693	$7.48	Kg	0.5	100.0%	0.0%	0.0%	0.0%
Beachworms (Polychaete Worms)	329,265	$1.36	Number	0.4	100.0%	0.0%	0.0%	0.0%
Longspined Sea Urchin (Purple)	132,638	$3.07	Kg	0.4	100.0%	0.0%	0.0%	8.8%
Common Silverbiddy	50,949	$6.33	Kg	0.3	77.4%	22.6%	0.0%	0.0%
Silver Trevally	37,454	$8.10	Kg	0.3	89.7%	10.3%	0.0%	0.0%
Cuttlefish (other)	43,747	$6.22	Kg	0.3	98.9%	1.1%	0.0%	0.0%
Tiger Flathead	27,323	$8.07	Kg	0.2	100.0%	0.0%	0.0%	0.0%
Spanish Mackerel	10,162	$17.54	Kg	0.2	91.0%	9.0%	0.0%	0.0%
Grey Morwong	25,407	$6.60	Kg	0.2	100.0%	0.0%	0.0%	0.0%
Bar Rockcod	5,894	$24.69	Kg	0.1	100.0%	0.0%	0.0%	0.0%
Spotted Mackerel	9,452	$11.99	Kg	0.1	93.7%	6.3%	0.0%	0.0%
Pearl Perch	7,831	$13.53	Kg	0.1	100.0%	0.0%	0.0%	0.0%
Teraglin	9,239	$9.94	Kg	0.1	100.0%	0.0%	0.0%	0.0%
Flathead (other)	5,443	$8.74	Kg	0.0	87.3%	12.7%	0.0%	0.0%
European Carp	1,223	$2.04	Kg	0.0	100.0%	0.0%	0.0%	0.0%
Other species	1,880,033	$6.28	Kg	11.8	78.9%	6.9%	14.1%	12.6%
Other species	1,294,603	$0.34	Number	0.4	85.9%	14.1%	0.0%	0.0%
Fishery Total	**10,543,205**	**$7.97**	**Kg**	**84.9**	**86.7%**	**7.7%**	**5.5%**	**9.5%**
Fishery Total	**1,623,868**	**$0.55**	**Number**					

[a] This estimate is made by fishing businesses. It is their understanding of total exports by all businesses (e.g. themselves and seafood processors).

Source: BDO EconSearch analysis

Figure 3-1 Catch[a] and GVP trends, 2019/20 to 2020/21 financial years



[a] Catch of each species is expressed either as 'kg' or by 'number' of individuals depending on how fishers price the species and how it is recorded in logbooks. This means that some fisheries include both kg and number and others only kg.

Source: BDO EconSearch analysis

3.2. Business Financial Indicators

The major measures of the financial performance of active businesses in New South Wales commercial fisheries for 2020/21 are presented across two tables in this section (Table 3-3 and Table 3-4). The assets, liabilities and equity of fishing businesses is presented in Table 3-5.

3.2.1. Financial performance

The estimates of financial performance include businesses that participated in the survey and non-responding businesses modelled at the business level as described in Section 2. The estimates of financial performance are for the average business activity in the fishery for the 2020/21 financial year. Sample sizes outlined in these tables are from the 2019/20 survey, on which the update to 2020/21 indicators was based, as most of the information presented in the tables was collected in the 2019/20 survey.

Average financial performance masks significant variation within fisheries across types of businesses and their activities. To describe this variation, the same indicators are presented in individual fishery report chapters with businesses disaggregated by number of days fished in the fishery, return on investment, level of specialisation in the fishery, level of specialisation by species, and fishing region.

Table 3-3 Financial performance in commercial fisheries, 2020/21, average per business - part 1

Indicator		Fishery			
		Estuary General	Ocean Hauling	Ocean Trap & Line	Ocean Trawl
Fishing Businesses					
	Active Businesses	360	50	215	105
	Sample Size	112	22	72	29
Fishing Activity					
	Days Fished	81	29	42	50
	Catch (kg)	7,670	72,636	5,057	20,449
	Catch (no.)	4,511	-	-	-
	Prop. of Revenue Earned in this Fishery	84.5%	59.3%	81.0%	91.4%
Employment					
	Total Jobs	1.5	4.2	1.8	5.0
	FTE Jobs	0.6	1.7	0.6	1.7
(1)	**Gross Income**	$63,227	$223,223	$48,037	$216,513
Variable Costs					
	Bait/Ice	$3,516	$28,616	$5,225	$2,666
	Fuel	$10,358	$30,130	$8,481	$44,446
	Labour - paid	$5,336	$54,003	$4,168	$47,632
(2)	Labour - unpaid	$16,538	$19,062	$13,862	$12,777
	Other	$413	$259	$287	$604
	Provisions	$474	$1,650	$709	$3,951
	Repairs & Maintenance	$6,878	$10,680	$7,147	$53,793
(3)	Total Variable Cost	$43,513	$144,400	$39,878	$165,869
Fixed Costs					
	Insurance	$1,387	$2,713	$2,492	$13,224
(4)	Interest	$629	$180	$434	$639
(5)	Labour - unpaid	$5,300	$5,290	$6,827	$4,966
(6)	Leasing of building, equipment & quota transfers	$191	$946	$430	$916
	Legal & Accounting	$1,339	$1,229	$832	$2,086
	Licence fee	$2,954	$3,877	$2,019	$2,490
	Office & Admin	$1,954	$854	$825	$858
	Other	$0	$0	$0	$0
	Other licence fees	$835	$507	$829	$656
	Slipping & Mooring	$560	$645	$1,284	$9,373
	Telephone etc.	$1,806	$1,539	$923	$1,170
	Travel	$209	$315	$384	$1,221
(7)	Total Fixed Cost	$17,163	$18,095	$17,278	$37,599
(8)	**Total Boat Cash Costs (3+7)**	$60,677	$162,495	$57,156	$203,468
Profitability					
	Boat Gross Margin (1-3)	$19,714	$78,822	$8,158	$50,644
(9)	Total Unpaid Labour (2+5)	$21,838	$24,352	$20,689	$17,744
	Gross Operating Surplus (1-8+9)	$24,388	$85,079	$11,569	$30,789
(10)	Boat Cash Income (1-8)	$2,550	$60,727	-$9,120	$13,045
(11)	Depreciation	$7,412	$5,775	$5,025	$35,089
(12)	Boat Business Profit (10-11)	-$4,862	$54,952	-$14,144	-$22,044
(13)	Profit at Full Equity (12+4+6)	-$3,692	$55,231	-$13,482	-$21,156
Boat Capital					
(14)	Fishing Gear and Equipment	$104,266	$245,787	$105,140	$715,138
	Licence Value	$224,382	$393,782	$164,297	$211,522
(15)	Total Working Capital	$328,648	$639,568	$269,437	$926,660
Rate of Return					
	Rate of Return on Fishing Gear and Equipment (13/14*100)	-3.2%	22.3%	-12.3%	-2.9%
	Rate of Return on Total Working Capital (13/15*100)	-1.1%	8.6%	-4.9%	-2.3%

Source: BDO EconSearch analysis

Table 3-4 Financial performance in commercial fisheries, 2020/21, average per business – part 2

Indicator		Fishery			
		Estuary Prawn Trawl	Abalone	Lobster	Sea Urchin & Turban Shell
Fishing Businesses					
	Active Businesses	75	23	57	24
	Sample Size	30	11	24	7
Fishing Activity					
	Days Fished	69	18	49	18
	Catch (kg)	6,338	4,092	3,228	6,766
	Catch (no.)	-	-	-	-
	Prop. of Revenue Earned in this Fishery	79.1%	89.5%	85.2%	76.2%
Employment					
	Total Jobs	1.4	2.3	2.3	1.7
	FTE Jobs	0.6	0.9	0.9	0.4
(1)	**Gross Income**	$64,519	$98,019	$179,041	$25,278
Variable Costs					
	Bait/Ice	$2,435	$297	$9,694	$691
	Fuel	$16,430	$8,656	$17,461	$5,814
	Labour - paid	$2,892	$10,812	$30,310	$6,754
(2)	Labour - unpaid	$15,337	$7,022	$10,932	$5,412
	Other	$307	$547	$485	$446
	Provisions	$597	$2,024	$699	$127
	Repairs & Maintenance	$9,733	$5,855	$22,182	$6,829
(3)	Total Variable Cost	$47,732	$35,213	$91,763	$26,073
Fixed Costs					
	Insurance	$1,459	$4,477	$6,615	$2,803
(4)	Interest	$566	$3,643	$4,107	$500
(5)	Labour - unpaid	$2,934	$6,005	$5,377	$2,367
(6)	Leasing of building, equipment & quota transfers	$169	$0	$1,861	$0
	Legal & Accounting	$997	$1,496	$1,476	$1,039
	Licence fee	$3,383	$5,681	$7,887	$1,173
	Office & Admin	$1,370	$6,801	$2,445	$1,159
	Other	$100	$0	$0	$0
	Other licence fees	$739	$1,050	$2,583	$1,037
	Slipping & Mooring	$1,359	$398	$4,534	$913
	Telephone etc.	$1,683	$1,505	$3,969	$2,236
	Travel	$318	$968	$1,037	$122
(7)	Total Fixed Cost	$15,076	$32,024	$41,890	$13,347
(8)	**Total Boat Cash Costs (3+7)**	$62,808	$67,238	$133,653	$39,420
Profitability					
	Boat Gross Margin (1-3)	$16,788	$62,805	$87,278	-$794
(9)	Total Unpaid Labour (2+5)	$18,271	$13,027	$16,308	$7,779
	Gross Operating Surplus (1-8+9)	$19,983	$43,808	$61,697	-$6,363
(10)	Boat Cash Income (1-8)	$1,712	$30,781	$45,388	-$14,142
(11)	Depreciation	$6,266	$5,631	$12,267	$4,599
(12)	Boat Business Profit (10-11)	-$4,555	$25,150	$33,121	-$18,741
(13)	Profit at Full Equity (12+4+6)	-$3,541	$32,096	$37,501	-$17,774
Boat Capital					
(14)	Fishing Gear and Equipment	$99,902	$131,106	$190,917	$101,549
	Licence Value	$68,688	$1,251,663	$1,679,090	$58,229
(15)	Total Working Capital	$168,590	$1,382,768	$1,870,006	$159,778
Rate of Return					
	Rate of Return on Fishing Gear and Equipment (13/14*100)	-3.3%	16.3%	19.1%	-16.0%
	Rate of Return on Total Working Capital (13/15*100)	-2.0%	2.2%	2.0%	-10.5%

Source: BDO EconSearch analysis

3.2.2. Assets, liabilities and equity

Commercial fishing businesses in New South Wales utilise valuable fishing shares and endorsements, vessels or vehicles and other working capital. They may hold cash and may also hold debt to finance the business and other liabilities. The total assets held by a business less its total liabilities is the business' equity, which can be expressed in dollar terms or as a percentage of total asset value. The table below presents a simple average of the equity of all surveyed businesses that access each of the New South Wales commercial fisheries. The averages are based on business asset and debt data collected in the 2019/20 survey and have been redistributed to the fisheries each survey business was active in during 2020/21. The averages are of whole businesses, unlike the financial indicator tables above which present averages of proportions of businesses that access each fishery. The average level of equity that fishers have in their businesses varied across fisheries from 88 per cent (Lobster and Ocean Hauling) to 98 per cent (Sea Urchin & Turban Shell).

Table 3-5 Assets, liabilities and equity of fishing businesses by fishery, 2020/21

Fishery	Share value ($m)	Working capital ($m)	Other assets ($m)	Total liabilities ($m)	Total assets ($m)	Total equity ($m)	Equity / Total assets (%)
Abalone	1.64	0.32	0.73	0.14	2.70	2.55	95%
Estuary General	0.52	0.24	0.27	0.10	1.03	0.93	90%
Estuary Prawn Trawl	0.23	0.19	0.08	0.06	0.50	0.44	89%
Lobster	1.81	0.48	1.32	0.42	3.60	3.18	88%
Ocean Hauling	1.35	0.71	0.88	0.34	2.95	2.61	88%
Ocean Trap & Line	0.67	0.24	0.50	0.16	1.41	1.25	89%
Ocean Trawl	0.46	0.77	0.16	0.12	1.39	1.27	91%
Sea Urchin & Turban Shell	1.73	0.42	0.19	0.05	2.34	2.30	98%
Statewide	**0.76**	**0.34**	**0.44**	**0.16**	**1.55**	**1.39**	**90%**

Source: BDO EconSearch analysis

3.3. State and Regional Economic Contribution

Estimates of the economic contribution of New South Wales commercial fisheries to the New South Wales and regional economies in 2020/21 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 2019).

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).

3.3.1. 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 New South Wales 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.

3.3.2. Economic contribution to New South Wales and its regions

Estimates of the economic contribution to New South Wales generated in 2020/21 by New South Wales commercial fisheries combined are outlined in Table 3-6. Direct contribution measures fishing activities, associated seafood processing and capital expenditure. Flow-on contribution measures the economic effects in other sectors of the economy (retail and wholesale trade, manufacturing, etc.) generated by direct and downstream activities, that is, the multiplier effects. Flow-on effects are disaggregated by industry with the top 10 industries shown separately in 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 New South Wales commercial fisheries was $84.9m in 2020/21, while total direct output, including associated downstream activities (processing and capital expenditure), summed to $144.5m. Flow-on output is a biased indicator of economic contribution due to double-counting of value so is not reported here.

Employment

New South Wales commercial fisheries were responsible for the direct employment of an estimated 846 full-time equivalent (fte) jobs in 2020/21, including 729 fte jobs from fishing directly. Flow-on business activity was estimated to support a further 815 fte jobs state-wide. These jobs were concentrated in the Personal & Other Services, Retail Trade and Professional, Scientific & Technical Services sectors. The total employment contribution to New South Wales was estimated to be 1,661 fte jobs in 2020/21, an increase from 1,626 in 2019/20 (BDO EconSearch 2022).

Household Income

Personal income of $36.3m was earned in 2020/21 in New South Wales commercial fisheries, including $28.8m earned from fishing directly. An additional $59.2m was earned by wage earners in other businesses in New South Wales from the flow-on effects of fishing and associated downstream activities. The total household income contribution in New South Wales was $95.5m in 2020/21, an increase from $93.7m in 2019/20 (BDO EconSearch 2022).

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 commercial fisheries related contribution to GSP in New South Wales was $164.7m in 2020/21, with $63.6m generated directly, and $101.1m supported in other

sectors of the state economy through flow-on effects. Total GSP contribution in 2020/21 was a decrease from $172.5m in 2019/20 (BDO EconSearch 2022).

Table 3-6 Economic contribution of New South Wales commercial fisheries to New South Wales, 2020/21

Sector	Output ($m)	Gross State Product ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct					
Fishing	84.9	46.9	28.8	729	1,982
CAPEX	4.1	1.9	1.5	22	22
Processing	55.5	14.8	6.1	96	88
Total Direct	144.5	63.6	36.3	846	2,092
Flow-on					
Personal & Other Services		7.4	7.0	121	125
Retail Trade		7.1	5.0	99	114
Professional, Scientific & Technical Services		7.9	7.6	68	63
Admin Support Services		4.1	4.1	54	57
Wholesale Trade		6.1	4.2	53	48
Food & Beverage Services		2.9	2.5	53	69
Health & Community Services		4.0	3.9	50	55
Aquaculture		4.0	1.9	43	39
Education & Training		3.3	3.1	36	38
Road Transport		2.3	2.1	23	20
Other Sectors		52.1	17.8	215	217
Total Flow-on		101.1	59.2	815	845
Total Contribution		**164.7**	**95.5**	**1,661**	**2,937**

Source: BDO EconSearch analysis

Estimates of the economic contribution of each commercial fishery to the New South Wales economy are presented in Table 3-7. Direct activities are combined in the upper section of the table, all flow-on effects are combined in the middle section, and the two sections are summed together to calculate total economic contribution presented in the lower section.

The economic contribution of all New South Wales commercial fisheries combined to each region in New South Wales is presented in Table 3-8. The interpretation of the table is similar to Table 3-7. Direct economic contribution includes fishing activity, associated seafood processing and capital expenditure. Flow-on effects include all other economic activity in the region supported by direct activity, and total economic contribution is the sum of direct and flow-on activity. Flow-on economic activity was estimated separately for each region and the state. The flow-on activity within any one region excludes inter-regional flow-on effects, but the New South Wales level estimate includes inter-regional flow-on effects within New South Wales. The sum of flow-on (and total) economic contribution across all regions in Table 3-8 is slightly smaller than the flow-on economic contribution for New South Wales in the same table because of this difference in estimation method.

Table 3-7 Economic contribution of each commercial fishery to New South Wales, 2020/21

Fishery	Output ($m)	Gross Regional Product ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct					
Abalone	2.6	1.6	0.6	21	53
Estuary General	39.4	17.3	10.8	259	566
Estuary Prawn Trawl	8.9	3.5	1.9	50	114
Lobster	19.6	8.8	3.7	70	144
Ocean Hauling	17.1	9.2	4.5	95	222
Ocean Trap & Line	17.1	6.6	5.5	132	394
Ocean Trawl	38.8	16.3	8.9	208	556
Sea Urchin & Turban Shell	1.1	0.3	0.4	11	42
Statewide	144.5	63.6	36.3	846	2,092
Flow-On					
Abalone		1.3	0.8	11	11
Estuary General		27.9	16.2	222	230
Estuary Prawn Trawl		6.2	3.6	50	52
Lobster		12.2	7.1	99	102
Ocean Hauling		10.7	6.1	84	88
Ocean Trap & Line		14.1	8.2	113	117
Ocean Trawl		27.7	16.6	230	237
Sea Urchin & Turban Shell		1.0	0.6	8	8
Statewide		101.1	59.2	815	845
Total					
Abalone		2.9	1.4	32	64
Estuary General		45.2	27.0	480	796
Estuary Prawn Trawl		9.6	5.6	100	166
Lobster		21.0	10.8	169	246
Ocean Hauling		20.0	10.6	179	310
Ocean Trap & Line		20.7	13.7	245	511
Ocean Trawl		43.9	25.5	438	793
Sea Urchin & Turban Shell		1.3	1.0	19	50
Statewide		164.7	95.5	1,661	2,937

Source: BDO EconSearch analysis

Table 3-8 Economic contribution of New South Wales commercial fisheries to regions of New South Wales, 2020/21

Region	Output ($m)	Gross Regional Product ($m)	Household Income ($m)	Employment (fte)	Employment (total)
Direct					
Upper North Coast	11.9	6.2	3.8	101	300
Clarence	15.5	9.0	4.8	116	293
North Coast	15.7	7.1	5.9	170	436
Central	24.2	13.0	8.6	188	474
Metropolitan	62.8	18.8	8.9	151	231
Upper South Coast	7.8	5.1	2.6	56	176
Lower South Coast	6.8	4.5	1.7	64	181
New South Wales	144.5	63.6	36.3	846	2,092
Flow-On					
Upper North Coast		6.7	4.3	67	71
Clarence		7.1	4.3	66	69
North Coast		10.6	6.4	96	102
Central		14.4	8.7	125	132
Metropolitan		40.2	21.2	295	303
Upper South Coast		3.6	2.2	32	34
Lower South Coast		2.6	1.6	25	26
New South Wales		101.1	59.2	815	845
Total					
Upper North Coast		12.9	8.1	168	371
Clarence		16.1	9.2	182	363
North Coast		17.7	12.3	266	538
Central		27.4	17.3	313	606
Metropolitan		59.0	30.1	446	533
Upper South Coast		8.7	4.7	88	211
Lower South Coast		7.1	3.3	89	207
New South Wales		164.7	95.5	1,661	2,937

Source: BDO EconSearch analysis

3.4. Net Economic Return

Net economic return 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 value of shares and 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 cost of fisheries management is included as a cash cost to fishing businesses through licence fees, though this likely underestimates the cost of fisheries management as this cost is not fully recovered from businesses. 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 net economic return.

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. 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 with sensitivity analysis at 7 and 15 per cent. 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 New South Wales, given the variability and risk involved in this type of fishing business.

Net economic return generated in New South Wales commercial fisheries in 2020/21 was estimated to be -$16.8m, a decrease from -$7.8 in 2019/20. The fisheries with the highest estimated net economic return in 2020/21 were Ocean Hauling ($1.6m), Lobster ($1.1m) and Abalone ($0.4m), and the fisheries with the lowest estimated net economic return were Ocean Trawl (-$9.5m), Ocean Trap and Line(-$4.5m) and Estuary General (-$4.3m).

The sensitivity analysis in Table 3-10 shows that, with the varying assumptions about opportunity cost of capital, net economic return was likely in the range of -$11.6m to -$25.3m.

With a sustained negative net economic return, the market value of shares and endorsements can be expected to decrease over time, however, there is anecdotal evidence from the survey that the market values of shares and endorsements have not decreased over time. This suggests that profitability may be underestimated or that the assumed opportunity cost of capital may be high. Building a time series of economic indicators and increasing participation in the business survey in future would provide evidence to potentially adjust these assumptions away from the standard values used for commercial fishing and better understand the level and changes in net economic return.

Table 3-9 Net economic return in New South Wales commercial fisheries, 2020/21

Fishery	GVP ($m)	Labour Cost ($m)	Materials & Services ($m)	Depreciation ($m)	Opp. Cost of Capital (10%) ($m)	Net Economic Return ($m)
Abalone	2.3	0.5	0.9	0.1	0.3	0.4
Estuary General	22.8	8.8	11.8	2.7	3.8	-4.3
Estuary Prawn Trawl	4.8	1.4	3.1	0.5	0.7	-0.9
Lobster	10.2	2.6	4.7	0.7	1.1	1.1
Ocean Hauling	11.2	3.8	4.2	0.3	1.2	1.6
Ocean Trap & Line	10.3	4.7	6.9	1.1	2.3	-4.5
Ocean Trawl	22.7	6.6	14.4	3.7	7.5	-9.5
Sea Urchin & Turban Shell	0.6	0.3	0.6	0.1	0.2	-0.6
Statewide	**84.9**	**28.8**	**46.6**	**9.1**	**17.1**	**-16.8**

Source: BDO EconSearch analysis

Table 3-10 Sensitivity analysis of opportunity cost of capital on Net Economic Return in New South Wales commercial fisheries, 2020/21

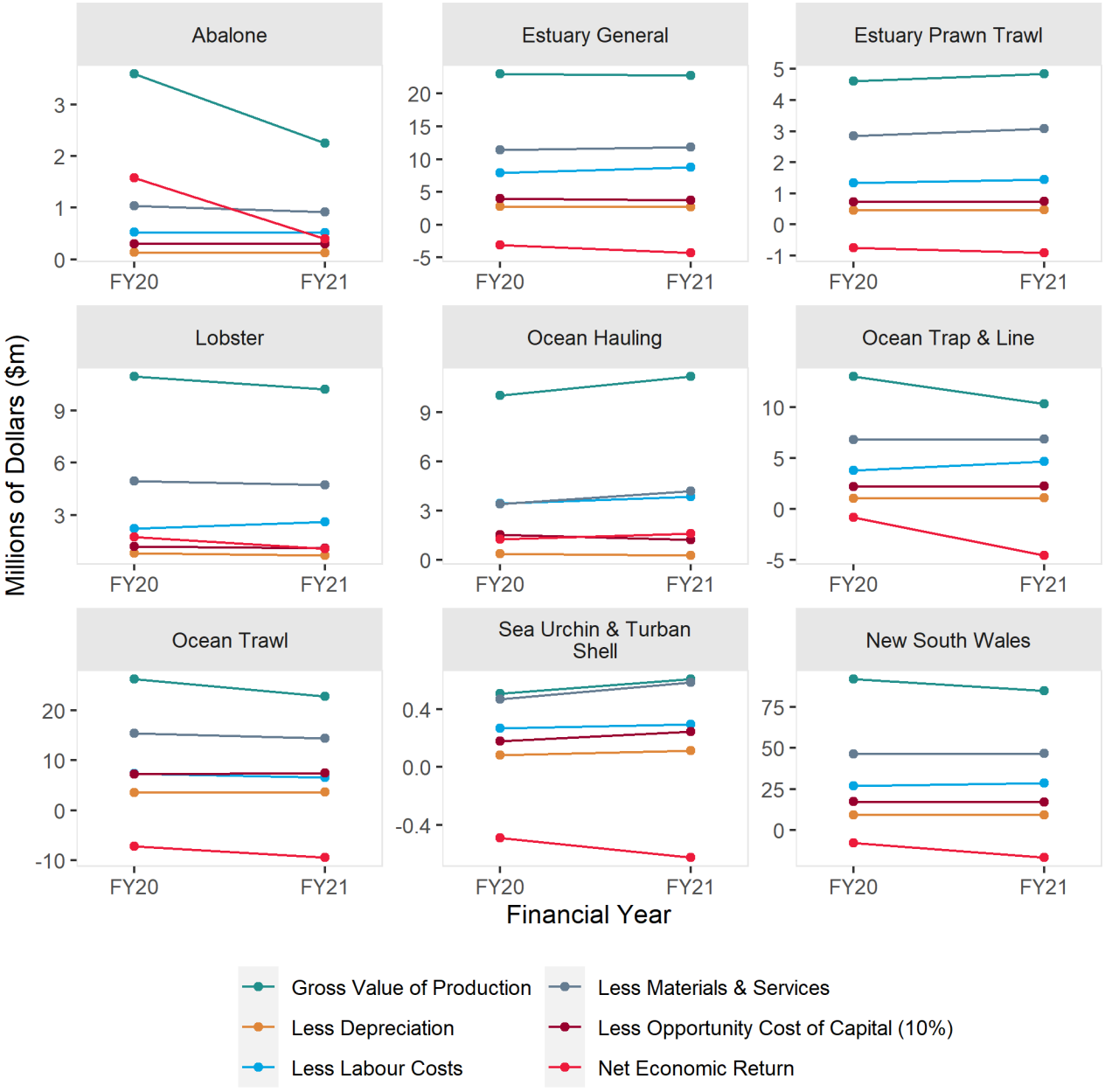
Opportunity Cost of Capital (%)	7%	10%	15%
Opp. Cost of Capital ($m)	12.0	17.1	25.7
Net Economic Return ($m)	**-11.6**	**-16.8**	**-25.3**

Source: BDO EconSearch analysis

Change in net economic return and its components for each commercial fishery over the two financial years to 2020/21 is illustrated in Figure 3-2. Each fishery is represented by a small chart in the figure, and each has an independent vertical axis to focus attention on changes in net economic return and it's components within each fishery rather than comparing between fisheries. For example, the vertical axis for the Abalone fishery is limited to $3m whereas the vertical axis for the Estuary General fishery is limited to $20m. Net economic return is represented by the red line on each chart. This chart only includes two observations so far but will produce useful trends as more annual data points are added over time.

Net economic return increases as GVP increases (green line) and decreases as all of the other coloured lines (which represent different categories of economic cost) increase. The movement in the coloured lines therefore explains the movement in net economic return. For example, between 2019/20 and 2020/21, net economic return increased in the Ocean Hauling Fishery as GVP (green line) increased, there was also a slight increase in labour costs (blue line) which moderated the increase in net economic return slightly. In the Sea Urchin and Turban Shell Fishery between 2019/20 and 2020/21, GVP increased but all costs increased as well (by more than GVP when combined), leading to a decrease in net economic return.

Figure 3-2 Net economic return and associated revenue and cost trends, 2019/20 to 2020/21 financial years assuming an opportunity cost of capital of 10%

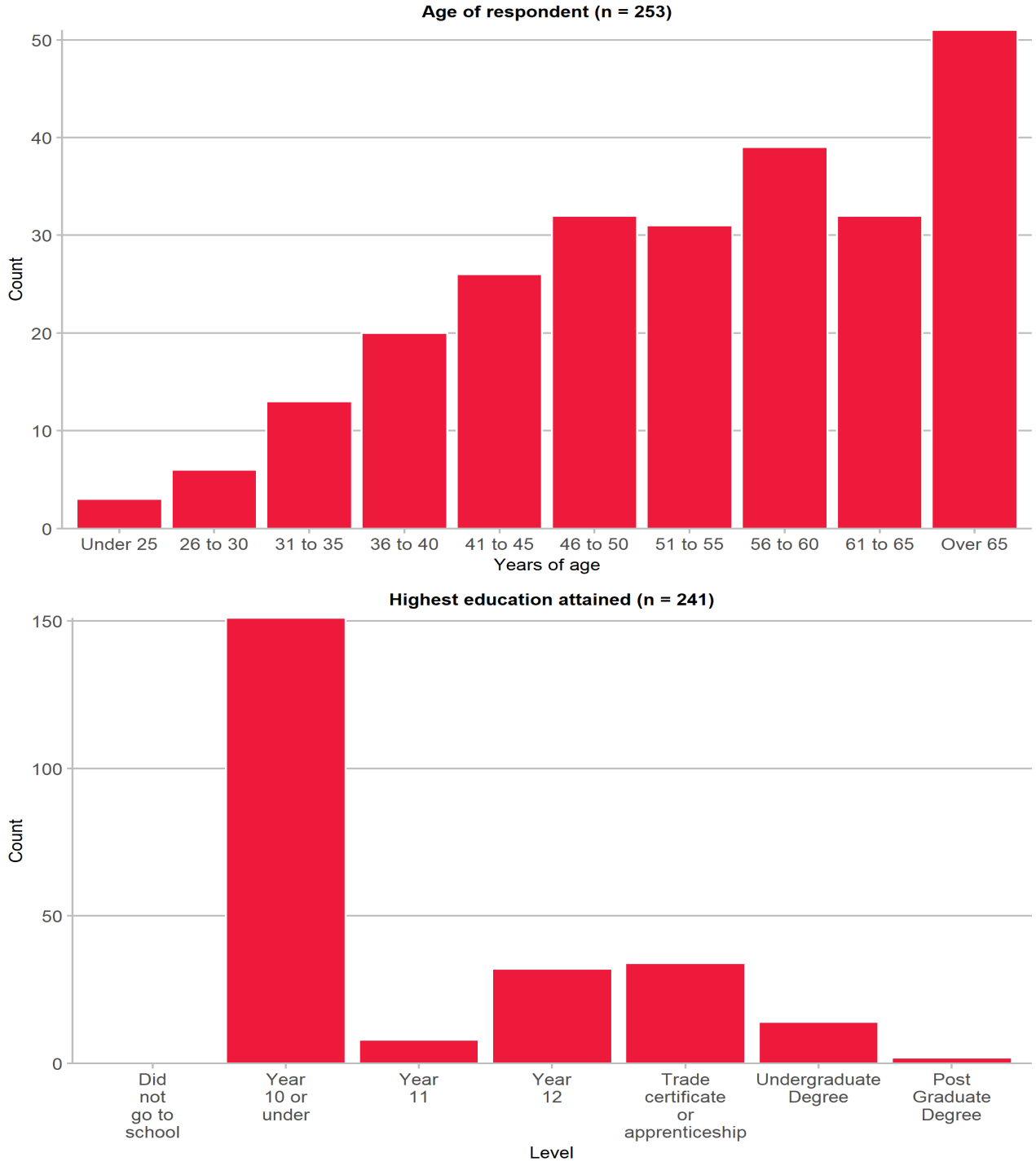


Source: BDO EconSearch analysis

4. DEMOGRAPHIC INDICATORS

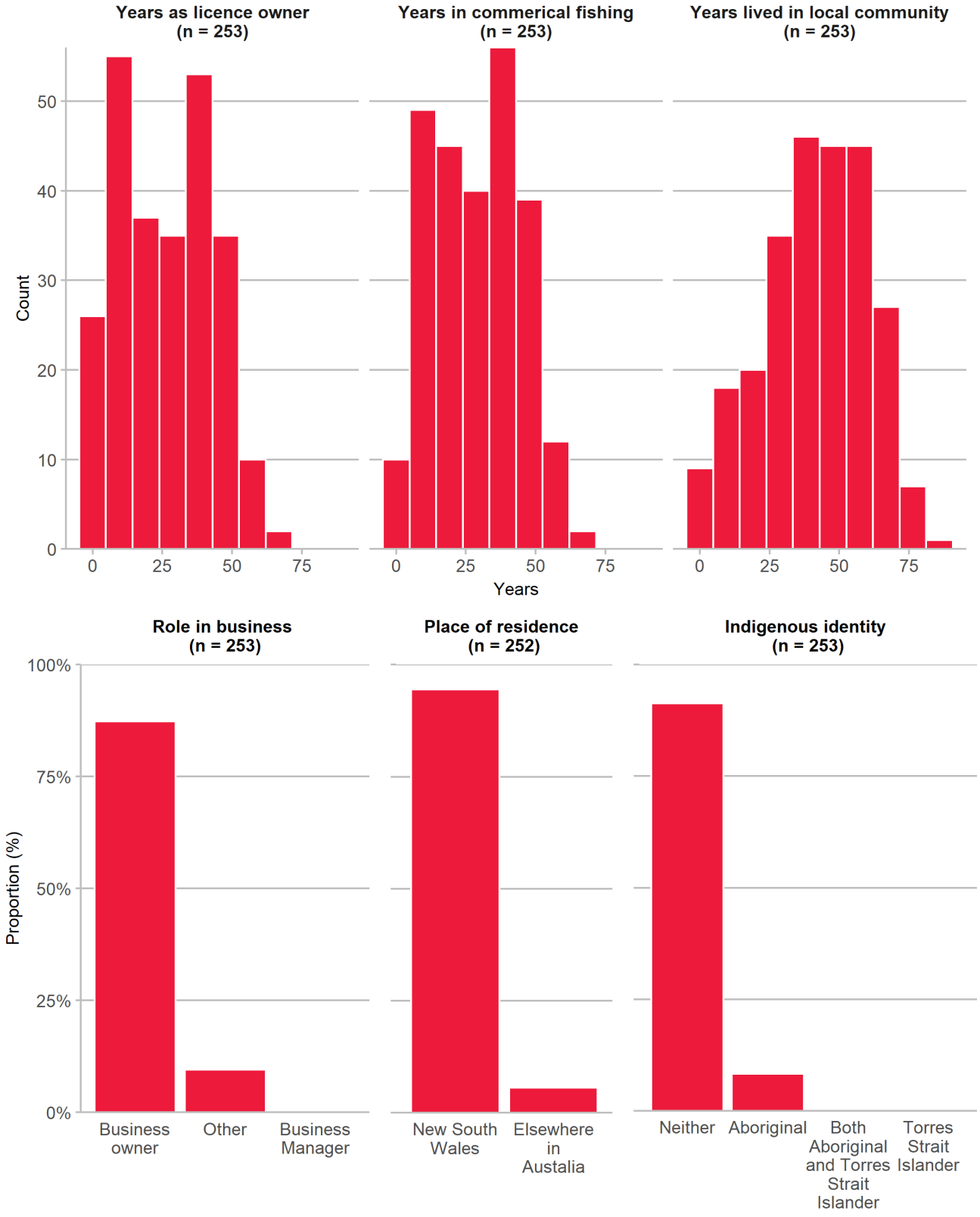
This section presents a demographic profile of fishers who accessed the commercial fisheries in New South Wales in 2019/20. These indicators are calculated from unweighted 2019/20 survey data and have not been expanded to the fishery level. An updated demographic profile of fishers was not captured in the 2020/21 update survey.

Figure 4-1 Demographic profile of New South Wales commercial fisheries in 2019/20 - part 1



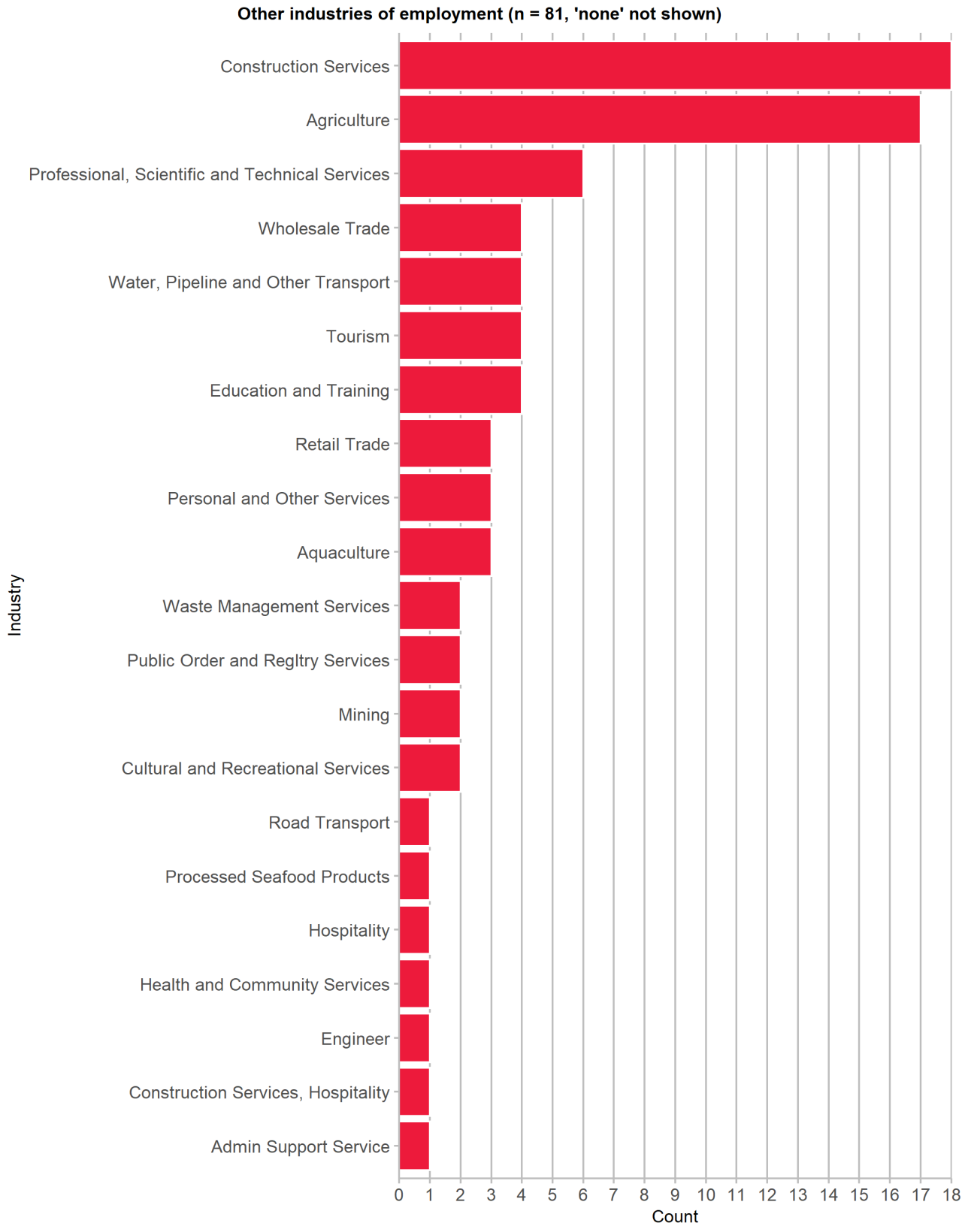
Source: 2021 business survey

Figure 4-2 Demographic profile of New South Wales commercial fisheries in 2019/20 - part 2



Source: 2021 business survey

Figure 4-3 Demographic profile of New South Wales commercial fisheries in 2019/20 - part 3



Source: BDO EconSearch analysis

5. SOCIAL INDICATORS

Fishers may derive non-financial benefits or costs from NSW commercial fisheries and may contribute to the community in different ways. A comprehensive set of social indicators, including community contribution and personal wellbeing, was captured in the 2019/20 survey and can be found in the indicator reports from that year (BDO EconSearch 2022).

The 2020/21 survey collected updated observations for a selected subset of social indicators. The indicators were selected due to their importance as a standalone indicator and the utility of tracking annual changes. Questions were asked on a point scale of 0 to 10, the annual change is then presented as the change from the average point of the previous year to the average point of the current year. The results for each fishery are calculated from the unweighted sub-sample of fishers who accessed each fishery during 2020/21.

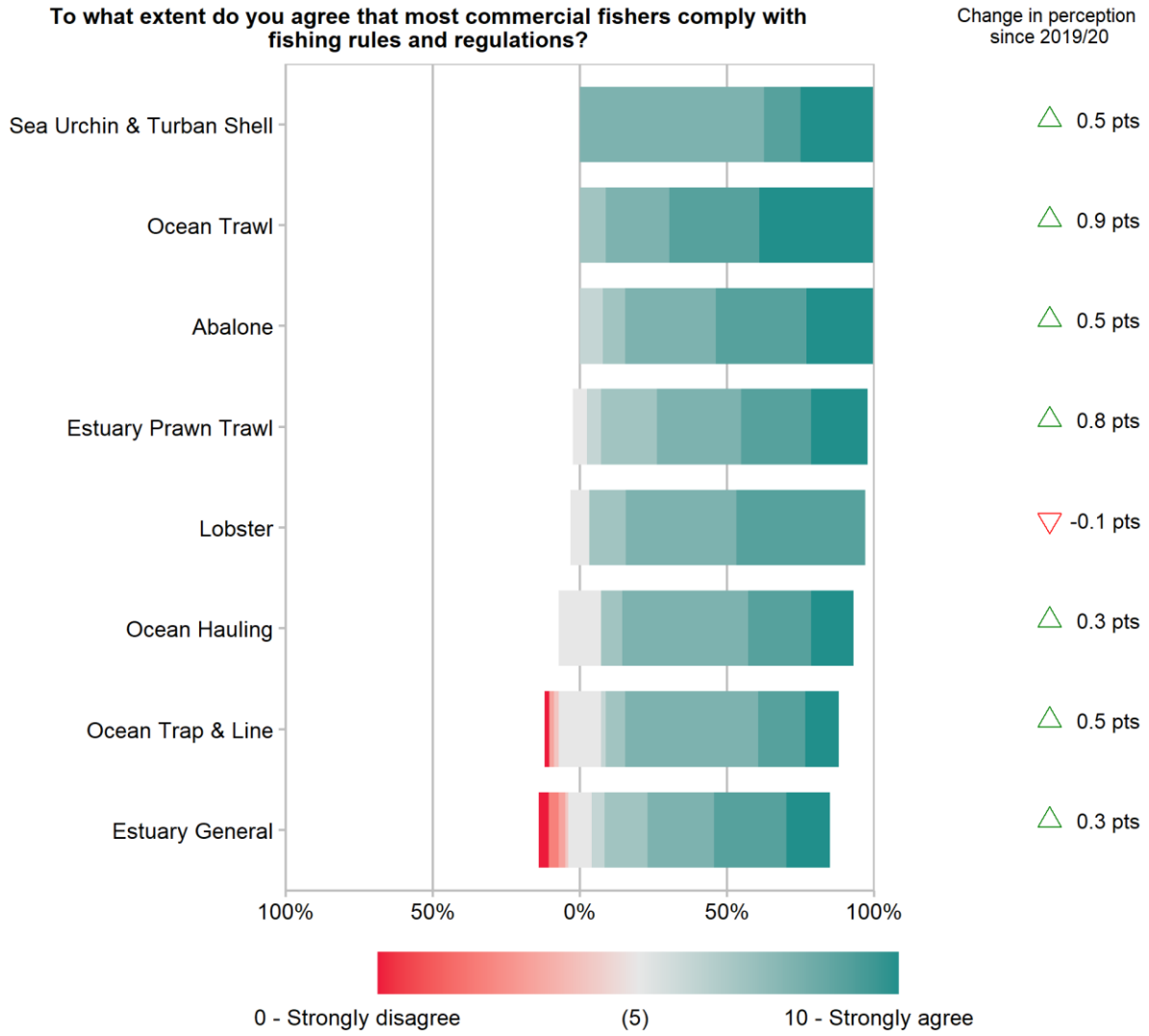
This section presents a series of social indicators including:

- Perceived compliance with fishing rules and regulations
- Perceptions of fisheries management
- Satisfaction with fishing
- Global life satisfaction
- Satisfaction with future security.

5.1. Perceived Compliance with Fishing Rules and Regulations

Figure 5-1 presents fishers' perceptions of fisher compliance with fishing rules and regulations in 2020/21 for each fishery as well as the change in perceptions since the previous survey. Understanding whether fishery rules and regulations are followed provides an understanding of whether they are easy to comply with and may be associated with lower costs of management and compliance activities. There was near unanimous agreement that most commercial fishers comply with fishing rules and regulations though some surveyed fishers in the Ocean Trap & Line and Estuary General fisheries disagreed. Since 2019/20, all fisheries have seen an increase in perceived compliance with the exception of the Lobster fishery which has decreased marginally. This indicates that fishers feel that the commercial fisheries as a whole operate responsibly, which suggests a positive outlook for sustainability.

Figure 5-1 Perceptions of fisher compliance in New South Wales commercial fisheries, 2020/21 [a]



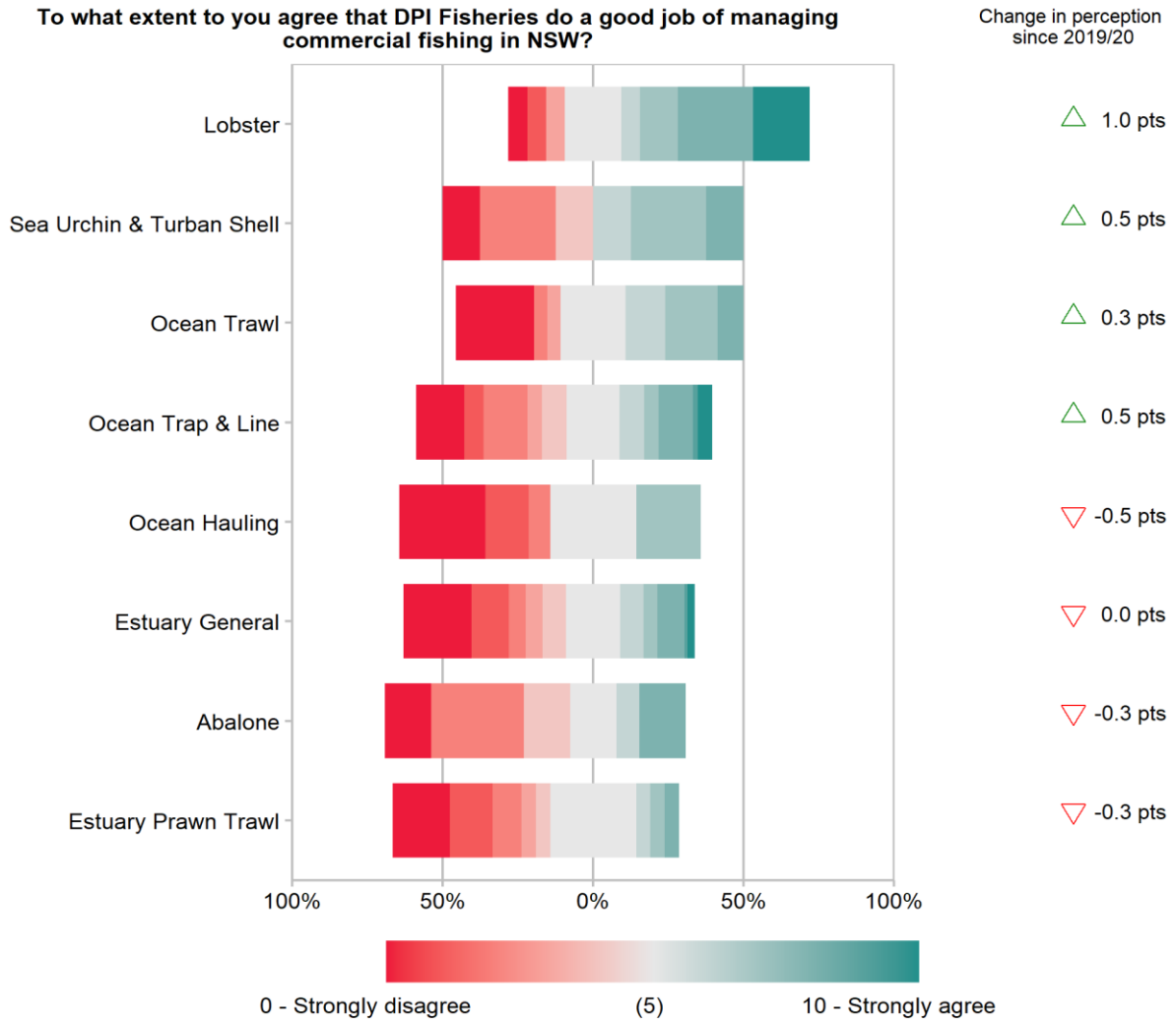
[a] The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

5.2. Perceptions of Fisheries Management

Figure 5-2 presents the perceptions of fishers in 2020/21 on whether DPI does a good job of managing commercial fishing in NSW as well as the change in perceptions since the previous survey. Similarly to fisher compliance, understanding whether fishing businesses feel positively about how the commercial fisheries are managed provides an understanding of the level of compliance and may be associated with lower costs of management and compliance activities. There are mixed feelings between fishers as to whether DPI Fisheries does a good job of managing commercial fishing. Fisheries with more than half of fishers agreeing are Lobster and Sea Urchin and Turban Shell, both with an increase since 2019/20 (1 point and 0.5 points respectively). Since 2019/20, there have been mixed changes in this perception with changes to average perceptions varying between an improvement of 1.0 points (for the Lobster fishery) to a decline of 0.5 points (for the Ocean Hauling fishery).

Figure 5-2 Perception of fishery management in New South Wales commercial fisheries, 2020/21 [a]



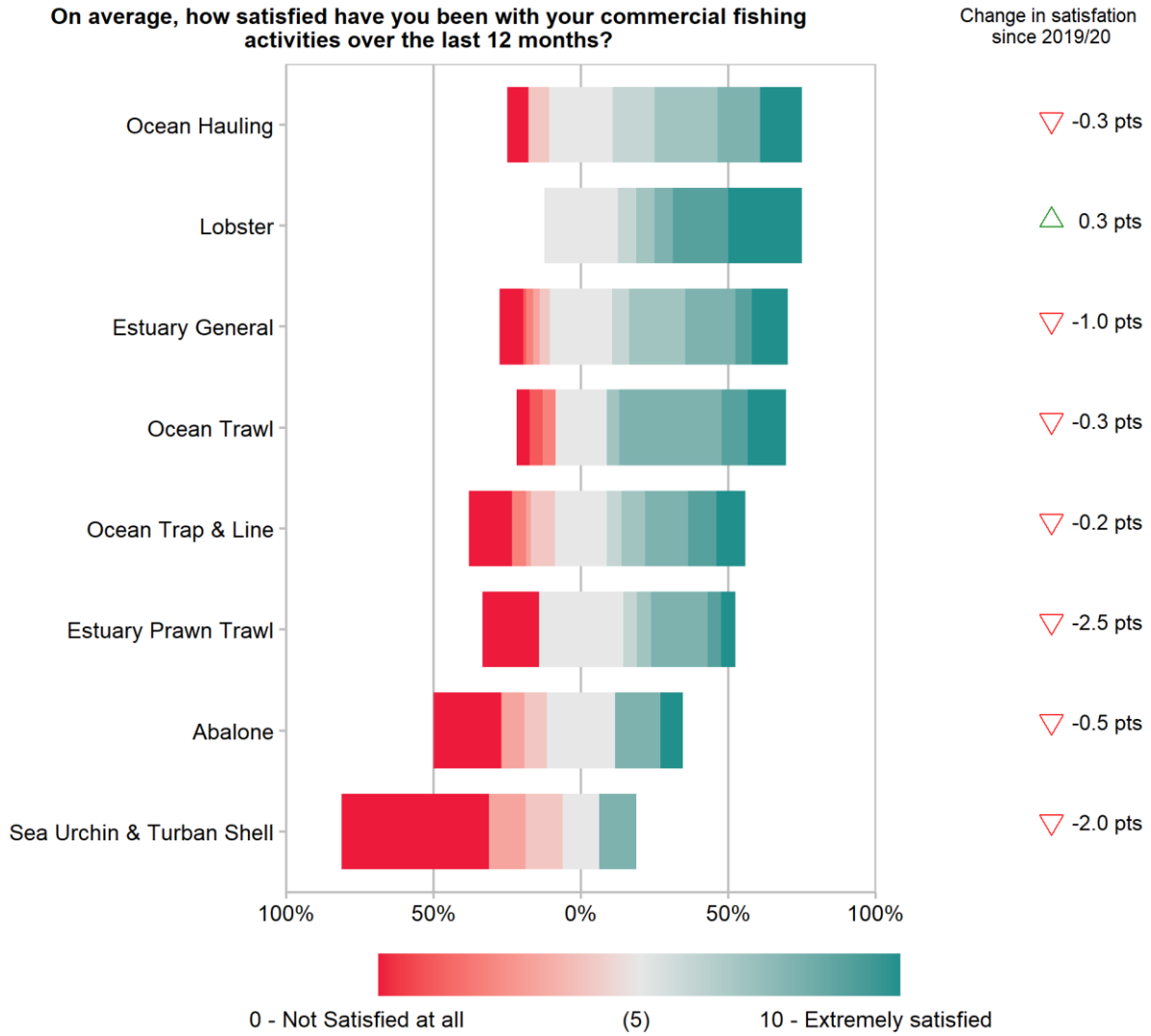
[a] The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

5.3. Satisfaction with Fishing

Figure 5-3 presents the satisfaction levels amongst fishers in 2020/21 regarding their commercial fishing activities over the last 12 months as well as the change in satisfaction since 2019/20. A higher satisfaction with fishers' recent fishing activities indicates a level of confidence in the future of the fishing industry. In all but three fisheries (Estuary Prawn Trawl, Abalone and Sea Urchin and Turban Shell) the majority of fishers were satisfied with their fishing activities over the last 12 months. Though since 2019/20, only Lobster saw an increase in satisfaction levels (0.3 points).

Figure 5-3 Fishing satisfaction in New South Wales commercial fisheries, 2020/21 [a]



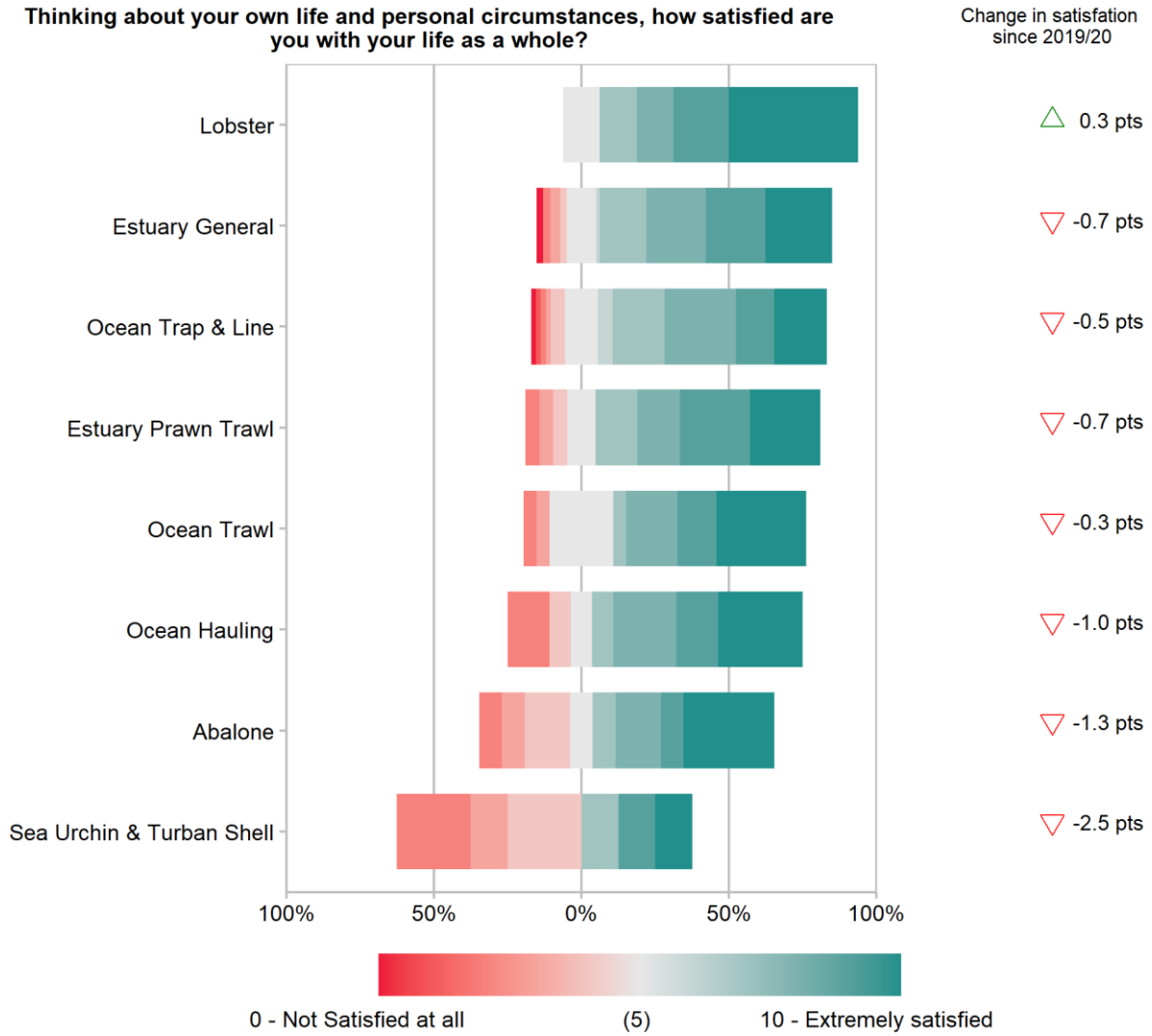
[a] The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

5.4. Global Life Satisfaction

Figure 5-4 shows the whole of life satisfaction levels of fishers in each of New South Wales commercial fisheries in 2020/21 as well as the change in satisfaction since 2019/20. Higher life satisfaction levels amongst fishers are associated with general economic prosperity and indicate fair market access and stability. Around three quarters of commercial fishers are more satisfied than not with their life as a whole, with the exception of Sea Urchin and Turban Shell fishers. However, since 2019/20 there have been small decreases in average reported life satisfaction, from these high levels, amongst fishers in most commercial fisheries.

Figure 5-4 Life satisfaction in New South Wales commercial fisheries, 2020/21 [a]



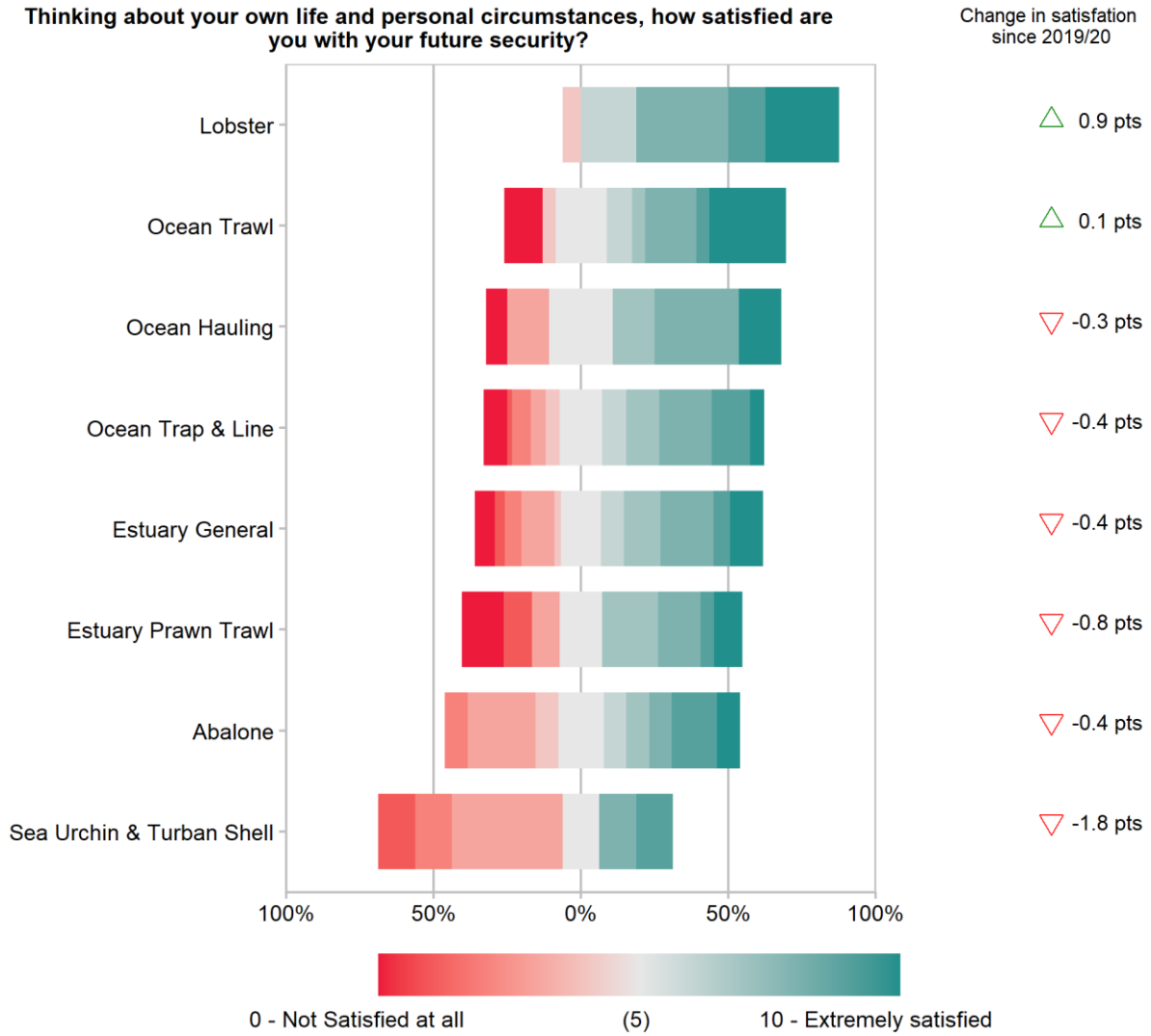
[a] The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

5.5. Satisfaction with Future Security

Figure 5-5 presents the satisfaction levels of fishers in 2020/21 regarding future security and the change in this average satisfaction level since 2019/20. A higher satisfaction with one's future security indicates a state of comfort and positive outlook on future prospects. Over half of commercial fishers are satisfied with their future security, except for in the Sea Urchin and Turban Shell fishery. Since 2019/20 there have been mixed changes in the average perception with changes varying between an improvement of 0.9 points (for the Lobster fishery) to a decline of 1.8 points (for the Sea Urchin and Turban Shell fishery).

Figure 5-5 Satisfaction with future security in New South Wales commercial fisheries, 2020/21 [a]



[a] The change between the 2019/20 and 2020/21 surveys is calculated between licence holders who participated in both surveys and is quantified in points out of 10. For example, a change in average from 5 to 6 is stated as a change of 1.0 pts.

Source: 2022 business survey

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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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